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The Surprising Labor Market Success of Part-Time Community College Students

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ABSTRACT

Considerable research has focused on the academic outcomes of part-time undergraduates, but few studies have addressed their post-college labor market outcomes. This study compares the post-college earnings of community college students based on different full-time, part-time, and stop-out trajectories during their first four semesters. Community college students who enroll part-time with no stop-outs during their first four semesters earn significantly more after college than full-timers. Part-timers who did stop out are earning at least as much as their full-time counterparts. These effects are evident both among those who graduate/earn 60 credits and among those who do not. Compared to consistent full-time enrollees, two groups of community college undergraduates have significantly lower post-college earnings in the full sample: full-timers who interrupt their studies with a stop-out and persons who mix full-time with part-time and stopping-out.

A recent EAB report found that around 60% of community college students enroll part-time (EAB, 2018). Part-time students differ on average from full-timers: they tend to be older, fewer of them are dependent on parents for financial aid purposes, and they are more likely to have dependents or to hold full-time jobs (Carroll, 1989; Chen, 2007; McCormick, Geis, Vergun, & Carroll, 1995).

Perhaps the most disturbing characteristic of part-time students is their low probability of graduating. In part this reflects the way that federal statistical agencies calculate graduation: if a student takes only eight or nine credits per semester, as a matter of arithmetic s/he is unlikely to complete the 60 credits typically required for an associate degree within two years. Similarly, it is almost impossible for a part-timer to accumulate the approximately 120 credits required to earn a baccalaureate within four years. Consequently, measuring graduation within a two or four-year time frame necessarily yields a very low completion rate for part-time enrollees. Nevertheless, the few surveys that track part-time students for much longer than the normative time to a degree also indicate substantially lower graduation rates for part-timers compared to full-time students. For example, Ginder, Kelly-Reid, and Mann (2017, Table 6) report that only 17% of part-time degree students who enter public two-year colleges complete within eight years of entry, compared to 33% of full-time students.¹

In addition to having lower graduation rates, part-time students have been shown to have less interaction with teachers and peers and report lower levels of self-reported academic achievement than full-time students (Laird & Cruce, 2009). Moreover, some funding systems – notably performance-based budgeting – result in financial penalties for those community colleges which educate large numbers of part-time undergraduates, because the latter secure less funding (McKinney & Hagedorn, 2017).

Taken together, these factors lead to a perception of part-time enrollment as problematic, and to initiatives (discussed below) to encourage part-time undergraduates to increase their course-load and

momentum in college in order to improve their chances of completing a degree. However, degree completion is not the only measure of success from the student's perspective. Increasingly, college administrators and researchers are able to track community college students into the labor market and to document their post-college earnings. In this paper, we study multiple cohorts of degree students who attended community colleges within a large urban public university system. We compare and contrast the post-college earnings of students who attended full-time, part-time, and stopped-out in different combinations over their first four semesters of community college.

We first confirm, for our particular dataset, that part-time community college students are less likely than full-time students to complete a degree (or 60 credits), an outcome previously documented for nationally representative samples. However, we then find, unexpectedly, that these community college part-timers are, in many cases, earning as much or more than their full-time undergraduate counterparts after leaving college. In other words, when we focus on post-college earnings rather than degree completion as the finish line, we are reminded of Aesop's fable of the tortoise and the hare. Many of the slower contestants are succeeding in the end.

Prior research

In two landmark studies, Clifford Adelman (1999, 2006) established the importance of *academic momentum*, the idea that the progress a student makes during the first year of college, measured in terms of the accumulation of credits and GPA, is strongly predictive of degree completion. Conversely, a reduction in academic momentum – whether by taking a part-time course-load, or by dropping or withdrawing from some courses, or by stopping-out of college for a semester or more, or by transferring from one college to another – is associated with a marked reduction in one's chances of graduation.

Academic momentum predicts degree completion over and above a student's demographic background and after controlling statistically for a student's prior academic preparation and performance. Momentum is not simply a reflection of prior social or academic advantages but has an influence on graduation of its own (Adelman, 1999, 2006).

Subsequent research in this tradition has documented that academic momentum just in the first semester of college (rather than for the whole first year) is an important predictor of graduation (Attewell, Heil, & Reisel, 2012; Center for Community College Student Engagement, 2017). In addition, several interventions to increase a student's academic momentum, such as enrolling in a bridge program between high school and college (Douglas & Attewell, 2014) and attending summer school after the first year (Attewell & Jang, 2013) are associated with significantly higher rates of degree completion.

Attewell and Monaghan (2016) document the improvements in graduation associated with taking different credit workloads. Consistent with this, Complete College America (2013) has recommended that the full Pell Grant be limited to students taking 15 credits per semester, as distinct from the present 12 credit threshold.

The research that portrays part-time enrollment as a problem has led to several policy innovations that encourage undergraduates to enroll full-time instead. One example is the City University of New York's ASAP program. This multifaceted intervention for community college students included a requirement for students to enroll full-time and resulted in a near doubling in retention and graduation rates (Strumbos, Linderman, & Hicks, 2018). Community colleges in West Virginia enabled students to enroll in 15 rather than 12 credits per semester without paying any additional tuition (Complete College America, 2013). Additionally, the aforementioned EAB report highlights various opportunities to improve the academic performance of part-time students (EAB, 2018).

The literature has less to say regarding the post-college earnings of part-time students as compared to full-time students. Related to the research above, part-time students might be expected to have lower earnings due to the fact that they are less likely to complete degrees. Even among those who complete degrees, a longer time to degree for part-time students may result in a wage penalty

due to their accumulated human capital becoming obsolete (Fortin & Raguéd, 2017²) or negative signaling (Aina & Pastore, 2012), for instance.

More generally, if part-time students are less engaged in the social and academic life of their college, this may have negative impacts on academic and labor market outcomes. Kalleberg and Dunn (2015) test this at an institutional level, drawing on Nora's (2002) engagement model to determine if students from community colleges with higher proportions of part-time students have lower earnings, though they find that this is not the case. Hu and Wolniak (2010) test academic and social engagement in college more directly and find mixed impacts on earnings.

Alternatively, part-time students may be accumulating important experience in other ways, primarily through work. Work experience during college can operate positively on post-college earnings through potential promotion up the "career ladder" (Fitzgerald, 2006), acquisition of human capital including soft skills (Heckman & Kautz, 2012), and/or positive signaling. The research in this area is inconclusive (see Pascarella & Terenzini, 2005, pp. 521–522 for a review), but some studies have found a positive link between work during college and post-college earnings (Stephenson, 1982; Titus, 2010), particularly for work during community college (Molitor & Leigh, 2005).

Data

We analyze a dataset from 10 community colleges that form part of an urban public university system. The dataset contains anonymized student-level tracking data that includes all first-time freshmen entering degree programs across those 10 institutions in entry cohorts from fall 1999 to fall 2010. The sample includes only those pursuing an associate degree at entry. The colleges have students' post-college earnings data obtained from state employment records covering four quarters in 2015–2016. In addition, they have matched records with the National Student Clearinghouse to identify students who earned undergraduate degrees (either AA or BA) from colleges elsewhere. The database tracks entering students who did not subsequently earn a degree as well as those who did, an unusual and advantageous feature.

We exclude from our analyses anyone still enrolled in college in spring 2015 or later. We also exclude anyone lacking earnings from quarter three of 2015 to quarter two of 2016. This group is excluded because it is unclear what a lack of reported earnings indicates in the data examined in this analysis. Specifically, a lack of reported earnings could indicate that an individual did not earn during a given quarter, but it could also mean that they earned outside of the state analyzed in this study and that those earnings were not captured by the state administrative data. Therefore, we only study those consistently reporting earnings in the period in question. The limitations of this approach will be discussed below. Overall, this results in an analysis sample with an N of 135,930. Analyses are carried out for those who have either earned an undergraduate degree (AA or BA) and/or had accumulated 60 credits after 20 semesters ($N = 58,294$) and separately for those who have not earned a degree or 60 credits after 20 semesters ($N = 77,636$). The rationale for classifying those with 60 or more credits along with students who earned a degree is that many community college students transfer to a four-year college without obtaining the associate degree *en route*. Sixty or more credits are approximately equivalent to completing an associate degree.

Variables

The outcome variable for this study represents total earnings from quarter three of 2015 to quarter two of 2016, obtained from state administrative data. For the descriptive analyses, we report median total earnings of those who had earnings for each of the four quarters, top coded at \$200,000. For the regression analyses in this study, we log this variable for ease of interpretation of the regression coefficients.

The main independent variable is a categorical variable representing six possible course-loads and enrollment trajectories across the first four semesters of a student's college career. For a given

semester, full-time students are defined as those enrolling for 12 or more credits (including remedial courses), while part-time students are those who enroll for more than zero but fewer than 12 credits. Stop-out students are those taking zero credits in a given semester – i.e., not enrolled. Given those definitions, we developed the following classification with six mutually exclusive types of enrollment trajectories:

- Full-time enrollment throughout the first four semesters, with no part-time semesters or stop-outs (this category represents the reference or “benchmark” student).
- Full-time enrollment with at least one stop-out for the first four semesters, no part-time.
- Part-time enrollment throughout the first four semesters, no full-time, no stop-outs.
- Part-time enrollment and at least one stop-out during the first four semesters, no full-time.
- Mixed full-time/part-time enrollment during the first four semesters with no stop-outs.
- Mixed full-time/part-time and at least one stop-out during the first four semesters.

The first type – solely full-time and no stop-outs – serves as the reference category in regression analyses for comparing the earnings of the five other groups, after statistically controlling for demographic, pre-college, and college factors.

Controls

Demographic controls include race/ethnicity, gender, citizenship status at college entry, a binary variable representing limited English ability at college entry, the student’s age at college entry, and a variable representing economic disadvantage (as flagged by the university based on participation in particular low-income programs and/or income level/household size) and whether the student made use of a Pell Grant and/or the state’s tuition assistance in the first semester. For other pre-college controls, we include several high school variables: what type of high school someone graduated from or if the student earned a GED, their SAT score quintile if available, and the number of days between graduating high school and entering community college.

College-level control variables include the term and year of their first enrollment, the particular college that the student attended at entry (anonymized), the student’s cumulative GPA after 20 semesters into their academic career, and their last known major.

Results

Table 1 reports basic demographic statistics for our six categories of full-time/part-time/stop-out status across a student’s first four semesters in college:

Black and Hispanic students are less likely than White or Asian students to attend full-time for all four semesters with no stop-outs. Black and Hispanic students are also more likely than White or Asian students to attend full-time all four semesters but with at least one stop-out. The racial/ethnic differences in the other attendance categories are fairly small. The largest difference between men and women in Table 1 is that, among those who enroll full-time, men are more likely than women to have stopped-out. Citizens at college entry are more likely to stop-out than non-citizens. The final two rows of Table 1 document that those who attend part-time for four semesters with no stop-outs are much older at college entry on median than all of the other groups and have a relatively low likelihood of being flagged as economically disadvantaged. Those who attend part-time and stop-out are slightly older at college entry and are the least likely to be considered to have an economic disadvantage.

Table 2 presents a logistic regression predicting part-time or stop-out status (coded as one) versus full-time or stop-out status (coded as zero) in the first four semesters. We excluded from this specific analysis students who attended a mix of part-time and full-time across the first four semesters. The

Table 1. Demographic statistics by FT/PT/stop-out status across the first four semesters.

Variable	FT 4 sem, no stop- outs	Mix FT/PT 4 sem, no stop- outs	PT 4 sem, no stop- outs	FT 4 sem, at least 1 stop- out	Mix FT/PT 4 sem, at least 1 stop-out	PT 4 sem, at least 1 stop- out
Race/ethnicity*						
White	36.1%	17.9%	2.5%	26.7%	10.2%	6.6%
Black	26.1%	17.9%	2.4%	33.8%	12.9%	6.8%
Hispanic	28.8%	16.6%	1.2%	34.9%	12.9%	5.6%
Asian	42.3%	19.1%	1.3%	23.6%	9.9%	3.8%
Gender						
Women	32.6%	18.4%	2.3%	29.9%	11.1%	5.7%
Men	28.3%	16.6%	1.3%	34.0%	13.3%	6.5%
Citizenship at college entry**						
Citizen	28.8%	16.6%	1.7%	34.0%	12.7%	6.3%
Non-citizen	37.1%	20.7%	2.2%	24.6%	10.3%	5.1%
Median age at college entry	18.6	19.0	31.6	19.2	19.1	21.7
Economic disadvantage***	89.0%	81.1%	50.9%	84.0%	78.9%	45.4%
N	41,736	23,915	2,522	43,140	16,422	8,195
%	30.7%	17.6%	1.9%	31.7%	12.1%	6.0%

*Native Americans have a small sample size and are not included in this portion of the analysis; **2.5% of citizenship data is missing; ***Less than 1% of economic disadvantage data is missing.

coefficients are odds ratios, with results greater than one indicating a positive relationship and results less than one indicating a negative relationship. We use robust standard errors throughout.

Holding other factors constant, Black and Hispanic students are more likely to attend part-time during the first four semesters than White students. Asian students are less likely to attend part-time than Whites. Women are more likely than men to be part-timers, as are U.S. citizens at college entry as compared to non-citizens at college entry. Students who start college at older ages are more likely to attend part-time. Economically disadvantaged students with Pell or tuition assistance funding have much lower odds of registering part-time than those disadvantaged students who lack Pell/tuition assistance aid. Students who are not flagged as economically disadvantaged are substantially more likely to attend part-time than disadvantaged Pell or tuition assistance recipients. This suggests that Pell and assistance recipients avoid part-time enrollment.

Students with lower SAT scores are more likely to be part-timers, as are those who delayed entering college for some time after graduating high school. There were also some differences in enrollment patterns between the participating community colleges. Lastly, college major clusters differed on the part-time/full-time dimension: health majors are the most likely to attend part-time and social science majors are the least likely.

Table 3 presents the percentage of students earning a degree (or 60 credits) and the median earnings for our six categories of full-time/part-time/stop-out status. As expected, students who attend full-time for the first four semesters and do not stop-out are the most likely to graduate, with 76% of those students earning a degree and/or accumulating 60 credits. Students who fluctuate between full-time and part-time enrollment but do not stop-out do worse, with only 57% achieving this milestone, while part-timers with no stop-outs only reach the milestone in 44% of cases. The bottom three rows of Table 3 indicate that students who stopped-out during their first four semesters of college had the lowest proportions who graduated or reached 60 credits. In terms of graduation and credit accumulation, stopping-out seems more deleterious than simply enrolling part-time.

The labor market performance of these six enrollment groups tells a different story from the graduation picture. The “benchmark” type – students who attended full-time with no stop-outs – did *not* have the highest median post-college earnings. Surprisingly, community college students who attend part-time with no stop-outs in the first four semesters earn most, a median of almost \$53,000 post-college. Those attending part-time with at least one stop-out have the second highest earnings, over \$43,000 in median earnings. This is a somewhat higher earnings amount than the “benchmark”

Table 2. Logistic regression predicting part-time vs. full-time status first four semesters (PT = PT or stop-out first four sem, FT = FT or stop-out first four sem, mix FT/PT excluded, coefficients are odds ratios).

Variables	PT 4 Sem (Ref. = FT 4 Sem)
Race/ethnicity (ref. = White)	
Black	1.15*** (0.043)
Hispanic	1.15*** (0.045)
Asian	0.83*** (0.046)
Native American	1.02 (0.27)
Female	1.15*** (0.031)
Citizenship at college entry (ref. = U.S. citizen)	
Citizenship missing	0.88 (0.067)
Non-citizen	0.78*** (0.027)
Limited English ability at college entry	
	0.85*** (0.032)
Age at college entry (ref. = 19)	
18 or younger	0.74*** (0.045)
20	1.19*** (0.056)
21	1.56*** (0.087)
22	1.85*** (0.12)
23	2.44*** (0.15)
24 or older	6.45*** (0.34)
Entry age missing	1.39 (1.29)
Economic disadvantage & Pell/tuition asst. (ref. = economic disadvantage with Pell/tuition asst. taken)	
Economic disadvantage with no Pell/tuition asst. taken	8.29*** (0.30)
No economic disadvantage with no Pell/tuition asst. taken	11.8*** (0.36)
Economic disadvantage & Pell/tuition asst. unknown	16.1*** (5.58)
High school info (ref. = study city public)	
Foreign high school	0.40*** (0.025)
GED	0.87** (0.037)
Study city private/parochial	0.82** (0.051)
In-state, outside of study city	0.87 (0.075)
U.S., outside of study state	0.90 (0.071)
High school info missing	0.84*** (0.040)
High school GPA (ref. = C+ or less: 0.00–2.66)	
B-: 2.67–2.99	0.91* (0.035)
B: 3.00–3.32	0.87** (0.046)
B+: 3.33–3.66	0.87

(Continued)

Table 2. (Continued).

Variables	PT 4 Sem (Ref. = FT 4 Sem)
	(0.083)
A-/A: 3.67–4.00	0.82 (0.15)
No high school GPA record	1.01 (0.041)
SAT total (ref. = 3rd quintile)	
1st quintile (lowest)	1.55*** (0.12)
2nd quintile	1.31*** (0.10)
4th quintile	0.85 (0.089)
5th quintile (highest)	1.04 (0.14)
No SAT score	1.87*** (0.13)
Time to enrollment in college after high school graduation (ref. = 0–92 days)	
93–457 days	1.73*** (0.079)
Greater than 457 days	2.38*** (0.12)
Time to enrollment missing	1.90*** (0.13)
College at entry (ref. = College 1)	
College 2	0.98 (0.046)
College 3	0.75*** (0.041)
College 4	0.38*** (0.020)
College 5	0.78*** (0.037)
College 6	0.86** (0.042)
College 7	0.27*** (0.022)
College 8	0.27*** (0.030)
College 9	0.63*** (0.031)
College 10	0.46*** (0.032)
Last known major cluster (ref. = liberal arts)	
STEM	1.08* (0.044)
Health	1.57*** (0.062)
Business	0.87*** (0.032)
Education	0.70*** (0.049)
Humanities	0.53*** (0.043)
Social sciences	0.32*** (0.029)
Other majors	0.75*** (0.036)
Unclassified/unknown	1.22* (0.12)
Constant	0.011*** (0.0011)
Observations	95,593

Robust standard errors in parentheses. First semester enrolled control not displayed.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 3. Graduation/60 credit rates and post-college median earnings (Q3 2015 – Q2 2016) by FT/PT/stop-out status in the first four semesters.

	Earned degree or 60 credits after 20 semesters	Median earnings	N	%
FT 4 sem, no stop-outs	76%	\$42,833	41,736	30.7%
Mix PT/FT, no stop-outs	57%	\$41,744	23,915	17.6%
PT 4 sem, no stop-outs	44%	\$52,855	2,522	1.9%
FT 4 sem, at least 1 stop-out	18%	\$36,597	43,140	31.7%
Mix PT/FT, at least 1 stop-out	18%	\$37,298	16,422	12.1%
PT 4 sem, at least 1 stop-out	10%	\$43,373	8,195	6.0%

student and mixed full-time/part-time students with no stop-outs, and quite a bit more than those full-time or mixed students who have at least one stop-out. This pattern provides preliminary evidence that part-time students are actually doing fairly well in terms of post-college earnings (a multivariate model will confirm this below).

Table 4 provides similar information but separates students who graduated or reached 60 credits from students who did not graduate or reach the 60-credit milestone. First, as one might expect, earning a degree and/or 60 credits appears to provide a big earnings boost across all of the enrollment categories compared to students who did not reach either of these milestones. The graduation pay benefit is between around \$7,000 and \$15,000 per annum depending on the category.

Beyond this, we see a similar pattern of earnings within the graduate/60 credit and within the non-graduate/60 credit panels of **Table 4**. Part-timers with no stop-outs are the highest earning group in both panels. Part-timers with at least one stop-out are the second highest earners. Students with other enrollment patterns – including full-time enrollees and mixed part and full-timers – earn less.

Table 5 examines these enrollment categories using a multivariate OLS regression model predicting logged and top-coded post-college earnings. **Table 5** reports separate regression models for the full sample, then for those students who earned a degree and/or 60 credits, and finally for those who earned neither. Within each of these samples, a “baseline” regression includes only the enrollment categories, plus a control for the semester and year the student first enrolled. A “full model” adds the other control variables mentioned above (the coefficients for all controls are reported in **Table A1** of the Appendix). Note that some of the variables included in the “full model” are measured *after* the first four semesters – cumulative GPA and final major – and hence may be consequences of part-time enrollment or mediating variables. The reference category for the set of enrollment dummies represents students who attended full-time for their first four semesters with no stop-outs, the “benchmark” student.

Within the baseline model of the full sample, we again see a substantial earnings advantage for part-timers with no stop-outs and a small advantage for part-timers with at least one stop-out compared to the full time, no stop-out, “benchmark” student. When all controls are added, some of the earnings advantage for the part-timers disappears. After adding controls, part-timers with no stop-outs still have an earnings advantage of around 6%, while part-timers with at least one stop-out have no remaining earnings advantage, again compared to the “benchmark” student. The earnings

Table 4. Post-college median earnings (Q3 2015 – Q2 2016) by FT/PT/stop-out status in the first four semesters and graduation/60 credit status.

	Earned a degree/60 credits after 20 semesters			Did not earn a degree or 60 credits after 20 semesters		
	Median earnings	N	Pct.	Median earnings	N	Pct.
FT 4 sem, no stop-outs	\$45,292	31,871	54.7%	\$35,542	9,865	12.7%
Mix PT/FT, no stop-outs	\$46,433	13,583	23.3%	\$36,407	10,332	13.3%
PT 4 sem, no stop-outs	\$62,480	1,108	1.9%	\$47,157	1,414	1.8%
FT 4 sem, at least 1 stop-out	\$42,612	7,839	13.4%	\$35,342	35,301	45.5%
Mix PT/FT, at least 1 stop-out	\$42,824	3,033	5.2%	\$36,185	13,389	17.2%
PT 4 sem, at least 1 stop-out	\$50,591	860	1.5%	\$42,597	7,335	9.5%

Table 5. Predicting logged post-college earnings (Q3 2015 – Q2 2016) with various FT/PT/stop-out statuses across first four semesters (ref. = FT 4 semesters, no stop-outs).

Variables	Full sample		Earned deg/60 cred		No deg/60 cred	
	Baseline	Full model	Baseline	Full model	Baseline	Full model
FT/PT/stop-out status (ref. = FT 4 sem, no stop-outs)						
Mix FT/PT, no stop-outs	-0.0046 (0.0051)	-0.012* (0.0050)	0.019** (0.0064)	-0.0060 (0.0063)	0.051*** (0.0090)	0.020* (0.0087)
PT 4 sem, no stop-outs	0.21*** (0.012)	0.064*** (0.012)	0.24*** (0.018)	0.093*** (0.019)	0.29*** (0.017)	0.11*** (0.017)
FT 4 sem, at least 1 stop-out	-0.13*** (0.0044)	-0.067*** (0.0048)	-0.078*** (0.0079)	-0.062*** (0.0078)	-0.0048 (0.0073)	0.0013 (0.0073)
Mix FT/PT, at least 1 stop-out	-0.095*** (0.0058)	-0.052*** (0.0059)	-0.069*** (0.011)	-0.063*** (0.011)	0.035*** (0.0084)	0.019* (0.0083)
PT 4 sem, at least 1 stop-out	0.029*** (0.0081)	-0.0068 (0.0086)	0.066** (0.022)	0.014 (0.021)	0.17*** (0.010)	0.063*** (0.011)
Observations	135,930	135,930	58,294	58,294	77,636	77,636
R-squared	0.120	0.195	0.105	0.184	0.108	0.182

Robust standard errors in parentheses. Main predictors only, controls in Table A1.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

disadvantage for full-timers and mixed students with stop-outs in the full model shrinks as well, to around 7% and 5%, respectively, compared to the reference. Mixed-enrollment students with no stop-outs are doing about the same as the “benchmark” student, only 1% worse. Part-timers with no stop-outs do the best in terms of post-college earnings even after controlling for college GPA, major and other variables. Part-timers with at least one stop-out and mixed students with no stop-outs do about as well as full-timers with no stop-outs. Full-timers and mixed students with stop-outs do the worst.

The pattern is practically identical among the separate sample of those who have earned a degree and/or 60 credits. In the baseline model, part-timers with no stop-outs have approximately a 24% earnings advantage compared to the reference group. Part-timers with at least one stop-out have almost a 7% earnings advantage. These advantages shrink to 9% and nothing, respectively, when adding all the controls, again indicating that some of the part-time advantages at baseline is captured by these controls. There is practically no difference in earnings between mixed-enrollment students with no stop-outs and full-time students with no stop-outs.

Among those who did not earn a degree or 60 credits, part-timers with no stop-outs again earn the most, with approximately a 29% earnings advantage compared to the reference group, and part-timers with at least one stop-out earn about 17% more than the reference group in the baseline model. The “benchmark” student within this sample earns less or about as much as the remaining enrollment groups. The earnings advantages of part-timers shrink but remain statistically significant in the full models that include controls for major and GPA, suggesting again that part of the advantage of part-time students reflects variables such as their choice of major and their GPA.

Limitations

It is important to remember that this analysis only includes students who reported earnings for all four quarters from quarter three of 2015 to quarter two of 2016 for the reasons discussed above. This raises the issue of biased coverage, the possibility that people in each of the six enrollment categories might not be equally likely to report earnings for all four quarters and therefore might not be equally represented in the sample with earnings for these quarters. Table A2 in the Appendix addresses these concerns. Specifically, we compare the distribution for each of the six enrollment categories for those reporting earnings for all four quarters to the enrollment distribution of those not reporting four quarters of earnings. These distributions are fairly similar, and in particular, there is very little difference in the likelihood of part-time or mixed enrollment across four semesters for each

distribution. Therefore, there is little evidence of selection into reporting earnings for all four quarters associated with the six enrollment categories, but this is still an important limitation to keep in mind.

It is also important to mention that this study is limited to community college students pursuing degrees at entry, though not necessarily earning degrees down the road. This excludes those who have no intention of pursuing a degree, such as those pursuing certificates, particular skills, or simply taking courses of interest. The enrollment patterns of these students may be differently related to their labor market outcomes after their college careers. Future research would do well to replicate our research for students who do not enroll in degree programs at entry, determining how their enrollment patterns may impact their future earnings.

Conclusion & discussion

Many community colleges have been involved in efforts aimed at increasing student retention and raising graduation rates, in part because they view completing a credential as very important for students' labor market outcomes. The "academic momentum" concept has provided a rationale for efforts to increase the course-load intensity of community college students in order to increase graduation and retention rates. A substantial body of empirical research has demonstrated that students who enroll for more credits are more likely to be retained and ultimately to graduate. This paper does not contradict those earlier findings on the benefits of academic momentum. Indeed, we also document much lower graduation rates among the part-time students in our sample.

However, this study of a large sample of degree-seeking community college students reveals a previously hidden side of the part-timer phenomenon. In the full sample, before and after adding controls for college GPA, major, and demographics, the relatively small group of community college students who consistently enroll part-time and do not stop-out during their first four semesters earn significantly more on average after leaving college compared to full-timers. After adding all controls in the full sample, part-time enrollees who do stop-out of college earn about as much as students who attend full-time with no stop-outs, as do students who attend a mix of part-time and full-time with no stop-outs. In no model do we find that attending part-time has a clear disadvantage in terms of post-college earnings. Compared to consistent full-time enrollees, two groups of community college undergraduates have significantly lower post-college earnings in the full sample: full-timers who interrupt their studies with a stop-out and persons who mix full-time with both part-time and stopping-out.

These findings suggest a re-evaluation of the part-time route through community college. The increasing emphasis placed upon metrics based on time to degree and on degree completion can make part-time students appear as failures or as detrimental to a college's statistics. Our analyses indicate that, on average, students who currently follow a part-time route through community college do not suffer a clear disadvantage in terms of their post-college earnings, despite the fact that they are much less likely to graduate with a degree.

Administrators and student advisors at community colleges, therefore, face a complex challenge. They should encourage degree-seeking students to maximize their academic momentum towards a credential while remaining sensitive to the fact that there is a subpopulation of students who, because of some combination of work, family, and other responsibilities, choose to progress more slowly through college. The academic version of Aesop's fable of the tortoise and the hare suggests that many of the academic tortoises are reaching their earnings goals and implies that colleges should remain supportive of their progress, slow and halting as it may be.

We hope that researchers will replicate our analyses for other community college systems in order to determine how generalizable these findings about part-timers are.

Notes

1. Readers should note that the IPEDS statistics on “graduation rates” include only students who initially enroll full-time and omit those who enrolled part-time at college entry. Recent publications such as Ginder et al. (2017) that report outcome measures for students who enter as part-timers count graduation rates at the same institution. Consequently, they omit all students who transfer and graduate with a degree from a different institution.
2. Fortin and Rague (2017) find mixed results for the relationship between schooling interruptions and wages depending on the gender of the worker and the reason for the interruption.

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Table A1. Predicting logged post-college earnings (Q3 2015 – Q2 2016) with various FT/PT/stop-out statuses across the first four semesters.

Variables	Full sample	Earned deg/ 60 cred	No deg/60 cred
	Full model	Full model	Full model
Race/ethnicity (ref. = White)			
Black	-0.10*** (0.0055)	-0.078*** (0.0079)	-0.12*** (0.0078)
Hispanic	-0.042*** (0.0055)	-0.041*** (0.0078)	-0.042*** (0.0077)
Asian	-0.11*** (0.0073)	-0.077*** (0.0096)	-0.15*** (0.011)
Native American	-0.071* (0.035)	-0.0079 (0.049)	-0.11* (0.047)
Female	-0.21*** (0.0037)	-0.17*** (0.0056)	-0.24*** (0.0048)
Citizenship at college entry (ref. = U.S. citizen)			
Citizenship missing	0.014 (0.011)	0.019 (0.016)	0.0066 (0.015)
Non-citizen	0.012** (0.0044)	0.019** (0.0064)	-0.0011 (0.0061)
Limited English ability at college entry			
	-0.013** (0.0043)	-0.0016 (0.0063)	-0.021*** (0.0060)
Age at college entry (ref. = 19)			
18 or younger	0.012* (0.0053)	0.014* (0.0070)	0.0014 (0.0079)
20	-0.023*** (0.0051)	-0.037*** (0.0080)	-0.0084 (0.0066)
21	-0.035*** (0.0070)	-0.072*** (0.012)	-0.0091 (0.0087)
22	-0.013 (0.0090)	-0.030* (0.015)	0.0064 (0.011)
23	-0.00069 (0.0091)	-0.027 (0.015)	0.031** (0.011)
24 or older	0.046*** (0.0079)	-0.016 (0.012)	0.11*** (0.010)
Entry age missing	-0.048 (0.23)	NA NA	0.0058 (0.23)
Economic disadvantage & Pell/tuition asst. (ref. = economic disadvantage with Pell/tuition asst. taken)			
Economic disadvantage with no Pell/tuition asst. taken	0.016** (0.0057)	0.0095 (0.0078)	0.0053 (0.0083)
No economic disadvantage with no Pell/tuition asst. taken	0.083*** (0.0048)	0.064*** (0.0079)	0.098*** (0.0061)
Economic disadvantage & Pell/tuition asst. unknown	-0.057 (0.076)	-0.079 (0.11)	-0.049 (0.10)
High school info (ref. = study city public)			
Foreign high school	0.016* (0.0083)	0.055*** (0.011)	-0.042*** (0.012)
GED	0.020** (0.0067)	0.050*** (0.011)	0.0030 (0.0082)
Study city private/parochial	-0.0075 (0.0073)	-0.0019 (0.010)	-0.0050 (0.010)
In-state, outside of study city	-0.0058 (0.011)	0.021 (0.017)	-0.020 (0.015)
U.S., outside of study state	-0.015 (0.013)	0.0040 (0.019)	-0.020 (0.016)
High school info missing	0.038*** (0.0065)	0.053*** (0.011)	0.026** (0.0082)
SAT total (ref. = 3rd quintile)			
1st quintile (lowest)	-0.089*** (0.0072)	-0.098*** (0.0097)	-0.077*** (0.011)
2nd quintile	-0.037*** (0.0075)	-0.043*** (0.0096)	-0.029* (0.012)
4th quintile	0.031**	0.043***	0.014

(Continued)

Table A1. (Continued).

Variables	Full sample	Earned deg/ 60 cred	No deg/60 cred
	Full model	Full model	Full model
	(0.010)	(0.013)	(0.017)
5th quintile (highest)	0.0032 (0.018)	0.021 (0.022)	-0.021 (0.027)
No SAT score	-0.067*** (0.0068)	-0.054*** (0.0091)	-0.071*** (0.010)
Time to enrollment in college after high school graduation (ref. = 0–92 days)			
93–457 days	0.0010 (0.0052)	-0.0044 (0.0081)	0.0057 (0.0068)
Greater than 457 days	0.041*** (0.0067)	0.027* (0.011)	0.050*** (0.0086)
Time to enrollment missing	-0.0022 (0.0089)	0.024 (0.015)	-0.0031 (0.011)
College at entry (ref. = College 1)			
College 2	0.040*** (0.0077)	0.071*** (0.011)	0.011 (0.011)
College 3	-0.054*** (0.0074)	-0.043*** (0.012)	-0.057*** (0.0095)
College 4	-0.037*** (0.0072)	-0.030** (0.010)	-0.051*** (0.0100)
College 5	-0.017** (0.0066)	-0.00053 (0.010)	-0.028** (0.0088)
College 6	0.032*** (0.0067)	0.042*** (0.0100)	0.012 (0.0090)
College 7	-0.12*** (0.0095)	-0.11*** (0.015)	-0.12*** (0.012)
College 8	0.044*** (0.0090)	0.068*** (0.012)	0.021 (0.014)
College 9	-0.053*** (0.0069)	-0.031** (0.011)	-0.060*** (0.0090)
College 10	-0.011 (0.0098)	-0.0026 (0.016)	-0.011 (0.012)
Cumulative GPA by semester 20 (Ref = C-range: 1.7–2.69)			
F-range: 0.0–0.99	-0.097*** (0.0053)	-0.030* (0.015)	-0.11*** (0.0061)
D-range: 1.0–1.69	-0.076*** (0.0053)	-0.040*** (0.012)	-0.072*** (0.0061)
B-range: 2.7–3.69	0.15*** (0.0043)	0.15*** (0.0055)	0.078*** (0.0076)
A-range: 3.7–4.0	0.25*** (0.011)	0.29*** (0.013)	0.13*** (0.018)
GPA missing	-0.068*** (0.010)	-0.066 (0.038)	-0.083*** (0.011)
Last known major (ref. = business, management, marketing, and related support services)			
Agriculture, agriculture operations	-0.019 (0.24)	0.096 (0.082)	-0.068 (0.29)
Natural resources and conservation	-0.072 (0.096)	-0.045 (0.10)	-0.13 (0.22)
Architecture and related services	0.0098 (0.032)	-0.028 (0.036)	0.17* (0.071)
Area, ethnic, cultural, gender, and group studies	-0.16*** (0.040)	-0.19*** (0.042)	-0.047 (0.14)
Communication, journalism, and related programs	-0.16*** (0.020)	-0.19*** (0.022)	-0.064 (0.043)
Communications technologies/technicians	-0.23*** (0.023)	-0.25*** (0.051)	-0.23*** (0.025)
Computer and information sciences	-0.054*** (0.0085)	-0.012 (0.014)	-0.066*** (0.011)
Personal and culinary services	-0.044 (0.035)	-0.089 (0.082)	-0.013 (0.039)

(Continued)

Table A1. (Continued).

Variables	Full sample	Earned deg/ 60 cred	No deg/60 cred
	Full model	Full model	Full model
Education	-0.11*** (0.0084)	-0.086*** (0.011)	-0.15*** (0.013)
Engineering	0.10*** (0.019)	0.14*** (0.029)	0.080*** (0.024)
Engineering technologies and engineering-related fields	0.067*** (0.010)	0.063*** (0.017)	0.082*** (0.013)
Foreign languages, literatures, and linguistics	-0.16*** (0.037)	-0.19*** (0.038)	0.0025 (0.16)
Family and consumer sciences/human sciences	-0.083* (0.036)	-0.028 (0.042)	-0.23*** (0.069)
Legal professions and studies	-0.0021 (0.016)	-0.022 (0.021)	0.011 (0.024)
English language and literature/letters	-0.16*** (0.017)	-0.18*** (0.019)	-0.15*** (0.044)
Liberal arts and sciences, general studies	-0.047*** (0.0051)	-0.041*** (0.0082)	-0.035*** (0.0067)
Library science	-0.21 (0.12)	-0.24* (0.11)	NA NA
Biological and biomedical sciences	-0.041* (0.016)	-0.071** (0.022)	0.0030 (0.024)
Mathematics and statistics	-0.12*** (0.032)	-0.13*** (0.038)	-0.10 (0.060)
Multi/interdisciplinary studies	-0.039 (0.054)	-0.10 (0.066)	0.047 (0.092)
Parks, recreation, leisure, and fitness	-0.057* (0.028)	-0.097* (0.040)	-0.0043 (0.039)
Philosophy and religious studies	-0.28*** (0.076)	-0.35*** (0.083)	-0.044 (0.17)
Physical sciences	-0.026* (0.011)	-0.039 (0.022)	-0.0074 (0.013)
Science technologies/technicians	-0.28 (0.33)	0.13*** (0.021)	-0.43 (0.43)
Psychology	-0.062*** (0.010)	-0.090*** (0.011)	-0.0041 (0.035)
Homeland security, law enforcement, firefighting, and related protective services	0.059*** (0.0090)	0.076*** (0.013)	0.052*** (0.013)
Public administration and social services professions	-0.044*** (0.010)	-0.067*** (0.013)	-0.029 (0.016)
Social sciences	-0.015 (0.010)	-0.036** (0.011)	0.017 (0.050)
Mechanic and repair technologies/technicians	0.033 (0.018)	0.038 (0.036)	0.038 (0.020)
Transportation and materials moving	-0.065 (0.12)	-0.089 (0.14)	0.093 (0.23)
Visual and performing arts	-0.26*** (0.011)	-0.31*** (0.016)	-0.20*** (0.016)
Health professions and related programs	0.081*** (0.0063)	0.17*** (0.0096)	0.031*** (0.0084)
History	-0.18*** (0.031)	-0.20*** (0.033)	-0.054 (0.11)
Unclassified/unknown	-0.087*** (0.015)	-0.12*** (0.032)	-0.066*** (0.017)
Constant	-0.038** (0.013)	-0.060** (0.020)	-0.018 (0.018)
Observations	135,930	58,294	77,636
R-squared	0.195	0.184	0.182

Note. Robust standard errors in parentheses. Controls only, the first semester enrolled control not displayed.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table A2. FT/PT/stop-out distribution for those earning any wages all four quarters and those with no earnings at least one quarter (Q3 2015 – Q2 2016).

	Earned wages all 4 quarters		Did not earn wages at least 1 quarter	
	<i>N</i>	%	<i>N</i>	%
FT 4 sem, no stop-outs	41,736	30.7%	36,510	25.4%
Mix PT/FT, no stop-outs	23,915	17.6%	21,518	15.0%
PT 4 sem, no stop-outs	2,522	1.9%	1,857	1.3%
FT 4 sem, at least 1 stop-out	43,140	31.7%	55,439	38.6%
Mix PT/FT, at least 1 stop-out	16,422	12.1%	17,944	12.5%
PT 4 sem, at least 1 stop-out	8,195	6.0%	10,241	7.1%