Community College Review
2020, Vol. 48(2) 133–155

DOI: 10.1177/0091552119886659
journals.sagepub.com/home/crw
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The Labor Market Returns to For-Profit Higher Education: Evidence for Transfer Students

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Abstract

Objective: This study examines the labor market gains for students who enrolled at for-profit colleges after beginning their postsecondary education in community college. **Method:** We use student-level administrative record data from college transcripts, unemployment insurance earnings data, and progression data from the National Student Clearinghouse across full entry cohorts of community college students in two statewide systems between 2001 and 2006. Using regression analysis and fixed effect methods, we calculate the wage gains to attainment across different student transfer patterns. **Results:** We find significant wage penalties to transfer to a for-profit college instead of to a public or private nonprofit college. For some student groups, earnings are higher if they drop out of community college instead of transferring to a for-profit college. **Conclusion:** Students in for-profit colleges do have lower opportunity costs in terms of foregone earnings while enrolled in college. However, these do not sufficiently compensate for lower earnings growth after college.

Keywords

community college, college transfer, for-profit colleges, returns to college

Transfer from community colleges to 4-year institutions has long been of interest to researchers, educators, and policy makers. As more than half of all low-income students begin their postsecondary education at 2-year institutions, by promoting transfer, these colleges may play a critical role in promoting upward economic mobility for

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underserved students (Berkner & Choy, 2008). However, research shows that attending a community college and then transferring does not necessarily increase bachelor's degree attainment rates and earnings. It is unclear whether baccalaureate-seeking students should be encouraged to go straight to a 4-year college or to attend community college and then transfer. It is likely that the effect of transferring depends on the type of college to which a student transfers. Little is known about how transfer varies across different sectors of destination institutions.

One transfer option for community college students is the for-profit sector. Using the Integrated Postsecondary Education Data System (IPEDS), Figure 1 provides context. It shows that the for-profit share of enrollments is 8% (having been as high as 12% in 2010). The for-profit share of transfer-in students (students laterally or vertically transferring in from another college) is 12% (with a peak of 16% in 2011). Thus, within the context of an increasing transfer enrollment total (at almost 1 million students, up from 400,000 in 2006), for-profit colleges are disproportionately recruiting transfer students.

The for-profit sector offers a college experience that differs significantly from that in the public and not-for-profit sectors. Relative to other colleges, for-profit colleges operate with a different organizational structure with respect to faculty hiring and pay, curricula, and student supports, as well as with a different set of financial constraints (Breneman, 2008). Also, for-profit colleges typically serve nontraditional students, including working adults, minorities, and low-income students; in this respect, their students may be more similar to community college students. Notably, for-profit colleges extensively use online pedagogies. These may be useful and convenient for nontraditional students who may prefer a flexible course location and schedule to accommodate their employment but may be difficult for students who transfer in with no experience of online instruction (Kaistura & Keim, 1992). Finally, for-profit colleges may be more responsive to the needs of the labor market (Gilpin, Saunders, & Stoddard, 2015; Xia, 2016). By contrast, public colleges are less able to expand capacity in a timely manner due to the many government requirements for approval on budgets, tuition, and new programming (Cellini, 2010; Deming, Goldin, & Katz, 2012).

Importantly, for-profit institutions may be lower quality than public colleges. The Obama Administration conducted several high-profile federal investigations and moved to stricter regulations because for-profit colleges relied heavily on federal funding (receiving 23% of federal funding for serving just 11% of all students). There is clear evidence of high student debt loads at for-profit colleges, perhaps, in part, because of unclear, misleading, or even fraudulent recruitment practices (Belfield, 2013; U.S. Government Accountability Office, 2010). For-profit institutions have also been criticized for their high cost of education and failure to help their students attain better bachelor's degree completion rates and labor market outcomes relative to public colleges (Bulman & Hoxby, 2015; Cellini & Koedel, 2017). Thus, even if for-profit colleges are not differentially effective for transfer students, they may still be an inferior choice if their overall quality is low.

In this article, we look at the labor market outcomes of community college students who transfer to for-profit colleges. We compare these outcomes with those of community college students who transfer to public colleges. Our investigation compares

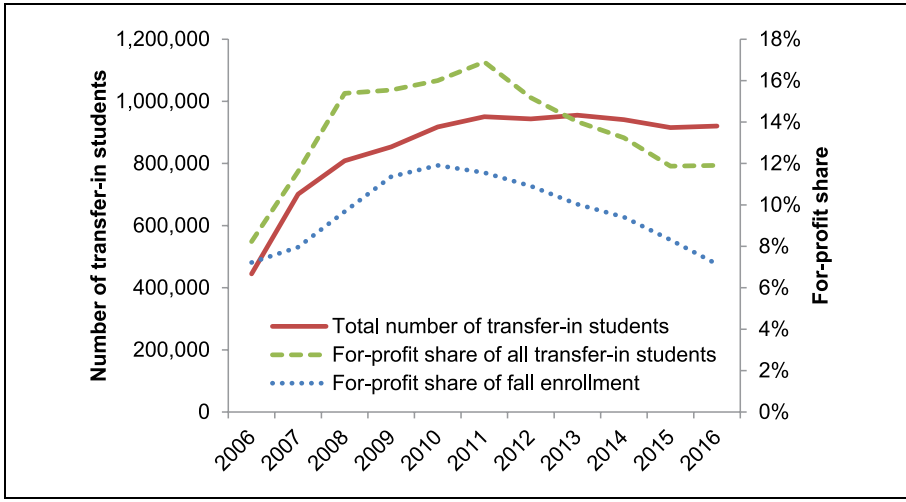

Figure 1. For-profit share of total and transfer-in enrollment.

earnings trajectories before, during, and after college for those who transferred to a for-profit college with those who transferred to either a public or a private nonprofit college. We estimate the returns using parallel data sets from two states that merge information from community college transcripts, records of attendance at all subsequent colleges, and earnings data reported as part of the unemployment insurance program. These data sets include large samples of transfer students enrolled during the mid-2000s, with earnings up to the last quarter of 2012. By using the community college transcript data, we are able to model for selection into the for-profit sector. The longitudinal nature of the data enables us to examine how earning patterns differ from before, during, and after college. Furthermore, with data from two statewide community college systems (CCSs), we are able to evaluate whether there are general relationships independent of state policy or labor market contexts.

Our article is structured as follows. First, we review the literature and methodological challenges related to estimating the returns to for-profit college attendance. Next, we describe the data sets and the method used in our analysis. We then present our main results on who transfers into the for-profit sector, the work–college trade-off, and the long-term labor market consequences of for-profit enrollment. In our conclusion, we consider the implications of our findings and note areas for further investigation.

Evidence and Research Questions

Evidence on Transfer Outcomes

The academic outcomes of transfer students might best be described as mixed, but not clearly positive. Some studies that compare 2- and 4-year students generally find much lower bachelor's degree attainment among 2-year students (Alfonso, 2006; Breneman

& Nelson, 2010; Leigh & Gill, 2003; Miller, 2007; Rouse, 1998). Other studies based on students with 4-year enrollment find comparable completion rates of transfer and native 4-year students (Glass & Harrington, 2002; Lee, Mackie-Lewis, & Marks, 1993; Melguizo & Dowd, 2009; Melguizo, Kienzl, & Alfonso, 2011; Monaghan & Attewell, 2015; Xu, Jaggars, Fletcher, & Fink, 2018). Moreover, disparities appear to be greatly reduced after controlling for academic aspiration and selection into transfer (Reynolds, 2012). Results are also sensitive to estimation method; Long and Kurlaender (2009) found that the bachelor's degree completion rate reduced from 25 to 15 percentage points when switching from a propensity scores matching model to an instrumental variable approach.

Similarly, the research on labor market outcomes from transfer suggests that the effect of transfer is mixed, but possibly negative. Recent research on employment outcomes finds zero to negative impacts of transfer on postcollege outcomes (Brown & Xia, 2014; Hilmer, 2000; Leigh & Gill, 2003; Light & Strayer, 2004; Miller, 2007; Reynolds, 2012). Xu et al. (2018) find that the returns are lower for transfer students due to the delayed entry into the job market. Other possible mediators are the efficiency of the credit transfer process or pretransfer degree attainment (Belfield, Fink, & Jenkins, 2017; Kopko & Crosta, 2016).

One important mechanism—sectoral differences across destination institution—is largely missing from analyses of the labor market returns to transfer. Given their unique features (described above), the labor market returns of transfer to for-profit colleges and public or not-for-profit colleges may be very different.

Evidence on Labor Market Gains From For-Profit College

Little attention was paid to the returns to for-profit higher education until recently. Earlier studies by Lyke, Gabe, and Aleman (1991) and Grubb (1993) focused on the returns to proprietary training programs at for-profit colleges. These are vocational training programs that focus on building occupational skills and are highly responsive to employer needs. Recent studies have evaluated the returns to for-profit postsecondary education using national survey data, tax records, or administrative data. There is now considerable evidence on the labor market returns to for-profit colleges.

Overall, researchers have found nil to negative returns from attending a for-profit 2-year or 4-year college. Many observational studies find that for-profit graduates with 2-year degrees earn just as much as graduates from other sectors (Cellini & Chaudhary, 2014; Chung, 2008; Darolia, Koedel, Martorell, Wilson & Perez-Arce, 2015; Jepsen, Mueser, & Jeon, 2016; Lang & Weinstein, 2012). However, three significant papers find negative returns to for-profit 2-year degrees (Cellini & Turner, 2019; Deming et al., 2012; Denice, 2015). The results for 4-year students are much more negative; relative to 4-year students in public and not-for-profit colleges, employment rates and earnings are much lower for for-profit students (Armona, Chakrabarti, & Lovenheim, 2019; Bulman & Hoxby, 2015; Cellini & Turner, 2019; Deming et al., 2012; Deming, Yuchtman, Abulaifi, Goldin, & Katz, 2016; Denice, 2015).

Research Questions

Given the weak benefits of transfer and the low returns to the average student enrolling at a for-profit college, it is important to examine the labor market returns to transfer to a for-profit college. In doing so, we account for the likelihood that sector-specific differences in labor market gains may reflect the samples of students in for-profit colleges. We also compare the earnings trajectories over the early working life; for example, for-profit colleges allow students to work more when enrolled.

Hence, our research questions are as follows:

Research Question 1: Which community college students choose to transfer to for-profit colleges?
Research Question 2: What are their earnings while in college and then after leaving college?
Research Question 3: How do these earnings profiles compare with those of students who transfer to public or not-for-profit colleges?

Data and Method

Data Set

We utilize parallel data sets from two statewide CCSs, referred to here as CCS-A and CCS-B. Using two data sets adds to our ability to verify key results across different contexts. CCS-B is located in a state that is more affluent than the national average; CCS-A is in a state that ranks close to the national average on most socioeconomic metrics. CCS-B's college enrollment rate is 5 percentage points above the national average; average incomes in the state are also higher than the national average. This system also has a relatively high community college graduation rate. CCS-A is closer to the national average: Its college enrollment rate is almost identical to the national average, and average household incomes are ranked close to the median. However, community college graduation rates are lower than the national average. (Both states have eighth-grade National Assessment of Educational Progress [NAEP] math scores that are higher than the national average.) We do not claim these systems are nationally representative, but they are not small states, nor are they outliers in terms of student populations and community college enrollment rates.

For CCS-A, our sample is composed of all award-seeking students who were first-time-in-college students at the system's 50+ colleges in the academic years from 2001-2002 to 2004-2005.[1] Across this period, transcript data are available for 233,220 students. This data set includes full college transcripts (e.g., courses taken, grades earned, awards received, duration of study), basic personal information (e.g., age, sex, race, and ethnicity), and financial aid received (loans and grants per semester).

We merged the college transcript data with student-level data from the National Student Clearinghouse (NSC). The NSC tracks students as they transfer to other Title IV–eligible colleges. The NSC data set includes information on enrollment durations,

awards obtained, and field of study at each institution subsequent to enrollment within CCS-A. Based on the name of the transfer institution, we identified its status as for-profit, public, or nonprofit using the IPEDS classifications.[2]

Using social security numbers, we then merged the combined student data set with earnings data obtained from the state's unemployment insurance records. The earnings data are collected on a quarterly basis from employers covered by unemployment insurance and include total earnings from all covered jobs. Data are available for the period from the first quarter of 1996 to the first quarter of 2012. All earnings are adjusted for inflation to be expressed in 2010 U.S. dollars using the quarterly Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).[3]

The data set for CCS-B was constructed in the same way: Student-level transcript data for 85,000 individuals from the state's 20+ community colleges were merged with NSC and unemployment insurance data. However, there are three significant differences between the two data sets that restrict our ability to exactly replicate our analyses in both states. First, CCS-B is considerably smaller than CCS-A, and sample size limitations preclude some subgroup analysis for the CCS-B data. Second, the data for CCS-B are for cohorts of students who entered community college in the fall from 2004 to 2006. By 2012, these students had 2 to 3 years less labor market experience than the students in CCS-A and so had less opportunity to generate earnings gains in the labor market after exiting college. Third, earnings data are not available for CCS-B prior to 2004, so we are only able to observe precollege earnings for the 2005 and 2006 cohorts.

We focus on students who transferred after attending a community college, excluding students who enrolled at a community college and either dropped out or completed an award but did not then attend another college. Our analysis contrasts with other studies, where the effects are identified based on where the student started, where they graduated, or whether they ever attended a for-profit college.

We have a large sample of for-profit students who attended college recently, with detailed information on their prior academic background and the amount of time they spent in the for-profit sector. These students can be matched against students with similar academic paths, adjusting for selection into the for-profit sector and allowing for subgroup analysis. We have information on students' earnings before college and during college and, thus, are able to investigate differences in opportunity cost (forgone earnings) during their college enrollment. Also, for the earliest cohorts, the temporal gap between students' college attendance and our earnings measures allows us to evaluate the longer term effects of education across each sector.

Although the data sets are large and detailed, they have several shortcomings in terms of covariate controls. First, they include no direct information on student socioeconomic status or academic achievement prior to enrollment in CCS-A or CCS-B. In addition, our sample is mostly composed of degree-seeking students, whereas 54% of all students at for-profit colleges earn certificates (National Center for Education Statistics, U.S. Department of Education, 2011).

Descriptive Frequencies

In Supplemental Tables 1 and 2, we show descriptive statistics for students who began as first-time enrollees at a community college and subsequently transferred to another institution. For CCS-A, we have data on cohorts beginning between 2001-2002 and 2004-2005. For CCS-B, we have data for cohorts who began college between 2004 and 2006. For comparison, we also describe the sample of students who never transferred.

For CCS-A, of the 233,220 students in our sample, 40% (93,603) transferred. For CCS-B, the rate is 39% (23,870 of the 61,262 students). These students are classified as transferring to a for-profit if they ever enrolled at such a college; the remainders are classified next as transferring to a private nonprofit college if they ever did so; and then, the residuals are classified as transferring to a public college. The majority of transfer students transferred to another public college, but we identified 12,679 in CCS-A and 5,842 in CCS-B who transferred to a for-profit college. These comprise 14% and 24% of all transfer students, respectively. Reassuringly, the characteristics of our for-profit sample—which had high proportions of female and ethnic minority students—are similar to those reported in Deming et al. (2012, table 3).

Across both their origin and transfer colleges, for-profit students accumulated less human capital. While enrolled in the CCS, for-profit transfer students earned fewer credits, had significantly lower grade point averages (GPAs), and were less likely to obtain either an associate degree or another award. Thus, adjusting for prior college performance appears to be important. After transferring, the for-profit sample had lower rates of bachelor's degree attainment. Compared with students in the other sectors, the for-profit students in CCS-A were less likely to intend to transfer (data on intentions are not available for CCS-B). In fact, their initial expectations of transfer were closest to those of students who never transferred. Their choice to transfer to a for-profit college may, therefore, have been an endogenous response to an unsatisfactory experience within the public system.

As a foretaste of our analysis, Figures 2 and 3 show earnings profiles by sector in CCS-A and CCS-B. For each student, we center the initial entry to community college at Quarter 0. Negative quarters refer to the time before enrollment. Positive quarters include those when students were enrolled in community college or a transfer college and after students terminated their higher education. Figures 2 and 3 include all students aged 18 and above with zero earnings (the pattern is very similar when those with zero earnings are excluded). For CCS-A, earnings profiles of for-profit students appear distinct in three ways from those of students in either the nonprofit or public sectors. For-profit students had much lower earnings before entering college. They had higher earnings during their college years (some of which were while they were enrolled in CCS-A). They had much lower earnings—with a much flatter trajectory—after they exited college. For CCS-B, the earnings profiles cover a shorter time window (before and after initial enrollment) and so show a different pattern. For-profit transfer students had higher earnings in the precollege period and while enrolled. However, the for-profit students' earnings then leveled off, whereas those of other

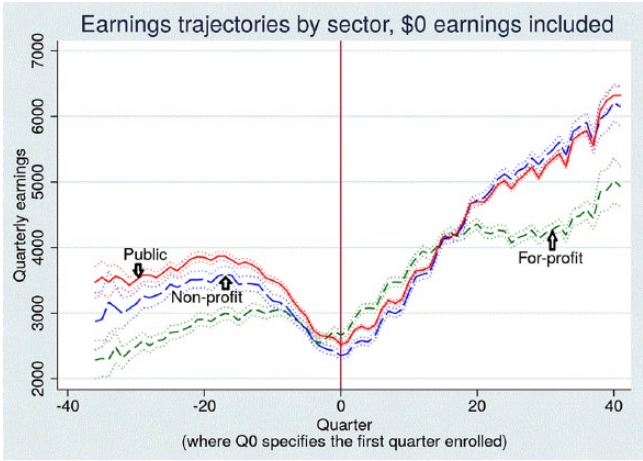

Figure 2. Earnings by sector of transfer college before, during, and after college—CCS-A sample.

Note. Sample includes all award-seeking, first-time-in-college students who enrolled in CCS-A from 2001-2002 to 2004-2005. Students with zero earnings are included after age 18. CCS = community college system.

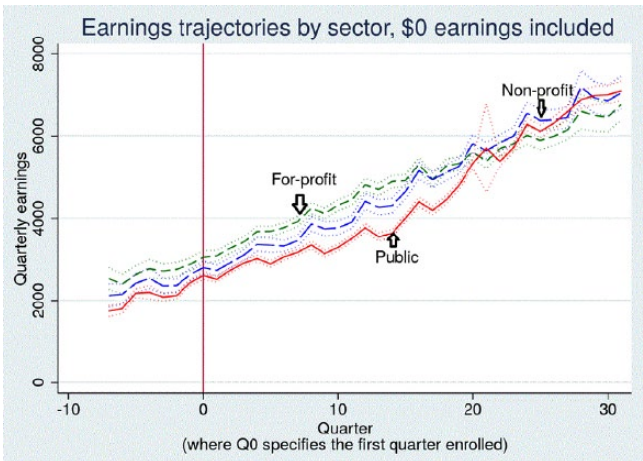

Figure 3. Earnings by sector of transfer college before, during, and after college—CCS-B sample.

Note. Sample includes all award-seeking, first-time-in-college students who enrolled in CCS-B in the fall from 2004 to 2006. Students with zero earnings are included after age 18. CCS = community college system.

transfer students continued to increase. This earnings plateau begins after approximately 20 quarters, which is similar to the pattern in CCS-A.

Method for Estimating Labor Market Returns

Our estimation strategy has three elements. We identify students who are likely to enroll in the for-profit sector conditional on their prior performance in community college. Next, we estimate the returns across the entire period before, during, and after college, exploiting the longitudinal nature of the data sets to observe how earnings fall when students are in college and rise as they leave. This allows us to identify the earnings penalty while in college by sector, which we predict will be lower for students in for-profit colleges. Then, we estimate the long-term returns after students' exit from postsecondary education. In doing so, we focus on the large unadjusted earnings gaps 20 or more quarters after full entry into the labor market, as shown in Figures 1 to 3. This analysis corresponds most closely with earlier research on returns at a point in time postcollege (Deming et al., 2012). Finally, we perform extensive sensitivity testing and perform subgroup analysis for these estimates.

We begin by estimating a multinomial logit equation to determine student selection into each sector after initial enrollment in CCS-A or CCS-B:

$$Pr\left(SECTOR = FP, PR, P\right) = \alpha + \theta EDUC_{t-k} + \beta X_{t-k} + \gamma Z_{t-m} + \varepsilon \tag{1}$$

Subsequent to enrollment in a community college, students choose between the for-profit (*FP*), private nonprofit (*PR*), and public (*P*) sectors. This choice depends on a set of attributes, including prior college education (such as credits and GPA), *EDUC*; a vector of prior college characteristics, *X*; and precollege personal and ability-related characteristics, *Z*. Equation 1 identifies which factors influence the choice to enroll in the for-profit sector relative to other sectors.

Our main estimation approach looks at the entire college and work experiences of community college students using individual fixed effect approach:

$$\begin{aligned} Y_{iq} = {} & \alpha + \beta DIP_{iq} + \theta CCS_{iq} + \gamma NSC_{iq} + \lambda POST\_SECTOR_{iq} \\ & + \delta\left(RACE_i \times Q\right) + \varphi\left(AGED25_i \times Q\right) + \sigma_i + \varepsilon_{iq} \end{aligned} \tag{2}$$

Under this approach, quarterly earnings (*Y*) is a function of their prior work experience, current and past enrollment, as well as their individual characteristics. *DIP* represents the four quarters preceding initial enrollment in community college, also known as the Ashenfelter dip. Students may have been motivated to enroll because they experienced declining earnings. *CCS* and *NSC* are equal to 1 for the quarters that the individuals enroll in community college and transfer out of the community college, respectively. Our key variable is *POST_SECTOR*, which is equal to 1 after the student exited his or her terminal public, for-profit, and private nonprofit college. The equation also includes individual

fixed effects, σ_i; these should control for all student attributes or characteristics that are unchanging (e.g., race, ethnicity, gender, ability). As a check to see whether earnings grow differentially by race, ethnicity, and age, we include interactions with absolute calendar quarter (*RACE, AGED25*). In a follow-up estimation, we examine the interaction between the enrollment variables and the sector to see whether the losses from being enrolled are lower for students in the for-profit sector.

Next, we estimate the returns to community college pathways using a standard Mincerian earnings equation:

$$\ln Y_t = \alpha + \lambda SECTOR_{t-j} + \theta EDUC_{t-k} + \beta X_{t-k} + \gamma Z_{t-m} + \delta EXP_t + \varphi EXP_t^2 + \varepsilon \quad (3)$$

Earnings Y at time t are a function of the postsecondary sector (for-profit, private nonprofit, or public) students enroll in after transfer, *SECTOR*; prior college education, *EDUC*; a vector of prior college characteristics, X; precollege personal and ability-related characteristics, Z; and work experience, *EXP*. The coefficients for *SECTOR* yield the earnings premium for attending a for-profit or private nonprofit sector college relative to the default of attending a public college. This Mincerian approach provides the more conventional set of estimates of the returns to education, and this approach has been found to be highly robust (Rouse, 2007).

As a further specification check, we estimate earnings gaps using multiple-treatment propensity score matching. Following McCaffrey et al. (2013), we use this pairwise matching procedure to determine the relative effect of transferring to a for-profit or private nonprofit college relative to transferring to a public college. To implement, we use the TEFFECTS command in Stata to calculate a propensity score for each student, indicating their tendency to transfer into a certain sector based on their pretreatment characteristics. Then, the command compares earnings between for-profit (or private nonprofit) and public transfer students with similar propensity scores using inverse probability weight and our Mincerian model. This is a one-step matching and estimation process that produces the Abadie–Imbens standard errors that take into account that the propensity scores are estimated. By imposing the common support and balance condition, propensity score models may offer an advantage over an ordinary least squares (OLS) estimation. However, these models still assume ignorability conditional on observed covariates—that is, that we have controlled for all the confounding variables that may influence the choice of college sector.[4]

In addition, we perform a series of tests using subsamples for the larger data set of CCS-A. We test for differences between students who earned a bachelor's degree after transferring and those who did not. Finally, we use data on the entire cohort of CCS-A students to examine whether transferring to a for-profit college is better than not transferring at all. Even if for-profit colleges yield lower labor market returns than other sectors, they may still serve as a valuable option for students who would otherwise have terminated their postsecondary education (as noted by Deming et al. (2012)).

Results

Selection Into For-Profit Colleges

We begin by looking at selection into the for-profit and private nonprofit sectors after enrolling at community colleges. In Table 1, we report results from a multinomial logit equation where students, having determined to transfer, have a choice between for-profit and private nonprofit college relative to a public one. The results are similar across the two CCSs. Academic performance at the community college plays a very strong role in sector choice. Students in the for-profit sector accumulated far fewer credits before they transferred, were more likely to transfer without an associate degree, and had much lower GPAs at their college of first enrollment. Interestingly, students who took more online courses at the community college were more likely to switch to the for-profit sector. One possibility is that students who perform well in—or simply prefer—online courses may seek out colleges that offer more online options. The gradients for GPA are negative across all course delivery modes, so the effect appears to be a comparative advantage in online courses influencing selection into the for-profit sector (although preferences may also play a role). More clearly, whereas prior college GPA is positively associated with transferring to the private nonprofit sector, the effect is much stronger for face-to-face courses than for online courses. Performing well in the classroom appears to motivate students to choose private colleges. Finally, there are strong race and ethnicity differences, even after controlling for ability. Black and Hispanic students who initially attended CCS-A were substantially more likely to select into the for-profit sector, whereas only female Black students tend to select for-profit sector in CCS-B.

Labor Market Returns Across Sectors Before, During, and After College

We show results using two quarterly earnings individual fixed effects models for all transfer students in Table 2. Supplemental Table 3 presents the results using log earning, and the conclusion of the table is similar to Table 2. As per the specification in Equation 2, Model 1 establishes the results for earnings after all college enrollments, and Model 2 shows how sector choices influence the opportunity cost of college. (For ease of comparison across coefficients, the dependent variable is earnings in dollars, although as shown in Supplemental Tables 1 and 2, the absolute earnings of the CCS-B sample are lower than those of the CCS-A sample.) The results for the two models accord with human capital theory (Becker, 1962), which states that human capital accumulation should increase future earnings. The results are almost identical across the two CCSs.

Using Model 1, we first identify an Ashenfelter dip. Earnings were lower by approximately US$312 to US$327 for CCS-A students and US$603 to US$625 for CCS-B students in the quarters 1 year before students enrolled in community college. These impacts are quite strong, given that many students in the sample had limited prior attachment to the labor force. Next, we see earnings that were generally lower while the students were in community college. For CCS-A, the earnings penalties are

Table 1. Selection Into the For-Profit and Private Nonprofit Sectors Versus the Public Sector.

	CCS-A				CCS-B			
	Female		Male		Female		Male	
	For-profit	Private nonprofit	For-profit	Private nonprofit	For-profit	Private nonprofit	For-profit	Private nonprofit
CCS credits	−0.007***	0.001	−0.007***	−0.004***	−0.016***	−0.004***	−0.015***	−0.006***
	[0.001]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.001]	[0.001]
CCS associate degree	0.033	0.242***	0.092	0.344***	−0.086	0.349***	0.017	0.021
	[0.064]	[0.051]	[0.115]	[0.076]	[0.118]	[0.081]	[0.091]	[0.073]
CCS diploma	−0.802***	−0.213*	0.184	0.349	4.014***	1.581	3.083***	−17.460***
	[0.170]	[0.122]	[0.388]	[0.304]	[1.262]	[1.541]	[1.149]	[0.957]
CCS certificate	0.182	−0.034	−0.094	−0.101	0.381***	0.149	0.306**	0.250**
	[0.134]	[0.140]	[0.270]	[0.213]	[0.148]	[0.115]	[0.126]	[0.104]
Proportion CCS courses online	0.547***	0.114	0.494***	0.445***	1.858***	1.218***	1.530***	1.146***
	[0.104]	[0.090]	[0.191]	[0.140]	[0.204]	[0.181]	[0.171]	[0.156]
CCS GPA—online courses	−0.148***	0.060***	−0.124***	0.060**	−0.171***	−0.004	−0.181***	0.002
	[0.023]	[0.022]	[0.038]	[0.031]	[0.034]	[0.031]	[0.029]	[0.027]
CCS GPA—face-to-face courses	−0.138***	0.207***	−0.198***	0.151***	−0.759***	−0.132***	−0.684***	−0.036
	[0.031]	[0.033]	[0.053]	[0.043]	[0.052]	[0.046]	[0.042]	[0.040]
Black	1.408***	0.335***	1.255***	0.334***	0.388**	0.245	0.116	0.252
	[0.050]	[0.046]	[0.093]	[0.082]	[0.171]	[0.165]	[0.160]	[0.167]
Hispanic	0.647***	−0.118	0.680***	−0.076	−0.383**	−0.320**	−0.070	−0.256*
	[0.151]	[0.136]	[0.223]	[0.191]	[0.174]	[0.159]	[0.147]	[0.143]
Enrolled after age 20	0.388***	−0.072	0.254**	0.114	−0.273***	−0.140*	−0.190**	−0.145**
	[0.056]	[0.047]	[0.099]	[0.071]	[0.096]	[0.083]	[0.077]	[0.073]
Work experience	0.038***	0.025***	0.047**	−0.015	0.077***	0.036**	0.064***	0.039***
	[0.011]	[0.009]	[0.022]	[0.014]	[0.019]	[0.016]	[0.013]	[0.012]
Work experience squared	−0.001***	−0.001***	−0.001**	0.000	−0.002***	−0.001**	−0.002***	−0.001**
	[0.000]	[0.000]	[0.001]	[0.000]	[0.001]	[0.001]	[0.000]	[0.000]
Observations	20,849		10,250		6,309		8,119	

Note. Multinomial logit estimation. Sample includes all award-seeking, first-time-in-college students who enrolled in CCS-A in the academic years 2001-2002 to 2004-2005 or in CCS-B in the fall from 2004 to 2006. Model for CCS-A includes background characteristics (expected annual family contribution; average per semester of grants, loans, and total financial aid), first enrollment after age 20, work experience (squared), and college intentions/goals. Model for CCS-B includes Other race, aid eligibility, first enrollment after age 20, and work experience (squared). Robust standard errors reported in brackets. CCS = community college system.
*$p < .1$. **$p < .05$. ***$p < .01$.

−US$137 for women and −US$35 for men; for CCS-B, the penalties are −US$453 and −US$465, respectively. Similarly, students experienced earnings penalties while attending their transfer college. For CCS-A, these penalties are significantly larger at −US$832 for women and −US$875 for men, which suggests greater time commitments at the transfer institution than at the community college. For CCS-B, both men and women experienced earnings penalties from attending a transfer college (−US$524 and −US$451, respectively), but only women experienced significantly larger penalties at the transfer college than at the community college.

Of central interest is the earnings gain after the completion of all postsecondary education. In the quarters after students terminated their college enrollments,

Table 2. Returns to Transfer Across Sectors: Average Quarterly Earnings Fixed Effects.

	Model 1				Model 2			
	CCS-A		CCS-B		CCS-A		CCS-B	
	Female	Male	Female	Male	Female	Male	Female	Male
Ashenfelter dip	−326.7***	−311.6***	−614.0***	−624.9***	−325.3***	−311.2***	−602.9***	−618.4***
	[8.628]	[12.15]	[34.18]	[29.88]	[8.623]	[12.15]	[34.32]	[30.47]
Quarters in CCS	−136.9***	−35.47***	−452.8***	−465.1***	−155.3***	−39.89***	−441.9***	−458.4***
	[9.086]	[11.83]	[25.26]	[23.76]	[9.028]	[11.77]	[25.48]	[23.34]
Quarters in transfer college	−832.4***	−875.2***	−523.5***	−451.3***	−785.8***	−862.6***	−484.2***	−426.9***
	[8.048]	[10.49]	[21.96]	[64.33]	[8.283]	[10.85]	[22.52]	[71.81]
Quarters in Transfer College × For-Profit					655.6***	593.3***	−72.21	125.7
					[36.50]	[66.79]	[91.30]	[96.89]
Quarters in Transfer College × Nonprofit					−602.1***	−290.3***	−574.7***	−569.6***
					[30.94]	[38.75]	[111.7]	[110.1]
For-profit transfer post quarters	309.2***	510.6***	762.8***	473.0***	87.17**	338.7***	782.2***	452.7***
	[34.65]	[60.03]	[82.75]	[72.17]	[38.42]	[66.33]	[95.16]	[80.58]
Nonprofit transfer post quarters	1,081***	864.4***	965.4***	961.7***	1,266***	946.5***	1,113***	1,101***
	[27.77]	[39.20]	[103.5]	[90.09]	[32.81]	[44.48]	[125.6]	[105.0]
Public transfer post quarters	550.8***	561.7***	1,129***	1,075***	548.0***	560.9***	1,137***	1,081***
	[12.47]	[16.80]	[49.77]	[64.25]	[12.47]	[16.80]	[49.61]	[62.84]
Quarter × Black	32.33***	19.07***	−41.16***	−2.598	32.32***	19.04***	−41.33***	−2.623
	[1.04]	[1.40]	[10.75]	[8.586]	[1.04]	[1.40]	[10.74]	[8.586]
Quarter × Hispanic	6.04**	0.27	40.44***	31.23***	5.83**	0.23	40.05***	30.96***
	[2.74]	[2.90]	[8.421]	[7.411]	[2.74]	[2.90]	[8.431]	[7.416]
Quarter × Other Race/Ethnicity	31.28***	24.08***	55.84***	22.21***	31.17***	24.06***	55.57***	21.98***
	[2.297]	[2.740]	[9.734]	[7.933]	[2.296]	[2.740]	[9.717]	[7.956]
Quarter × Aged 25+	−43.67***	−62.18***	17.25***	23.52**	−43.75***	−62.19***	16.97***	23.33**
	[1.06]	[1.60]	[5.720]	[10.00]	[1.06]	[1.60]	[5.725]	[9.931]
R^2	.552	.556	.546	.136	. 552	. 556	.547	.136
Student observations	80,841	57,485	6,935	8,367	80,841	57,485	6,935	8,367
Quarter observations	2,796,928	1,988,239	176,944	214,566	2,796,928	1,988,239	176,944	214,566

Note. Sample includes all award-seeking, first-time-in-college students who enrolled in CCS-A in the academic years 2001-2002 to 2004-2005, with average nonmissing quarterly earnings from Q1 2000; to Q1 2012 and all award-seeking, first-time-in-college students who enrolled in CCS-B in the fall from 2004 to 2006, with average nonmissing quarterly earnings from Q1 2005; to Q4 2012 (adjusted for inflation to 2010 U.S. dollars). Quarters are calendar quarters. Ashenfelter dip is defined as the average quarterly earnings in four quarters before enrollment in CCS. Constant term included. Robust standard errors reported in brackets. CCS = community college system.
*$p < .1$. **$p < .05$. ***$p < .01$.

all students experienced significant gains in earnings. However, the gains differed by sector. For CCS-A, students who exited from a for-profit college had earnings that were subsequently US$309 and US$511 higher per quarter, among women and men, respectively. Yet, students who exited from other sectors had much larger earnings boosts: US$1,081 among women and US$864 among men who exited from the nonprofit sector, and US$551 among women and US$562 among men who exited from the public sector. For CCS-B, the gaps follow the same pattern. In the quarters after exiting from a for-profit college, female and male students gained US$763 and US$473 in earnings per quarter, respectively. By contrast, exiting from private nonprofit colleges yielded much higher gains of US$965 for women and US$962 for men, and

exiting from public colleges yielded gains of US$1,129 and US$1,075, respectively. These sector differences are statistically significant—except for the difference between male students in the for-profit and public sectors in CCS-A.[5] These results are not driven by differences across racial and ethnic groups. Table 2 shows that the earnings growth for most groups of racial and ethnic minority students (except Black students in CCS-B) was relatively faster than the earnings growth for White students. Overall, the results suggest the lower effectiveness of the for-profit sector in generating human capital that is valuable in the labor market.

Next, we use the results from Model 2 to examine whether students in for-profit colleges were able to work more intensively while studying—that is, if the opportunity cost of being in college was lower for these students. Model 2 follows the same specification as Model 1, but it includes interaction terms for quarters enrolled in a transfer institution by sector. These results are given in the right panel of Table 2, and the pre- and postcollege earnings effects are very close to those for Model 1. The interaction terms show that the opportunity cost of attending college differs by sector. For CCS-A, there remains a significant cost to being enrolled in a transfer college, but the interaction terms show this cost to be much lower for students in for-profit colleges. Next, the foregone earnings from enrollment in a for-profit college were −US$130 for women and −US$269 for men, or about one quarter the size of the loss for students in public colleges (and one tenth that of students in nonprofit colleges). For CCS-B, there is a clear earnings penalty from being enrolled at a public (for male students) or private nonprofit transfer college. The net wage penalties of students who transferred to for-profit colleges were −US$301 for male students and −US$556 for female students, or about one third of the size of the penalties students at private nonprofit colleges experienced. Thus, there is evidence that for-profit colleges do offer students a chance to work more intensively while enrolled. Interestingly, the losses students experienced while enrolled in for-profit colleges were similar in magnitude to those they experienced when enrolled in community colleges, suggesting that students may have a threshold opportunity cost for being in college.

Labor Market Returns Across Sectors After Exiting Postsecondary Education

We now turn to the longer term effects of college attendance on earnings. In Table 3, we report the results from a basic Mincerian earnings equation for transfer students. This specification follows the general Mincerian approach to identifying earnings differences, so we report coefficients rather than absolute dollar amounts. In addition to controlling for background characteristics and work experience before and after college, we control for an array of pretransfer variables, including college fixed effects (and student intentions or goals for CCS-A). Academic performance at community colleges was especially important in determining transfer (as shown in Table 1), so we control for pretransfer awards, overall GPA, and credits accumulated. We report results for both CCSs, although we emphasize that the window for identifying earnings gains

Table 3. Returns to Transfer Across Sectors: Log Average Quarterly Earnings in 2011.

	CCS-A		CCS-B	
	Female	Male	Female	Male
CCS GPA	0.150***	0.147***	0.215***	0.221***
	[0.008]	[0.010]	[0.018]	[0.015]
CCS credits	0.002***	0.001***	−0.003***	−0.003***
	[0.000]	[0.000]	[0.001]	[0.000]
Relative to CCS credits but no award				
CCS certificate (pretransfer)	−0.152***	−0.151***	0.215***	0.221***
	[0.045]	[0.048]	[0.018]	[0.015]
CCS diploma (pretransfer)	0.180***	−0.283***	−0.003***	−0.003***
	[0.043]	[0.091]	[0.001]	[0.000]
CCS associate degree (pretransfer)	0.114***	−0.013	0.215***	0.221***
	[0.019]	[0.027]	[0.018]	[0.015]
Relative to public college transfer				
Transfer to for-profit college	−0.054***	−0.070**	0.184***	0.183***
	[0.029]	[0.029]	[0.042]	[0.036]
Transfer to private nonprofit college	0.052***	−0.004	0.121***	0.086**
	[0.014]	[0.022]	[0.041]	[0.036]
Background characteristics	X	X	X	X
College fixed effects	X	X	X	X
Intent/goal	X	X		
R^2	.127	.143	.074	.075
Observations	41,566	24,682	6,756	5,391

Note. Sample includes all award-seeking, first-time-in-college students who enrolled in CCS-A in the academic years 2001-2002 to 2004-2005 and in CCS-B in the fall from 2004 to 2006. Table shows log average of nonmissing quarterly earnings in 2011 (adjusted for inflation to 2010 U.S. dollars). Background characteristics include race and ethnicity (four dummy variables), years of work experience and square of years of work experience, and first enrollment after age 20. Background characteristics for CCS-A also include expected family contribution (annual) and average per semester of grants, loans, and total financial aid. Background characteristics for CCS-B also include aid eligibility. College variables are dummy variables for each CCS college; for CCS-B, variables also include college-level proportion applying for financial aid, college size, percent female, and percent minority. For CCS-A, intent dummy variables include intent to earn associate degree, intent to transfer to 4-year college, and intent to enroll in occupational program (omitted category: intent to earn high school diploma). Goal dummy variables include goal of associate degree, goal of transfer to 4-year college, and goal of enhancing job skills (omitted category: goal of personal enrichment). Robust standard errors reported in brackets.
CCS = community college system; GPA = grade point average.
*$p < .1$. **$p < .05$. ***$p < .01$.

is much shorter for CCS-B than for CCS-A and that the sample for CCS-B is much smaller (with those missing earnings excluded).

Straightforwardly, transfer students in both college systems with higher GPAs had higher earnings. Some CCS-A awards were associated with higher earnings, but these coefficients must be interpreted cautiously because community college

awards do not represent the full extent of the educational attainment of transfer students (and the returns to credits are net of awards). In Table 3, we show the effect of transferring to a for-profit or private nonprofit college relative to transferring to a public college.

The results differ across CCS-A and CCS-B. For students in CCS-A, the for-profit effect is clearly negative. For female students, transfer to a for-profit college was associated with earnings that were 5.4% lower than transfer to a public college and 10.6% lower than transfer to a private nonprofit college. For male students, transfer to a for-profit college was associated with earnings that were 7% lower than those of students in both the public and private nonprofit sectors (between which sectors there was no statistically significant difference). These earnings gaps, controlling for prior college performance, appear to be substantively important and contribute to the evidence that there is a labor market penalty associated with attending a for-profit college.

For students in CCS-B, both men and women who transferred to a for-profit college earned 18% more than students who transferred to a public college. Compared with students who transferred to the nonprofit sector, women who transferred to for-profits earned 6% more, and men who transferred to for-profits earned 10% more.

This discrepancy is, in large part, explained by the shorter window for analysis for the CCS-B sample. For-profit enrollment offsets some of the earnings loss from enrollment in other sectors, and this effect persists for at least 20 quarters after initial enrollment (see Figures 2 and 3). As a direct test of this explanation, we reestimate the specifications for CCS-A using the same cohorts (2004-2006) and time window as is available for CCS-B. These results are available upon request. For CCS-A, the negative and statistically significant effect for female students transferring to for-profit colleges remains. Notably, the coefficient for CCS-A male students has changed sign—from a penalty to a premium—and is now similar in size to that found for CCS-B. Thus, with a shorter window, the penalties from enrolling at a for-profit institution are underestimated compared with estimations over the longer time horizon.

Specification and Robustness Checks

We perform a series of specification and robustness checks. We report these checks for both CCSs where possible but again emphasize the larger samples and longer windows for earnings data of the CCS-A sample. First, we perform propensity score matching to yield an alternative counterfactual group of students. We match students based on both personal characteristics and prior college performance and compare the earnings of for-profit students with those of students in the public sector within the matched pairs. The for-profit and public groups reach a balance on all the precollege characteristics. The results are in Supplemental Table 4 and are consistent with Table 3, in that, the returns to for-profit transfer are not too different than public transfer. Private nonprofit transfer also has the highest gain in CCS-A, and similarly, for-profit transfer earned the most due to the shorter follow-up window.

One possible explanation for the earnings gap is that students in the for-profit sector were less likely to complete an award, perhaps partly because they transferred with

Table 4. Returns to Bachelor's Degrees and Transfer Across Sectors: Log Average Quarterly Earnings in 2011.

	CCS-A		CCS-B	
	Female	Male	Female	Male
Relative to public college transfer but no bachelor's degree				
Transfer to for-profit college—no bachelor's degree	−0.036*	−0.057*	0.144***	0.162***
	[0.020]	[0.032]	[0.047]	[0.040]
Transfer to private nonprofit college—no bachelor's degree	0.064***	0.041	0.189***	0.060
	[0.019]	[0.028]	[0.051]	[0.046]
Transfer to for-profit college and bachelor's degree	0.418***	0.436***	0.366***	0.218**
	[0.032]	[0.064]	[0.098]	[0.087]
Transfer to private nonprofit college and bachelor's degree	0.408***	0.249***	−0.136	0.009
	[0.022]	[0.035]	[0.088]	[0.063]
Transfer to public college and bachelor's degree	0.450***	0.366***	−0.302***	−0.168**
	[0.016]	[0.020]	[0.099]	[0.076]
CCS awards, GPA, and credits	X	X	X	X
Background characteristics	X	X	X	X
College fixed effects	X	X	X	X
Intent/goal	X	X		
R^2	.146	.155	.079	.077
Observations	41,566	24,682	5,391	6,756

Note. Sample includes all award-seeking, first-time-in-college students who enrolled in CCS-A in the academic years 2001-2002 to 2004-2005 and CCS-B in fall from 2004 to 2006. Table shows log average of nonmissing quarterly earnings in 2011 (adjusted for inflation to 2010 U.S. dollars). Specification includes variables as per Table 2. Robust standard errors reported in brackets. CCS = community college system; GPA = grade point average.
*$p < .1$. **$p < .05$. ***$p < .01$.

fewer credits. In Table 4, we reestimate the OLS model of Table 3 but separately identify students who obtained a bachelor's degree. For CCS-A, compared with students who transferred into the public system but did not obtain a bachelor's degree, for-profit students who failed to earn a bachelor's degree did have lower earnings (4% and 6% lower for female and male students, respectively). However, students in the for-profit sector who earned a bachelor's degree had earnings as high as those of bachelor's degree holders in the other sectors. This result—that the earnings penalty was clustered among those who failed to complete an award—corresponds to evidence from Cellini and Chaudhary (2014). For CCS-B, there are statistically significant gains for female students who transferred to for-profit colleges regardless of whether they earned a bachelor's degree. These results also show an earnings penalty for having a bachelor's degree from other colleges, which is most likely attributable to the relatively short follow-up period.

Finally, we extend our analysis to include all students who start in the CCS. That is, we see whether there are gains to transferring to the for-profit sector as opposed to not transferring at all. Again, using the CCS-A sample, we reestimate the OLS model for

all students and report the earnings premiums from transfer relative to nontransfer in Supplemental Table 4 (taking the exponents of the reported coefficients to derive the percent differences). Unsurprisingly, students who transferred to either public or private nonprofit colleges had higher earnings, either because they obtained a bachelor's degree or simply because they had more credits. Only female students experienced gains from transferring into the for-profit sector, earning 11% more than nontransfer students. For male students, we cannot identify any earnings gain from transferring to a for-profit college versus not transferring.

Discussion and Conclusion

Our research looks at two important research topics in combination. First, in response to its rapid growth, there has been a blossoming of research to estimate the impacts of attending a for-profit college. Little of this evidence has been encouraging, with many studies finding lower academic attainment and earnings among students who enroll in for-profit colleges, despite their higher tuition and fees (see especially Cellini & Turner, 2019; Deming et al., 2012). Looking over a sufficient time period, our inquiry affirms this general conclusion. Second, as many students follow complicated paths through postsecondary education, researchers have looked at the inefficiency of transferring from one college to another both in college and in the labor market (see especially Attewell & Monaghan, 2016). We too find that transfer students take pathways that are not boosting their educational or employment prospects and, in some cases, are actually impairing their labor market outcomes.

In fact, our research shows how these two research topics are related. For-profit colleges disproportionately recruit transfer students, and these transfer students do not do as well as students who transfer to public colleges. Specifically, we identify a statistically significant wage penalty from enrolling in a for-profit institution. This penalty appears consistent across subgroups of students, although it is greatest for for-profit students who did not complete an award. Importantly, these results are only evident if we look over a long enough time period: Over a window of only a few years, the gaps between sectors are not precisely identified. To the extent that students at for-profit colleges are actually transfer students, this may explain why outcomes at these colleges are inferior to those at public and not-for-profit colleges.

We do find one ostensible benefit from attending a for-profit college. Our results for both CCSs show that for-profit transfer students earn more when they are in school. For students who are credit-constrained or have to maintain a certain income level, the for-profit sector may, therefore, be an attractive option. However, insofar as attending a for-profit college leads to a lower accumulation of human capital, this option may trade short-term gains for long term penalties.

Substantively, the decision on which college to attend depends on the net returns over time. The results from Table 2 can be used to calculate present value earnings returns over the decade after first enrollment. CCS-A students forgo earnings while attending their transfer college; per quarter, the loss is US$200 for for-profit students,

US$830 for public college students, and US$1,270 for nonprofit students. After leaving college, earnings gains per quarter are US$210 for for-profit students, US$560 for public college students, and US$1,110 for nonprofit students. Assuming six quarters in college and employment for the rest of the decade, the present value net earnings gains using a 5% discount rate are US$5,400 for for-profit students, US$12,300 for public college students, and US$26,700 for private college students. Following the same calculations for CCS-B, the present value net earnings gains are US$16,500, US$31,600, and US$28,100, respectively. These results affirm that for-profit students gain least over the longer term, and that the amounts of lost income are substantial even over the first working decade. Extended over a working life, the differences become much greater—and of course, these figures do not account for the higher tuition prices at for-profit colleges. Hence, any "benefit" from working while enrolled is insufficient to offset the postcollege income losses (and higher tuition and fees) at for-profit colleges.

Our study has some limitations. First, our analysis is restricted to students who transfer to for-profit colleges. There are many such students, but they are far from a majority at each for-profit college. We do not know whether the outcomes of for-profit transfer students match those of all for-profit students. Also, we do not know whether the for-profit colleges that attract a lot of transfer students are representative of the sector. Thus, we are not able to identify an earnings penalty across the for-profit sector as a whole. Second, our results suggest that the penalties from transferring to a for-profit college are sensitive to the time horizon for analysis. It may be that the penalties change over time, increasing or decreasing. Third, we do not have data on students who migrate across states and our results may not apply to those who move out of state. Although the majority of students remain within their states, transfer students are more likely to be mobile. Finally, although we do have evidence from two state systems, our findings may not necessarily apply across other states. Nevertheless, our results are in line with both strands of literature on for-profit colleges and transfer.

Finally, our findings suggest important new areas for research. From the student perspective, more needs to be learned about why students transfer and which colleges they should choose. Given that these students already have some college experience, we might expect their transfer choices to be more aligned with their preferences and goals. Given the outcomes reported here, it is important to discover why this expectation may be incorrect. From the community college perspective, more information is needed on whether transfer students might be better advised on their transfer options relative to remaining at the college. Also, given the high rates of transfer, community colleges and the destination transfer colleges should investigate how to improve articulation agreements. Finally, there is increased need for research on policies that hold colleges accountable for student outcomes, particularly in light of the broad evidence on for-profit colleges. Policies such as the gain employment rule that was once implemented keep the lowest performing program from taking federal aid might encourage students to make the right transfer decisions, and ultimately to complete their programs at all the colleges they attend.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305C110011 to Teachers College, Columbia University.

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Supplemental Material

Supplemental material for this article is available online.

Notes

1. We exclude students who were not in designated programs leading to awards (or curriculum programs) but were enrolled in customized training, personal enrichment courses, or other noncredit programs.
2. Colleges that are not Title IV eligible are excluded. Cellini and Goldin (2014) estimated that for-profit colleges not eligible for Title IV funding represent one quarter to one third of the for-profit sector.
3. Although our earnings data set has low levels of imputation bias, misreporting, and nonresponse, some work is not covered. Specifically, coverage does not include independent contractors, military personnel, some federal personnel, and those working in the informal sector. Nationally, undercoverage is approximately 10% of the workforce. Workers who exit the state are also excluded from our data set for the earnings estimation; we have multistate data on transfer colleges. This state-level exclusion may bias the results, although because students at for-profit colleges are more likely to stay in state (Deming et al., 2012), the bias is likely to make our results more conservative. Across the data set, 91% of students had at least one earnings record. Of those with no earnings data, 14% were failed matches because of inconsistencies in Social Security numbers.
4. We use multiple-treatment matching with the Stata command TEFFECTS. Less than 1% of the sample is off-support. A balance check table is available from the authors. Supplemental Figures 1 to 4 show the overlap of propensity scores. There are fewer public transfers to match against the for-profit transfers as the propensity scores increase. (Four of the for-profit students in CCS-A are dropped in the propensity score estimation because there are no matches from the public group).
5. For example, the *Z* scores for the differences of the *POST_SECTOR* coefficient between nonprofit and for-profit transfer are 17 and 5 for women and men, respectively, in CCS-A. The *Z* scores between public and for-profit transfer is 6.6 for women and 0.8 for men. In both CCSs, the *Z* scores are above 2 for these coefficients with the exception for the difference between male students in the for-profit and public sectors in Model 1 and the difference between nonprofit and for-profit female transfers in Model 2 in CCS-A.

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