

CHAPTER 5:

Equity Metrics



This chapter details the equity metrics that are crucial to promoting and enhancing equity within higher education by disaggregating the performance and efficiency metrics by critical student characteristics. The following characteristics are considered in more detail, given the greater complexity required to define them:

<u>Academic preparation</u>	5.2
<u>Economic status</u>	5.3
<u>First-generation status</u>	5.5
<u>Program of study</u>	5.6
<u>Race/ethnicity</u>	5.6
<u>Gender</u>	5.6
<u>Age</u>	5.6

Key Student Characteristics/Disaggregates

A core purpose of data collection and use is to shine a light on—and to develop strategies to close—gaps in college access and success that continue to disadvantage underrepresented students. Nontraditional and underserved student populations have largely been left out of or are invisible in federal data collections, making it difficult or impossible to measure how well these students are served by higher education and to develop strategies to better serve them. As such, this framework recommends *disaggregating* each metric by key student characteristics used by a host of voluntary data initiatives over the past decade. These equity-focused disaggregates are essential to uncovering and remedying inequities in and across our colleges and universities.

Depending on the metric type, the framework recommends determining student characteristics at different points in time: at entry, ever during enrollment, or at exit. The time of identification is shown in the snapshot charts of Chapters 3 and 4. In general, the framework follows Complete College America (CCA) and Access to Success (A2S) precedent by basing student characteristics *at entry* for cohort-based measures, like graduation rates, and defining them if the student met the criteria *at any time* for retrospective measures, such as completions. For disaggregates, such as major and credential received, which are most relevant at the point of college exit, the framework recommends defining them *at exit*. For cost metrics, such as net price and unmet need, that are measured annually, the framework recommends defining disaggregates *at that time*, to reflect the student's status that year. Recommendations for how to define the student disaggregates—including academic preparation, economic status, first-generation status, program of study, race/ethnicity, gender, and age—are explored below.

Academic Preparation

This framework recommends that institutions minimally identify students as “college ready” or “not college ready” in math and in English according to their own criteria until further research develops more robust measures of academic preparation that are comparable across colleges.

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initiatives measure Academic Preparation

Often-used proxies for academic preparation include standardized test scores, high school GPA, placement or enrollment in remedial education, and multiple measures frameworks that incorporate several metrics. If college-ready assessments like the Partnership for Assessment of Readiness for College and Careers (PARCC) or Smarter Balanced gain widespread use, this recommendation should be revisited to determine whether performance on these exams could serve as an adequate measure of college-readiness. Because the field has not yet converged on a universally accepted indicator for college readiness, the framework defers to institutional practices until further research shows consensus.

Field Usage and Convergence

To determine the most appropriate metric for academic preparation, we reviewed current and emerging research around: high school curriculum rigor, high school GPA, college entrance exam scores, remedial coursework, and multiple measures (See Table 5-1).

Use Cases

Measures of academic preparation are crucial for institutions to understand whether incoming students are ready for a college environment; they highly correlate with students' college outcomes without intervention.⁹ Colleges and universities can use these data to develop and target services to best reach underprepared students and create pathways for their college success. In addition, academic preparation data allow institutions to measure the efficacy of interventions that aim to help students become college-ready after entry. Policymakers can use academic preparation at the state level to develop coherent and consistent policies to signal clearly to students and schools how they should prepare for college in terms of high school curriculum and remedial education in college.¹⁰

Table 5-1: Advantages and Disadvantages to Alternate Academic Preparation Indicators

	Advantages	Disadvantages
High School Curriculum Rigor	Considered the best predictor of college success based on quantitative analysis by the Department of Education ¹	Time and labor intensive to quantify, because measuring high school rigor requires transcript analysis Measurement would be difficult to operationalize at scale because of the labor required to implement
High School GPA	Considered one of the best predictors of college entrance, persistence, and completion through correlation and regression analysis ² Captures academic performance (cognitive) and personal attributes (noncognitive), such as motivation and perseverance ³	Requires a GPA threshold to define “college-ready,” and though there is a linear relationship between high school GPA and college outcomes, there are no clear GPA cutoffs to indicate readiness ⁴
College Entrance Exam Scores	Used by many institutions during the admission process to determine college readiness Both SAT and ACT scores are predictive of first-year GPA and student outcomes, such as retention and completion, in college ⁵	Many students at open-access institutions, such as community colleges and for-profit schools, do not take these tests
Remedial Coursework	Used by many initiatives, states, and institutions to signal college readiness ⁶	Not all institutions offer remediation, and many are shifting away from stand-alone courses toward co-requisite remediation models that may be more difficult to track Remedial placement policies vary widely across states and institutions, as there are no shared standards The predictive value of taking remedial courses on completion varies substantially across credential types, having little predictive value for certificate and associate’s seekers, while predictive for bachelor’s seekers ⁷
Multiple Measures	Creates a composite view of the student, using a variety of indicators such as standardized test scores, high school GPA, and high school course completion and rigor Deployed in a number of states and institutions ⁸	Much of the research is still ongoing; no clear best practices have emerged yet but may allow for more robust recommendations in the future

Economic Status

The framework recommends using *Pell Grant receipt* as the primary indicator of low-income status at this time, despite its known limitations, which are discussed below. Pell receipt is

14 initiatives measure Economic Status

the most frequently used measure of economic status in the field, and each

alternate indicator faces even more substantial limitations than Pell receipt. Table 5-2 explores the advantages and disadvantages of six potential measures of economic status: Pell Grant receipt, Pell Grant eligibility, expected family contribution (EFC), income, poverty status, and student’s home location (geocode). Income is a promising indicator for economic status that should be tested further in the field and explored for inclusion in future iterations of the framework.

Field Usage and Convergence

Higher education can be an engine of social and economic mobility, but low-income students remain underrepresented among college-goers and college graduates. To promote mobility, equity, and our nation’s economic competitiveness, many federal, state, local, and institutional efforts center on

improving access and success for low-income students. For instance, all initiatives reviewed as part of this research—Completion by Design, A2S, Achieving the Dream, Voluntary Framework of Accountability, the new College Scorecard, and more—use *Pell Grant receipt* as an indicator of low-income status.

While Pell receipt is a frequently used proxy for economic status, it is not perfectly accurate. Its primary limitation is that it undercounts the proportion of low-income students, especially at institutions where many do not apply for federal financial aid, due to either lack of information, low costs, or citizenship status. Also, it is subject to changes in federal financial aid policy, sometimes causing notable shifts that may not actually reflect demographic shifts.¹¹ However, Pell receipt remains the primary indicator of economic status used by the field, is fairly comprehensive of low-income students, and takes into consideration important factors that influence financial need, such as family size. In 2011–12, 41 percent of undergraduate students were Pell recipients.¹²

Table 5-2: Advantages and Disadvantages to Economic Status Proxies

	Advantages	Disadvantages
Pell Grant Receipt	<p>Most commonly used proxy for low-income status in the field</p> <p>Accounts for factors aside from income that influence financial need</p>	<p>Undercounts low-income students, especially at institutions where many students do not file a Free Application for Federal Student Aid (FAFSA)</p> <p>Vulnerable to policy changes unrelated to shifts in economic status</p>
Pell Grant Eligibility	<p>In addition to Pell recipients, captures low-income students who apply and are eligible for but do not receive Pell because of administrative hurdles</p> <p>Accounts for factors aside from income that influence financial need</p>	<p>Can be determined only for FAFSA completers</p> <p>Requires integration of data for non-Pell FAFSA filers in student information systems, which could be burdensome</p> <p>Vulnerable to policy changes unrelated to shifts in economic status</p>
Expected Family Contribution	<p>In addition to Pell recipients, captures low-income students who apply and are eligible for but do not receive Pell because of administrative hurdles</p> <p>Expressed in a dollar amount, which is helpful in making comparisons with price</p> <p>Accounts for factors aside from income that influence financial need</p> <p>Allows for an “EFC Unknown” category that prevents classifying all students with missing data as non-low-income (with a dichotomous Pell proxy, some students classified as non-Pell simply have missing data)</p>	<p>Can be determined only for FAFSA completers</p> <p>Requires integration of data for non-Pell FAFSA filers in student information systems, which could be burdensome</p> <p>Vulnerable to policy changes unrelated to shifts in economic status</p> <p>Requires defining a threshold to determine what EFC counts as low-income, although Pell eligibility guidelines can be used</p>
Family Income	<p>In addition to Pell recipients, captures low-income students who apply for but do not receive Pell for a variety of reasons</p> <p>Expressed in a dollar amount, which is helpful in making comparisons to price</p> <p>Allows for an “Income Unknown” category that prevents classifying all students with missing data as non-low-income (with a dichotomous Pell proxy, some students classified as non-Pell simply have missing data)</p> <p>College Scorecard paved the way by calculating completion rates of Title IV recipients by family income</p>	<p>Can be determined only for FAFSA completers</p> <p>Requires integration of data for non-Pell FAFSA filers in student information systems, which could be burdensome</p> <p>Does not take into consideration important characteristics like family size, dependency status, and number of family members in college</p> <p>Requires defining a threshold to determine what income counts as low-income, although some guidance is available from national Census data</p>
Poverty Status	<p>In addition to Pell recipients, captures low-income students who apply for but do not receive Pell for a variety of reasons</p> <p>Commonly used in means-tested programs</p> <p>Accounts for one factor that influences financial need aside from income (family size)</p>	<p>Can be determined only for FAFSA completers</p> <p>Requires integration of data for non-Pell FAFSA filers in student information systems, which could be burdensome</p> <p>Does not take into account dependency status or the number of students in college</p> <p>Requires defining a threshold to determine which poverty level counts as low-income</p>
Student’s Home Location (Geocode)	<p>Students’ home residence location can be predictive of student outcomes, on average¹³</p> <p>Captures all students regardless of FAFSA completion or aid receipt</p>	<p>Best used to describe an institutional service area and institutional-level outcomes, rather than economic status for individual students, which may vary widely within the same geographic area¹⁴</p>

As noted in Table 5-2, some indicators could increase coverage beyond only the aided students captured by a Pell receipt proxy, by counting the low-income students who file a FAFSA (and thus have their data recorded) but do not receive a Pell Grant—possibly because of administrative hurdles such as verification. Table 5-3 examines by how much each option undercounts or improves upon other options. Data for the analysis are derived from the National Postsecondary Student Aid Survey (NPSAS) in 2012, which imputes EFC for students who did not file a FAFSA. Analyzing statistics on Pell receipt, EFC (including imputed values), income, and poverty level,

alongside the percentage of students who filed a FAFSA, we can calculate the percentage of students that institutions should be able to identify as low-income using that indicator of economic status—assuming they can discern EFC, income, or poverty level only for FAFSA filers.

For example, while 58 percent of students likely would be Pell-eligible based on their (actual or imputed) EFCs in NPSAS, only 41 percent receive Pell Grants. However, if Pell eligibility/EFC were used as a proxy for economic status, it would increase the percentage of students *known to the institution* as

Table 5-3: Accuracy of Economic Status Proxies

Indicator	Threshold	A = Percentage of Students Identified as Low-Income in NPSAS	B = Percentage of Students Identified as Low-Income Who Filed a FAFSA	C = Percentage of Students Potentially Known as Low-Income by Institutions (C = A x B)
Pell Grant Receipt	Receipt equals low-income	41%	100%	41%
Pell Grant Eligibility or EFC	EFC under \$5,273 equals low-income ¹⁵	58%	83%	48%
Family Income	Income in the bottom two quintiles nationally equals low-income	60%	78%	47%
Poverty Status	250% of poverty ¹⁶	59%	79%	47%

Source: IHEP analysis of National Postsecondary Student Aid Study 2012 data.

low-income by only 7 percentage points over Pell receipt (48 percent vs. 41 percent), because only 83 percent of students with Pell-eligible EFCs actually file a FAFSA, which institutions rely on to obtain this information.

So, as Table 5-3 shows, while using Pell eligibility, EFC, family income, or poverty status could count slightly more low-income students (6–7 percentage points), the added precision does not warrant the added complication of diverging from how the field typically measures economic status. Furthermore, the majority (71 percent) of students with Pell-eligible EFCs do in fact receive the grants, making it a sufficiently accurate—albeit imperfect—proxy.¹⁷ Because of Pell receipt’s widespread use and its coverage relative to the other proxy variables, the framework recommends Pell receipt as the best metric at this time.

Use Cases

Institutions can use economic status to disaggregate other metrics and gain a better understanding of how low-income students are accessing and succeeding in their colleges or universities. Low-income students face different challenges in higher education than do middle- and high-income students, so it is crucial that institutions have access to disaggregated data to identify gaps and to tailor solutions and financial aid strategies for the neediest students. Recent research confirms that some institutions serve low-income populations more effectively than others, so institutions can use these data to continuously improve student access and success.¹⁸ In addition, state and federal policymakers often express interest in understanding how low-income students access, progress through, and succeed in higher education. At the federal level specifically, policymakers are interested in the outcomes of low-income students, and a recent Integrated Postsecondary Education Data System (IPEDS) proposal includes Outcome Measures for Pell Grant recipients.¹⁹

First-Generation Status

The framework recommends defining *first-generation students* as students whose parents’ highest education level was some college but no degree, or below (e.g., some college, no degree; vocational/technical training; high school diploma or equivalent; did not complete high school). Defined as such, first-generation students constitute 52 percent of undergraduates.²⁰

3 initiatives measure First-Generation Status

Field Usage and Convergence

According to Beginning Postsecondary Students (BPS) Longitudinal Study, degree completion rates increase from 35 percent for students whose parents have no education beyond high school, to 56 percent for students whose parents have bachelor’s degrees or higher. While there is a linear increase in students’ completion rates as their parents’ education level increases from high school to some college, to associate’s degree, to bachelor’s degree, to professional degree, there is a sizable difference between students whose parents have less than an associate’s degree (43 percent) and those whose parents have an associate’s degree or higher (59 percent).²¹

While the federal TRIO programs, which provide supports to low-income students, first-generation students, and student with disabilities, identify students as first-generation if their parent(s) do not have bachelor’s degrees,²² current policy conversations that focus on baccalaureate *and* sub-baccalaureate credentials suggest that there is value in shifting the definition. Furthermore, the gap in overall degree completion increases by only one percentage point when students whose parents have associate’s degrees are included in the first-generation group.²³

The share of first-generation students is also available in the College Scorecard as a disaggregate for the student body and other measures such as median cumulative debt and earnings. These data on first-generation status are based on self-reported information on the FAFSA. When measuring the share of the student body that is first-generation, data are reported separately for students whose parents' highest education level is middle school, high school, and some post-secondary education.²⁴

Use Cases

Parental education is highly correlated with student outcomes, and considerable efforts in the field are focused on improving outcomes for this population. Measuring these gaps at the institution level can help colleges address them. Many institutions, states, community-based organizations, and the federal government implement programs and student supports geared toward first-generation students to assist them in overcoming obstacles related to access and completion of a college degree. Initiatives like *I'm First* serve as a resource for first-generation students, providing information and peer support.²⁵ Movements by first-generation students on college campuses, backed and supported by these institutions, also help to create a system of support, especially at institutions where the class divide is more apparent.²⁶ Institutions and policymakers need disaggregated data to continue to support first-generation students through interventions like the TRIO programs and to create an environment where these students can succeed.

Additional Disaggregates

The remaining disaggregates follow the conventions of most reviewed initiatives.

Program of study

Researchers, advocates, and institutions advocate for disaggregation of data by program of study to provide the most

10 initiatives measure Program of Study

refined view of student outcomes possible. Given the value of program-level data, the framework recommends using the Classification of Instructional Program (CIP) codes. Institutions should collect data at the six-digit CIP code level and aggregate to two-digit codes for reporting purposes aligned to CCA seven meta-majors: Education; Arts and Humanities; Social and Behavioral Sciences and Human Services; Science, Technology, Engineering, and Math (STEM); Business and Communication; Health; and Trades.²⁷

Race/ethnicity

The framework recommends using the latest IPEDS race/ethnicity categories: Hispanic or Latino; American Indian or Alaska Native; Asian; Black or African-American; Native Hawaiian or Other Pacific Islander; White, Two or more races; Nonresident alien; and Race/ethnicity unknown.

17 initiatives measure Race/ethnicity

Gender

The framework recommends using IPEDS gender definitions (Male and Female) and adding an Other category.

15 initiatives measure Gender

Age

The framework recommends using date of birth if such data are available. Otherwise, we recommend disaggregating by age categories aligned with CCA: 19 and under, 20–24, or 25 and over.

14 initiatives measure Age

- 1 Adelman, C. (2006, February). *The toolbox revisited*. Washington, DC: U.S. Department of Education. Retrieved from: <http://www2.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf>
- 2 Roderick, M., Nagota, J., & Coca, V. (2009). *College readiness for all: The challenge for urban high schools*. Chicago: University of Chicago. Retrieved from: <https://ccsr.uchicago.edu/publications/college-readiness-all-challenge-urban-high-schools>; Belfield, C. & Crosta, P. (2012, February). *Predicting success in college: The importance of placement tests and high school transcripts*. New York: Community College Research Center, p. 39. Retrieved from: <http://67.205.94.182/media/k2/attachments/predicting-success-placement-tests-transcripts.pdf>
- 3 Geiser, S. & Santelices, M. (2007). *Validity of high-school grades in predicting student success beyond the freshman year: High-school record vs. standardized tests as indicators of four-year college outcomes*. Berkeley: University of California at Berkeley, Center for Studies in Higher Education. Retrieved from: <http://www.cshe.berkeley.edu/publications/validity-high-school-grades-predicting-student-success-beyond-freshman-year-high-school>
- 4 An analysis of BPS data finds that more than 50 percent of entering postsecondary students with a high school GPA of 3.0 or above earn a credential. However, this cutoff varies by credential type, making it difficult to set one standard. Among associate's-seeking students, the high school GPA threshold for reaching this 50 percent attainment rate is higher (3.5), while it is lower for bachelor's-seeking students (2.5). IHEP analysis of: U.S. Department of Education (2009). Beginning Postsecondary Students (BPS) Longitudinal Study, 2004-2009. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>. Some studies, such as Geiser & Santelices (2007) and Roderick, Nagota, & Coca (2009) show that a threshold of 3.0 is more predictive for student outcomes than other thresholds, but variability by credential level steers the framework away from setting a specific standard.
- 5 For example, scoring a 1550 out of 2400 or above on the SAT is associated with a 65 percent probability of earning at least a B- average in the first year of college. For the ACT exam, scoring 22 or above is correlated with a 75 percent chance of earning a C or better in collegiate English and math courses. The College Board. 2013. *The SAT report on college and career readiness: 2013*. Retrieved from: <http://media.collegeboard.com/homeOrg/content/pdf/sat-report-college-career-readiness-2013.pdf>; ACT Research and Policy. (2013, September). *What are the ACT college readiness benchmarks?* Retrieved from: <https://www.act.org/research/policymakers/pdf/benchmarks.pdf>
- 6 Including: Achieving the Dream, Aspen Prize for Community College Excellence, Complete College America, Completion by Design, Consortium for Student Retention Data Exchange, National Community College Benchmarking Project, Predictive Analytics Reporting Framework, Voluntary Framework of Accountability, and Voluntary Institutional Metrics Project.
- 7 For bachelor's degree seekers, of those who took no remedial coursework, 71 percent attained a bachelor's degree. Only 42 percent of those who took two or more remedial courses attained a bachelor's degree. For associate's seekers, associate's degree completion hovers between 17 percent and 19 percent, regardless of the number of remedial courses taken. IHEP analysis of: U.S. Department of Education (2009). Beginning Postsecondary Students (BPS) Longitudinal Study, 2004-2009. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>.
- 8 For example, Promise Pathways at Long Beach Community College uses the Multiple Measures Assessment Project for community college course placement; the North Carolina Community College System is evaluating its Multiple Measures for Placement Policy that establishes a hierarchy of measures to determine student readiness for college coursework; and multiple measures are used in a variety of formats in Massachusetts, Colorado, Florida, and Hawaii. The RP Group (n.d.). *Multiple Measures Assessment Project*. Retrieved from: <http://rpgroup.org/projects/multiple-measures-assessment-project/pilot-college-resources>; North Carolina State Board of Community Colleges (n.d.). *Multiple Measures of Placement*. Retrieved from: http://www.nccommunitycolleges.edu/sites/default/files/state-board/program/prog_04_multiple_measures_2-12-15.pdf; WestEd. (2014, March). *Exploring the use of multiple measures for placement into college-level courses*. Retrieved from: <https://www.wested.org/resources/core-to-college-evaluation-exploring-the-use-of-multiple-measures-for-placement-into-college-level-courses/>
- 9 Belfield, C., & Crosta, P. (2012, February). *Predicting success in college: The importance of placement tests and high school transcripts*. (CCRC Working Paper 42). New York: Community College Research Center. Retrieved from: <http://ccrc.tc.columbia.edu/publications/predicting-success-placement-tests-transcripts.html>; Scott-Clayton, J. (2012, February). *Do high stakes placement exams predict college success?* (CCRC Working Paper 41). New York: Community College Research Center. Retrieved from: <http://ccrc.tc.columbia.edu/publications/high-stakes-placement-exams-predict.html>; Cromwell, A., McClarty, K., & Larson, S. (2013, May). *College readiness indicators*. Washington, D.C.: Pearson. Retrieved from: http://images.pearsonassessments.com/images/tmrs/TMRS-RIN_Bulletin_25CRIndicators_051413.pdf
- 10 Complete College America. (2012, April). *Remediation: Higher education's bridge to nowhere*. Retrieved from: <http://www.completecollege.org/docs/CCA-Remediation-summary.pdf>
- 11 For example, between 2008-09 and 2009-10, the number of Pell Grant recipients rose by 1.9 million. This increase was driven by changes in the economy and changes to the maximum Pell award. Changes in Pell enrollments at individual institutions should be contextualized with national changes in Pell recipient trends. Congressional Budget Office. (2013, September). *The Federal Pell Grant program: Recent growth and policy options*, p. 9. Retrieved from: http://www.cbo.gov/sites/default/files/cbofiles/attachments/44448_PellGrants_9-5-13.pdf
- 12 IHEP analysis of: U.S. Department of Education (2012). National Postsecondary Student Aid Study (NPSAS), 2012. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>.
- 13 Perry, P. (2014). *Postsecondary institution ratings systems symposium*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- 14 Silver, N. (2015, May 1). *The most diverse cities are often the most segregated*. FiveThirtyEight. Retrieved from: <http://fivethirtyeight.com/features/the-most-diverse-cities-are-often-the-most-segregated/>
- 15 The maximum EFC for Pell eligibility in 2011-12 was \$5,273. Federal Pell Grant Program Payment Schedule 2011-12. Retrieved from: <http://www.ifap.ed.gov/dp/letters/attachments/P1101Attach.pdf>
- 16 This threshold is derived from the College Board proposal that suggests tying the amount of the Pell Grant award to the family's poverty level. Under this proposal no Pell award would be disbursed above 250 percent of the poverty level. It should be noted though that 15 percent of Pell recipients today are from families living slightly above 250 percent of the poverty level. College Board. (2008, September). *Fulfilling the commitment: Recommendations for reforming federal student aid*. Retrieved from: <http://media.collegeboard.com/digitalServices/pdf/advocacy/homeorg/rethinking-student-aid-fulfilling-commitment-recommendations.pdf>
- 17 IHEP analysis of: U.S. Department of Education (2012). National Postsecondary Student Aid Study (NPSAS), 2012. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>.
- 18 Campbell, C., & Voight, M. (2015, October). *Serving their share: Some colleges could be doing a much better job enrolling and graduating low-income students*. Retrieved from: <http://www.ihep.org/research/publications/serving-their-share-some-colleges-could-be-doing-much-better-job-enrolling-and>; Nichols, A.H. (2015, September 24). *The Pell partnership: Ensuring a shared responsibility for low-income student success*. Washington, D.C.: The Education Trust. Retrieved from: http://edtrust.org/wp-content/uploads/2014/09/ThePellPartnership_EdTrust_20152.pdf
- 19 Department of Education. Agency Information Collection Activities; Comment Request; Integrated Postsecondary Education Data System (IPEDS) 2016-2019. Retrieved from: <https://www.federalregister.gov/articles/2016/02/18/2016-03338/agency-information-collection-activities-comment-request-integrated-postsecondary-education-data>
- 20 IHEP analysis of: U.S. Department of Education (2012). National Postsecondary Student Aid Study (NPSAS), 2012. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>.
- 21 IHEP analysis of: U.S. Department of Education (2009). Beginning Postsecondary Students (BPS) Longitudinal Study, 2004-2009. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>.
- 22 U.S.C. Chapter 28, Subchapter IV, Part A: Federal Early Outreach and Student Services Programs. Division 1—Federal Trio Programs. Retrieved from: <http://www2.ed.gov/about/offices/list/ope/trio/statute-trio-gu.pdf>
- 23 IHEP analysis of: U.S. Department of Education (2009). Beginning Postsecondary Students (BPS) Longitudinal Study, 2004-2009. Retrieved from: <http://nces.ed.gov/datalab/index.aspx>.
- 24 Department of Education. (2015). *Data documentation for the college scorecard*. Retrieved from: <http://collegescorecard.ed.gov/data/documentation/>
- 25 I'm First. (n.d.). *Overview*. Retrieved from: <http://www.imfirst.org/#overview>
- 26 First-generation students unite. (2015, April 8). *New York Times*. Retrieved from: http://www.nytimes.com/2015/04/12/education/edlife/first-generation-students-unite.html?_r=0
- 27 Complete College America. (2014, April). *Metrics technical guide*. Retrieved from: <http://completecollege.org/wp-content/uploads/2014/11/2014-Metrics-Technical-Guide-Final-04022014.pdf>