



Office of Policy
Research

Transfer Shock: Longitudinal Analysis of Students who Transfer from Associate to Bachelor's Programs

Research Brief
Transfer Opportunity Project
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Introduction

This is the second brief of three summarizing results from the longitudinal analysis of the Transfer Opportunity Project (TOP). TOP, funded by a grant from the Institute for Education Sciences (IES), explores the possible factors contributing to the low percentage of community college students who go on to earn bachelor's degrees. The project uses a combination of quantitative and qualitative research at the City University of New York (CUNY) to identify possible malleable factors related to four possible critical challenges in the transfer student pathway: Application to Transfer, Transfer Melt, Credit Transfer, and Transfer Shock. The longitudinal analysis tracks students who entered a CUNY community college in Fall 2013 and quantifies how many students progressed or did not progress towards earning a bachelor's degree at each of these points.

In the first brief, we presented descriptive findings related to Application to Transfer and Transfer Melt, the phenomenon where students admitted for transfer to a bachelor's program do not enroll, cf. "summer melt," the phenomenon where high school students who are accepted to college do not enroll in the fall (Castleman & Page, 2014). Overall, we found that there is substantial room for improvement at several early points in the pipeline. First, we found that many community college students stop attending college within the first three semesters. More than 35% of the cohort had stopped out before the third semester. Accounting for this attrition, we found that a relatively high percentage (65%) of students who persist into the fourth semester of college apply for transfer to a bachelor's program. Although application and admission were high, approximately 9% of students who applied to and were admitted to a CUNY bachelor's program did not go on to enroll in a bachelor's program at CUNY or elsewhere.

In the current brief, we present findings related to Transfer Shock, where transfer shock refers to a post-transfer drop in student grades during the initial semesters of enrollment in the bachelor's program. The goal of this brief is to quantify how many students encountered these problems and to what extent, determine which types of students were most likely to show a GPA change, and examine the relationship between GPA change and likelihood of graduation. We also discuss the analytic decisions required for the analysis and thus the brief's contents may be of interest to both researchers and college administrators who work with transfer students.

Upon enrollment in the bachelor's program, 60% of transfer students experience a decline in GPA, with a mean decline of 0.72 points. As shown in the "Persistence after transfer" section, many students drop out of the pipeline after transfer, despite them having overcome the hurdles of transfer application and bachelor's program enrollment. The post-transfer leaky pipeline point of transfer shock is therefore critical to examine.

Data

To conduct analyses of transfer shock, we use administrative data on semester-by-semester enrollments for all first-time-freshmen (both full-time and part-time) who enrolled in an associate program at one of CUNY's seven community colleges in Fall 2013 (N=17,455). The current analyses apply to students who transferred from their initial community college to a CUNY bachelor's program at some point during our tracking window, which extends from Fall 2013 through Spring 2021 and includes 16 semesters. Of the 17,455 students in our initial cohort, 5,700 (33%) transferred to a CUNY bachelor's program and contribute data to the current analysis. Of these transfer students, 1,413 students (25%) took a break in enrollment before starting at the bachelor's program and 288 students (5%) transferred to another CUNY associate program before ultimately enrolling in a bachelor's program. Not included in this brief's analyses are 1,985 students (11% of the initial cohort) whose first transfer to a bachelor's program was outside the CUNY system because we do not have access to their credit or grade information.^{1,2}

¹ Also not included is a small group of 53 students (0.3% of the initial cohort) who transferred to a non-CUNY associate program prior to re-entering CUNY in a bachelor's program.

² For students whose initial transfer to a bachelor's program was internal to CUNY and a subsequent transfer was external to CUNY (233 students or 4% of transfers), we use National Student Clearinghouse data to track whether or not they ultimately received a bachelor's degree.

Transfer Shock

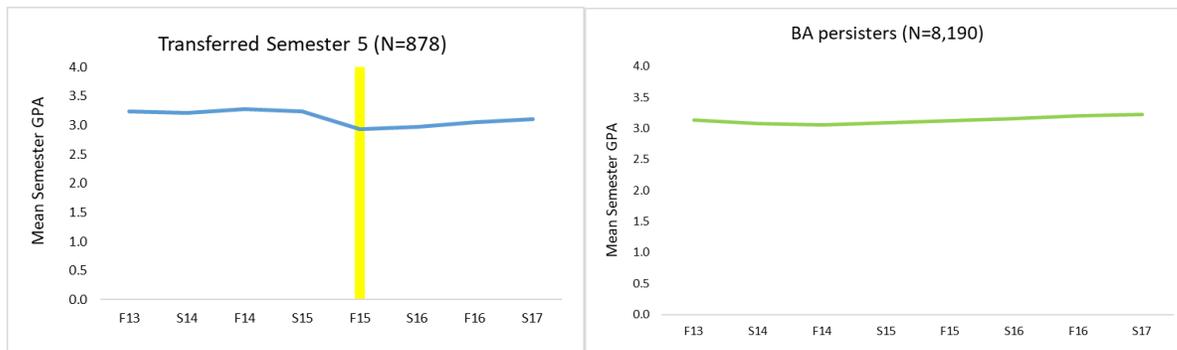
Transfer shock is defined as a post-transfer drop in student grades during the initial semesters of enrollment. Transfer shock has been studied since Hills (1965) coined the term and found that students who experienced transfer shock are less likely to graduate than freshman entrants. Studies have found that, on average, students’ GPAs decrease by more than one full point after transfer (Lui 2013), the degree of shock differs by discipline (Cejda 1997), and that there is a recovery phase after transfer shock: students experience a drop in GPA during the first semester, but they tend to do as well or better than native students by the end of the second semester (Glass and Harrington 2002). Other studies, however, did not find strong evidence of transfer shock (e.g. Aulck and West 2017), and some of the studies have very narrow populations (e.g. limited to one racial ethnic group).

The advantage to studying transfer shock at CUNY is that our transfer student population is both large and diverse in students and institutions, and we have access to detailed performance data both before and after transfer. We investigate the extent of transfer shock among students who were first-time freshmen in a CUNY community college in Fall 2013 and transferred to a CUNY bachelor’s program sometime between Spring 2014 and Spring 2019.³

Findings

CUNY transfer students on average appear to experience a decline in GPA during transfer, for example as displayed in Chart 1 for the group of students who transferred in semester 5. Among these students, we see a noticeable drop in mean semester GPA corresponding to their first semester of enrollment at the bachelor’s institution: mean GPA was 3.2 in the semester prior to transfer and 2.9 in the semester following transfer.⁴ In comparison, we see no similar drop in the GPA trend for native bachelor’s students, whose mean GPAs remain between 3.06 and 3.22 over eight terms. Following the initial decrease right after transfer, transfer student GPA undergoes some recovery; however, it does not quite reach the level of that among native students.

Chart 1. Trend in GPA among transfer students and native bachelor’s students, among those who persisted until semester 8



Note: The yellow line represents first semester of enrollment in the bachelor’s institution. The GPA trend line to the left of the yellow line represents community college performance, and the trend line to the right of the yellow line represents bachelor’s performance. To avoid selection bias from academically weaker students dropping out, the population in both charts is limited to students who persisted to semester 8, i.e. were enrolled in both semesters 1 and 8. (They may have stopped out during one or more semesters of the intervening semesters, in which case they do not contribute to the observed mean semester GPA(s) at that time.)

³ Of these 5,700 students, 374 have a zero or missing value for pre-transfer GPA and/or post-transfer GPA; we therefore use 5326 cases for analysis.

⁴ This pattern holds regardless of when students transferred; see Appendix 2 for comparable charts for students who transferred in other semesters.

Although the mean drop in GPA among students in our transfer population is 0.24, not all students experience a drop. As shown in Table 2, 40% of transfer students (N=2,153) see an increase in GPA, with the mean post-transfer GPA for this group being 0.45 points higher than the mean pre-transfer GPA.

Table 2. Detail on change in GPA at transfer among CUNY transfer students (N=5,326)

	All (N=5,326)	GPA decreased (N=3,131, %=58.8)	GPA increased (N=2,153, %=40.4)
Mean pre-transfer cumulative GPA	3.02	3.09	2.91
Mean post-transfer first semester GPA	2.78	2.37	3.36
Mean change, pre- to post-transfer GPA	-0.24	-0.72	0.45
Distribution of change, pre- to post-transfer GPA			
<-1.29	10.1		
-1.29 to -0.68	15.0		
-0.67 to -0.16	24.8		
-0.15 to 0.26	25.2		
0.27 to 0.63	14.8		
>=0.64	10.1		

Note: GPA did not change at transfer for 42 students.

Among both students whose GPA decreased and those whose GPA increased, there is variation in the size of the change (not shown in Table 2), but especially among those whose GPA decreased, with 25% of this group seeing a drop smaller than 0.25 GPA points and an additional 25% seeing a drop larger than one point.

The above descriptive findings do not allow any conclusions as to how much of the observed grade change during transfer is *due* to transfer. We must contextualize our findings on GPA change during transfer within broader GPA trends and compare to regular semester-to-semester fluctuations in GPA that occur even when students do not transfer. To do so, we replicate the figures in Table 2 for the grade changes that occur one semester prior to transfer (cumulative GPA two semesters before transfer to semester GPA in the semester right before transfer) and two semesters prior to transfer (cumulative GPA three semesters before transfer to semester GPA two semesters before transfer), as shown in Tables 3a and 3b.

Table 3a. Detail on change in GPA one semester before transfer among CUNY transfer students (N=5,170)

	All (N=5,170)	GPA decreased (N=2,190, %=42.4)	GPA increased (N=2,926, %=56.6)
Mean cumulative GPA 2 semesters before transfer	3.00	3.10	2.92
Mean semester GPA in semester before transfer	3.05	2.56	3.40
Mean change in GPA	0.05	-0.54	0.49
Distribution of change, pre- to post-transfer GPA			
<-1.29	3.5		
-1.29 to -0.68	9.0		
-0.67 to -0.16	20.5		
-0.15 to 0.26	30.9		
0.27 to 0.63	20.0		
>=0.64	16.2		

Note: GPA did not change for 54 students.

Table 3b. Detail on change in GPA two semesters before transfer among CUNY transfer students (N=4,944)

	All (N=4,944)	GPA decreased (N=2,096, %=42.4)	GPA increased (N=2,786, %=56.4)
Mean cumulative GPA 3 semesters before transfer	2.94	3.08	2.83
Mean semester GPA 2 semesters before transfer	3.01	2.56	3.34
Mean change in GPA	0.07	-0.52	0.51
Distribution of change, pre- to post-transfer GPA			
<-1.29	3.1		
-1.29 to -0.68	9.1		
-0.67 to -0.16	21.1		
-0.15 to 0.26	30.3		
0.27 to 0.63	19.5		
>=0.64	16.9		

Note: GPA did not change for 62 students.

We find that here too there is one group of students whose GPA decreases and another group whose GPA increases (and results for the two reference semesters are quite similar to each other). However, those whose GPA decreases make up only 42% of students, compared to 59% during transfer. This suggests that around 17% of students had a GPA decline during transfer that we would not expect to see if they had not transferred; however, these descriptive analyses do not allow for any causal conclusions. As for the size of the GPA changes, the decrease among students whose GPA decreased is only 0.54 and 0.52 in the reference semesters, compared to 0.72 during transfer.

The bottom halves of Tables 2, 3a, and 3b further illustrate how the declines in GPA after transfer were both more widespread and deeper. After transfer, 10% of students have a GPA drop greater than 1.29 points, compared to only 3 to 3.5% of students with a drop of this size in the comparison semesters. An additional 15% of students have a GPA drop between 0.66 and 1.29 after transfer, compared to around 9% in the comparison semesters.

Predicting transfer shock

This heterogeneity in general experience led us to further investigate which types of students experience transfer shock. We used an Ordinary Least Squares model predicting change in GPA during transfer, as calculated by post-transfer first semester GPA minus pre-transfer cumulative GPA, as a function of various demographic characteristics, academic performance at the sending college, and transfer pathway factors, controlling for both sending and receiving college.

Given that our outcome is GPA in the first semester after transfer minus cumulative GPA before transfer, the resulting coefficients describe how much greater or lesser this difference is relative to the population in the reference groups. As shown in Table 5, the difference is 0.068 points greater for female than for male students, and 0.074 and 0.063 points smaller for Black and Hispanic students. As far as prior academic performance is concerned, the later the semester in which a student transfers, the greater the difference in GPA. Students who hold an associate degree at transfer also have a greater difference in GPA. In contrast, the higher a student's pre-transfer GPA, the smaller the difference in GPA.

Table 5. OLS estimation of change in GPA during transfer (GPA in the first semester after transfer minus cumulative GPA before transfer)

	Coefficient	Robust SE
<i>Demographic characteristics</i>		
Female	0.068***	(0.021)
Black	-0.074**	(0.036)
Hispanic	-0.063*	(0.034)
Asian/Pac.Is.	-0.008	(0.035)
Am. Indian	0.069	(0.127)
Age at transfer	0.002	(0.002)
Pell grant recipient (at college entry)	-0.038	(0.024)
<i>Academic performance in community college</i>		
Pre-transfer cumulative credits (z)	0.021	(0.014)
Pre-transfer cumulative GPA (z)	-0.076***	(0.012)
<i>Transfer pathway factors</i>		
AAS student (at college entry)	0.018	(0.027)
Associate degree holder (at transfer)	0.049*	(0.028)
Semester of transfer	0.042***	(0.005)
Had a break before transfer	0.026	(0.028)
Started in bachelor's program full-time	-0.004	(0.030)
Constant	-0.700***	(0.089)
Observations	5,326	
R-squared	0.111	

* p<0.1, ** p<0.05, *** p<0.01

Controls for sending college and receiving college.

Race/ethnicity variable is imputed.

Persistence after transfer

As shown in Table 6, a substantial number of transfer students stop out or drop out in the initial semesters following enrollment in bachelor's programs. Of the 4,618 students who transferred to a CUNY bachelor's program by Fall 2017 and whose outcomes we can therefore track for at least eight semesters, 87.1% are still enrolled one semester after transfer and 78.6% are still enrolled one year after transfer, showing the particularly large loss in the first semester after transfer.

A substantial share of stop-outs returns to CUNY in a later semester. Of the 12.9% who aren't enrolled in semester 2, 45% re-enroll in some later semester and of the 21.4% who aren't enrolled in semester 3, 38% re-enroll in some later semester (see table note on how these cases are handled).

As expected, transfers from associate programs start graduating around two years after enrollment in the bachelor's program; however, initial degree award rates are not high. Two years after transfer, 15.0% have earned a bachelor's degree, three years after transfer, 43.6% have done so, and four years after transfer, 58.1% have done so.

Table 6. Outcomes for students from the Fall 2013 community college cohort who transfer to a bachelor's program by Fall 2017 (N=4,618)

	Post-transfer							
	Sem 1	Sem 2	Sem 3	Sem 4	Sem5	Sem 6	Sem 7	Sem 8
% still enrolled in CUNY bachelor's program without bachelor's degree earned	100	87.1	78.6	73.2	56.6	38.9	25.2	17.8
% awarded CUNY bachelor's degree	0.0	0.0	1.3	15.0	29.8	43.4	51.0	57.4
% awarded non-CUNY bachelor's degree	0.0	0.0	0.0	0.0	0.2	0.2	0.5	0.7

Note: The semester count is relative to a student's transfer term. (For example, semester 2 is fall 2016 for someone who transferred in spring 2016, and spring 2018 for someone who transferred in fall 2017.) Enrollment is measured at the beginning of a given semester and degrees awarded includes all degrees awarded by the end of a given semester. Students who are not enrolled in a given semester, but re-enroll by semester 8, re-appear as enrolled when they return.

Transfer shock and graduation

Given the low persistence rates in bachelor's programs after transfer and the number of students who experience transfer shock, we investigated whether transfer shock has an association with a student's likelihood of obtaining a bachelor's degree after controlling for other factors, including demographic characteristics, academic performance in community college, and transfer pathway.

Table 7 displays marginal effects of the probability of receiving a bachelor's degree using a Probit regression with students from the Fall 2013 cohort who transferred to a CUNY bachelor's program by Fall 2017 (and whose outcomes we can track for four years). The results show that a one standard deviation increase in GPA (0.83 GPA points) after transfer increases the probability of graduating with a bachelor's degree by 14.3%. This means that transfer shock—declining GPA after transfer—has a negative association with the probability of graduation. A student who has, for example, a drop of 0.5 GPA points after transfer has a 9% lower probability of graduating with a bachelor's degree compared to students who do not experience any change in GPA after transfer.

The regression results show that female transfer students and Asian transfer students are more likely to graduate in four years than their male and white counterparts, respectively, all else equal. Students who have accumulated more credits before transfer, have a higher community college GPA, hold an associate degree at the time of transfer, and enroll full-time in the bachelor's institution are also more likely to graduate. In contrast, students who wait longer to transfer and take a break from college before transferring have lower graduation rates.

Table 7. Probability of receiving a bachelor's degree within 4 years after transfer: marginal effects from Probit estimation

	Marginal effects	Robust SE
<i>Transfer shock</i>		
Difference in GPA (z)	0.142***	(0.008)
<i>Demographic characteristics</i>		
Female	0.105***	(0.017)
Black	-0.005	(0.026)
Hispanic	-0.004	(0.024)
Asian/Pac.Is.	0.064**	(0.027)
Am. Indian	0.126	(0.129)
Age at transfer	-0.001	(0.002)
Pell grant recipient (at college entry)	-0.016	(0.019)
<i>Academic performance in community college</i>		
Pre-transfer cumulative credits (z)	0.083***	(0.012)
Pre-transfer cumulative GPA (z)	0.125***	(0.010)
<i>Transfer pathway factors</i>		
AAS student (at college entry)	-0.031	(0.021)
Associate degree holder (at transfer)	0.069***	(0.021)
Semester of transfer	-0.027***	(0.008)
Had a break before transfer	-0.095***	(0.022)
Started in bachelor's program full-time	0.180***	(0.023)
Observations	4,361	
Pseudo R-squared	0.1633	

* p<0.1, ** p<0.05, *** p<0.01

Marginal effects are evaluated at sample means.

Controls for receiving college.

Race/ethnicity variable is imputed.

Summary and conclusions

Transfer shock is a potential hurdle that transfer students face during transfer. Upon enrollment in the bachelor's program, 60% of transfer students have a decrease in GPA with a mean decrease of 0.72 GPA points and 40% of transfer students have an increase in GPA with a mean increase of 0.45 GPA points. A portion of this change represents regular semester-to-semester fluctuation in GPA, but a remaining portion appears to be related more directly to transfer.

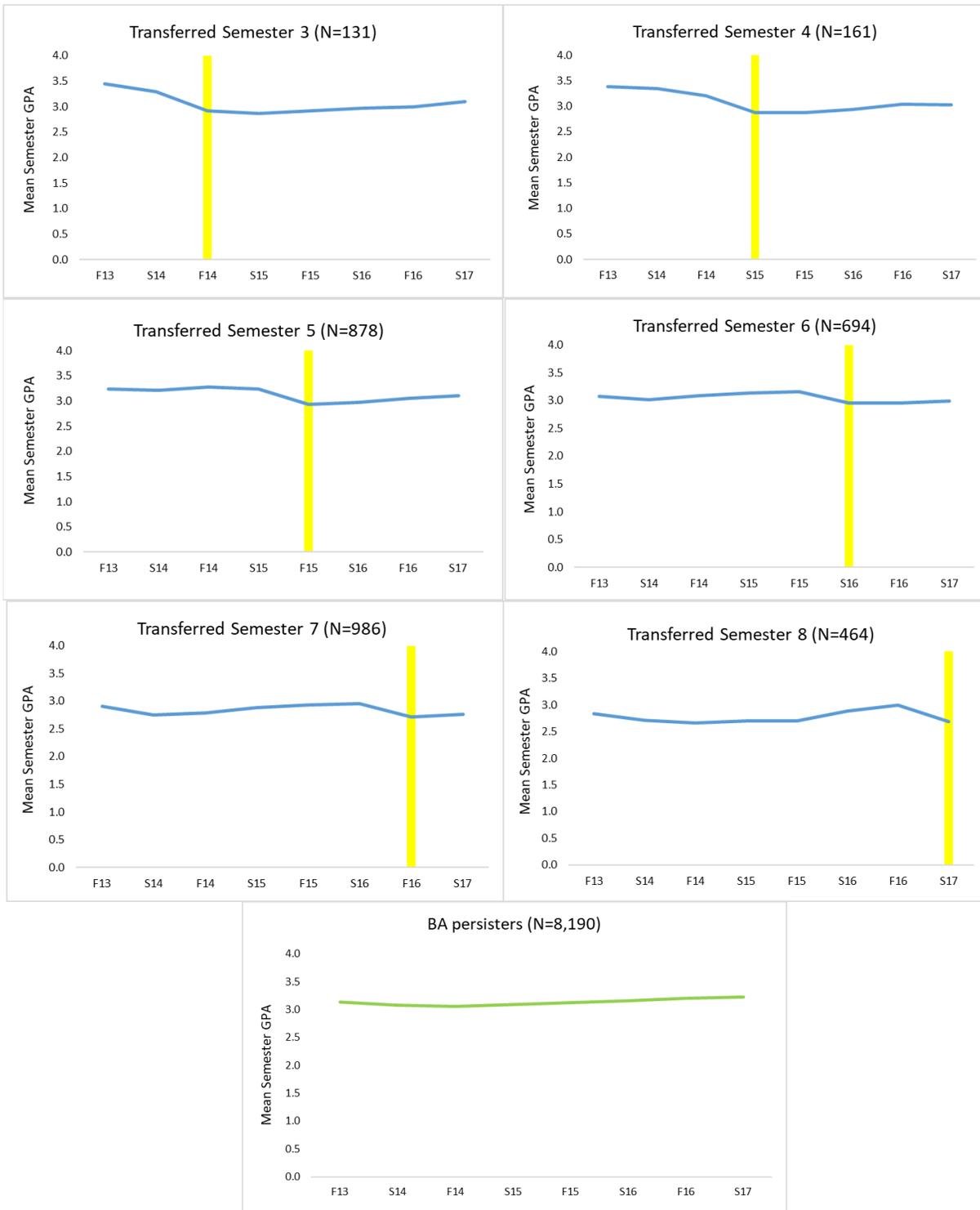
Decreasing the extent of transfer shock can come in various forms, given the causes for it also vary. Ciocca Eller (2017) identifies three main factors that interfere with classroom success. First, while transfer students are new to the campus, they do not take courses tailored towards new students; instead, they head right into intermediate-level courses. Second, transfer students sometimes end up in courses that are not highly engaging because they were unable to identify the highest-quality courses during their schedule selection. Third, transfer students initially do not yet know their peers, making the social context of the classroom an additional challenge.

As for improving transfer student grades, Ciocca Eller advises that college professors become aware of the large number of transfer students in their classes and explicitly explain to them classroom expectations and support resources. Glass and Harrington (2002) recommend that four-year institutions help transfer students adjust more effectively to the academic and social life of the school through counseling, tutoring, and other outreach.

In addition to what happens inside the classroom, Ciocca Eller points to the importance of transfer students starting on the right academic track upon arrival at the four-year college. To this effect, colleges should give transfer students sufficient and timely guidance and information, particularly with respect to credit evaluation, major declaration, and class requirements. The four-year institution, however, should not be the only source of support. Laanan (2001) mentions the importance of advisor assistance while still in the two-year college so that students can ask questions about academic and other expectations related to the transfer process.

Whichever the particular intervention, our data suggest that extra support during the time period right after transfer could be especially impactful. Only 87% of transfer students are still enrolled in their new bachelor's program one semester after transfer and 79% are still enrolled one year after transfer. We thus observe high stop-out/drop-out from the transfer pipeline even among students who make it past the earlier hurdles of transfer application and bachelor's program enrollment.

Appendix. Trends in mean semester GPA among transfer students from the Fall 2013 community college cohort who persisted until semester 8 (and transferred between semester 3 and 8), Total N=3,314



Note: The yellow lines represent first semester of enrollment in bachelor’s institution. GPA trend lines to the left of the yellow lines represent community college performance and trend lines to the right of the yellow lines represent bachelor’s performance. The population in all charts is limited to students who persisted to semester 8, i.e. they were enrolled in both semester 1 (Fall 2013) and semester 8 (Spring 2017). (They may have stopped out during one or more semesters between semester 1 and semester 8, in which case they do not contribute to the observed mean semester GPA(s) during that time.) This is to rule out selection bias in observed GPA trends due to academically weaker students dropping out.

References

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Acknowledgments

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