

The Completion Arch: Measuring Community College Student Success

Progress—Annotated Bibliography

Adelman, C. (2005). *Moving into town and moving on: The community college in the lives of traditional-aged students*. Washington, DC: Office of Vocational and Adult Education, U.S. Department of Education. Retrieved June 25, 2010, from <http://www2.ed.gov/rschstat/research/pubs/comcollege/movingintotown.pdf>.

Author abstract: [This publication] offers a series of transcript-based portraits of traditional-age community college students. As of 2001, students under the age of 22 constituted 42 percent of all credit-seeking students in community colleges and those under the age of 24 constituted nearly three-fourths of first-time community college students. As the baby-boom echo continues to play out with larger high school graduating classes, and as national and state policies focus even more intensely on the intersection between secondary and postsecondary education, this group is of increasing importance to community colleges. The three portraits offered here are designed to help community college administrators and faculty, along with state higher education officers, in developing responsive indicators of institutional performance. They may also prove useful to researchers in refining and refreshing the questions they ask and the variables they employ when exploring similar terrain.

Bailey, T., Jeong, D. W., & Cho, S.-W. (2010). Referral, enrollment, and completion in developmental education sequences in community colleges. *Economics of Education Review*, 29(2), 255–270. Retrieved September 26, 2011, from <http://www.eric.ed.gov/ERICWebPortal/detail?accno=EJ876583>.

After being assessed, many students entering community colleges are referred to one or more levels of developmental education. While the need to assist students with weak academic skills is well known, little research has examined student progression through multiple levels of developmental education and into entry-level college courses. The purpose of this paper is to analyze the patterns and

determinants of student progression through sequences of developmental education starting from initial referral. Our results indicate that fewer than one half of the students who are referred to remediation actually complete the entire sequence to which they are referred. About 30 percent of students referred to developmental education do not enroll in any remedial course, and only about 60 percent of referred students actually enroll in the remedial course to which they were referred. The results also show that more students exit their developmental sequences because they “did not enroll in” the first or a subsequent course than because they “failed or withdrew from” a course in which they were enrolled. We also show that men, older students, African American students, part-time students, and students in vocational programs are less likely to progress through their full remedial sequences. (Contains 10 tables.) (An earlier version of this article is available at <http://ccrc.tc.columbia.edu/Publication.asp?UID=812>.)

Bearer-Friend, J. (2009, November 9). *Measuring student achievement at postsecondary institutions*. Issue Brief. Washington, DC: National Governors Association Center for Best Practices. Retrieved June 24, 2011, from <http://www.nga.org/Files/pdf/0911MEASURINGACHIEVEMENT.pdf>.

Author abstract: Existing measures of student achievement exclude far too many students and track too few student milestones. These exclusions can penalize institutions for serving disadvantaged students by understating these students' performance. This Issue Brief offers state leaders a formula for measuring systemwide student achievement at postsecondary institutions. Although many areas of postsecondary performance must be measured, student learning is core to the mission of the postsecondary system and instructional costs are the single largest expense for public postsecondary institutions. For these reasons, this Issue Brief focuses on measuring student achievement as a crucial indicator of postsecondary performance.

Belfield, C. R., & Bailey, T. (2011). The benefits of attending community college: A review of the evidence. *Community College Review*, 39(1), 46–68.

Author abstract: This article reviews the existing literature on the economic and other benefits of attending community college. First, the article reports on the earnings gains across all students and reviews the evidence for subgroups by gender, minority status, and credits accumulated. The article then reviews the methodological challenges associated with calculating earnings gains from attending a community college. Despite these challenges, the evidence for the significant earnings gains from community college attendance appears to be compelling. The second part of the article reviews the literature on a broader spectrum of gains,

such as health, crime, and welfare reliance. This literature is very limited and potentially offers an important area for further research to establish the full returns from community college attendance.

Bosworth, B. (2010, December). *Certificates count: An analysis of sub-baccalaureate certificates*. Washington, DC: Complete College America. Retrieved June 26, 2011, from <http://dl.dropbox.com/u/13281059/Other%20Certificates%20Count%20Release%200Docs/Certificates%20Count%20FINAL%2012-05.pdf>.

This report advocates for the expansion of sub-baccalaureate programs in the United States to increase postsecondary attainment and improve the labor market. Section I of the report uses IPEDS data to examine that current status and trends of certificate awards, including institution sector, field of study, and program duration. Section II reviews the literature that attempts to measure the economic returns to certificates at the national and state levels. Section III summarizes the major findings and provides recommendations for policy makers.

Calcagno, J. C., Crosta, P., Bailey, T., & Jenkins, D. (2006, October). *Stepping stones to a degree: The impact of enrollment pathways and milestones on community college student outcomes*. CCRC Working Paper No. 4. New York: Columbia University, Teachers College, Community College Research Center. Retrieved September 27, 2011, from <http://ccrc.tc.columbia.edu/Publication.asp?uid=452>.

Author abstract: This paper presents findings from a study of the experiences and outcomes of older and younger community college students. We developed a discrete-time hazard model using longitudinal transcript data on a cohort of first-time community college students in Florida to compare the impact of enrollment pathways (such as remediation) and enrollment milestones (such as attaining a certain number of credits) on educational outcomes of older students—those who entered college for the first time at age 25 or later—with those of traditional-age students. Results suggest that reaching milestones such as obtaining 20 credits or completing 50 percent of a program is a more important positive factor affecting graduation probabilities for younger students than it is for older students. We also found that although enrollment in remedial courses decreases the odds of graduating for all students, older students who enroll in remediation are less negatively affected than are younger ones who do the same.

Cameron, S. V., & Heckman, J. J. (1993). The nonequivalence of high school equivalents. *Journal of Labor Economics, 11*(1), 1–47.

Author abstract: This article analyzes the causes and consequences of the growing proportion of high-school-certified persons who achieve that status by exam certification rather than through high school graduation. Exam-certified high school equivalents are statistically indistinguishable from high school dropouts. Whatever differences are found among exam-certified equivalents, high school dropouts and high school graduates are accounted for by their years of schooling completed. There is no cheap substitute for schooling. The only payoff to exam certification arises from its value in opening postsecondary schooling and training opportunities, but completion rates for exam-certified graduates are much lower in these activities than they are for ordinary graduates.

Chen, X. (2005). *First-generation students in postsecondary education: A look at their college transcripts* (NCES 2005-171). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved September 27, 2011, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005171>.

Author abstract: This report uses data from the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88) to examine the majors and coursetaking patterns of students who are the first members of their families to attend college (referred to as “first-generation students” in this report) and compare their postsecondary experiences and outcomes with those of students whose parents attended or completed college. The results indicate that first-generation students were at a disadvantage in terms of their access to, persistence through, and completion of postsecondary education. Once in college, their relative disadvantage continued with respect to coursetaking and academic performance. First-generation status was significantly and negatively associated with lower bachelor’s degree completion rates even after controlling for a wide range of interrelated factors, including students’ demographic backgrounds, academic preparation, enrollment characteristics, postsecondary coursetaking, and academic performance. This report also demonstrates that more credits and higher grades in the first year and fewer withdrawn or repeated courses were strongly related to the chances of students (regardless of generation status) persisting in postsecondary education and earning a bachelor’s degree.

Clery, S. (2010, March/April). *Attendance and completion patterns*. Data Notes: Keeping Informed about Achieving the Dream Data. Achieving the Dream. Retrieved September 27, 2011, from <http://www.achievingthedream.org/Portal/Modules/cd45e39e-a40c-497c-9543-1035f18c212a.asset?>

ERIC abstract: Community college students take circuitous routes through their education; very few enroll full-time and continue until they graduate. Erratic enrollment patterns have been negatively linked with academic progress and eventual credential completion—students enrolled continuously and on a full-time basis are more likely to attain their academic goals than those not enrolled continuously or who drop to part-time status. Using data from Achieving the Dream: Community Colleges Count, this analysis followed students through three regular academic years to identify their varying attendance patterns. Determining students' reasons for changing their enrollment status may help colleges become more sensitive to how they might help students who are intent on their goals, but inconsistent in their pursuit of education. The analysis suggests that, in addition to leaving college without credentials, students often shift among full-time, part-time, and non-attendance. Measuring persistence simply by determining if a student enrolls over successive enrollment periods misses the complexity indicated by these data, as community college students take many diverse paths to achieve their goals.

Dougherty, K. J., Hare, R., & Natow, R. S. (2009, November). *Performance accountability systems for community colleges: Lessons for the Voluntary Framework of Accountability for community colleges: Report to the College Board*. New York: Columbia University, Teachers College, Community College Research Center. Retrieved September 27, 2011, from <http://ccrc.tc.columbia.edu/Publication.asp?uid=728>.

ERIC abstract: This report discusses findings and implications of a study commissioned by the College Board to inform the development of the Voluntary Framework of Accountability for Community Colleges. CCRC researchers identified the performance indicators that states are already using for their community colleges and interviewed state higher education officials and local community college leaders on their experiences with the collection and use of such performance data. Specifically, the CCRC examined: (1) the content of state performance accountability systems, focusing on what performance indicators are most common across states; (2) the extent of the compatibility of those state performance data with the data required by the Integrated Postsecondary Education Data System (IPEDS) and the regional accreditation associations; (3) the ways that the states make public the performance data they collect on community colleges and how community colleges are compared to each other; (4) the ways that the performance data are collected by states and the ways that state and local community college officials assess the data collection process; and (5) the ways that performance data are used by state and local community college officials in deciding making and the ways that each assesses the data usage process. The report makes recommendations regarding which performance indicators to consider, how to

better measure indicators, ways to make the collection of performance data easier for community colleges, and ways to encourage better use of performance data.

Ewell, P. (2006, January 10-12). *Reaching consensus on common indicators: A feasibility analysis*. Paper presented at the Using State Data to Improve Community College Student Success and Attainment State Student Data Project for Bridges and AtD, San Antonio, TX. Retrieved September 27, 2011, from http://www.achievingthedream.org/_images/_index03/State_Data_Project_Jan2006.pdf.

This paper summarizes the results from a series of site visits to eleven states to assess the characteristics of the data sources available to each state, to examine the feasibility of producing each of the proposed measures in the National Center for Higher Education Management Systems (NCHEMS) framework, and to provide technical assistance and advice to each state as needed. General characteristics of data resources available in each state are presented thematically, while two sets of proposed benchmarking measures that can currently be produced by all eleven states are presented along with an additional set of measures that can be produced by at least half of the participating states. A number of cross-cutting challenges are also identified that might provide an agenda for future development in the data initiative.

Horn, L., & Li, X. (2009). *Changes in postsecondary awards below the bachelor's degree: 1997 to 2007* (NCES 2010-167). Washington DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Author abstract: This Statistics In Brief describes changes in the number and types of postsecondary awards below the bachelor's degree (certificates and associate's degrees) conferred over the decade between 1997 and 2007. The study reports on changes overall and within fields of study; it also analyzes changes in the types of institutions that confer subbaccalaureate awards and differences in awards by gender and race/ethnicity.

Leinbach, D. T., & Jenkins, D. (2008, January). *Using longitudinal data to increase community college student success: A guide to measuring milestone and momentum point attainment*. CCRC Research Tools No. 2. New York: Columbia University, Teachers College, Community College Research Center. Retrieved November 1, 2010, from <http://www.eric.ed.gov/PDFS/ED499922.pdf>.

ERIC abstract: Longitudinal student unit record (SUR) data can be used to answer many important questions about student progression. This guide shows researchers how to use longitudinal SUR data to identify different student groups among first-

time community college students, calculate rates of attainment of milestones and momentum points for each group, and identify barriers to success for each group. The information from such an analysis can be used to identify college practices and student behaviors that are associated with successful outcomes, and it can inform the development of policies and practices that address barriers to achievement. Examples are presented from an analysis CCRC researchers conducted for the Washington State Board for Community and Technical Colleges. This guide is divided into three main sections. The first section, “Milestone Model Overview,” provides a concise description and a simple yet powerful application of the model for measuring student achievement. The second section, “Milestone Model Details,” presents a comprehensive discussion of the model using the Washington State data as an illustration. The third section, “Applications of the Milestone Model,” contains a complete set of momentum point and milestone charts for different student groups. Sidebars throughout this guide describe how the researchers handled issues and challenges that arose when using longitudinal SUR data in the milestone and momentum point analysis that they conducted for the Washington SBCTC. Two additional sections of technical notes are included as appendices to help researchers replicate this work. “Technical Notes 1” presents findings from a multivariate regression analysis of the relationship between attaining momentum points and milestone achievements. “Technical Notes 2” discusses key considerations and decisions that need to be made when working with longitudinal data. This may be useful for those researchers who must select, extract, and prepare datasets for analysis. Topics include the minimum requirements of an SUR dataset for conducting analyses, cohort selection criteria, and the length of time over which to observe students.

Moore, C., & Shulock, N. (2009, September). *Student progress toward degree completion: Lessons from the research literature*. Sacramento, CA: Institute for Higher Education Leadership & Policy. Retrieved November 1, 2010, from http://www.csus.edu/ihelp/PDFs/R_Student_Progress_Toward_Degree_Completion.pdf.

IHELP abstract: This report reviews the research literature on student success to identify intermediate outcomes, sometimes called “milestones,” along the college pathway that give students momentum toward degree completion. It points to academic behaviors and patterns that have been found to predict student progress and success that can, therefore, be tracked to identify where and why student progress stalls and how changes to policies and practices might increase degree completion. The report was prepared as background for upcoming reports on milestone achievement among community college and university students.

Moore, C., & Shulock, N. (2011, August). *Sense of direction: The importance of helping community college students select and enter a program of study*. Sacramento, CA: The Importance of Helping Community College Students Select and Enter a Program of Study. Retrieved September 14, 2011, from http://www.csus.edu/ihelp/PDFs/R_Sense_of_Direction.pdf.

IHELP abstract: [The] report examines the importance of declaring and entering an academic program of study for community college student success and completion. Researchers studied an entering cohort of more than 430,000 community college students and followed their progress over a six-year period through programs of study to completion of a certificate, associate degree or transfer to a university. The study used student course patterns to identify those who entered a program of study in 21 program areas across the liberal arts and sciences and career technical education. Researchers found that entering a program of study is an important milestone on the path to college completion that only half of entering community colleges students reach, and that students who enter a program of study in their first year are twice as likely to complete a certificate, degree, or transfer as those who enter a program of study in the second year or later.

Moore, C., Shulock, N., & Offenstien, J. (2009, October). *Steps to success: Analyzing milestone achievement to improve community college student outcomes*. Sacramento, CA: Institute for Higher Education Leadership & Policy. Retrieved November 1, 2010, from http://www.csus.edu/ihelp/PDFs/R_Steps%20to%20success_10_09.pdf.

Author abstract: This report offers a framework for guiding educators in using available knowledge and tools to improve student outcomes. It shows how better use of available data can help diagnose why students fail to make progress toward a degree and can better demonstrate the progress students make along the pathway to a degree. The framework consists of two factors: milestones, or intermediate educational achievements that students reach along the path to degree completion, and indicators of success, or academic patterns students follow including remediation, gateway courses, and credit accumulation, that have been demonstrated in research studies to correlate with forward progress and completion.

Offenstien, J., Moore, C., & Shulock, N. (2010, April). *Advancing by degrees: A framework for increasing college completion*. Sacramento, CA and Washington, DC: Institute for Higher Education Leadership & Policy and The Education Trust. Retrieved June 24, 2011, from http://www.csus.edu/ihelp/PDFs/R_AdvbyDegrees_0510.pdf.

Author abstract: Higher education leaders need to understand what really drives student success. Tracking six-year graduation and annual retention rates isn't enough. By monitoring a set of milestones and on-track indicators—measurable educational achievements and academic and enrollment patterns—institutional leaders can learn which groups of students are making progress and which are not—and why. Data college officials gather in this process can inform changes in policies or practices and help struggling students get the help they need.

Offenstein, J., & Shulock, N. (2010, September). *Taking the next step: The promise of intermediate measures for meeting postsecondary completion goals*. Boston: Jobs for the Future. Retrieved November 1, 2010, from http://www.jff.org/sites/default/files/ATD_TakingtheNextStep_092810.pdf.

Author abstract: This report examines system, state and multi-state efforts and multi-institution initiatives to develop and use intermediate measures of student success as a tool to improve accountability and guide institutional efforts to improve student success. The report distinguishes between milestones that must be attained in order to get to completion and success indicators that increase a student's chances of completion. The report analyzes the differences in approach, definitions and uses of the data on intermediate measures and offers recommendations on the collection, reporting and effective use of the data and the need for common practices and definitions.

Roksa, J., & Calcagno, J. C. (2008, June). *Making the transition to four-year institutions: Academic preparation and transfer*. CCRC Working Paper No. 13. New York: Columbia University, Teachers College, Community College Research Center. Retrieved September 27, 2011, from <http://ccrc.tc.columbia.edu/Publication.asp?UID=618>.

Author abstract: In this study, we examine the role of academic preparation in the transition from community colleges to four-year institutions. We address two specific questions: To what extent do academically unprepared students transfer to four-year institutions? And, can positive experiences in community colleges diminish the role of inadequate academic preparation? The results, which are based on analyses of Florida's unit record data of first-time community college students, indicate that a substantial proportion of students who enter community colleges academically unprepared do indeed transfer to four-year institutions. Moreover, successful completion of intermediate outcomes—such as passing college-level math and writing courses, meeting specific credit thresholds, and earning an associate degree—enhances students' probability of transfer. However, the ability of community colleges to mitigate the negative effects of inadequate academic

preparation is limited: successful completion of even the most demanding intermediate outcomes does not alleviate the negative consequences of entering higher education unprepared. The policy implications of these findings are discussed.

Skomsvold, P., Radford, A. W., & Berkner, L. (2011). *Six-year attainment, persistence, transfer, retention, and withdrawal rates of students who began postsecondary education in 2003–04* (NCES 2011-152). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved September 27, 2011, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011152>.

These Web Tables present data on the enrollment experiences of a nationally representative sample of 2003–04 first-time postsecondary students over a period of 6 academic years, from 2003–04 to 2008–09. Tables include students' certificate or degree attainment and persistence at their first institution and at any institution; withdrawal from both first institution and from postsecondary education without a degree or certificate; characteristics of first transfer among students who transferred; and 4-, 5-, and 6-year bachelor's degree completion rates. Results are shown by students' demographics, enrollment characteristics, and persistence risk factors.

Topper, A., & Lee, J. (2010, September/October). *Outcomes of first-year persisting students*. Data Notes: Keeping Informed about Achieving the Dream Data. Achieving the Dream. Retrieved September 27, 2011, from <http://www.achievingthedream.org/Portal/Modules/7876bbcd-df34-4b25-8821-e912e9dd7c8f.asset?>

ERIC abstract: Using data from Achieving the Dream: Community Colleges Count, this issue of "Data Notes" looks at three-year enrollment and attainment outcomes of students who persist through their first year. Additionally, first-year persisters (FYPs) were grouped based on the interaction of several student characteristics; analysis was conducted to determine if differences in outcomes existed between students when they were grouped based on this interaction of characteristics. The data show that FYPs who started college full-time had higher second-year persistence rates than those who started part-time, as did students who were referred to developmental education or were enrolled in terminal majors. To determine the cumulative effect of various student characteristics on student outcomes, data reflecting FYPs were first disaggregated by enrollment status, followed by developmental education referral, major field, and then Pell grant receipt. These data tell a complicated story. Each group of students, as defined by

the receipt of Pell grants, starting college either full- or part-time, whether they were referred to developmental education, and their initial major fields, shows a different progression in their college work.

Voluntary Framework of Accountability (VFA). (2011). *Voluntary Framework of Accountability preliminary technical manual v.1.0: Proposed measures for pilot testing*. American Association of Community Colleges. Retrieved September 27, 2011, from http://www.aacc.nche.edu/Resources/aaccprograms/vfa/Documents/VFA%20Draft%20Technical%20Definitions%20Manual%20v_1_0.pdf.

Author abstract: This technical manual was written to give an overview of the measures proposed for inclusion in the Voluntary Framework of Accountability (VFA) and provide terms and operational definitions sufficient to allow institutions to report the data required for calculation of the metrics. The technical manual is separated into major sections: The “Summary” sections provide an outline of the VFA framework, measures, and approach to data reporting; The “Descriptions” and “Definitions” sections provide complete descriptions of terms and operational definitions of each data element colleges will be expected to report for the VFA.