Abstract Title Page

Title:

Increasing the Academic Momentum of Community College Students

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Abstract Body

Problem / Background / Context:

America's system of higher education has expanded steadily for several decades, drawing many students from lower-income groups into higher education, and especially into community colleges. Unfortunately, completion rates for degree-seeking undergraduates at community colleges are quite low: nationwide, only 26 percent complete either an AA or BA degree within six years of entry (Horn & Skomsvold, 2012).

In explaining this low rate of success, some scholars have emphasized students' background characteristics: either their inadequate academic preparation for college, or their socio-demographic origins in economic and educationally disadvantaged families. A different perspective, however, was developed by Clifford Adelman (1999, 2006) and others which emphasized the role played by undergraduates' experiences during the first year of college in their ultimate success or failure. Central to this perspective is Adelman's claim that above and beyond students' preparation and social origins, their academic momentum during the first year of college makes a big difference to persistence and graduation.

Academic momentum was conceptualized by Adelman in terms of the number of credits a student earns in the first year of study, grades in those courses, and the trajectory over time (whether GPA and credits increase over time). His conception was nuanced, but would have been difficult to empirically test. Attewell et al. (2012) modified the momentum concept, in order to distinguish between momentum viewed as credits attempted and momentum viewed as success in courses. They argued that conflating student success in courses with course-load attempted made it harder to assess potential interventions into student momentum. As such, they opt for a definition which treats credits attempted as a direct indicator of momentum.

This paper uses the credits-attempted perspective and reports on several related projects all intended to evaluate potential interventions to raise academic momentum among first-year community college students. The presentation contrasts non-experimental findings from analyses of transcript data with three randomized control trials aimed at assessing the impact of increasing student momentum.

Purpose / Objective / Research Question / Focus of Research:

The research questions addressed are: first, is there evidence that increased academic momentum – defined as increased engagement in course-taking in the first year – improves retention and degree completion among community college students in non-experimental settings? and second, will experimental manipulations or interventions that increases students' momentum result in better retention and degree completion?

Improvement Initiative / Intervention / Program / Practice:

The research considers three potential interventions, programs or practices: (1) enrolling in summer school immediately prior to starting at a community college; (2) increasing from a part time course-load to a full-time course-load during the first year of college; and (3) attending summer school at the end of one's first year at community college.

These options are available to all entering community college students at CUNY. However, not all students avail themselves of these opportunities. Our analyses of non-experimental data use propensity-score matching methods to assess whether the three interventions or programs have the positive effects previously hypothesized. Our three RCT experiments examine whether students who had previously *not* voluntarily chosen to participate in these programs can be persuaded to do so, using material incentives ($1000 each), and if they do participate, do they subsequently exhibit better academic outcomes than controls?

Setting:

We compare and contrast analyses of nation-wide transcript, case study, and RCT data for community college students at the City University of New York.

Population / Participants / Subjects:

The national data involve nearly fifteen thousand community college students from a nationally-representative sample. The CUNY analyses draw upon several cohorts of entering freshmen, aged between 18 and 25, at several urban community colleges. These students were Pell-eligible, an indicator of relatively low income.

Research Design:

We report findings from longitudinal analyses of student transcript data, using propensity-score matching to attempt to address selection bias, and longitudinal analyses of student record data for participants in three RCTs. The RCT experiments are summarized in Appendix One. The total number of participants was 1,570 with 719 in the control and 851 the experimental groups, respectively.

Data Collection and Analysis:

The RCTs were undertaken over a period of two years from 2010-2012, with tracking data updated thereafter. The national data were taken from NCES' transcript file from the Beginning Postsecondary Study (BPS) which followed the 2004 entering cohort until 2009. The CUNY cohort data were analyzed using similar methods. To analyze the RCTs, we employed simple intent to treat (ITT) analyses as well as instrumental variable (IV) analyses which were conditioned on enrollment in the given incentive.

Findings / Outcomes:

Summer Bridge Program before first year of community college:

National data: a **5.3** percentage point boost in retention into the 2nd year and a **9.6** percentage point higher 6-year graduation rate.

CUNY transcript data: a **6** percentage point higher retention rate into the second year and an additional **3.6** credits earned by three semesters after entry.

RCT Data: we do **not** find any statistically significant effects of Bridge participation on retention, course-taking, credit accumulation or GPA, however analysis is set to continue for at least another two years.

Bumping Up to Full time in Second Semester

National Data: an average **11** percentage point increase in any degree attainment (AA or BA).

CUNY Transcript Data: graduation rates boosted by **14** percentage points at community colleges.

RCT Data**:** Preliminary results among a small first cohort showed experimental students were approximately **31** percentage points more likely than the control group to attend full-time in the following semester (Fall 2011). This significant difference persisted through Spring 2012, and by Fall 2012 it had grown to a **39** percentage point difference. In 2012, we ran a second iteration of this RCT to increase the overall sample size, but results for this group have yet to become available. By the Spring of 2012, treatment group students had earned **13.6** more credits on average.

Summer Coursework AFTER first year

National Data: **7.0** percentage points more likely to retain in the following spring semester and **10.2** percentage points less likely to ever stop out. Also, they are **9.8** percentage points more likely to graduate within six years.

CUNY Data: community college students are **15.9** percentage points more likely to retain in the Fall immediately after taking the summer class. These students are **7.5** percentage points more likely to graduate within 6 years.

RCT Data: Students in the experimental group were no more likely to attend in the next semester (Fall 2011) than control group students. However, in Spring 2012, a substantial difference emerged: the treatment effect is estimated to be **13** percentage points ($p<.05$). The retention differential documented in Spring 2012 has not re-appeared in Fall 2012. As would be expected, treatment group students earned an average of **4.5** additional credits by Spring of 2012. We are continuing to track students' progress.

Conclusions:

Propensity score matched analyses of non-experimental data from national and CUNY transcript studies indicate that all three programs or interventions community college students had significant positive effects on retention and/or degree completion among community college freshmen. Ongoing RCT experimental studies, however, have not shown significant results for all of the interventions. Our preliminary interpretation is that the students who were incentivized into participation but who had not previously chosen to participate in these momentum-enhancing programs without added incentives may be less likely to benefit than the students who do voluntarily participate. In policy terms, our preliminary results suggest that community colleges should offer bridge programs and summer programs, and encourage part-time students to increase to full time in their second semester. These programs or interventions are likely to increase retention and graduation rates. However, requiring *all* students to take these programs or otherwise pressuring students to participate may not result in retention gains for that subpopulation of students who tend to avoid taking those programs.

Appendices

Appendix A. References

Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and bachelor's degree attainment*. Available at http://www.ed.gov/pubs/Toolbox/toolbox.html

Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education. Available at http://www2.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf

Attewell, P., Heil, S., & Reisel, L. (2012). "What Is Academic Momentum? And Does It Matter?" *Educational Evaluation & Policy Analysis.* Volume 34 Issue 1 March 2012 pp. 27 - 44.

Horn, L., & Skomsvold, P. (2012). *Community college student outcomes 1994-2009* (NCES Report 2012-253). U.S. Department of Education. Retrieved from http://nces.ed.gov/pubs2012/2012253.pdf

Appendix B. Tables and Figures

Table 1
Summary of Momentum Randomized Control Trials

	Intervention	**Population**	**Campuses**	**N of Participants (Experimental /Control)**
Experiment A	Part-Time → Full-Time	Fall 2010 AND Fall 2012 Entering first time students	2010 - 7 2012 - 5	2010 – 292/161 2012 – 31/30
Experiment B	Take a Summer Course AFTER first year of College	Fall 2010 Entering first time students	2011 - 4	2011 – 234/234
Experiment C	Take an Immersion Course BEFORE first year of College	Fall 2011 AND Fall 2012 Entering first time students	2011 - 6 2012 - 3	2011 – 146/146 2012 – 148/148
				Total – 1,570