

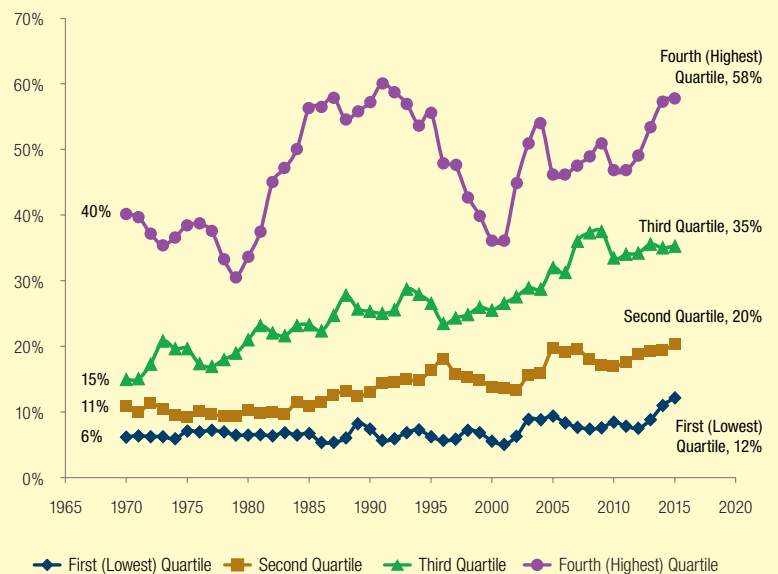
INDICATORS

OF HIGHER EDUCATION EQUITY IN THE UNITED STATES



2017 HISTORICAL TREND REPORT

**Estimates of Bachelor's Degree Attainment
by Age 24 for Dependent Family Members
by Family Income Quartile: 1970 to 2015**



**When will the U.S. close
the gap in higher education
attainment by family income?**

The Pell Institute for the Study of Opportunity in Higher Education

conducts and disseminates research and policy analysis to encourage policymakers, educators, and the public to improve educational opportunities and outcomes of low-income, first-generation students, and students with disabilities. The Pell Institute is sponsored by the Council for Opportunity in Education (COE). The Pell Institute shares the mission of the Council to advance and defend the ideal of equal opportunity in postsecondary education. As such, the focus of the Council is to ensure that the least advantaged segments of the American population have a realistic chance to enter and graduate from a postsecondary institution.

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is dedicated to advancing higher education policy and practice that foster open, equitable, and democratic societies. Drawing on the intellectual resources of the University of Pennsylvania and a global alliance of higher education and academic leaders, PennAHEAD achieves its mission by creating knowledge, improving practice, and building capacity. Through engagement with policymakers, institutional leaders, scholars, and practitioners, AHEAD produces research and applies research-based knowledge to address the most pressing issues pertaining to the public purposes of higher education in the U.S. and across the globe.

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DEDICATION & SPONSORS

SPECIAL DEDICATION ARNOLD MITCHEM & TOM MORTENSON

The *2017 Indicators of Higher Education Equity in the United States* report is dedicated to Arnold Mitchem and Tom Mortenson. Without the very different work of these two individuals, the report would not have been possible. Both have dedicated their work lives to creating greater equity in educational opportunity. By producing this 2017 volume and continuing the *Equity of Postsecondary Opportunity Shared Dialogues*, we honor the legacy of their work and the seeds they have sown for increasing equity of higher education opportunity in the United States.

SPECIAL THANKS FOR SUPPORT FROM:



Lumina[™]
FOUNDATION

The Pell Institute and PennAHEAD would like to thank the Travelers Foundation and Lumina Foundation for their financial support of the *2017 Indicators of Higher Education Equity in the United States* report and the accompanying *Search for Solutions Shared Dialogues*. While we heartily acknowledge their support, any errors of omission or interpretation and the opinions expressed in the report are the sole responsibility of the authors.

ACKNOWLEDGEMENTS

This report represents an ongoing collaboration between the Pell Institute for the Study of Opportunity in Higher Education of the Council for Opportunity in Education (COE) and the Alliance for Higher Education and Democracy (AHEAD) at the University of Pennsylvania. We are most grateful for the contributions of many persons and organizations. We acknowledge first the teams of the U.S. government and contractor statisticians, data collectors, and data processors that have painstakingly used their technical expertise over many years to produce the estimates included in the Indicators Reports. We thank the past and present staff from the Current Population Survey (CPS) and American Community Survey (ACS) from the U.S. Census Bureau and past and present government and contractor staff from the National Center for Education Statistics (NCES) studies including: High School Longitudinal Studies program, National Postsecondary Student Aid Study (NPSAS), Beginning Postsecondary Students study, Baccalaureate and Beyond Longitudinal Study (B&B), and Integrated Postsecondary Education Data System (IPEDS). We especially thank Tara Spain of Travelers and Susan Johnson of Lumina Foundation for their advisory guidance and the financial support of the organizations they represent. We also heartily acknowledge the feedback, technical assistance, and suggestions for future reports provided by the Improving Equity in Higher Education Advisory Panel members and the Pell Advisory Panel members listed on the back of this publication.

A number of persons at COE and Penn contributed to various aspects of this 2017 Report. We especially wish to thank Maureen Hoyler, President of COE, and Holly Hexter and Jodi Koehn-Pike of COE for their assistance, feedback, and production support. This report series owes much to Colleen O'Brien, former Director of the Pell Institute and author of the 2004 and 2005 Indicators Reports. Much of the trend data presented in this and earlier reports was originally compiled by Tom Mortenson, Senior Scholar at the Pell Institute, with the assistance of Nicole Brunt, for inclusion in the *Postsecondary Education Opportunity Newsletter*. We also appreciate the helpful critiques received from Susan Dynarski, Sandra Baum, and David Mundel concerning the use of CPS data and other aspects of the first edition of the Indicators Report.

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FOREWORD

In 2004 and 2005, the Pell Institute for the Study of Opportunity in Higher Education (Pell Institute), sponsored by the Council for Opportunity in Education (COE), published two editions of *Indicators of Opportunity in Higher Education*. In 2015 and 2016, we renewed the commitment to documenting trends in higher education equity by publishing an expanded trend report and initiating the Shared Solutions Dialogues. The current publication, *Indicators of Higher Education Equity in the United States: 2017*, directly follows on these earlier efforts. This publication brings together again in partnership the Pell Institute with the Alliance for Higher Education and Democracy (AHEAD) of the University of Pennsylvania. Both organizations have a core mission to promote a more open, equitable, and democratic system of higher education within the United States. The Pell Institute, with its historical and ongoing ties to the federal TRIO programs, has a special mission to promote more equitable opportunity for low-income and first-generation students, and students with disabilities.

Purposes of the Report. The purposes of this equity indicators project are to:

- Report the status of higher education equity in the United States and identify changes over time in measures of equity;
- Identify policies and practices that promote and hinder progress; and
- Illustrate the need for increased support of policies, programs, and practices that not only improve overall attainment in higher education but also create greater equity in higher education opportunity and outcomes.

Focus on Inequities. The 2015 Indicators Report focused on equity in higher education based on measures of family income. Family income remains the primary focus of the 2017 edition. Recognizing the need to also address inequity based on other interrelated demographic characteristics, the 2016 and 2017 editions include selected indicators that highlight differences by race/ethnicity and socioeconomic status (SES), an index comprised of family income, parents' education, and parents' occupation developed by the National Center for Education Statistics (NCES).

New Online Data Tool. With the release of the 2017 edition of the Indicators Report, we are launching an Equity Indicators Website hosted by the Pell Institute. This website provides access to data files used to produce each of the figures included in the 2017 Report. The website provides links to earlier reports and access to the Shared Solutions Essays that accompany the 2015, 2016, and 2017 Reports.

Methodological Issues. This Indicators Report presents data as far back as comparable data warrant, often beginning with 1970. Methodological Appendix A provides additional notes, tables, and figures.

The Shared Search for Solutions Dialogues. In addition to providing longitudinal indicators of equity, this report is also intended to advance productive conversation about effective policies and practices for improving equity in higher education opportunity and outcomes. To this end, the report includes an essay that connects the indicators to current policy debates. We hope that the indicators and essays promote productive dialogue about how to create meaningful improvements in higher education equity.

Introduction

SETTING THE STAGE

The 2015 edition of *Indicators of Higher Education Equity in the United States* (Indicators Report) began with a quote from the foreword to President Truman’s 1947 Commission on Higher Education that called attention to the dangers of a higher education system that functioned not to provide opportunity but to sort students: *“If the ladder of educational opportunity rises high at the doors of some youth and scarcely rises at the doors of others, while at the same time formal education is made a prerequisite to occupational and social advance, then education may become the means, not of eliminating race and class distinctions, but of deepening and solidifying them.”*¹

The Second Bill of Rights. When the Truman Commission Report was released, according to the U.S. decennial Census, only about 26 percent of Whites and 8 percent of Blacks over the age of 25 had attained a high school diploma and about 5 percent of Whites and 1 percent of Blacks had attained a bachelor’s degree.² The Truman Commission Report followed President Franklin Delano Roosevelt’s proposal for a “Second Bill of Rights.” Roosevelt’s proposals recognized the intersection between social and economic rights, and were a response to the nation’s experience of the Great Depression and World War II. He formally articulated the proposals in his State of the Union Address on January 11, 1944.³ The President argued that the political rights guaranteed by the U.S. Constitution and the Bill of Rights were inadequate to assure equality in the pursuit of happiness. Roosevelt’s remedy was to propose an economic Bill of Rights that would guarantee eight rights, including the right to a good education.⁴ President Roosevelt died in office in April 1945, before his proposals were seriously considered. Some of the ideas contained in FDR’s “Second Bill of Rights” were manifest in the United Nations’ Universal Declaration of Human Rights. Eleanor Roosevelt, the only woman member of the Committee, chaired the drafting committee.⁵

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- 1 Truman, H.S. “Statement by the President making public a report of the Commission on Higher Education,” December 15, 1947. Retrieved from <http://www.presidency.ucsb.edu/ws/?pid=12802>
 - 2 U.S. Census Bureau. (2006). *A half-century of learning: Historical statistics on educational attainment in the United States, 1940 to 2000*. Washington, D.C.: U.S. Department of Commerce.
 - 3 This Second Bill of Rights speech of FDR is available at: <https://www.youtube.com/watch?v=3EZ5bx9Ayl4>
 - 4 The eight interrelated rights from Roosevelt’s Second Bill of Rights were: 1. Employment (right to work); 2. Food, clothing and leisure, via enough time to support them; 3. Farmers’ rights to a fair income; 4. Freedom from unfair competition and monopolies; 5. Housing; 6. Medical care; 7. Social security, and 8. Education.
 - 5 The drafting committee included representatives from nine countries: Lebanon, Russia, China, France, England, Canada, United States, Australia, and Chile. See <http://www.un.org/en/universal-declaration-human-rights/>

Higher Education as a Human Right. In the 2016 Indicators Report, we drew inspiration from Article 13 of the International Covenant on Economic, Social, and Cultural Rights of the United Nations that declares: “Higher Education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education.”⁶ In the wake of growing student debt and a renewed focus on the rise of economic inequity in the United States, a number of proposals were advanced in 2016 for “free” higher education, and scholars and politicians began again to speak of extending the right to quality higher education as a human right.⁷

Internationally, especially among students, there has long been a view that higher education is a human right.⁸ The European Student Union (ESU) argues, “Education is a core institution of any society and one of the main pillars of modern civilization. It plays a central role in social and economic development, democratic empowerment and the advancement of the general well-being of societies. ESU believes that open access to all levels of education is the cornerstone of a socially, culturally, and democratically inclusive society and a pre-requisite for individual and societal development and well-being.”⁹

“Higher Education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education.”

Article 13(2)(c) of the International Covenant on Economic, Social and Cultural Rights of 1966 [Adopted and proclaimed by UN General Assembly resolution 217 A (III) of 10 December 1948]

“It is therefore necessary to understand that effort at equalization of educational opportunities does not and cannot, occur in a vacuum.” (Adenle & Uwameiye 2012).

Now More Than Ever, Observing the Interconnections. In 2017, issues of inequity have become even more pressing. Adenle and Uwameiye (2012), writing in the context of examining “unfairness in the levels of privileges” related to education opportunities in Nigeria, pointed to educational inequality as a major delimiting factor in attainment of that nation’s constitutional objectives. These objectives include goals very similar to those articulated by leaders and citizens in the United States: 1) a free and democratic society; 2) a just and egalitarian society; 3) a united strong

- 6 Tomaševski, K. (2001). *Special Rapporteur Report on the Right to Education Mission to the United States of America*, United Nations Commission on Human Rights, Economic, Social, and Cultural Rights, Retrieved from https://www.nesri.org/sites/default/files/Special_Rapporteur_Education_USA.pdf President Carter signed the U.N. Covenant in 1977, but thus far no President, Democrat or Republican, has presented the Covenant for ratification by the U.S. Senate. The U.N. Covenant has been ratified by 166 countries worldwide, but the United States is one of a handful of countries worldwide that has not become a binding party to the Covenant.
- 7 On February 23, 2015, Michelle Obama called education the “single most important” civil rights issue facing the country—posted by Darlene Superville, AP: 02/23/2015 2:22 pm EST Updated: 02/23/2015 2:59 pm EST. Professor Diane Ravitch has noted, reformers and advocates from both the right and the left in the U.S. have identified issues around education as: “the civil rights issue of our times” <http://dianeravitch.net/2015/06/01/the-civil-rights-issue-of-our-time-2/> Conversation about education as a civil right has been increasingly focused on higher education with such questions being included in the 2016 presidential debates. For example, when asked about the topic in a Democratic primary debate Presidential candidate B. Sanders stated, “I think what we need to do is say yes, higher education should be a right.”
- 8 Beiter, K.D. (2005). *The Protection of the Right to Education by International Law*. Martinus Nijhoff Publishers.
- 9 European Student Union (2013). *Executive Committee Document BM64/Part7, Policy paper on public responsibility, governance and financing of higher education*. Retrieved from https://www.esu-online.org/wp-content/uploads/2016/07/BM64_7aii_Public_responsibility_governance_financing_PROOFREAD.pdf The Canadian Federation of Students has organized an “Education is a Right” campaign. The Education is a Right campaign is a manifestation of students’ collective vision for a well-funded, high-quality, public postsecondary education system that builds a fair and equitable society. See <http://cfs-ns.ca/education-is-a-right>

and self-reliant nation, and 4) a great and dynamic economy.¹⁰ Adenle and Uwameiye articulate well the need to consider the social context and that the society is “an entity, an organic whole, or a social system with mutually inter-related parts.”

If postsecondary education is necessary to obtain work that pays a living wage, then all individuals, regardless of family income, parents’ education, socioeconomic status, or other demographic characteristics, should have equal opportunity to participate, complete, and benefit.

Our understanding of the role of higher education in the wider society impacts the degree to which “inequalities” are tolerated, fostered, and addressed through public policy. The U.S. has a core constitutional and founding commitment to equality of opportunity for all citizens. The U.S. Supreme Court has made rulings barring discrimination based on race/ethnicity within the United States, and has ruled in favor of increasing diversity for the good of the institution in college admissions decisions in *Fisher v. University of Texas*. Yet, thus far, the courts have not ruled on inequities in access to higher education based on family income, parents’ education,

or socioeconomic status. If postsecondary education is necessary to obtain work that pays a living wage, then all individuals, regardless of family income, parents’ education, socioeconomic status, or other demographic characteristics, should have equal opportunity to participate, complete, and benefit.

In this 2017 Report, we continue our focus on the need to understand educational equity issues within the wider context of the U.S. social and economic systems. The essay that accompanies this report and the dialogue questions we pose seek to place our findings within the wider discussion of equity and in the context of the role that higher education is playing in a society increasingly under conflict and stress.

Whether or not we believe that higher education is a civil right, an essential element of a full democratic society, or a fundamental requirement for achieving the American dream,¹¹ this Indicators Report shows that higher education opportunity and outcomes remain highly inequitable across family income groups. Moreover, on many indicators, gaps are larger now than in the past. The disinvestment of state funds for public colleges and universities since the 1980s and the declining value of federal student grant aid have aided in the creation of a higher education system that is stained with inequality. Once known for wide accessibility to and excellence within its higher education system, the U.S. now has an educational system that sorts students in ways that have profound implications for later life chances. More work is required to ensure that all youth have the opportunity to use their creative potential to realize the many benefits of higher education and advance the well-being and progress of the nation.¹²

Once known for wide accessibility to and excellence within its higher education system, the U.S. now has an educational system that sorts students in ways that have profound implications for later life chances.

10 Adenle, S. O., & Uwameiye, R. (2012, October). Issues in utilization of equalization of educational opportunities: Implication for peace education in Nigeria. *International Journal of Academic Research in Progressive Education and Development*, 1, (4) 347-356.

11 The original stated mission of the U.S. Department of Education, as adopted under President Jimmy Carter in the late 1970s, reflected a civil rights focus and simply stated the mission to be: “ensure equal access to education.” The current U.S. Department of Education’s mission statement, adopted in 2005 under President Bush, is to “promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.” It can be found at: <https://www2.ed.gov/about/overview/mission/mission.html>

12 As U.S. state and international comparisons show, it is not only the absolute level of income that reduces well-being, but also the degree of income inequity that is manifest in the state or nation. See Kerry, B., Pickett, K.E. & Wilkinson, R. (2010, August). The spirit level: Why greater equality makes societies stronger. *Child Poverty Insights*, Social and Economic Policy, UNICEF Policy and Practice. http://www.unicef.org/socialpolicy/files/Insights_August2010_ENG%281%29.pdf

The Equity Indicators

Defining Equity of Higher Education Opportunity in the United States. In this statistical report, we operationalize the concept of “equity” in terms of several types of deviations from a distribution that would indicate “equal access to education.” For example, we observe the differences across quartiles of family income in the percentages of students entering college and receiving bachelor’s degrees. We also observe the extent to which, for example, the racial/ethnic distribution of the composition of the U.S. population differs from the racial/ethnic distribution of degree recipients.

The equity indicators tracked in this report address the following six fundamental questions:

1. Equity Indicator 1: Who enrolls in postsecondary education?

- How do college continuation rates of high school leavers vary by family income?
- How do college continuation rates of high school graduates vary by family income?
- How do rates of postsecondary enrollment differ by race/ethnicity?
- How does the percentage of young adults that has not enrolled in postsecondary education within 8 to 10 years of expected high school graduation vary by parents’ socioeconomic status (SES)?

2. Equity Indicator 2: What type of postsecondary educational institution do students attend?

- How does the level of institution attended vary by family income?
- How does the control of institution attended vary by family income?
- How does the representation of low-income students vary by institutional level and control?
- How does the selectivity of institution attended vary by family income?
- How does the representation of low-income students vary by institutional selectivity?

3. Equity Indicator 3: Does financial aid eliminate the financial barriers to paying college costs?

- What are the trends in cost of attendance?
- What is the maximum Pell Grant relative to average college costs?
- What level of Pell Grant would be necessary to meet college costs?
- What is the net price of attendance by family income?
- What is the unmet need by family income?

4. Equity Indicator 4: How do students in the United States pay for college?

- What share of higher education costs is paid by students and their families?
- What is the percentage of family income needed to pay for college?
- What percent of students borrow and how much do they borrow?

5. Equity Indicator 5: How do educational attainment rates and early income outcomes vary by family characteristics?

- How does dependent individuals’ bachelor’s degree attainment by age 24 vary by family income?
- How does dependent students’ bachelor’s degree attainment within six years of entering college vary by family income?
- How does the distribution of associate’s and bachelor’s degrees relative to the population differ by race/ethnicity?
- Are there differences in average income for recent graduates by parents’ family income?

6. Equity Indicator 6: How does educational attainment in the U.S. compare with other countries?

- What percentage of 25- to 34-year-olds has completed a tertiary-type A degree (bachelor's or higher)?
- What percentage of 25- to 34-year-olds has completed a tertiary-type A (bachelor's or higher) or tertiary-type B degree (associate's or higher)?

Setting the Stage

Overview. Before presenting the indicators, we first briefly describe the structure of postsecondary education in the United States, reviewing the number and percentage distribution of institutions and enrollment by institution level (2-year and 4-year), control (public, private non-profit and private for-profit), and selectivity. We also report the increase in the percentage of youth that is poor as measured by eligibility for the federal Free or Reduced Price Lunch and receipt of Pell or other Federal Grants.

Institutional Type and Control. In 2015-16 there were 4,583 2-year and 4-year undergraduate degree-granting institutions in the United States; 34 percent were 2-year institutions and 66 percent were 4-year. In addition, there were 2,524 non-degree granting institutions of which 90 percent (n=2,026) were private for-profit.¹³

Figure 1 illustrates trends in the numbers of 2- and 4-year degree-granting institutions in the United States from 1974-75 to 2015-16.¹⁴ The total number of 2- and 4-year degree-granting institutions declined from a peak of 4,726 in 2012-13 to 4,583 in 2015-16. Taking a longer view, the total number of degree-granting institutions (including branch campuses) increased from 3,004 in 1974-75 to 4,583 in 2015-16, an increase of 53 percent. The increase from 1974-75 to 2015-16 was 39 percent for 2-year institutions and 61 percent for 4-year institutions.

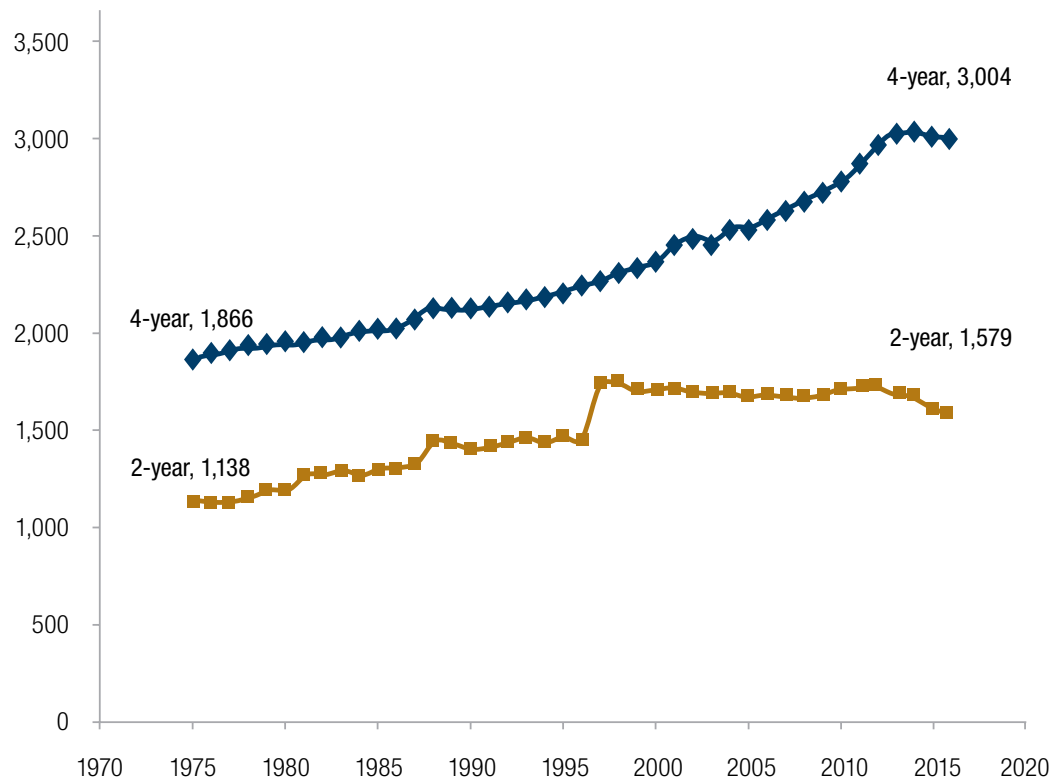
Figure 2 shows trends in the number of institutions by control. Data in the Integrated Postsecondary Education Data System (IPEDS) prior to 1984-85 are not comprehensive, particularly for private for-profit institutions. For this reason, we cautiously take 1985 as a starting point for comparison. Between 1984-85 and 2015-16, the number of public institutions increased by 8 percent and the number of private non-profit institutions increased by 5 percent. Starting from a much lower reported base over the same period, the number of private for-profit institutions increased by 490 percent, rising from 214 in 1984-85 to 1,263 by 2015-16.¹⁵ Between 1995 and 2005, the number of for-profit institutions more than doubled, rising from 345 in 1994-95 to 879 in 2004-05, and then increasing again to 1,451 in 2012-13. Since this peak in 2012-13, the number of for-profit institutions has fallen to 1,263 by 2015-16. The recent decline is attributable to the closing or consolidation of for-profit institutions, as well as the conversion of some for-profit institutions to non-profit status.

¹³ This total excludes about 530 institutions that are not undergraduate degree-granting institutions but are specialized and graduate schools. U.S. Department of Education, National Center for Education Statistics, Education Directory, Colleges and Universities, 1949-50 through 1965-66; Higher Education General Information Survey (HEGIS), "Institutional Characteristics of Colleges and Universities" surveys, 1966-67 through 1985-86; Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IPEDS-IC:86-99); and IPEDS Fall 2000 through Fall 2012, Institutional Characteristics component. NCES 2013. http://nces.ed.gov/programs/digest/d13/tables/dt13_317.10.asp

¹⁴ Before 1995-96, NCES counted "institutions of higher education." Beginning in 1995-96, the numbers reflect "degree-granting institutions," defined by NCES as "institutions that grant associate's or higher degrees and participate in Title IV federal financial aid programs." National Center for Education Statistics. (2014). *Digest of Education Statistics*, 2014 [Table 317.10].

¹⁵ It is unknown how much of the large increase is related to increased reporting and participation in Title IV aid programs on the part of private for-profit institutions and how much reflects actual growth. Title IV institutions have a written agreement with the U.S. Secretary of Education that allows them to participate in Title IV federal student financial assistance programs.

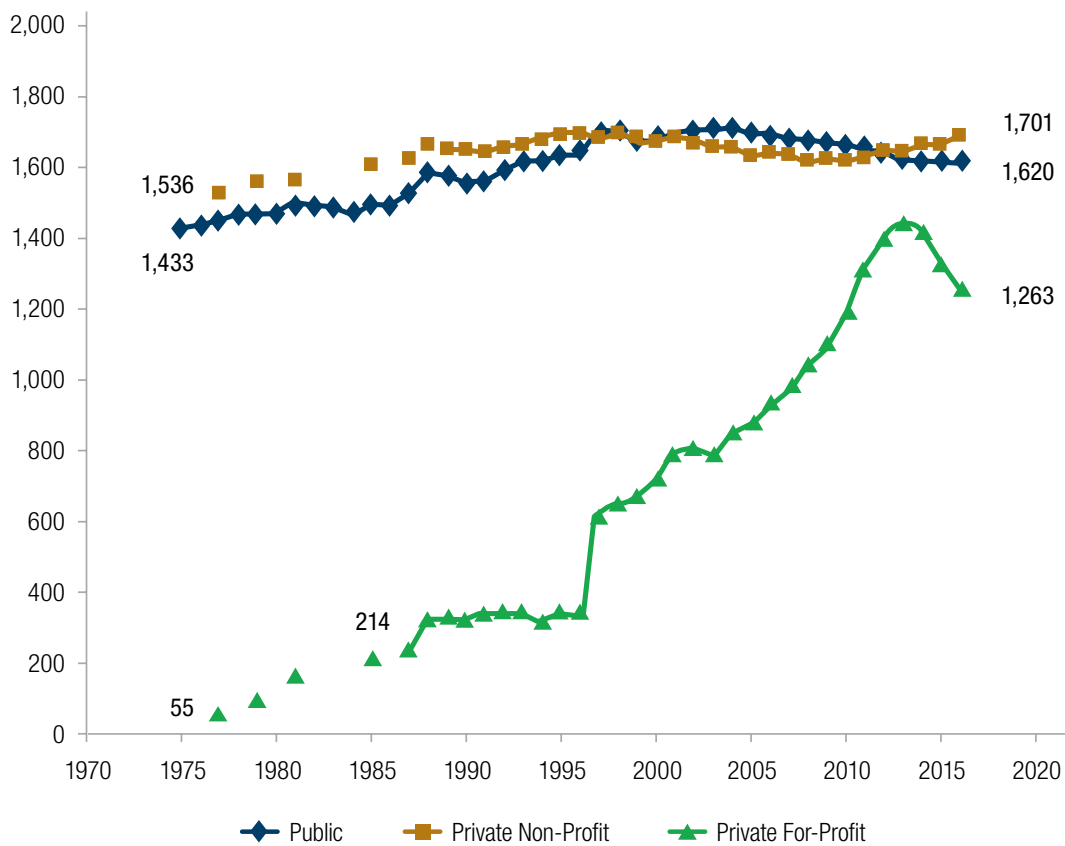
Figure 1: Number of degree-granting Title IV institutions in the United States by level: 1974-75 to 2015-16



NOTE: Data represent 1974-75 to 2015-16 academic years. Data begin with 1975 due to lack of reporting prior to 1975. Data through 1995-96 are for institutions of higher education, while later data are for degree-granting institutions. This change accounts for the increase in 2-year institutions in that year. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Changes in counts of institutions over time are also affected by the numbers of institutions submitting separate data for branch campuses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Directory, Colleges and Universities, 1949-50 through 1965-66; Higher Education General Information Survey (HEGIS), "Institutional Characteristics of Colleges and Universities" surveys, 1966-67 through 1985-86; Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IPEDS-IC:86-99); and IPEDS Fall 2000 through Fall 2013, Institutional Characteristics component. *Digest of Education Statistics, 2016* [Table 317.10].

Figure 2: Number of degree-granting Title IV institutions in the United States by control: 1974-75 to 2015-16



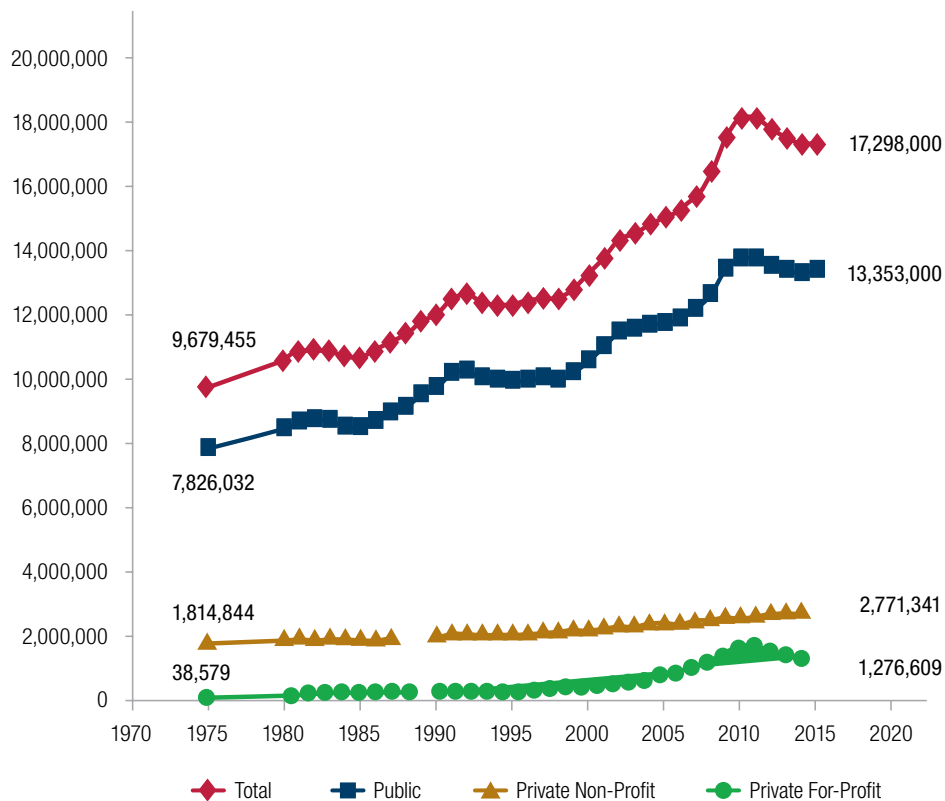
NOTE: Data begin with 1975 due to reporting consistency issues prior to 1975. Data for private for-profit institutions are subject to coverage issues especially prior to 1985. Data through 1995-96 are for institutions of higher education, while later data are for degree-granting institutions. This change accounts for the increase in private for-profit institutions between 1995 and 1996. Changes in counts of institutions over time are also affected by changes in the numbers of institutions submitting separate data for branch campuses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Education Directory, Colleges and Universities*, 1949-50 through 1965-66; Higher Education General Information Survey (HEGIS), “Institutional Characteristics of Colleges and Universities” surveys, 1966-67 through 1985-86; Integrated Postsecondary Education Data System (IPEDS), “Institutional Characteristics Survey” (IPEDS-IC:86-99); and IPEDS Fall 2000 through Fall 2013, Institutional Characteristics component, as included in *Digest of Education Statistics, 2016* [Table 317.10].

Enrollment Trends. In fall 2015, nearly 17.3 million undergraduates were enrolled in U.S. degree-granting higher education institutions (Figure 3). Enrollment since the 1970s shows an overall upward trend over time, with some periods of declines or no growth.¹⁶ Trends in enrollment are linked, at least in part, to trends in employment opportunities (e.g., the Great Recession between 2008 and 2010). In periods of fewer job opportunities and higher unemployment, college enrollment generally increases. Undergraduate enrollment increased

The impact of the Great Recession is shown in the sharp increases in enrollment between 2008-2010, followed by small declines in enrollment after 2011 and stabilization by 2015.

Figure 3: Total undergraduate fall enrollment in degree-granting institutions by institutional control: Fall 1975 to Fall 2015*



NOTE: *Data for 2015 for Total and Public enrollment are estimates. Estimates for 2015 are not available for private non-profit or private for-profit institutions. For these groups, the last years displayed are 2014. Data include unclassified undergraduate students. Data through 1995 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics (2014). *Digest of Education Statistics 2014* [Table 303.70].; Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1970 through 1985; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:86-99); IPEDS Spring 2001 through Spring 2014, Enrollment component; and Enrollment in Degree-Granting Institutions Projection Model, 1980 through 2024. Retrieved from https://nces.ed.gov/programs/digest/d15/tables/dt15_303.70.asp?current=yes

¹⁶ Before 1995-96, NCES counted "institutions of higher education." Beginning in 1995-96, the numbers reflect "degree-granting institutions," defined by NCES as "institutions that grant associate's or higher degrees and participate in Title IV federal financial aid programs." NCES. (2014). *Digest of Education Statistics, 2014* [Table 317.10].

sharply during the Great Recession, rising from 15.6 million in fall 2007 to a peak of 18.1 million in fall 2010, and then declined by 2 percent between fall 2011 and fall 2012 and by 1 percent between fall 2012 and fall 2014.¹⁷ This decline appears to have stabilized by 2015. By fall 2015, total enrollment estimates rose slightly over fall 2014.

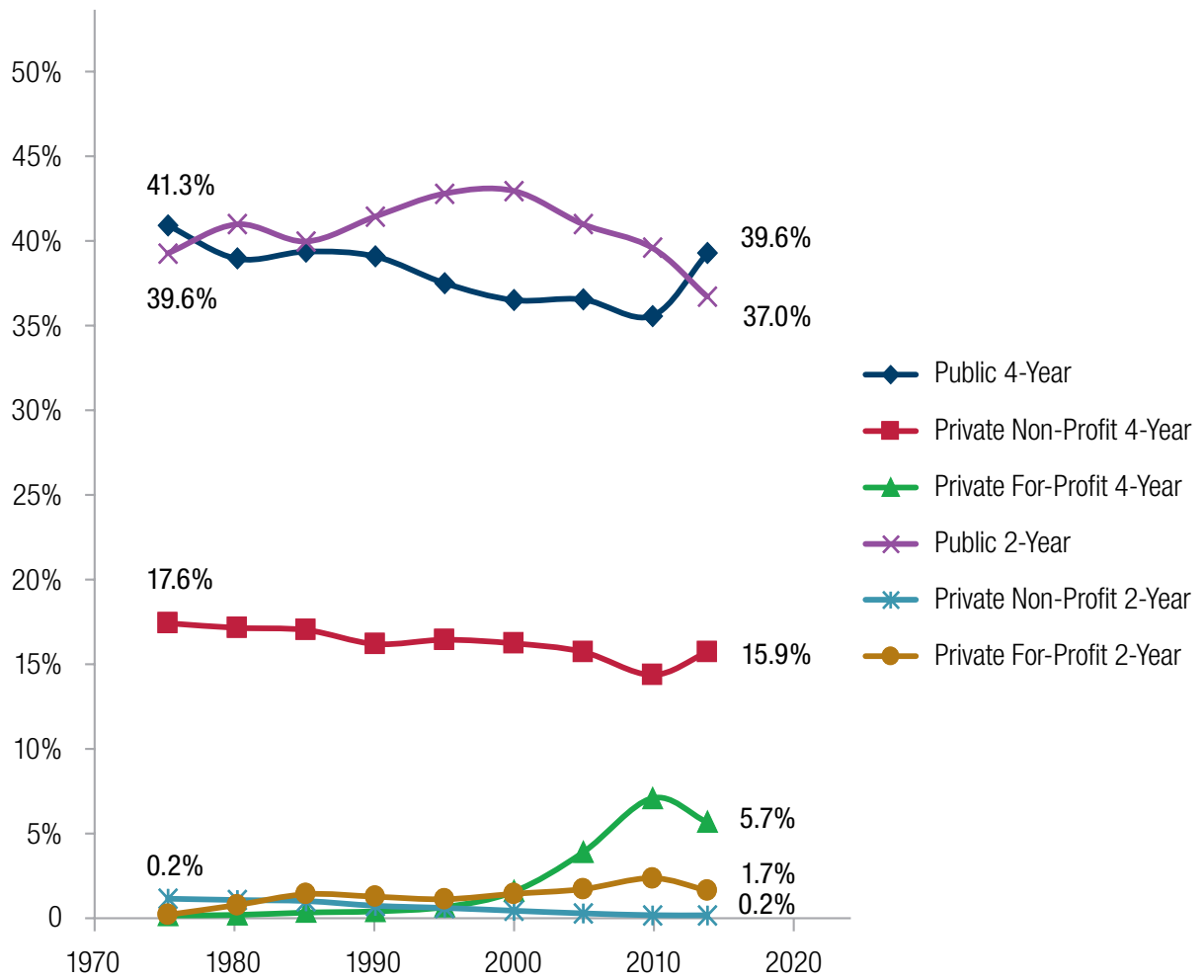
Enrollment by Institutional Control and Level. In fall 2014, public institutions accounted for 77 percent of enrollments, private non-profit institutions accounted for 16 percent, and private for-profit institutions accounted for 7 percent (Figure 4). Because public institutions, on average, enroll larger numbers of students than private non-profit and private for-profit institutions, the distribution of enrollment by control is different than the distribution of institutions. As shown in Figure 2, in 2015-16, 35 percent of institutions were public, 37 percent were private non-profit, and 28 percent were private for-profit.

The private for-profit share of degree-seeking enrollment increased from 2 percent in 1975 to 10 percent by 2010, but declined to 7 percent for 2014.

While there have been some declines in the share of enrollments in public institutions since 1975, public 2-year and 4-year institutions have consistently enrolled at least three-fourths of undergraduates. In 1975, 81 percent of undergraduates were enrolled in public institutions. The public share declined to 76 percent by fall 2010 and was 77 percent in 2014. The share of undergraduates enrolled in private non-profit institutions fluctuated between 19 percent in 1975 and 14 percent in 2008. In 2014, 16 percent of undergraduates were enrolled in private non-profit institutions (16 percent in 4-year and .02 percent in 2-year private non-profits). During the 1990s, about 2 percent of undergraduates were enrolled in private for-profit 2-year and 4-year institutions. The private for-profit share of 2-year and 4-year undergraduate enrollment increased during the 2000s, reaching a high of 10 percent in 2010 and then declining to 7 percent in fall 2014.

¹⁷ NCES projected data for 2014 and 2015 was 17.3 million. NCES projects enrollment to reach the level of 2010 by 2018. NCES (2014). *Digest of Education Statistics, 2014* [Table 303.70].

Figure 4: Percentage distribution of total fall undergraduate enrollment by institution control and level: 1975 to 2014



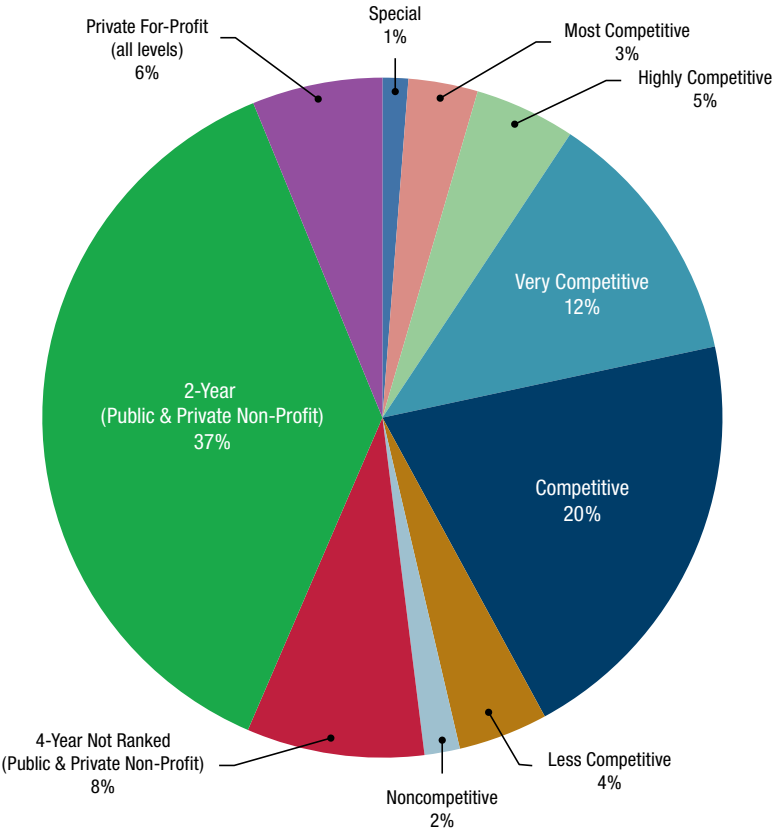
NOTE: See notes for Figure 3.

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Data System (IPEDS) (2015), *Digest of Education Statistics, 2015* [Table 303.70].

https://nces.ed.gov/programs/digest/d15/tables/dt15_303.70.asp?current=yes

Enrollment by Admissions Competitiveness Index. Figure 5a presents the distribution of undergraduate enrollment (both full-time and part-time) by institutional competitiveness, and Figure 5b presents the distribution of institutions. Selectivity is defined using Barron’s Admissions Competitiveness Index for 2016.¹⁸ In fall 2014, about a third of undergraduates were enrolled in 4-year colleges and universities with competitive or selective admissions, with 3 percent enrolled in institutions designated “Most Competitive,” 5 percent in “Highly Competitive” institutions, 12 percent in “Very Competitive,” and 20 percent in “Competitive” institutions (Figure 5a). In fall 2014, about half of undergraduates (52 percent) were enrolled in institutions that were not ranked by Barron’s because they were 2-year public or 2-year private non-profit (37 percent), private for-profit (6 percent), non-ranked 4-year public or 4-year private non-profit (8 percent) or designated as “special” (1 percent).¹⁹

Figure 5a: Percentage distribution of total undergraduate enrollment by the Admissions Competitive Index: 2014



NOTE: This figure uses Barron’s Admissions Competitiveness Index for 2016 and IPEDS fall 2014 enrollment data (full-and part-time enrollment captured by the “EFTOTLT” variable). Students attending institutions not ranked by Barron’s are classified by institutional level and control.

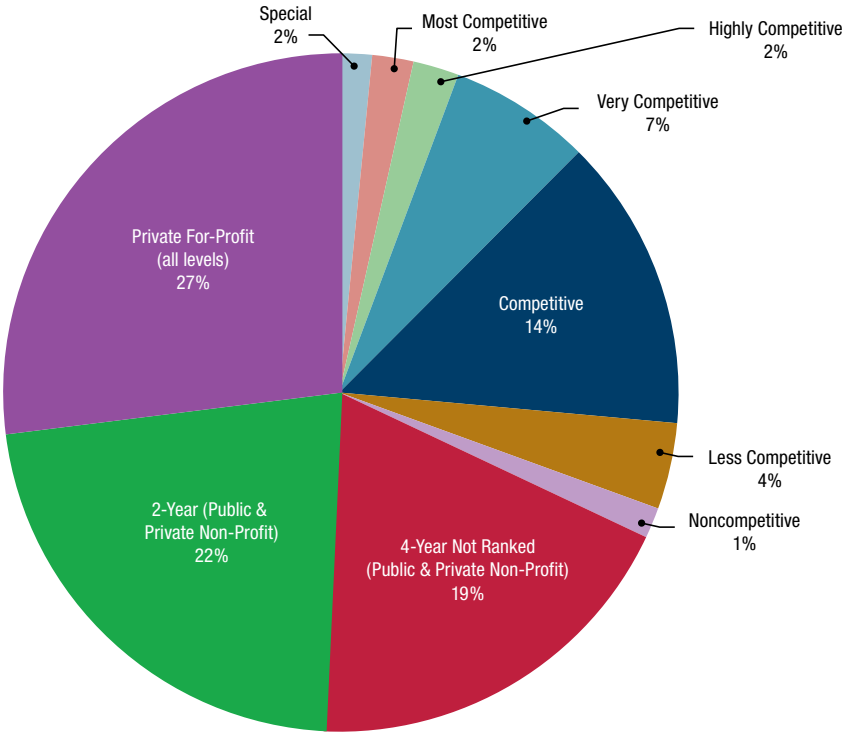
SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Data System (IPEDS), and *Barron’s Profiles of American Colleges*, 32nd Edition (2016).

¹⁸ Barron’s *Profiles of American Colleges 2016, 32nd Edition*.
¹⁹ An additional 4 percent of undergraduates were attending institutions ranked by Barron’s as “Less Competitive” 4-year institutions and 2 percent were in institutions ranked as non-competitive by Barron’s Admissions Competitiveness Index data file from the National Center for Education Statistics (NCES).

The 2014 distribution reflects an increase between 2012 and 2014 in the percentage of undergraduate enrollment in competitive institutions (i.e., the most, highly, and very competitive and competitive categories) from 33 percent to 40 percent. Some of the increase observed may be due to differences in the classifications by Barron’s from 2004 to 2016.

Number of Institutions by Admissions Competitive Index. Figure 5b, also using Barron’s 2016 competitiveness index, shows the percentage distribution of institutions falling into each category. The differences between the distributions in Figure 5a and Figure 5b reflect differences in enrollment size among institutions of different competitiveness. For example, in Figure 5a, 2-year public and private non-profit institutions enroll 37 percent of undergraduates, but comprise only 22 percent of all institutions. In contrast, private for-profit institutions enroll about 6 percent of undergraduates while comprising 27 percent of institutions. Unranked 4-year public and private non-profit institutions enroll 8 percent of undergraduates but comprise 19 percent of the institutions.

Figure 5b: Distribution of institutions by the Admissions Competitiveness Index: 2014



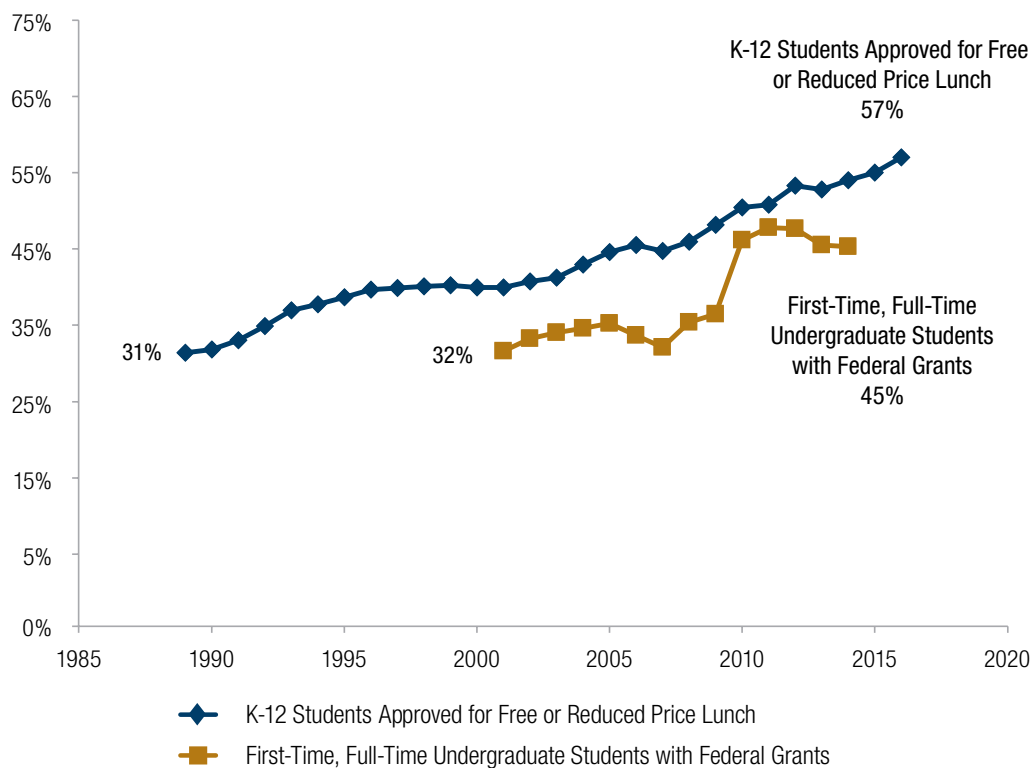
NOTE: This figure uses Barron’s Admissions Competitiveness Index for 2016 and IPEDS.

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Data System (IPEDS) (2015) and *Barron’s Profiles of American Colleges*, 32nd Edition (2016).

Growth of Students Classified as Eligible for Free or Reduced Price Lunch, and Growth of Federal Grants (Pell and other Grants). Figure 6 shows trends in the percentages of youth that are approved as eligible for free or reduced price lunches from 1989 to 2016 and the percent of full-time, first-time degree/certificate-seeking undergraduate students, enrolled in degree-granting postsecondary institutions, who have Federal Grants from 2000-01 to 2013-14. Both measures show an increase in the share of students enrolled in our nation’s educational systems who are from low-income families. The percent of K-12 students eligible for free or reduced price lunches increased from 31 percent in 1989, to 53 percent in 2015, and to 57 percent in 2016.

The percent of first-time, full-time undergraduates enrolled at public and private non-profit institutions who received Pell or other Federal Grants was 32 percent in 2001. This percentage fluctuated between 32 percent

Figure 6: Percentage of K-12 students approved for free or reduced price lunches (1989 to 2016) and percentage of full-time first-time degree-seeking undergraduates with Pell or other Federal Grants (2001 to 2014)



NOTE: Federal Grants includes Pell Grants and other financial aid that does not have to be repaid. Totals for approved free or reduced price lunch include the 50 states, District of Columbia, Guam, Virgin Islands, Puerto Rico, and Department of Defense schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics (2015). *Digest of Education Statistics, 2015* [Table 331.20], U.S. Department of Agriculture, Food and Nutrition Services, Free and Reduced Price Lunch data various years 1989 to 2016.

in 2001 and 35 percent in 2007.²⁰ After 2007 (with the Great Recession), the share of first-time, full-time undergraduates receiving Federal Grants increased to a peak of 48 percent in 2011. This percentage declined to 45 percent in 2012-13 and in 2013-14. Changes over time in participation in Federal Grants (most of which are awarded on the basis of financial need) reflect changes in the economic cycle, income eligibility levels, and the stagnation of family incomes in the United States.²¹

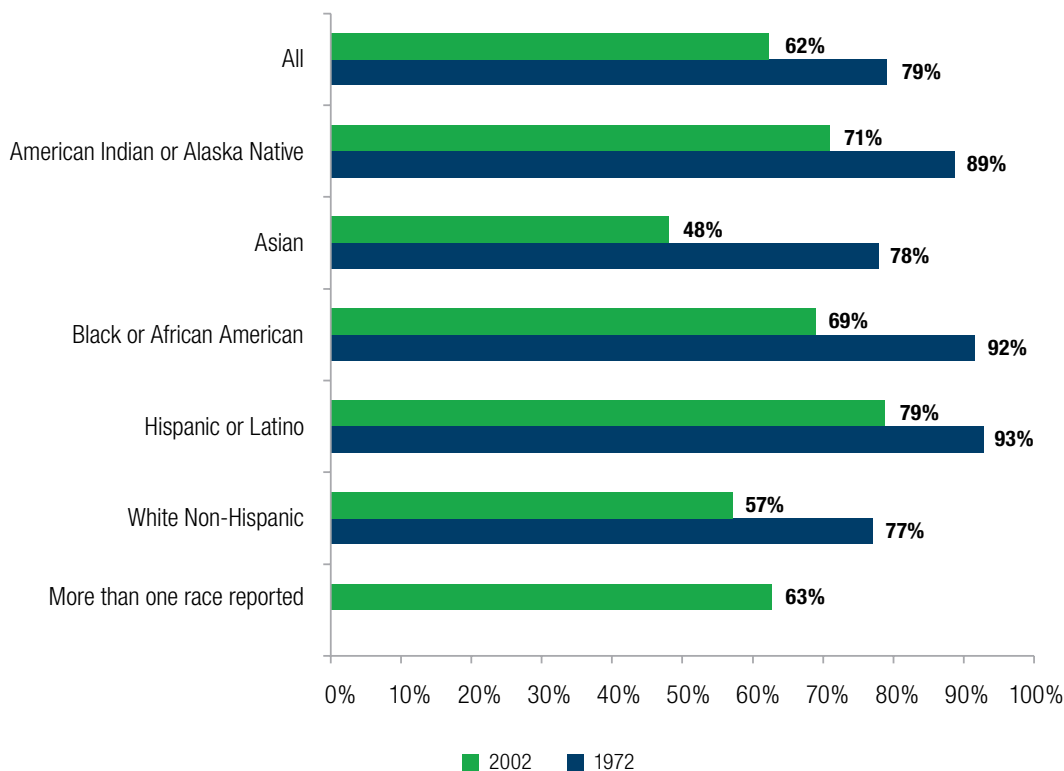
Percentage of Youth Who Are First Generation. Measures of educational achievement like test scores, college entrance rates, and college degree attainment are highly correlated with parents' education. Figure 7a presents results from the National Longitudinal Study of the High School Class of 1972 (NLS-72) and the Educational Longitudinal Study (ELS) of students who were 10th graders in 2002 and were scheduled to graduate in 2004. Comparing the classes of 1972 and 2004 shows the large changes that have occurred in the percentage of high school students who would be first generation to college (defined as no parent has a bachelor's degree). In 1972, 93 percent of Hispanic students, 92 percent of Black students, 89 percent of American Indian or Alaska Native students, 77 percent of White students, and 78 percent of Asian students had the potential to be first generation to college. About 30 years later, by the high school class of 2004 (as measured by ELS), the percent of high school students who had the potential to be first generation to college declined to 79 percent for Hispanics, 71 percent for American Indian and Alaska Native, 69 percent for Blacks, 57 percent for Whites, and 48 percent for Asian students.

More recent data from the American Community Survey (ACS), as displayed in Figure 7b, give estimates for the percentage of parents of children aged 5 to 17 who had not completed a bachelor's degree in 2009 and 2014. While also showing a decline over time in the share of students who had the potential to be first generation to college, the estimates are not directly comparable to those from the NCES high school longitudinal studies. The ACS is a household survey, and the estimates are for all children 5 to 17 years old living in the household sampled. In addition, the ACS classifications reflect the newer, more complex race/ethnicity categories. Nevertheless, the ACS data show the same trends and differences by race/ethnicity as the high school longitudinal studies. By 2014, 83 percent of Hispanic children, 81 percent of Pacific Islander, 78 percent of American Indian/Alaska Native, 76 percent of Black, 59 percent of two or more races, 57 percent of some other race, 51 percent of White, and 36 percent of Asian children had the potential to be first generation to college. We note that these data may overestimate potential first-generation status, as some of the parents of 5- to 17-year-olds may complete a bachelor's degree or higher by the time their children are college age.

20 The percentage of all undergraduates with Pell Grants, as tabulated as a percentage of undergraduate enrollment increased from 13 percent in 1975 at the start of the Pell Grant program, and reached 32 percent by 1992. The rates shown from 2000 to 2014 are for full-time, first-time students. Estimates for all undergraduates in 2014 are generally higher, at around 50 percent.

21 See Appendix A for historical trend data on median family income and income distribution by quartiles.

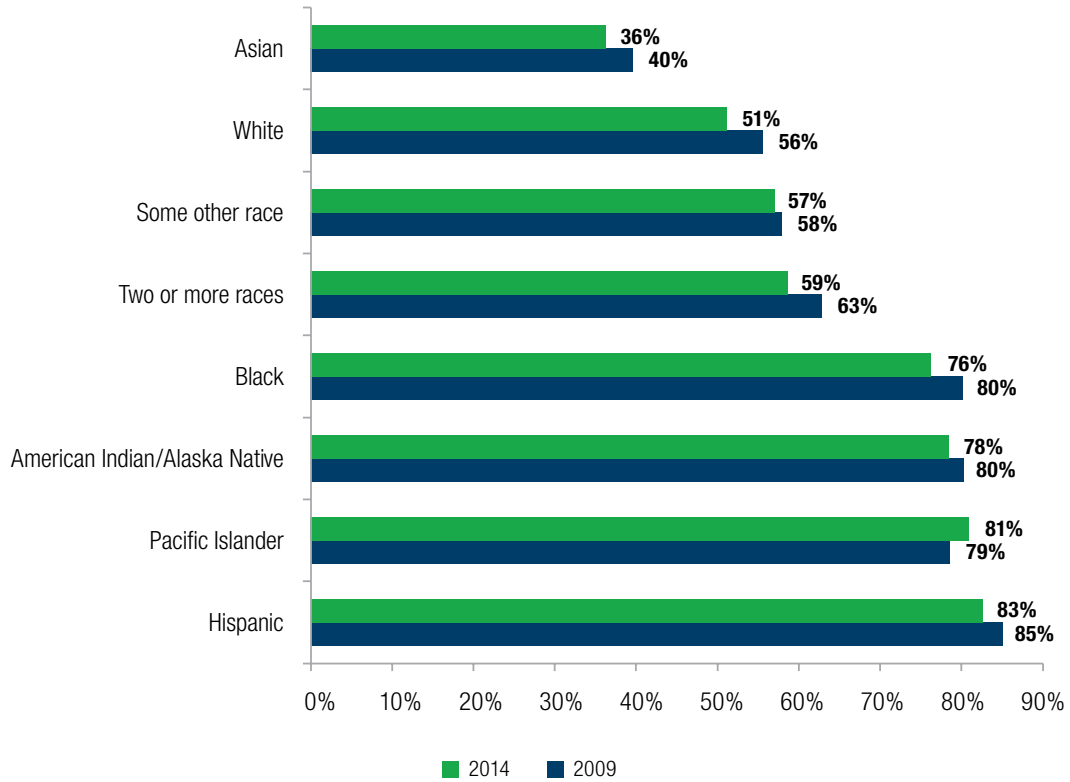
Figure 7a: Percentage of high school students who had the potential to be first-generation college by race/ethnicity: 1972 (National Longitudinal Study of High School Class of 1972) and 2004 (Educational Longitudinal Study: ELS:2002)



NOTE: First generation is defined as no parent or guardian has a bachelor's degree. The National Longitudinal Study of High School Class of 1972 sampled high school seniors and the Educational Longitudinal Study (ELS:2002) sampled high school sophomores. This difference in composition with regard to students leaving high school before their senior year may impact the comparison between the two estimates.

SOURCE: Cahalan, M., & Curtin, T. (2004). *A Profile of the Upward Bound Program 2000-2001*, U.S. Department of Education, Office of Federal TRIO Programs, <https://www2.ed.gov/programs/trioupbound/ubprofile-00-01.pdf> [Figure 9]. Tabulated from the National Longitudinal Study of 1972 (NLS-72) and Educational Longitudinal Study of Youth (ELS:2002/2004).

Figure 7b: Percentage of 5- to 17-year-olds who had the potential to be first-generation college by race/ethnicity: 2009 and 2014



NOTE: First generation is defined as no parent or guardian has a bachelor's degree. These estimates are not directly comparable to estimates in Figure 7a as they reflect multiple children per household and are estimates based on parents of 5- to 17-year-olds from the Census household survey.

SOURCE: U.S. Census Bureau, *American Community Survey* (2009 and 2014) as included in *Digest of Education Statistics, 2016* [Table 104.70].

EQUITY INDICATOR 1:

WHO ENROLLS IN POSTSECONDARY EDUCATION?

In 2015, 78 percent of 18- to 24-year-olds from the highest family income quartile enrolled in postsecondary education the fall after scheduled high school graduation, compared with 46 percent of those in the lowest quartile.

Equity Indicators 1(a-g): Definitions

Indicator 1 examines participation in postsecondary education by family income, race/ethnicity, and parents' socioeconomic status. The data are from two sources: 1) the cross-sectional annual data from the U.S. Census Bureau's Current Population Survey (CPS) series, which provides household-based national estimates and includes data on enrollment in any type of postsecondary institution; and 2) longitudinal studies of high school students that have been conducted by the National Center for Education Statistics (NCES) at approximately 10-year intervals over the last 40 years. Data in this section are from the High School Longitudinal Study (HSLs) of 9th graders in 2009; Education Longitudinal Study (ELS:2002) of 10th graders in 2002; National Education Longitudinal Study of 8th graders in 1988 (NELS:88); and High School and Beyond (HS&B:1980) study of 1980 10th graders. For those studies in which sufficient time has elapsed, we report data from the follow-ups 8 or 10 years after expected high school graduation (2012, 2000, and 1992, respectively). The High School Longitudinal Study of 9th graders began in 2009, and had an 11th grade follow-up in 2012.²² An update in 2013 collected information on high school completion and college enrollment in the fall after the date of expected on-time high school graduation. Data for the 2016 HSLs follow-up have been collected, but not released in time for this Indicators Report. We include data on the early college enrollment for the HSLs sample of 9th graders from 2009.

Definitions of the indicators and information about classifications are noted below.

- **Cohort College Continuation Rate** is defined as the percent of recent high school leavers continuing on to any type of postsecondary education, as measured by the Current Population Survey (CPS) and published by the Bureau of Labor Statistics (BLS).
- **High School Graduates College Continuation Rate** is defined as the percent of high school graduates continuing on to any type of postsecondary education, as measured by the CPS and

²² NCES also sponsored a study of the High School Class of 1972. Because this study started with the senior class and had follow-up limitations, we do not include data from this study for college continuation rates. We use information from this study to observe trends in parent education in the Setting the Stage section and Indicator 2d describing selectivity of intended institutions among high school seniors.

published by the BLS. The High School Graduates College Continuation Rate is higher than the Cohort College Continuation Rate because the latter is contingent on high school completion.

- **Enrolled in postsecondary education within 8 or 10 years of expected high school graduation** is defined as the percent of students who, in nationally representative school-based longitudinal studies, self-reported having ever enrolled in any type of postsecondary educational institution, regardless of degree-granting status of the institution or the student's degree or certificate attainment status.
- **Income** is most frequently reported in quartiles (4 equal-sized groups). Reflecting the approaches of a given data source, we also report divisions of family income in three categories (high, medium, or low) and five groups (quintiles). These measures are specific to the population covered in a given data source. Using income quartiles or quintiles facilitates comparisons of changes over time, as they reflect a distribution based on data for a given year. In 2015, family income quartiles for dependent 18- to 24-year-olds identified by the distribution of family income data in the Current Population Survey (CPS) were:
 - *Lowest quartile:* Less than \$37,679
 - *Second quartile:* \$37,679 to \$68,494
 - *Third quartile:* \$68,494 to \$119,765
 - *Highest quartile:* \$119,765 and above

In 2015, the maximum income for the lowest quartile (\$37,679) was less than one-third (31 percent) of the minimum income level of the highest quartile (\$119,765). Reflecting growing income inequality in the United States, the difference between the highest and lowest family income quartiles has increased since 1970.²³

- **Race/Ethnicity.** We use the race and ethnicity categories and titles (for example, "Black," "Black or African American") in the charts and text as reported by each data source. As race/ethnicity categories have changed over time and vary by study, race/ethnicity categories and titles used in this report also vary based on the original data sources. The more recent studies use race and ethnicity variables that reflect federal requirements for collecting race separately from ethnicity and allow respondents to mark more than one choice for race. When the labeling for race/ethnicity has changed over time for the same data source, we report the one in current use. Notes to the charts give more detail.
- **Socioeconomic Status (SES)** is measured using the socioeconomic status (SES) composite included in the NCES longitudinal studies. NCES created the SES composite based on data from the parent questionnaires or data imputed from the student questionnaires. For the five NCES longitudinal studies, SES was derived using five equally-weighted, standardized components: father's/guardian's education, mother's/guardian's education, family income, father's/guardian's occupational prestige score, and mother's/guardian's occupational prestige score.²⁴

23 Since 1967, U.S. household income inequality has grown 18 percent. Nearly half of that growth occurred during the 1980s. DeNavas-Walt, C., Proctor, B. D., & Smith, J. C. (2011). "Income, Poverty, and Health Insurance Coverage in the United States: 2010." [Table A-3]. *Selected Measures of Household Income Dispersion, 1967 to 2010*. Retrieved from <http://www.census.gov/prod/2012pubs/acsbr10-18.pdf> See Appendix A for data on the upper limits of the lowest, second, and third quartiles based on the CPS data from 1970 to present.

24 Cahalan, M., Ingles, S., Burns, L., & Planty, M. (2006). *United States high school sophomores: a twenty-two year comparison, 1980-2002*, Statistical Analysis Report. Washington, DC: U.S. Department of Education, NCES 2006-327.

Cautions and Limitations. This report relies on data compiled over long periods of time in an effort to observe trends. As noted throughout, data from sample surveys such as the Current Population Survey (CPS) and NCES longitudinal studies are subject to sampling error and changes in definitions and study designs. For example, the race/ethnicity data in the CPS suffer from small sample sizes and larger sampling errors than the estimates for the whole population. To address this limitation, we use three-year moving averages. As noted above, definitions of race/ethnicity have also changed over time. The NCES high school longitudinal studies have complex multi-level school and student sample designs and have cohorts starting in different grade levels, ranging from 8th to 12th grade. Caution is needed in interpreting the trend data in this report, especially with regard to conclusions that may be drawn from small changes.

Equity Indicator 1a: How Do Cohort College Continuation Rates for High School Leavers Vary by Family Income?

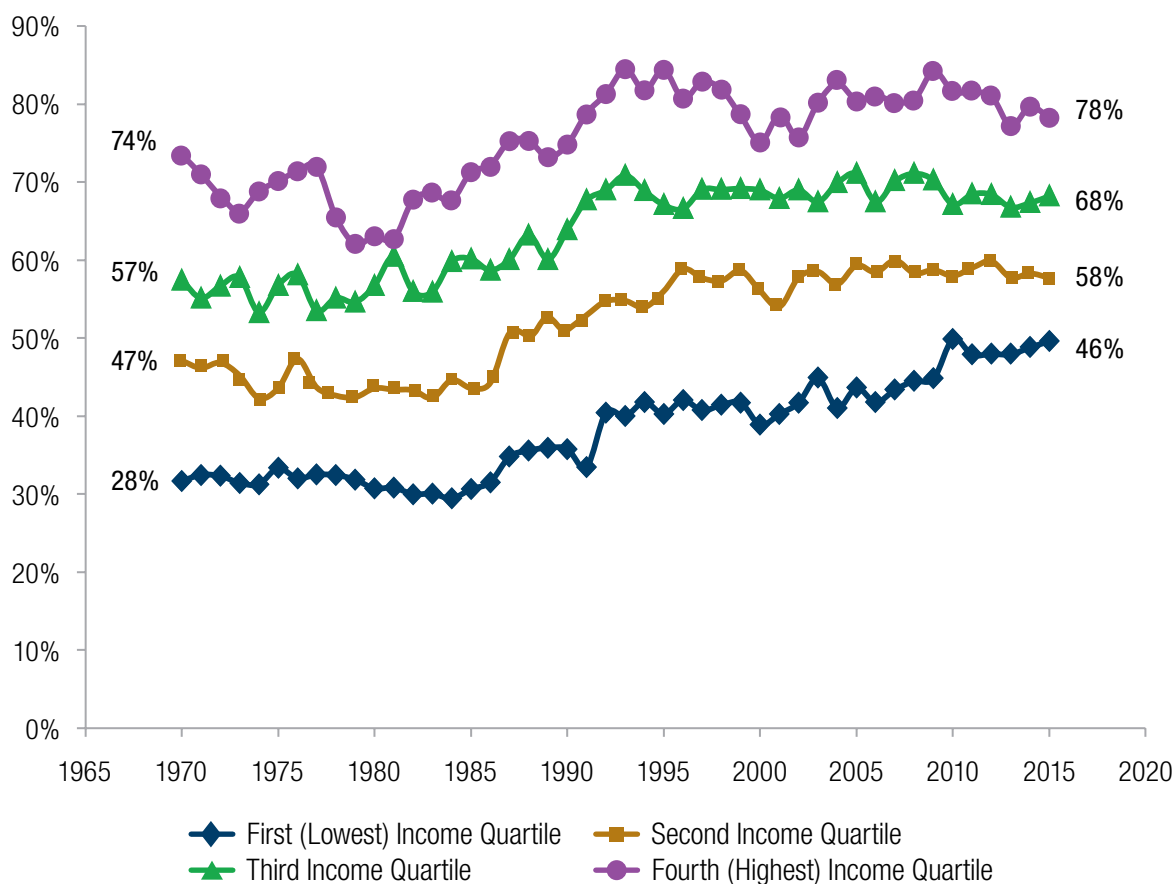
Since 1990 college continuation rates have shown higher rates of increase for students from the lowest income quartile than for the higher three income quartiles which show little change. Despite this increase, college continuation rates remained 32 percentage points lower for students from the lowest income quartile than those from the highest quartile in 2015.

Equity Indicator 1a shows the Cohort College Continuation Rate for recent school leavers (that is, those who did and did not complete high school) by family income quartile from 1970 to 2015. For all income groups, the college continuation rate has generally increased since 1980, with a slower rate of overall increase since 1990. The lowest quartile experienced the highest rate of increase after 1990.

In 2015, 78 percent of high school leavers from the highest family income quartile enrolled in college soon after leaving high school, compared with 46 percent of those in the

lowest quartile. College continuation rates for high school leavers from the lowest quartile increased from 32 percent in 1990 to 46 percent in 2015. Over the same period, the share of high school leavers from the highest income quartile who enrolled in college increased modestly from 75 percent in 1990 to 78 percent in 2015. Because of differential rates of increase over this period, the gap in postsecondary education enrollment between those in the lowest and highest family income quartiles is smaller in 2015 (32 percentage points) than in 1970 (46 percentage points) and in 1990 (43 percentage points).

Equity Indicator 1a: Cohort College Continuation Rates by family income quartile for recent school leavers: 1970 to 2015



Indicator Status: High Inequality but Narrowing Gap

There was a 32 percentage-point gap in college enrollment between high school leavers in the highest and lowest income quartiles in 2015, compared with a 43 percentage-point gap in 1990 (and 46 percentage-point gap in 1970).

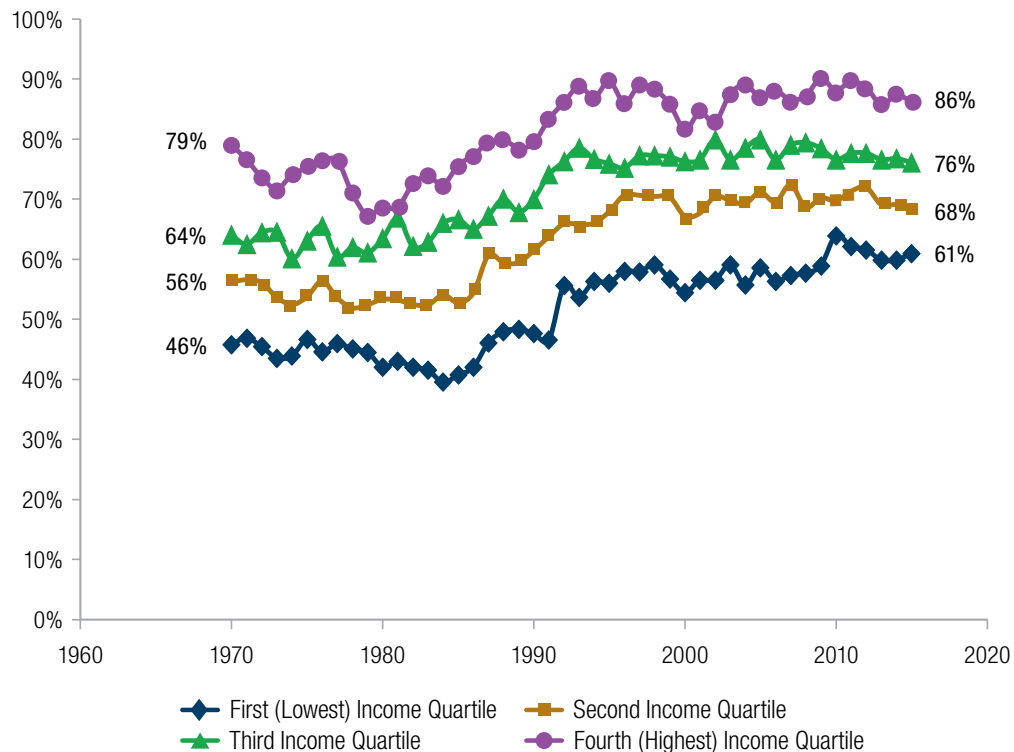
NOTE: The Cohort College Continuation Rate is tabulated based on the total number in the cohort year and includes those who have not completed high school. Information on school enrollment and work activity is collected monthly in the Current Population Survey (CPS), a nationwide survey of about 60,000 households, which provides information on employment and unemployment. Each October a supplement to the CPS gathers information about school enrollment.

SOURCE: Calculated from October Current Population Survey File (Formerly Table 14 in Census Bureau's School Enrollment Report), U.S. Census Bureau; School Enrollment Data, 1970-2015, compiled by Tom Mortenson. For recent releases, see <http://stats.bls.gov/news.release/pdf/hsgcec.pdf>

Equity Indicator 1b: How Do High School Graduates College Continuation Rates Vary by Family Income?

Equity Indicator 1b shows similar trends in High School Graduates College Continuation Rates by family income quartile. For high school graduates in the highest family income quartile, the college continuation rate was 86 percent in 2015, up from 79 percent in 1990 (and 79 percent in 1970). For high school graduates in the lowest quartile, the college continuation rate was 61 percent in 2015, up from 48 percent in 1990 (and 46 percent in 1970). The gap in college continuation rates for high school graduates in the highest and lowest income quartiles was 25 percentage points in 2015, down from 31 percentage points in 1990 (and 33 percentage points in 1970).

Equity Indicator 1b: High School Graduates College Continuation Rates by family income quartile: 1970 to 2015



Indicator Status: High Inequality But Narrowing Gap

There was a 25 percentage-point gap in college continuation rates for high school graduates between the highest and lowest income quartiles in 2015, compared with a 31 percentage-point gap in 1990, and a 33 percentage-point gap in 1970.

NOTE: The High School Graduates College Continuation Rate is the percent of 16- to 24-year-old high school graduates who entered a postsecondary educational institution of any type.

SOURCE: Calculated from October Current Population Survey File (Formerly Table 14 in Census Bureau's School Enrollment Report) U.S. Census Bureau; School Enrollment Data, 1970-2015, as reported by the U.S. Bureau of Labor Statistics (BLS), compiled by Tom Mortenson. For recent releases, see <http://stats.bls.gov/news.release/pdf/hsgcec.pdf>

Equity Indicator 1c(i): How Do Cohort College Continuation Rates of High School Leavers Vary by Race/Ethnicity?

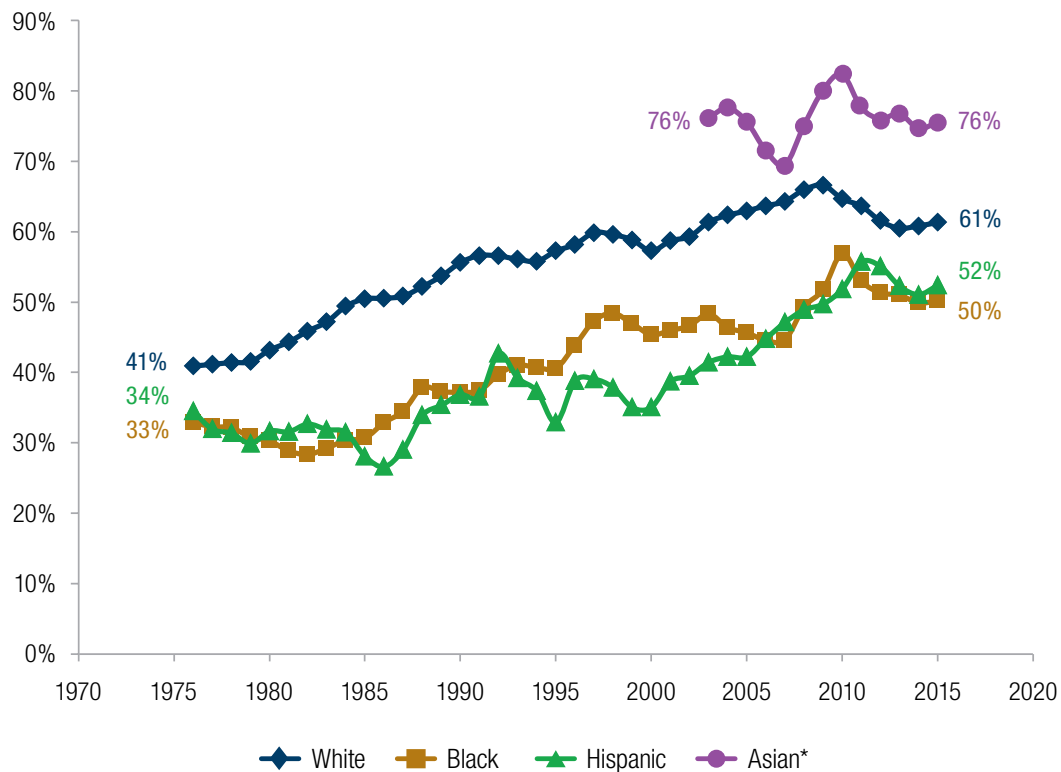
Equity Indicator 1c(i) uses Current Population Survey (CPS) data to examine Cohort College Continuation Rates for high school leavers (graduates and non-graduates) by race/ethnicity from 1976 to 2015. Estimates by race/ethnicity have relatively larger sampling error than estimates for the total population due to smaller sample sizes. Estimates are also impacted by changes in the age composition of the group and income distribution by race/ethnicity.²⁵ We use a three-year moving average to increase stability of the estimates for data disaggregated by race/ethnicity.²⁶ Data for Asians are not available until 2000, and when they are available, are not disaggregated by ethnicity. Over the period since this series began, categories used for race/ethnicity have changed in government statistics. For Indicator 1c(i) in the chart and in this text discussion, the race categories (White, Black, Asian) exclude those reported to be of Hispanic ethnic origin.

The 2015 data show that 76 percent of Asian and 61 percent of White high school leavers enrolled in college immediately after high school, compared with 52 percent of Hispanics and 50 percent of Blacks. Within the context of increases in college going for all race/ethnicity groups, the gaps by race/ethnicity have not closed over the period of 1976 to 2015. In 1976, about 41 percent of White high school leavers continued onto college, compared with 33 percent of Blacks and 34 percent of Hispanics. Indicator 1c(i) shows that college continuation rates declined somewhat between 2012 and 2014 for all race/ethnicity groups following peaks reached during the Great Recession (2009 to 2011). Throughout this period, college continuation rates were higher for Asian and White high school leavers than for Black and Hispanic high school leavers.

25 Pfeffer, F. T., Danziger, S., & Schoeni, R. (2013). Wealth disparities before and after the Great Recession. *Annals of the American Academy of Political and Social Science*, 650 (1), 98–123. This paper reports that between 2007 and 2011, one fourth of American families lost at least 75 percent of their wealth, and more than half of all families lost at least 25 percent of their wealth. The analysis also shows that the large relative losses were disproportionately concentrated among lower income, less educated, and minority households.

26 A three-year moving average is an average of the year indicated, the year immediately preceding, and the year immediately following. For the end point years, a two-year moving average is used. Moving averages produce more stable estimates. Data for Indicators 1c and 1d differ slightly from those presented in the 2016 Report, as the 2016 Report did not use moving averages.

Equity Indicator 1c(i): Cohort College Continuation Rates (3-year average) of recent high school leavers by race/ethnicity: 1976 to 2015



Indicator Status: Gaps Persist by Race/Ethnicity

Among high school leavers, Cohort College Continuation Rates in 2015 were 11 percentage points higher for Whites than for Blacks, and 9 percentage points higher for Whites than for Hispanics. In 1976, college continuation rates were 8 percentage points higher for White high school leavers than for Blacks and 7 percentage points higher than for Hispanics.

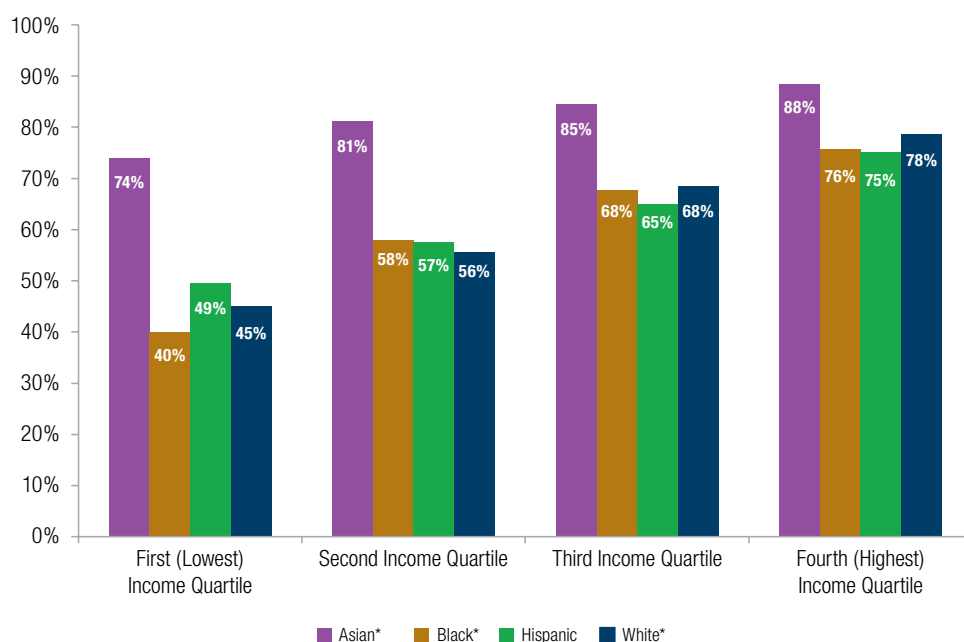
NOTE: *Race categories exclude persons of Hispanic ethnicity except where otherwise noted. The Cohort College Continuation Rate is tabulated based on the total number in the cohort year and includes those who have not completed high school. Data for Asian students were reported beginning in 2000. Annual data collected by Census and reported by BLS are from the October supplement to the Current Population Survey (CPS), a nationwide survey of about 60,000 households. We use a three-year moving average because of higher levels of sampling error for disaggregated data. The three-year average was calculated by averaging three years. For example, the percentage for 1977 was calculated by adding percentages for 1976, 1977 and 1978 and dividing by 3. The end point years (i.e., 1975 and 2015) are based on a two-year average.

SOURCE: Bureau of Labor Statistics (BLS) and U.S. Census Bureau, 1976-2015, as adapted by Tom Mortenson, *Postsecondary Education Opportunity (PEO) Newsletters* and data base, *College Entrance Rates by Race/Ethnicity for Recent High School Graduates 1960 to 2015*. See <http://stats.bls.gov/news.release/pdf/hsgec.pdf> for most recent data from BLS.

Equity Indicator 1c(ii): How do Cohort College Continuation Rates of High School Leavers by Race/Ethnicity Vary by Family Income?

Equity Indicator 1c(ii) displays data for 2015 by race/ethnicity, disaggregated by family income quartile. Asians, as a group, (ignoring differences within this aggregated category) have higher college continuation rates than other racial/ethnic groups across the family income quartiles. For Blacks, Hispanics, and Whites in the same income quartile, cohort continuation rates are more similar than in Indicator 1c(i).²⁷ For example, for those in the third income quartile, the 2015 cohort college continuation rate was 68 percent for both Blacks and Whites and 65 percent for Hispanics. For those in the first (lowest) income quartile, cohort college continuation rates were 40 percent for Blacks, 45 percent for Whites, and 49 percent for Hispanics.

Equity Indicator 1c(ii): Cohort College Continuation Rates of recent high school leavers by race/ethnicity and family income quartile: 2015



Indicator Status:

Except for Asians, differences in college continuation rates by race/ethnicity observed in Indicator 1c(i) are reduced when race/ethnicity is disaggregated by family income quartile.

NOTE: *Race categories exclude persons of Hispanic ethnicity. The Cohort College Continuation Rate is tabulated based on the total number in the age group and includes those who have not completed high school. Annual data collected by Census and reported by BLS are from the October supplement to the Current Population Survey (CPS), a nationwide survey of about 60,000 households. Caution is needed in using these data. Due to small sample sizes, estimates for disaggregated data have larger sampling errors than estimates for the total.

SOURCE: Bureau of Labor Statistics (BLS) and U.S. Census Bureau, 1976-2015, as adapted by Tom Mortenson, *Postsecondary Education Opportunity (PEO) Newsletters* and data base, *College Entrance Rates by Race/Ethnicity for Recent High School Graduates 1960 to 2015*. See <http://stats.bls.gov/news.release/pdf/hsgec.pdf> for most recent data from BLS.

²⁷ Given sampling error due to smaller sample sizes, caution is needed in interpreting these results.

Equity Indicator 1d(i): How Do High School Graduates College Continuation Rates Vary by Race/Ethnicity?

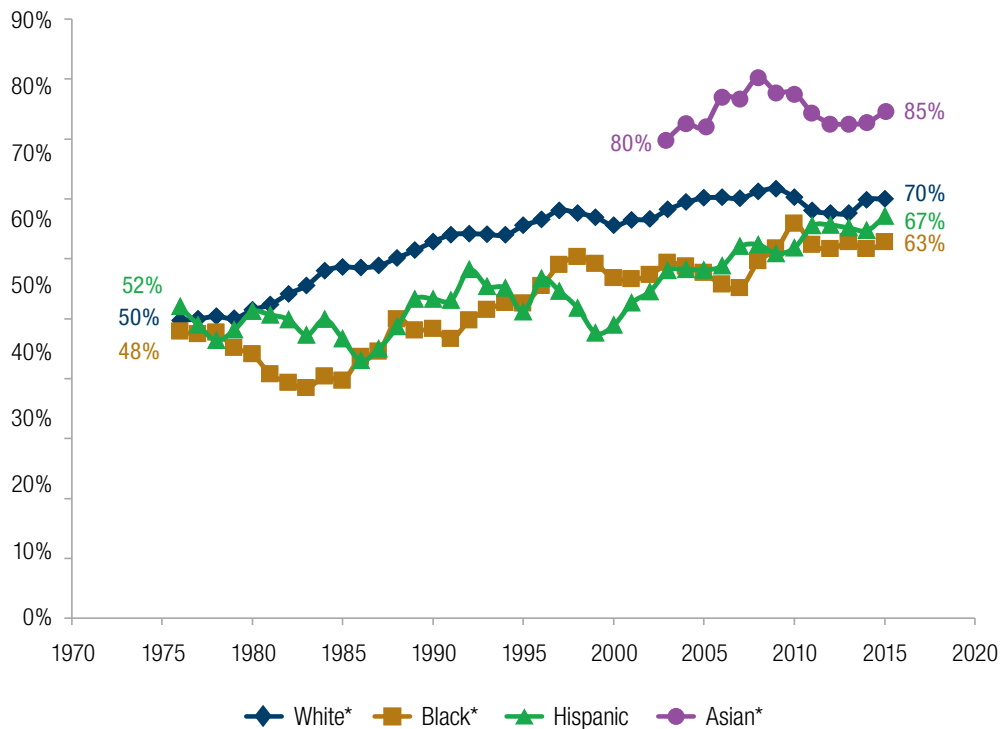
Indicator 1d(i) uses CPS data to show variations by race/ethnicity in college continuation rates for recent high school graduates. This chart differs from Indicator 1c(i) in that only high school graduates with a regular diploma or a GED are included in the denominator. As with Indicator 1c(i), we use 3-year moving averages to increase the stability of the estimates.

The High School Graduates College Continuation Rates in 2015 were: 85 percent for Asians, 70 percent for Whites, 67 percent for Hispanics, and 63 percent for Blacks. Gaps in high school graduates college continuation rates by race/ethnicity were somewhat larger in 2015 than in 1976, as High School College Continuation Rates increased at a faster rate over this period for Whites (40 percent increase) than for Blacks (31 percent increase) and Hispanics (29 percent increase). These rates, as with the rates reported for Indicator 1c(i), are likely influenced by economic and political events and immigration patterns, as well as sampling error fluctuations.

Equity Indicator 1d(ii): How Do the High School Graduates College Continuation Rates Vary by Race/Ethnicity and Family Income Quartile?

Equity Indicator 1d(ii) displays High School Graduates College Continuation Rates for 2015 by race/ethnicity disaggregated by family income quartile. As with Indicator 1c(ii), this chart shows that observed differences by race/ethnicity in college continuation rates of high school graduates are reduced when taking into account family income. College continuation rates of high school graduates remain higher for Asians than for other racial/ethnic groups of the same income quartile; but for other racial/ethnic groups within the same family income quartile, college completion rates are more similar.

Equity Indicator 1d(i): High School Graduates College Continuation Rates (3-year average) by race/ethnicity: 1976 to 2015



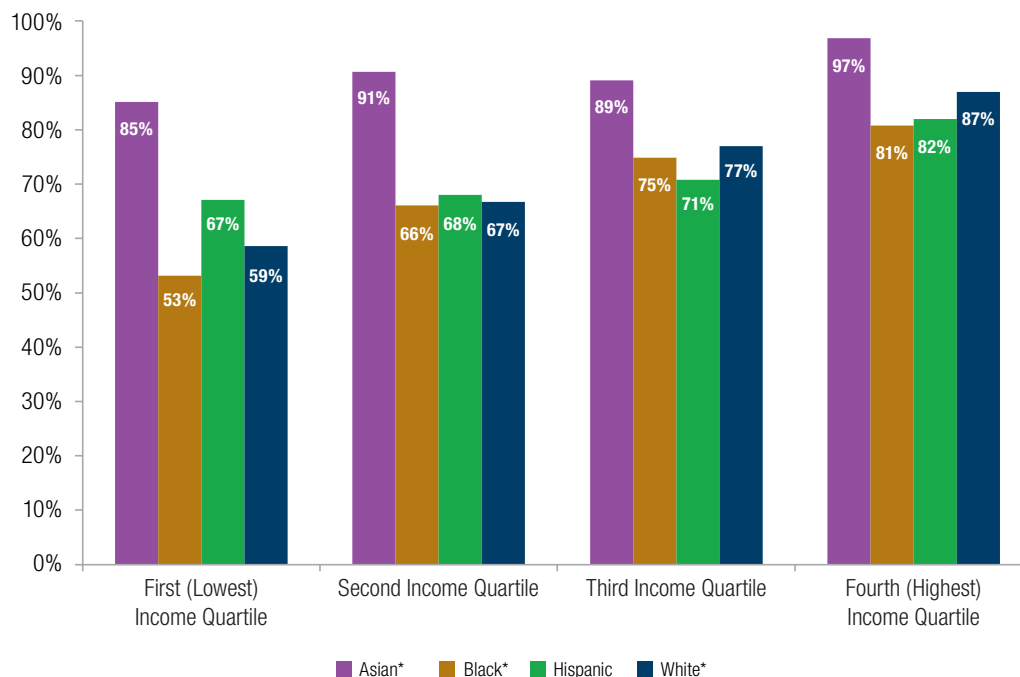
Indicator Status: Some Widening of the Gaps by Race/Ethnicity

In the context of increased rates of college continuation among all groups, compared to White high school graduates, college continuation rates in 2015 were 7 percentage points lower for Black and 3 percentage points lower for Hispanic high school graduates.

NOTE:*Race categories exclude persons of Hispanic ethnicity. The High School Graduates College Continuation rate is the percent of 16- to 24-year-old high school graduates who entered a postsecondary educational institution of any type. Data for Asians have been reported separately since 2000. Annual data collected by Census and reported by BLS are from the October supplement to the Current Population Survey (CPS), a nationwide survey of about 60,000 households. Each October, a supplement to the CPS gathers information about school enrollment. We use a three-year moving average because of higher levels of sampling error for disaggregated data. The three-year average was calculated by averaging three years. For example, the percentage for 1977 was calculated by adding percentages for 1976, 1977 and 1978 and dividing by 3. The end point years (i.e., 1975 and 2015) were based on a two-year average.

SOURCE: Bureau of Labor Statistics (BLS) and U.S. Census Bureau, various years as compiled by Tom Mortenson, *Postsecondary Education Opportunity (PEO) Newsletters*, and data workbooks, *College Entrance Rates by Race/Ethnicity for Recent High School Graduates 1960 to 2015*. See <http://stats.bls.gov/news.release/pdf/hsgec.pdf> for most recent data from BLS.

Equity Indicator 1d(ii): High School Graduates College Continuation Rates by race/ethnicity by family income quartiles: 2015



Indicator Status:

Differences by race/ethnicity are reduced when the data are disaggregated by family income quartile.

NOTE: *Race categories exclude persons of Hispanic ethnicity. High School Graduates College Continuation Rate is the percent of 16- to 24-year-old high school graduates who entered a postsecondary educational institution of any type. Annual data collected by Census and reported by BLS yearly are from the October supplement to the Current Population Survey (CPS), a nationwide survey of about 60,000 households. Each October, a supplement to the CPS gathers information about school enrollment. Caution is needed in using these data. Due to small sample sizes, estimates for disaggregated data have larger sampling errors than estimates for the total.

SOURCE: Bureau of Labor Statistics (BLS) and U.S. Census Bureau, various years as compiled by Tom Mortenson, *Postsecondary Education Opportunity (PEO) Newsletters*, and data workbooks, *College Entrance Rates by Race/Ethnicity for Recent High School Graduates 1960 to 2015*. See <http://stats.bls.gov/news.release/pdf/hsgec.pdf> for most recent data from BLS.

Equity Indicator 1e: How Do Rates of Enrolling in College Within 8 or 10 Years of Scheduled High School Graduation Vary by Race/Ethnicity?

The high school longitudinal studies conducted by the National Center for Education Statistics (NCES) approximately every 10 years shed light on longitudinal trends in college enrollment within 8 or 10 years of expected high school graduation, when most youth would have left their parents' households. By measuring college enrollment within 8 or 10 years of expected high school graduation, the high school longitudinal studies report higher rates of college enrollment than the CPS/BLS data for recent school leavers.

Some caution is needed when using these three studies to observe trends over time. The High School and Beyond (HS&B:1980) and Educational Longitudinal Study (ELS:2002) sampled high school 10th graders, while the National Educational Longitudinal Study (NELS:88) sampled 8th graders. Hence, unlike the NELS, the HS&B and ELS do not account for youth who left high school prior to the spring of the sophomore year.²⁸

Data from the national high school longitudinal studies show a narrowing gap in college entrance by race/ethnicity. Among 1980 high school 10th graders (HS&B:1980/1992), 61 percent of Black youth and 53 percent of Hispanic youth reported attending a postsecondary educational institution within 10 years of scheduled high school completion, compared with 69 percent of White youth. Twenty-two years later, among 2002 10th graders (ELS:2002), 79 percent of Hispanic and 82 percent of Black youth entered postsecondary education within 8 years of expected high school graduation, compared with 87 percent of White youth.

Equity Indicator 1f: How Do Rates of Not Enrolling in Postsecondary Education Within 8 or 10 Years of Expected High School Graduation Vary by Parents' Socioeconomic Status (SES)?

Indicator 1f documents the percent of young adults who reported that they had **not** enrolled in postsecondary education within 8 or 10 years of their scheduled high school graduation by parents' socioeconomic status (SES) using data from the three NCES-sponsored high school longitudinal studies. SES is a composite that reflects parents' and guardians' highest level of education, occupation, and income. This composite is measured consistently across the three NCES longitudinal studies.²⁹

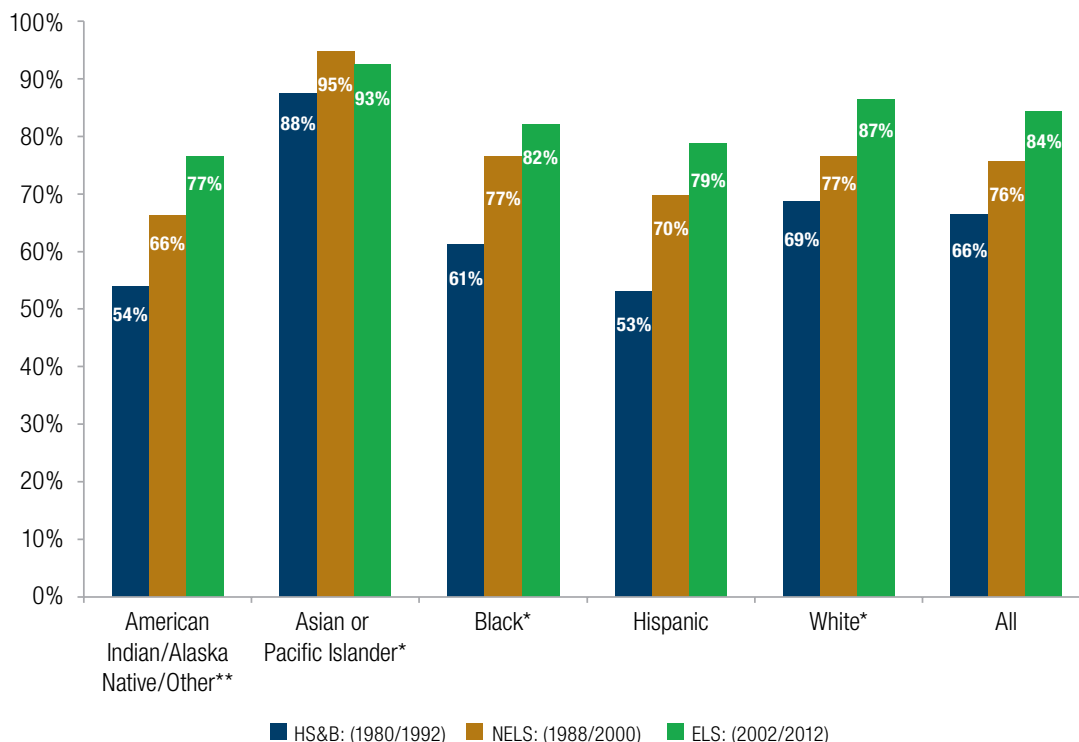
Across the three longitudinal studies, the percent of youth who reported no participation in postsecondary education declined for all levels of SES, including those in the lowest SES quartile. The percentage of youth in the lowest SES quartile reporting no postsecondary educational enrollment within 8 or 10 years of scheduled high school graduation declined from 52 percent of 1980 10th graders (HS&B), to 48 percent of 1988 8th graders (NELS), to 28 percent of 2002 10th graders (ELS).

Despite this progress, considerable differences in rates of non-enrollment based on SES persist. For the highest SES quartile, only 4 percent in both ELS:2002 (sampled as 10th graders) and NELS:88 (sampled as 8th graders) reported no postsecondary enrollment, down from 12 percent of 1980 10th graders (HS&B).

²⁸ Because the National Longitudinal Study (NLS) of the class of 1972 began with high school seniors, we do not include these data in the trend analyses for Indicator 1.

²⁹ SES is a composite measure that NCES derived in a comparable manner for the three high school longitudinal studies. NCES imputed SES for all sample members, including those with missing data for the parent income variable. We use the SES composite rather than income for this indicator, as SES is considered more reliable than a single measure of family income. The latter tends to have a high rate of missing data and is subject to reporting error.

Equity Indicator 1e: Percentage of young adults who reported enrolling in postsecondary education within 8 or 10 years of expected high school graduation by race/ethnicity: High School Longitudinal Studies (HS&B:1980/1992; NELS:1988/2000; ELS:2002/2012)



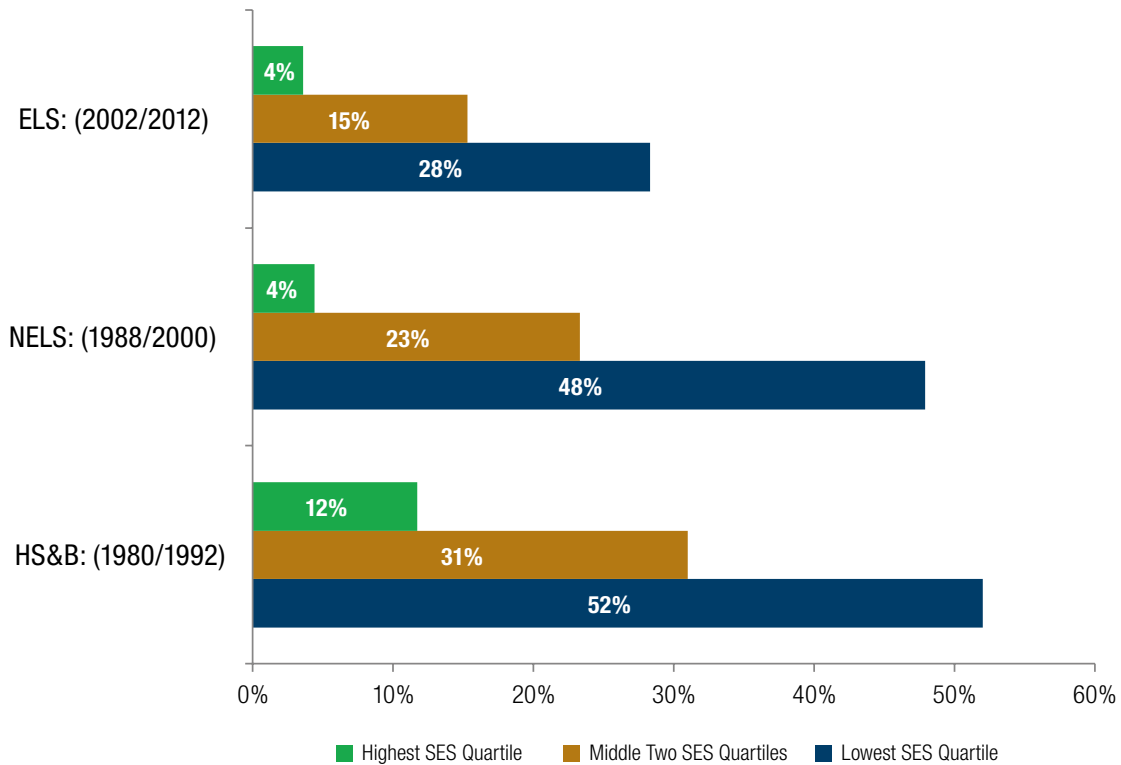
Indicator Status: Persisting but Narrowing Gap

Among 2002 10th graders (ELS:2002), 79 percent of Hispanic and 82 percent of Black youth entered postsecondary education within 8 years of expected high school graduation compared with 87 percent of White youth. Twenty-two years earlier, among HS&B 1980 10th graders, 53 percent of Hispanic and 61 percent of Black youth had ever enrolled in college 10 years after expected high school graduation compared with 69 percent of White youth. Over this period, the gap in enrollment between Black and White youth narrowed from 8 to 5 percentage points, and narrowed between Hispanic and White youth from 16 to 8 percentage points.

NOTE: *Race categories exclude persons of Hispanic ethnicity **For ELS, the “American Indian/Alaska Native” category includes college enrollment rates for students of “other” racial/ethnic groups, including American Indians/Alaska Natives, as the sample size for American Indian/Alaska Natives alone was too small for reliable estimates. ELS and HS&B began tracking students when they were in the 10th grade in high school. NELS:88 began with 8th grade.

SOURCE: Lauff, E. & Ingels, S. J. (2014). *A first look at 2002 high school sophomores 10 years later*, Education Longitudinal Study of 2002 (ELS:2002), First Look, U.S. Department of Education, NCES 2014-363; Ingels, S. J., Kaufman, P., Curtin, T. R., Alt, M. N. & Chen, X. (2002). *Initial results from the Fourth Follow-up to the National Education Longitudinal Study of 1988: Coming of age in the 1990s: The eighth grade class of 1988 12 years later*. Research Triangle Institute, Statistical Analysis Report, U.S. Department of Education Office of Educational Research and Improvement, NCES 2002—321; Tuma, J. and Geis, S. (1995). *High School and Beyond 1992 Descriptive summary of 1980 high school sophomores 12 years later with an essay on educational attainment of 1980 high school sophomores: by 1992*. U.S. Department of Education, National Center for Education Statistics, Statistical Analysis Report.

Equity Indicator 1f: Percentage of young adults who reported no postsecondary enrollment within 8 or 10 years of expected high school graduation by parents' socioeconomic status (SES): High School Longitudinal Studies (HS&B:1980/1992; NELS:1988/2000; ELS:2002/2012)



Indicator Status: High Inequality but Narrowing Gap

The gap in the percentage of youth in the highest and lowest SES quartiles who reported no postsecondary enrollment within 8 or 10 years of scheduled high school graduation was 24 percentage points for 10th graders in 2002, down from 44 percentage points for 1988 8th graders and 40 percentage points for 1980 10th graders.

NOTE: ELS and HS&B sampled students when they were in the 10th grade (high school sophomores). NELS:88 sampled 8th graders. Some differences in findings across longitudinal studies are expected due to the longer time period for dropping out of high school for students sampled in 8th grade rather than 10th grade.

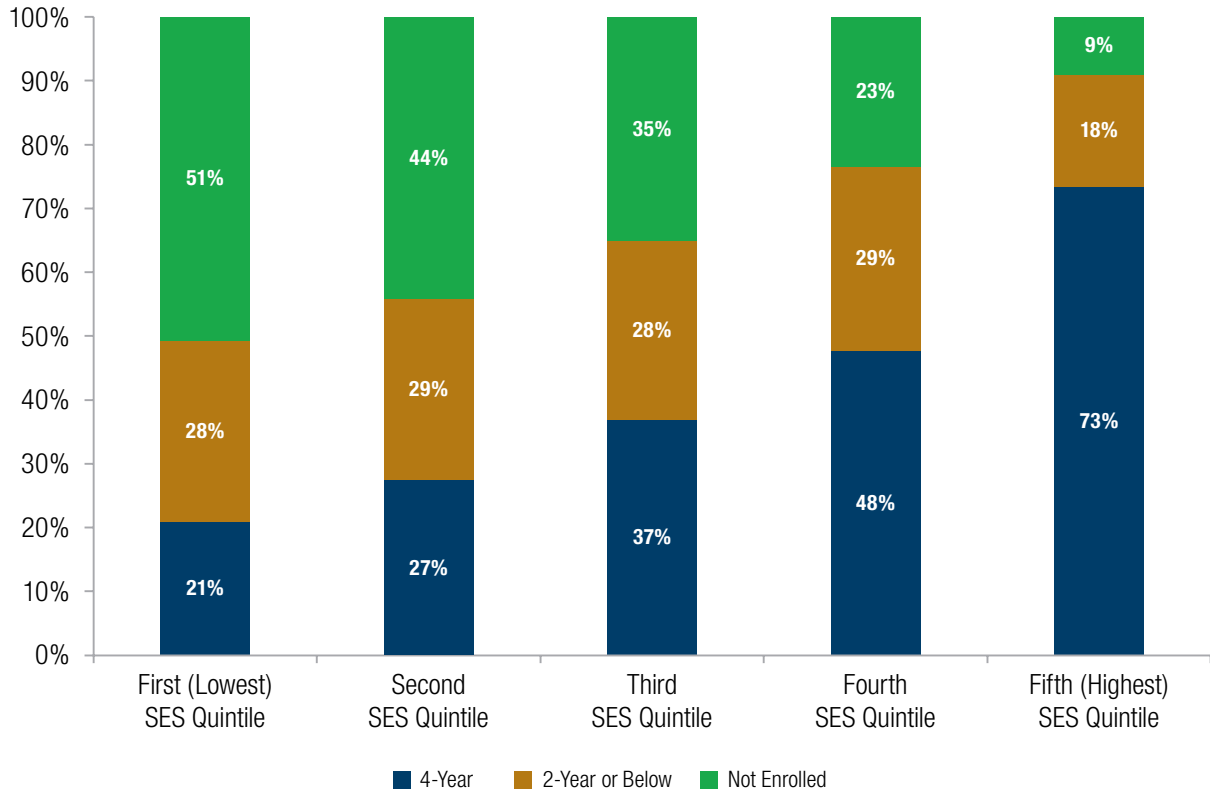
SOURCE: Lauff, E., & Ingels, S. J. (2014). *A first look at 2002 high school sophomores 10 years later*, Education Longitudinal Study of 2002 (ELS:2002), U.S. Department of Education, NCES 2014-363; Ingels, S. J., Kaufman, P., Curtin, T. R., Alt, M. N. & Chen, X. (2002). *Initial results from the fourth follow-up to the National Education Longitudinal Study of 1988: Coming of age in the 1990s: the eighth grade class of 1988 12 years later*. Research Triangle Institute, Statistical Analysis Report, U.S. Department of Education, Office of Educational Research and Improvement, NCES 2002—321; Tuma, J., & Geis, S. (1995). *High School and Beyond 1992 Descriptive Summary of 1980 high school sophomores 12 years later with an essay on educational attainment of 1980 high school sophomores: by 1992*, National Center for Education Statistics, Statistical Analysis Report.

Indicator 1g: Have Differences in College Enrollment by SES Persisted in the Most Recent NCES High School Longitudinal Study?

Indicator 1g examines available data from the most recent NCES longitudinal study, the High School Longitudinal Study (HSL:2009), which began with a nationally representative sample of 9th graders and followed up with the cohort in 2012 (when most were in 11th grade) and 2013, the fall after scheduled high school graduation. Indicator 1g uses SES quintiles (five equal-sized groups) and shows 2-year and 4-year enrollment and non-enrollment.

The findings from these most recent data are consistent with the previous NCES high school studies and with Census data reported earlier in this report despite the methodological differences between the studies. Half (51 percent) of 2009 9th graders from the lowest SES quintile were not enrolled in college the fall after their 2013 scheduled high school graduation, compared with 9 percent of 2009 9th graders in the highest SES quintile. Youth in the highest SES quintile were more than 3 times as likely as those in the lowest quintile to be enrolled in a 4-year institution (73 percent for the highest quintile and 21 percent for the lowest). The share of 2009 9th graders enrolled in 2-year colleges ranged from 18 percent for those in the highest SES quintile to 28 percent for the lowest SES quintile.

Equity Indicator 1g: Percentage distribution of enrollment status in the fall after scheduled high school graduation year by parent socioeconomic status (SES): High School Longitudinal Study (HSLs:2009/2013)



Indicator Status: High Inequality

Half (51 percent) of 2009 9th graders from the lowest SES quintile were not in college in the fall after their scheduled high school graduation, compared with 9 percent of those from the highest SES quintile.

NOTE: The High School Longitudinal Study (HSLs:2009) began with a nationally representative sample of 9th graders and included follow-ups in 2012 (typically the 11th grade) and 2013, the fall after scheduled high school graduation.

SOURCE: Tabulated with NCES PowerStats, using data from the High School Longitudinal Study (HSLs:2009/2013).

EQUITY INDICATOR 2:

WHAT TYPE OF POSTSECONDARY EDUCATIONAL INSTITUTION DO STUDENTS ATTEND?

In 2014, among degree-seeking undergraduates who received a Federal Pell or other Grants, 57 percent attended a 4-year institution and 43 percent attended a 2-year institution. Among undergraduates who did not receive a Federal Grant, 75 percent attended a 4-year institution and 25 percent attended a 2-year institution.

Across four high school longitudinal studies since the 1970s, among the small percentage of graduating seniors (2 percent in the class of 2004) who planned to attend the “most competitive” colleges, from 4 to 5 percent were from the lowest socioeconomic status (SES) quartile and from 67 to 78 percent were from the highest SES quartile.

Equity Indicator 2(a-f): Definitions

The sources of data for Equity Indicator 2 are: 1) Integrated Postsecondary Education Data System (IPEDS), which has collected institutional-level data on U.S. postsecondary educational institutions since 1986; 2) five NCES high school longitudinal studies, and 3) 2016 Barron’s Admissions Competitiveness Index.

- **IPEDS Federal Grant Aid.** IPEDS does not collect data on students’ family income, but does collect aggregate data on institutional characteristics that provide reasonable proxies.³⁰ In Indicator 2, we report students receiving “Federal Grants.” Federal Grant aid is comprised primarily of Pell Grants but also includes Federal Supplemental Educational Opportunity Grants (FSEOG) and grants from federal agencies other than the U.S. Department of Education such as the Department of Veterans Affairs and the Department of Labor.³¹ We report Federal Grant aid because separate Pell Grant data are not reported in IPEDS before 2009 and because receipt of Federal Grant aid is a reasonable proxy for Pell-specific measures.³² In this report Federal Grant aid is also referred to as “Pell or other Federal Grants.”

30 Current IPEDS measures include the percent of undergraduates receiving Pell Grants, the percent of full-time, first-time (FTFT) undergraduates receiving Pell Grants, and the percent of full-time, first-time (FTFT) undergraduates receiving Federal Grant aid.

31 National Center for Education Statistics, IPEDS Data Center <https://nces.ed.gov/ipeds/datacenter/selectVariables.aspx>

32 Others also use Federal Grant aid as a proxy for receiving federal Pell Grants. See Giancola, J. & Kahlenberg, R. (2016). *True merit: Ensuring our brightest students have access to our best colleges and universities*. Lansdowne: Jack Kent Cooke Foundation. Retrieved from http://www.jkcf.org/assets/1/7/JKCF_True_Merit_Report.pdf
Pell Grants represented 66 percent of total federal aid in 2014-15, down from 75 percent in 2008-09. Over this period, the share of federal grant aid from veterans and military aid increased from 20 percent to 33 percent. College Board, *Trends in Student Aid 2015*, Figure 4 <http://trends.collegeboard.org/sites/default/files/trends-student-aid-web-final-508-2.pdf>

- **Federal Pell Grant Receipt.** Eligibility for Pell Grants for both dependent and independent students is based on family income, family size, number of family members attending college, and other factors. Pell Grants are targeted to students from low-income families and independent students with low-incomes. In the 2014-15 award year, 8.3 million students received a Pell Grant at a total cost of \$30.6 billion. Of these, 71 percent were awarded to those having \$30,000 or less in family income, and 91 percent were awarded to students with family incomes below \$50,000. In 2014-15, the maximum Pell Grant award was \$5,730.³³
- **Federal Supplemental Educational Opportunity Grant (FSEOG) Receipt.** The federally-funded FSEOG are administered by participating postsecondary institutions and are considered “campus-based” aid. Eligibility is based on financial need, with priority given to Pell Grant recipients. Annual awards range from \$100 to \$4,000.³⁴
- **Level and Control of Postsecondary Institutions.** Indicator 2 reports differences in enrollment by Federal Grant receipt by institutional level (2-year versus 4-year institution), control (public, private non-profit, and private for-profit), and selectivity.
- **High School Longitudinal Studies Data by Family Socioeconomic Status and Institutional Selectivity.** The five NCES high school longitudinal studies include the National Longitudinal Study, representing the scheduled high school graduating class of 1972 (NLS); High School and Beyond Study, representing the scheduled high school graduating class of 1982 (HS&B); National Education Longitudinal Study, representing the scheduled high school graduating class of 1992 (NELS); Education Longitudinal Study, representing the scheduled high school graduating class of 2004 (ELS), and High School Longitudinal Study (HSLs) representing the scheduled high school graduating class of 2013. As discussed in Indicator 1, a socioeconomic status (SES) composite is included in each of the NCES high school longitudinal studies. The SES composite is based on data from the parent questionnaires or imputed from the student questionnaires and, for the five NCES longitudinal studies, are based on five equally weighted, standardized components: father’s/guardian’s education, mother’s/guardian’s education, family income, father’s/guardian’s occupational prestige score, and mother’s/guardian’s occupational prestige score. This Indicator uses data from a published study by Michael Bastedo and Ozan Jaquette and an analytic dataset constructed by merging the high school longitudinal data with the Barron’s Admissions Competitiveness Index.³⁵ The 2017 Indicators Report also includes data from the High School Longitudinal Study (HSLs) on selectivity of institutions attended for the 2013 graduating class. Due to differences in survey design and study methodology, we present this data in a separate chart rather than with the earlier four NCES studies.³⁶

³³ 2014-2015 Federal Pell Grant Program End-of-Year Report <https://www2.ed.gov/finaid/prof/resources/data/pell-2014-15/pell-eoy-2014-15.html> ; <https://www2.ed.gov/finaid/prof/resources/data/pell-data.html>

³⁴ Federal Student Aid, FSEOG (Grants) <https://studentaid.ed.gov/sa/types/grants-scholarships/fseog>

³⁵ Figures are adapted from Bastedo, M. & Jaquette, O. (2011). Running in place: Low-income students and the dynamics of higher education stratification. *Educational Evaluation and Policy Analysis*, 33, 318-339, Appendix 6. Retrieved from <http://www-personal.umich.edu/~bastedo/papers/EEPA-Appendix.pdf>

³⁶ The High School Longitudinal Study (HSLs:2009) sampled 9th graders and completed follow-ups in 2012 (11th grade) and 2013 (the fall after expected high school graduation date). For these reasons HSLs:2009 is not directly comparable to the earlier four studies which started in 10th or 8th grade and had follow-ups in 12 grade. The 12th grade data on anticipated college was used in the Bastedo and Jaquette analyses on selectivity for the four earlier NCES longitudinal studies. The HSLs used quintiles for the SES classification rather than quartiles.

- **Institutional Selectivity.** Selectivity is measured using Barron’s Admissions Competitiveness Indexes, which are based on such measures as percent of applicants admitted, students’ high school class rank, and students’ college entrance exam scores.³⁷ NCES publishes Barron’s datasets corresponding to years in which students in the longitudinal studies typically first enrolled in a postsecondary institution. The competitiveness indexes include “most competitive,” “highly competitive,” “very competitive,” “competitive,” and “less competitive.” We coded institutions not included in Barron’s Competitiveness Index based on level and control using IPEDS data.³⁸ We used the 2016 Barron’s indexes for all years in Indicator 2e. Reflecting high consistency in Barron’s methodology across years, only a small share of institutions change competitiveness classification over time.³⁹

Equity Indicator 2a: How Does the Level of Institution Attended Vary by Pell or Other Federal Grant Receipt?

Indicator 2a shows that, consistently in the years reported, students receiving Pell or other Federal Grants are less likely than non-recipients to attend a 4-year rather than a 2-year institution.⁴⁰ In 2014, 57 percent of full-time, first-time (FTFT) undergraduates who received Pell or other Federal Grants attended 4-year rather than 2-year institutions, compared with 75 percent of undergraduates who did not receive Pell or other Federal Grants. The proportion of Federal Grant recipients who attend 4-year rather than 2-year institutions (57 percent) remained essentially unchanged from 2001 to 2014. However, the share of Federal Grant non-recipients who attended 4-year institutions increased from 70 percent in 2001 and 71 percent in 2008, to 75 percent in 2014. Changes over time in this Indicator are impacted by the reclassification of some large community colleges as 4-year institutions.

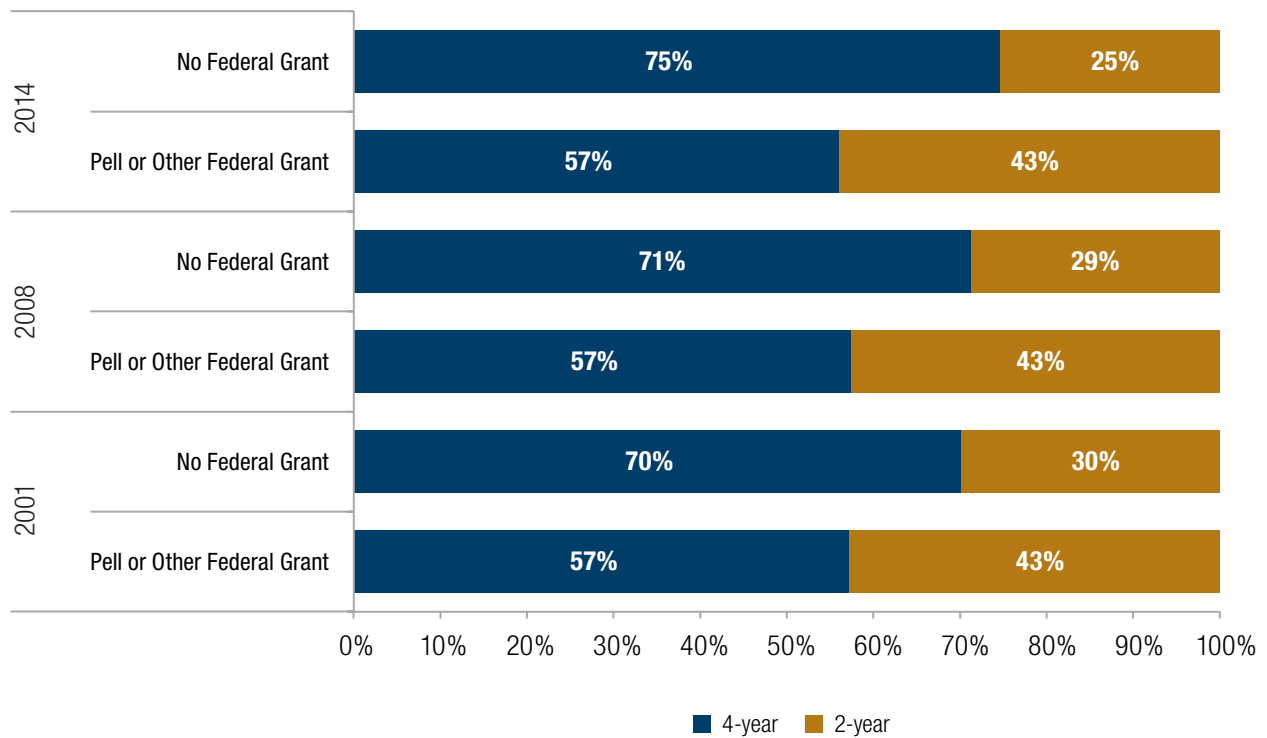
³⁷ For more information on Barron’s selectivity ratings as it pertains to Indicators 2d and 2e, see Bastedo and Jaquette (2011), including their online Appendix Table 2 <http://www-personal.umich.edu/~bastedo/papers/EEPA-Appendix.pdf>

³⁸ National Center for Education Statistics, Barron’s Admissions Competitiveness Index <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010331>

³⁹ Bastedo and Jaquette (2011) also used one year of the Barron’s selectivity index in their multi-year study cited above.

⁴⁰ This analysis excludes enrollment at less-than-2-year institutions.

Equity Indicator 2a: Percentage distribution of full-time, first-time degree-seeking undergraduate students who did and did not receive Pell or other Federal Grants by level of institution attended: 2001, 2008, and 2014



Indicator Status: High Inequality and Widening Gap

The difference in the percentage distributions of Federal Grant recipients and non-recipients between attendance at 4-year and 2-year colleges widened somewhat from 13 percentage points in 2001 to 18 percentage points in 2014.

NOTE: Federal Grant aid is composed primarily of Pell Grants but also includes Federal Supplemental Educational Opportunity Grants (FSEOG) and grants from federal agencies other than the U.S. Department of Education such as the Department of Veterans Affairs and the Department of Labor.

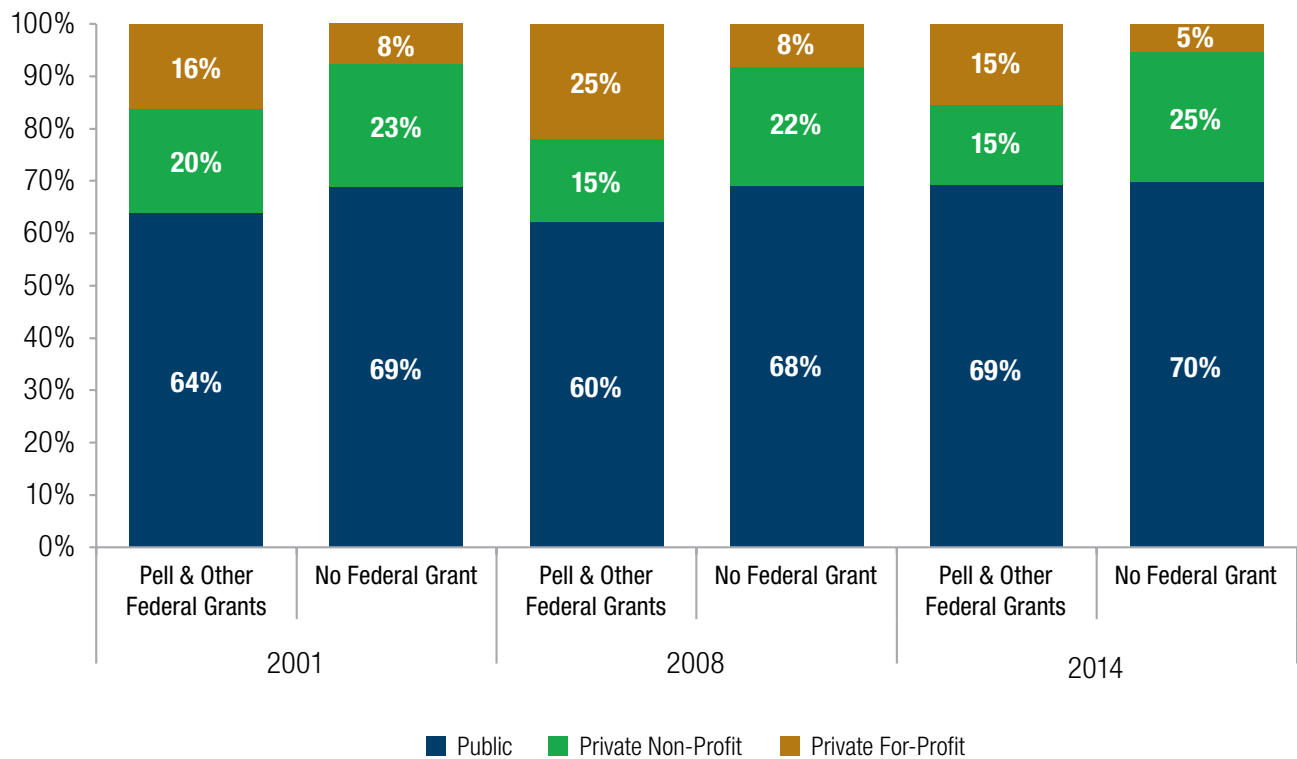
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS). (2015). *Digest of Education Statistics, 2015* [Table 331.20].

Equity Indicator 2b: How Does the Control of Institution Attended Vary by Receipt of Pell or Other Federal Grants?

While 85 to 90 percent of full-time, first-time (FTFT) degree-seeking undergraduates enroll in public or private non-profit institutions, undergraduate students from low-income families (as measured by Pell or other Federal Grant receipt) are substantially more likely than other undergraduates to attend a private for-profit college or university. In 2014, Federal Grant recipients remained 3 times as likely as those who did not receive Federal Grants to attend a private for-profit college or university (15 percent compared to 5 percent). In 2001, 16 percent of Federal Grant recipients and 8 percent of non-recipients were enrolled in private for-profit institutions.

Indicator 2b shows that enrollment in private for-profit institutions peaked in 2008 when one-quarter (25 percent) of Federal Grant recipients and 8 percent of those not receiving Federal Grants enrolled in for-profit institutions. By 2014, the percentage of Federal Grant recipients enrolled in for-profit institutions had declined to 15 percent, and the percent of non-Federal Grant recipients at for-profit institutions declined to 5 percent. As the percentage of Federal Grant recipients enrolled in for-profit institutions declined, the percentage enrolled in public institutions increased, from 60 percent in 2008 to 69 percent in 2014.

Equity Indicator 2b: Percentage distribution of full-time, first-time degree-seeking undergraduate students who did and did not receive Pell or other Federal Grants by control of institution attended: 2001, 2008, and 2014



Indicator Status: High Inequality and Persisting Gaps

Pell and other Federal Grant recipients were 3 times as likely as Federal Grant non-recipients to attend a private for-profit institution in 2014, up from 2 times as likely in 2001. The percent of Federal Grant recipients enrolling in private for-profit institutions was lower in 2001 (16 percent) than in 2008 (25 percent). The share of Federal Grant non-recipients attending private for-profit institutions also declined over this period (from 8 percent in 2001 and 2008 to 5 percent in 2014).

NOTE: Federal Grant aid is comprised primarily of Pell Grants but also includes Federal Supplemental Educational Opportunity Grants (FSEOG) and grants from federal agencies other than the U.S. Department of Education such as the Department of Veterans Affairs and Department of Labor.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) (2015). *Digest of Education Statistics, 2015* [Table 331.20].

Equity Indicator 2c: How Does the Percent of Students Receiving Federal Grants Vary by Institutional Level and Control?

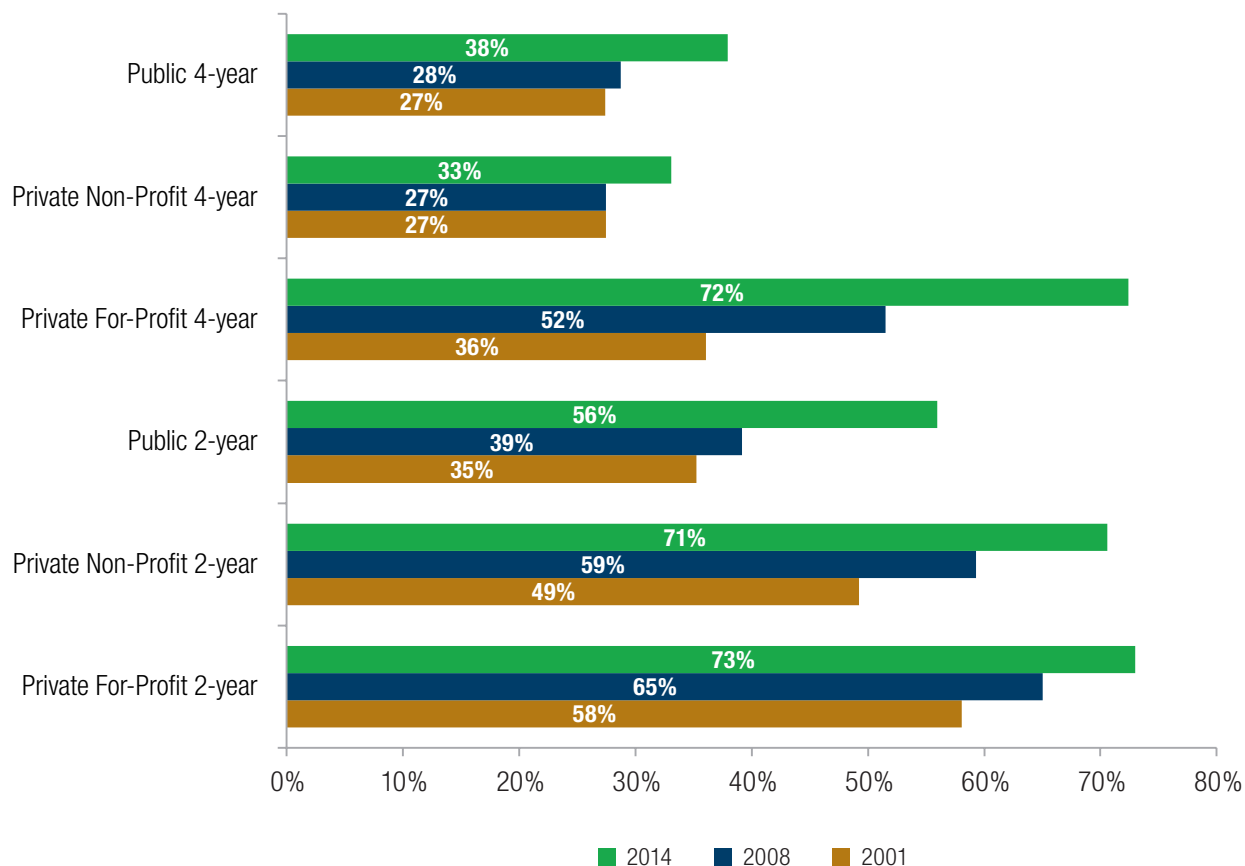
The share of full-time, first-time (FTFT) degree-seeking undergraduates who received Pell or other Federal Grants was higher in 2014 than in 2001 in all institutional sectors. Although the share of enrollments in private for-profit institutions has declined in recent years,⁴¹ the percentage of students at private for-profit 4-year institutions who received Federal Grants increased from 36 percent in 2001 to 72 percent in 2014.⁴²

In 2014 just over 70 percent of FTFT undergraduate students attending private for-profit 4-year institutions (72 percent), private for-profit 2-year institutions (71 percent), and private non-profit 2-year institutions (71 percent) received Federal Grants. By comparison, 38 percent of students at public 4-year institutions and 33 percent of students at private non-profit 4-year institutions received Federal Grants. About half (56 percent) of students attending public 2-year institutions received Federal Grants.

⁴¹ See Figure 3 in the Setting the Stage section of this report for information on undergraduate enrollment by control.

⁴² This analysis excludes enrollment at less-than-2-year institutions.

Equity Indicator 2c: Percentage of full-time, first-time degree/certificate-seeking undergraduate students receiving Pell or other Federal Grants by institutional type and control: 2001, 2008, and 2014



Indicator Status: High Inequality and Widening Gaps

In 2014, just over 70 percent of FTFT undergraduates attending private for-profit 4-year institutions, private for-profit 2-year institutions, and private non-profit 2-year institutions received Federal Grants, compared with about half of students attending public 2-year institutions and a third of students attending public 4-year institutions and private non-profit 4-year institutions. The gap in the share of enrolled students at public 4-year institutions and private for-profit 4-year institutions receiving Federal Grants was 9 percentage points in 2001 (27 percent versus 36 percent) and 34 percentage points in 2014 (38 percent versus 72 percent).

NOTE: Federal Grant aid for undergraduates is comprised primarily of Pell Grants but also includes Federal Supplemental Educational Opportunity Grants (FSEOG) and grants from federal agencies other than the U.S. Department of Education such as the Department of Veterans Affairs and Department of Labor.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS). (2015). *Digest of Education Statistics, 2015* [Table 331.20].

Equity Indicator 2d: How Does the Percentage Distribution of Students By Socioeconomic Status Vary by the Selectivity of the Institution?

Equity Indicator 2d presents the distribution of students by socioeconomic status (SES) in each selectivity category of the postsecondary institutional destinations of seniors in the high school graduating classes of 1972, 1982, 1992, and 2004.⁴³ As institutional selectivity increases, the share of students who come from the lowest SES quartile declines substantially. This pattern is consistent over time.

Using data from the Educational Longitudinal Study (ELS) for the high school class of 2004, of the approximately 2 percent of students overall (See Appendix Figure A-4) who planned to attend the “most competitive” institutions, 69 percent were from the highest SES quartile, 19 percent were from the third SES quartile, 8 percent were from the second SES quartile, and 4 percent were from the lowest SES quartile.⁴⁴ The representation of students in the third SES quartile who had institutional destinations in “most competitive” institutions increased from 10 percent in 1972 to 19 percent in 2004. The representation of students from the lowest SES quartile having institutional destinations at the “most competitive” institutions (5 percent in 1972 and 4 percent in 2004), however, remained virtually unchanged.

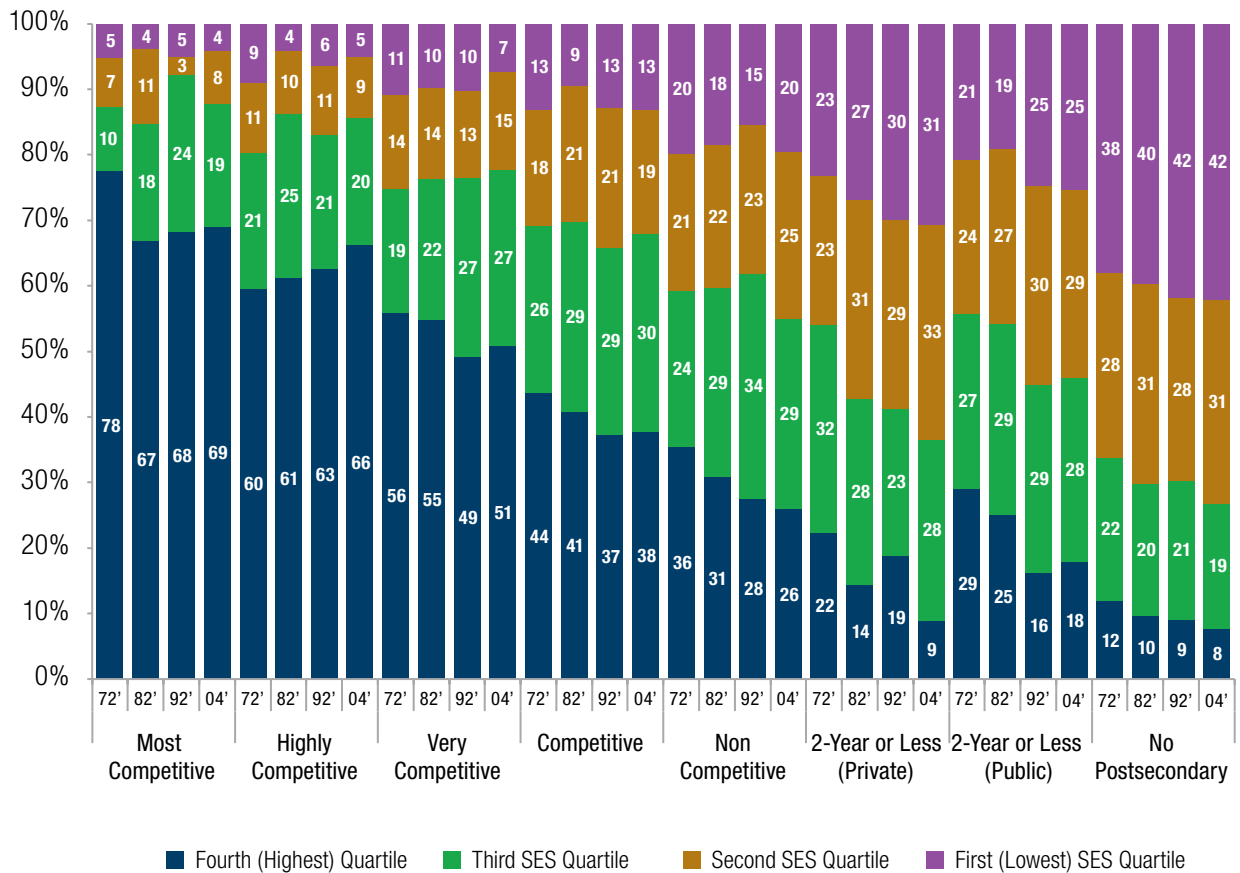
In both 1972 and 2004, among the students whose institutional destination was the “most competitive” colleges and universities, 88 percent came from the two highest family income quartiles, and 12 percent came from the bottom half of the SES distribution.

On the other hand, the likelihood that youth from the lowest SES quartile would be represented among those high school seniors having institutional destinations at public 2-year or less institutions increased (from 21 percent in 1972 to 25 percent in 2004) and also increased for private 2-year or less-than-2-year institutions (from 23 percent to 31 percent). The representation of the lowest SES quartile among those seniors with no postsecondary education plans also increased over the period of 1972 to 2004 (from 38 percent to 42 percent).

43 See Appendix A (Tables A-3 and A-4) for the data on which Indicator 2d is based. The data are adapted from the analysis of Bastedo and Jaquette (2011). Running in place: Low-income students and the dynamics of higher education stratification, *Educational Evaluation and Policy Analysis*, 33(3), 318-339, Appendix Table 6. Retrieved from <http://www.personal.umich.edu/~bastedo/papers/EEPA-Appendix.pdf>

44 Across the four high school longitudinal studies since the 1970s, less than 1 percent of students from the lowest SES quartile (.3 to .8 percent) had postsecondary institutional destinations among the “most competitive” colleges and universities. Across the four studies, the overall percent of graduating high school students who had institutional destinations among the “most competitive” colleges was 1.9 percent in 1972, 2.0 percent in 1982, 3.6 percent in 1992, and 2.4 percent in 2004. See Appendix A of this report for the distribution of institutional destinations by SES quartile as published by Bastedo and Jaquette (2011) as cited above.

Equity Indicator 2d: Percentage distribution of each selectivity category of institutional destinations by parents' socioeconomic status (SES) for high school class cohorts: 1972, 1982, 1992, and 2004



Indicator Status: High Inequality and Persisting Gaps

Across the four high school longitudinal studies, among those graduating seniors planning to enroll in the “most competitive” institutions, 4 percent to 5 percent were from the lowest SES quartile, and 67 percent to 78 percent were from the highest SES quartile.

NOTE: Data based on high school longitudinal studies survey data of institutional destination of high school seniors. For example, among the students from the class of 2004 who reported planning to enroll in a “Most Competitive” institution, 4 percent were from the lowest SES quartile and 69 percent were from the highest SES quartile. As the data in Appendix A (Figure A-4) reveal, in 2004 the percentage of students planning to attend the “Most Competitive” institutions ranged from 0.5 percent among the First (lowest SES quartile) to 6.2 percent among the fourth (highest SES quartile). The overall percent of students planning to attend a “Most Competitive” institution was 2 percent in 2004.

SOURCE: U.S. Department of Education, NCES, NLS; HS&B, NELS, and ELS; Adapted from Bastedo, M. N., & Jaquette, O. (2011). Running in place: Low-income students and the dynamics of higher education stratification, *Educational Evaluation and Policy Analysis*, 33(3), 318-339. Retrieved from <http://www-personal.umich.edu/~bastedo/papers/EEPA-Appendix.pdf> Used with permission. See Appendix A.

Equity Indicator 2e: How Does the Average Percentage of Students Receiving Pell or Other Federal Grants Vary by Institutional Competitiveness?

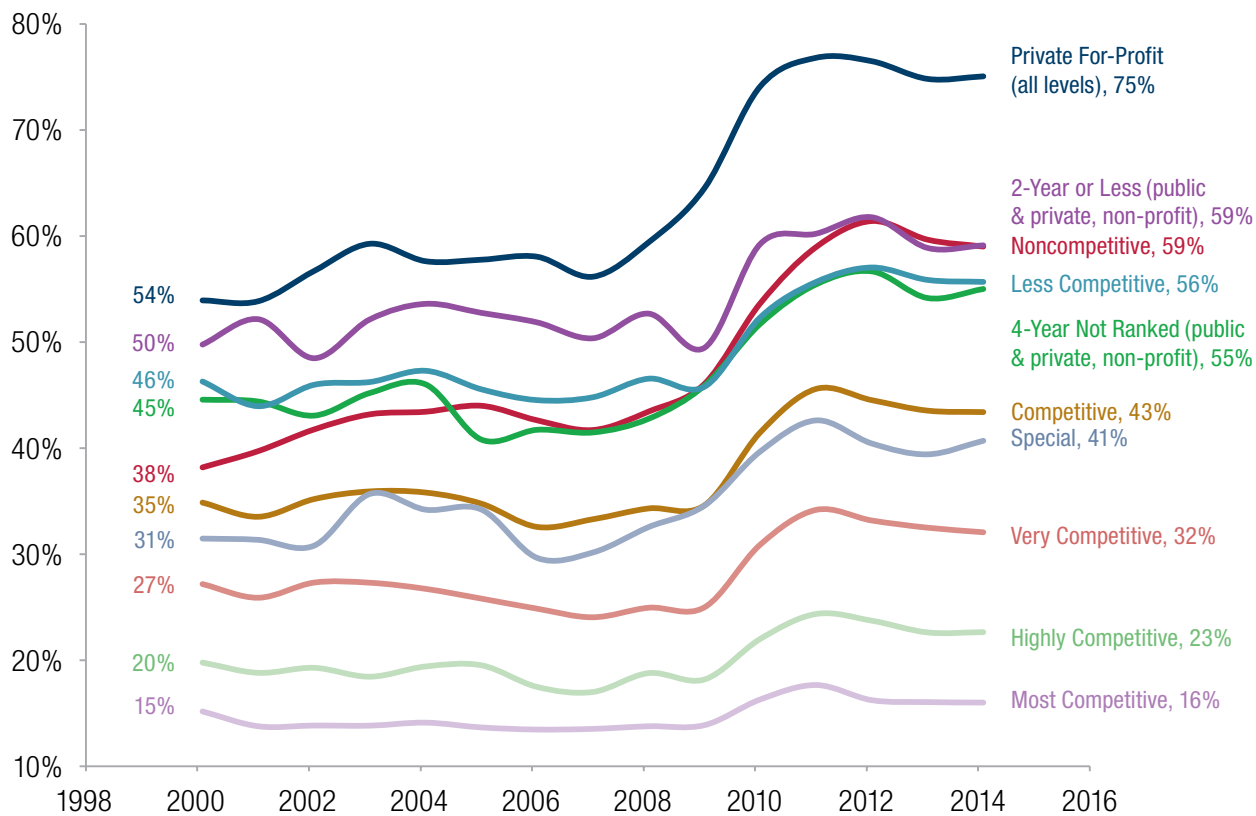
Using IPEDS data combined with the 2016 Barron's Admissions Competitiveness Index, Indicator 2e presents the average percent of full-time, first-time (FTFT) undergraduates who received Pell or other Federal Grants from academic years 1999-2000 to 2013-2014.⁴⁵

Indicator 2e shows the negative association between the average percent of students who receive Pell or other Federal Grants and the selectivity of the institution. As institutional competitiveness increases, the institutional average percentage of students receiving Federal Grants decreases. In 2014, the "Most Competitive" institutions averaged 16 percent Pell or other Federal Grant recipients, while, on average from half to three-fourths of the students from less competitive and unranked 2-year and 4-year institutions were Federal Grant recipients. For example, on average, 56 percent of students attending "Less Competitive" 4-year institutions; 59 percent of students attending 2-year public and private non-profit institutions; and 75 percent of students attending for-profit 2-year and 4-year institutions were Federal Grant recipients.

Although the average percentage of students receiving Pell or other Federal Grants increased in all institutional categories between 2008 and 2011 (in the wake of the Great Recession), differences in average rates of Federal Grant recipients by institutional selectivity have increased over time. Between 2000 and 2014, the average percentage of undergraduates at the "Most Competitive" institutions receiving Federal Grants increased by just 1 percentage point (from 15 percent in 2000 to 16 percent in 2014). Larger increases occurred over this period at unranked 4-year institutions (from 45 percent to 55 percent), private for-profit 2-year and 4-year institutions (from 54 percent to 75 percent), and 2-year public and private non-profit institutions (from 50 percent to 59 percent).

⁴⁵ Small differences in the average percent of Pell and other Federal Grant recipients between the 2016 Indicators Report and the 2017 Indicators Report are due to the use of 2004 Barron's classifications in the 2016 Report and 2016 Barron's classifications in the 2017 Report.

Equity Indicator 2e: Average percentage of full-time, first-time degree/certificate seeking undergraduate students who were awarded Pell or other Federal Grants by institutional selectivity: 2000 to 2014



Indicator Status: High Inequality and Widening Gaps

The representation of low-income students declines, on average, as institutional selectivity increases. The gap in the average share of undergraduates receiving Pell or other Federal Grants at the most competitive and less competitive institutions widened from 31 percentage points (15 percent versus 46 percent) in 2000 to 40 percentage points (16 percent versus 56 percent) in 2014.

NOTE: Federal Grant aid is comprised primarily of Pell Grants, but also includes Federal Supplemental Educational Opportunity Grants (FSEOG) and grants from federal agencies other than the U.S. Department of Education such as the Department of Veterans Affairs and Department of Labor. Data represent institutional averages in each category.

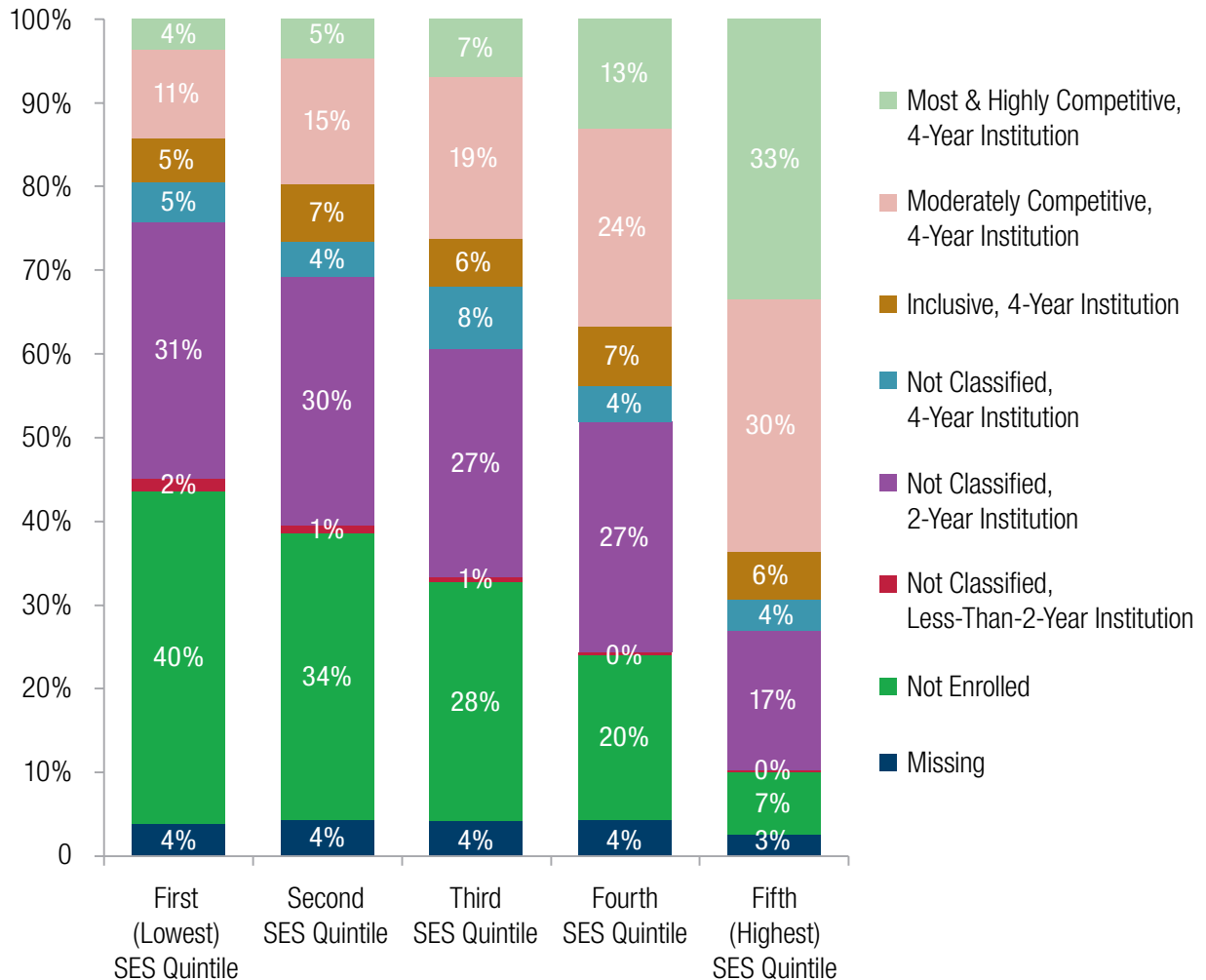
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 2015, and Barron's Admissions Competitiveness Index, 2016.

Equity Indicator 2f: How Does Immediate College Enrollment by Competitiveness of the Institution Vary by Socioeconomic Status (SES)?

The NCES High School Longitudinal Study, combined with the Barron's Admissions Competitiveness Index, provides information on the selectivity of the institutions attended by the 2013 high school graduation class. While the NCES classifications report institutional selectivity somewhat differently than reported in Indicators 2d and 2e, Indicator 2f tells a similar story.

Among 9th graders in 2009, those from the highest SES quintile were 8 times as likely to go to a “most” or “highly” selective institution as students from the lowest SES quintile (33 percent and 4 percent, respectively). Almost two-thirds (63 percent) of students from the highest SES quintile attended “most,” “highly,” or “moderately” competitive institutions, compared with 15 percent of those in the lowest SES quintile. About 7 percent of students from the highest quintile were not enrolled the fall after the scheduled high school graduation, compared with 40 percent of students in the lowest SES quintile.

Equity Indicator 2f: Percentage distribution of high school graduates by institutional selectivity of enrollment in the fall after scheduled high school graduation by SES quintile: 2013 graduates



Indicator Status: High Inequality

Four percent of students from the lowest SES quintile were enrolled in a “Most or Highly Competitive” institution, compared with 33 percent of students from the highest SES quintile.

NOTE: This chart is based on those who graduated from high school in 2013 and excludes 9th graders in 2009 who had not yet completed a regular high school diploma or GED by 2013. Sample members were surveyed in summer or fall of 2013.

SOURCE: Tabulated using NCES PowerStats with data from the High School Longitudinal Study (HLSL:2009).

EQUITY INDICATOR 3:

DOES FINANCIAL AID ELIMINATE THE FINANCIAL BARRIERS TO PAYING COLLEGE COSTS?

In constant dollars in 1975-76, the Pell Grant maximum covered 67 percent of average college costs. In 2015-16, the Pell Grant maximum covered 26 percent of average college costs. In constant dollars, in order to cover the same percent of college costs as in 1975-76, the Pell maximum of \$5,775 in 2015-16 would have had to be \$15,029.

Equity Indicator 3(a-d): Definitions

Indicator 3 tracks four statistics related to college cost and the amount of cost covered by student Federal Grant aid. We use the standard definitions developed by researchers and the federal government to administer federal student financial aid programs.

- **College Cost** is reported annually by institutions to the Department of Education through IPEDS and includes tuition, fees, and room and board. Average costs reported by NCES used in this report are weighted by undergraduate full-time enrollment but do not take into account residency status. For public institutions, in-state tuition and required fees are used.
- **Cost of Attendance (COA)** is the total cost, on average, to attend college each year. The COA includes tuition and fees; on-campus room and board (or a housing and food allowance for off-campus students); and allowances for books, supplies, transportation, loan fees, and, if applicable, dependent care. It can also include other expenses like an allowance for the rental or purchase of a personal computer, costs related to a disability, and costs for eligible study-abroad programs. The COA is institutionally derived and used by the federal government in determining a student's financial need.
- **Total Federal Aid vs. Federal Grant Aid.** Total Federal Aid as defined by the U.S. Department of Education includes grants, loans, and work-study to help students pay for college. We use the term Federal Grant Aid to include federal financial assistance for college that does not have to be repaid (i.e., federal loans) and does not have a work requirement (i.e., federal work-study).
- **Maximum Pell Grant** is the largest Pell Grant award allowed by federal law. The average Pell Grant award is lower than the maximum. In 2015-16, the maximum Pell award was \$5,775, but the average Pell award was \$3,724.
- **Expected Family Contribution (EFC)** is calculated by the federal government from information submitted on the *Free Application for Federal Student Aid* (FAFSA) and determines a student's eligibility for federal student aid. The EFC is determined using formulas mandated by Congress in the Higher Education Act of 1965, as amended, which take into account indicators of financial strength such as income, assets, and family size. The EFC is combined with the cost of attendance (COA) and

the student's enrollment intensity (e.g., full-time, part-time) to determine the amount of the Federal Pell Grant award. Tuition may be used to calculate the amount of the Pell Grant award for students enrolled at low-tuition schools (if tuition is less than the current maximum Pell Grant). The lower the EFC, the greater a student's demonstrated financial need. The amount of the Federal Pell Grant award generally increases as the EFC decreases. An applicant with the minimum EFC of zero will generally receive the maximum Pell award up to the applicant's COA for the year. Proportionally smaller awards are made to part-time students.

- **Unmet Need** is the financial need remaining after the Expected Family Contribution (EFC) and all grants and other discounts (but not loans) are subtracted from the cost of attendance (COA).

Equity Indicator 3a: What Are the Trends in Average College Costs by Sector?

Average college costs, weighted by full-time undergraduate enrollment, were 2.5 times higher (in constant Consumer Price Index 2015-16 dollars) in 2015-16 than in 1974-75. As displayed in Indicator 3a, the increases occurred after 1980. In 1980 costs were lower in constant dollars (\$8,621) than in 1974-75 (\$9,124). After 1980, average costs rose steadily to \$22,432 in 2015-16.⁴⁶

By comparison, U.S. median family income for households in which one householder is over 25 (even with the recent economic recovery) increased by only 1.3 times (29 percent) between 1975 (\$55,845) and 2015 (\$72,135) in constant 2015 dollars, and most of the increase occurred prior to 1999.⁴⁷ Median family income remained relatively flat from 1999 to 2007, when it was \$71,825, and then declined during the Great Recession to a low of \$65,742 in 2011. Since then, median family income has risen slowly, surpassing the 2007 level only in 2015 (in 2014 the median family income was \$68,623 and rose to \$72,135 for 2015). While average college costs do not reflect the student financial aid discount, rising college costs relative to family income levels limit college choices, especially for those in the bottom half of the income distribution.⁴⁸ High college costs may also contribute to observed differences by family income in whether individuals enter college (Indicator 1) and where individuals attend college (Indicator 2).⁴⁹

In constant 2015 dollars, 4-year private postsecondary costs were about 2 times higher than 4-year public costs in both 1974-75 and 2015-16 (\$15,661 vs. \$7,576 and \$39,529 vs. \$19,189, respectively). Costs at 2-year private institutions were 1.9 times higher than at 2-year public institutions in 1974-75 and 2.5 times higher in 2015-16 (\$11,920 vs. \$6,160 and \$24,367 vs. \$9,939, respectively).⁵⁰

46 U.S. Department of Education, National Center for Education Statistics. (2016). *Digest of Education Statistics, 2016* [Table 330.10].

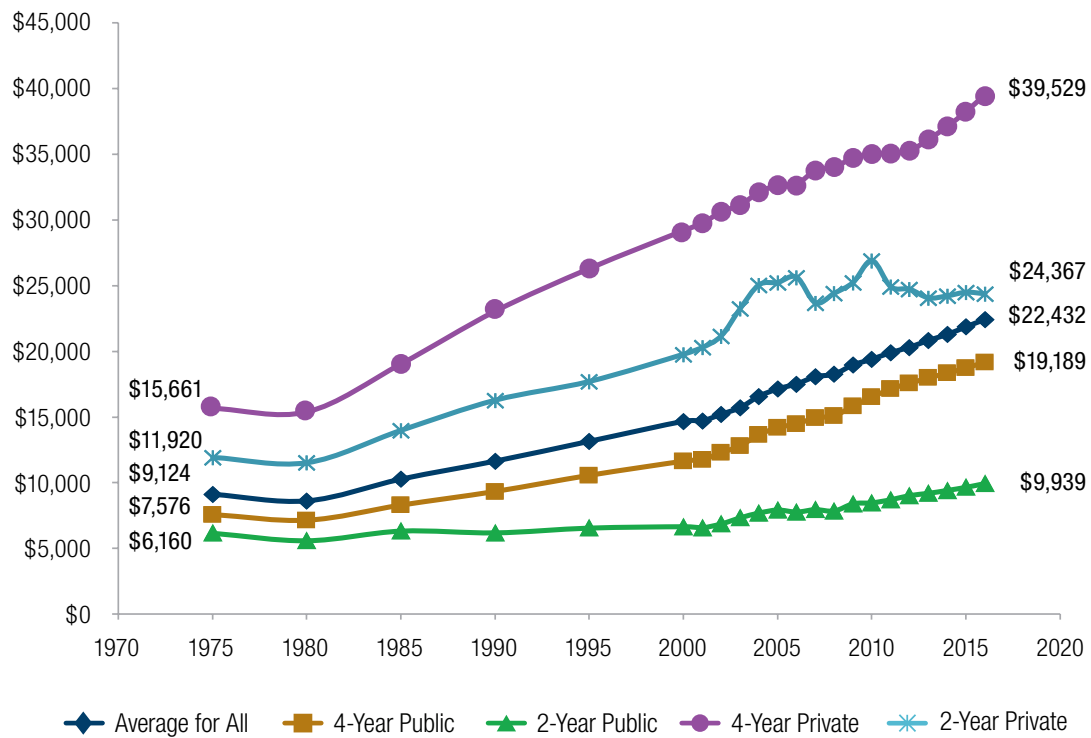
47 See Appendix A, Figure A-1. In this report we refer to median family income for households in which at least one householder is over 25, as "median income." This median family income data is in 2015 CPI-U-RS (Consumer Price Index research series using current methods) dollars.

48 See Appendix A, Figure A-2. The upper limit for the lowest family income quartile in 2015 was \$37,679.

49 In contrast to college costs. See <http://www.census.gov/hhes/www/income/data/historical/families/> for income data.

50 U.S. Department of Education, National Center for Education Statistics (2016). *Digest of Education Statistics 2016* [Table 330.10]. https://nces.ed.gov/programs/digest/d16/tables/dt16_330.10.asp?current=yes The category "Private" includes private non-profit and private for-profit. Most of the 4-year private college enrollment is in the non-profit sector, and most of the 2-year private college enrollment is in the for-profit sector. Data are for the entire academic year and represent average total charges for full-time attendance. Tuition and fees are weighted by the number of full-time equivalent undergraduates, but are not adjusted to reflect student residency status.

Equity Indicator 3a: Average college costs (undergraduate tuition, fees, and room and board) charged for full-time students in degree-granting postsecondary institutions by institutional level and control: 1974-75 to 2015-16 (constant 2015-16 dollars)



Indicator Status: Large Increases in College Costs and Growing Difference in Costs between the Institutional Sectors

Since 1980, costs have risen 2.5 times in constant dollars for 4-year public postsecondary institutions and 1.8 times for 2-year public institutions.

NOTE: Averages are weighted by full-time equivalent enrollment. “Private” includes private non-profit and private for-profit institutions. Most of the 4-year private college enrollment is in the non-profit sector, and most of the 2-year private college enrollment is in the for-profit sector. Data are for the entire academic year and represent average total charges for full-time attendance. Tuition and fees are weighted by the number of full-time-equivalent undergraduates, but are not adjusted to reflect student residency status. Room and board are based on full-time students. Data through 1995-96 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate or higher degrees and participate in Title IV Federal Financial Aid programs. The degree-granting classification is very similar to the Department’s earlier higher education classification, but now includes more 2-year colleges and excludes higher education institutions that did not grant degrees.

SOURCE: U.S. Department of Education, National Center for Education Statistics (2016). *Digest of Education Statistics 2016* [Table 330.10]. https://nces.ed.gov/programs/digest/d16/tables/dt16_330.10.asp?current=yes

Since 1974-75, the difference in costs between 2-year and 4-year public colleges has increased, with most of the increase occurring after 1980. In constant 2015-16 dollars, 4-year public costs were 23 percent higher than 2-year public costs in 1974-75 (\$7,576 vs. \$6,160, respectively). By 2015-16, average costs were 93 percent higher for 4-year public institutions than for 2-year public colleges (\$19,198 vs. \$9,939, respectively). Between 1974-75 and 2015-16, costs for 4-year public postsecondary institutions increased 2.5 times in constant dollars while costs for 2-year public institutions increased 1.6 times. Over the same period, 4-year private costs rose 2.5 times, and 2-year private costs rose 2 times.

Equity Indicator 3b(i to iii): What is the Maximum Pell Grant Award Relative to Average College Costs?

Indicator 3b(i) shows trends in average college costs and the maximum Pell Grant, in constant dollars, from 1974-75 to 2015-16, and Indicator 3b(ii) shows trends in the percent of average costs covered by the maximum Pell Grant. The percent of average college costs covered by the maximum Pell Grant has declined over time, falling from a high of 67 percent in 1975-76 to 27 percent in 1995-96. Since 1995-96, the percentage has fluctuated between 26 percent and 33 percent, and was 26 percent in 2015-16.

Indicator 3b(iii) shows the actual maximum Pell Grant award compared with what the maximum would be if it were to cover two-thirds of the average cost of attendance (COA). Early hopes expressed by Congressional committee supporters were that the Pell Grant would be funded at a level to cover close to three-fourths of the average yearly costs at public colleges.⁵¹ This goal was never reached, but the maximum Pell awards came closer to this goal in the early years of the program than in recent years. The maximum Pell Grant for 2015-16 was \$5,775,⁵² compared with an average cost weighted by full-time undergraduate enrollment of \$22,432 across all types of institutions in 2015-16.

Institutional averages of the cost of attendance (COA) as published by the College Board for 2015-16 were:

- \$16,833 at 2-year public institutions for commuter students within district;
- \$24,061 at 4-year public institutions for in-state students living on campus;
- \$38,544 at 4-year public institutions for out-of-state students living on campus, and
- \$47,831 at 4-year private non-profit institutions for students living on campus.⁵³

51 Mensel, F. (2013). Birth of the Pell Grant: The community college role, *Reflections on Pell*, Council for Opportunity in Education, Pell Institute for the Study of Opportunity in Education.

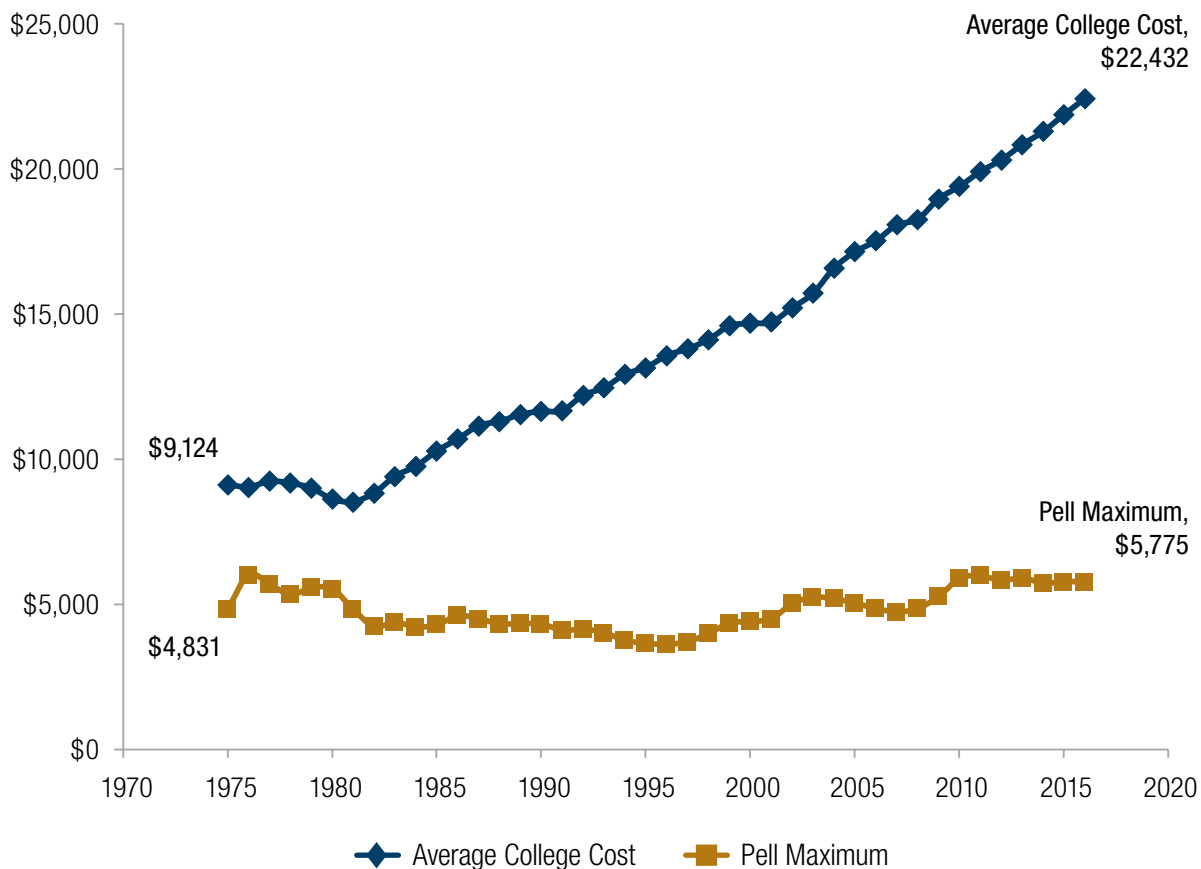
http://www.pellinstitute.org/downloads/publications-Reflections_on_Pell_June_2013.pdf

52 The maximum Federal Pell Grant for 2016–17 (July 1, 2016, through June 30, 2017) is \$5,815. U.S. Department of Education (n.d.) Retrieved from <https://studentaid.ed.gov/sa/about/announcements/pell-2016-17>

The Student Aid and Fiscal Responsibility Act (SAFRA), incorporated as part of Public Law 111-152, provides for an automatic annual increase, based on changes in the Consumer Price Index—through award year 2017-2018—to the appropriated Federal Pell Grant maximum award, resulting in a 2015-2016 maximum award of \$5,775. The maximum Pell Grant award for the 2015-2016 Award Year was \$45 higher than the \$5,730 maximum Pell Grant award for the 2014-15 Award Year. The corresponding maximum Pell Grant-eligible expected family contribution (EFC) for 2015-16 was \$5,198.

53 College Board (2015). *Trends in College Pricing, 2015* <http://trends.collegeboard.org/sites/default/files/trends-college-pricing-web-final-508-2>; <http://trends.collegeboard.org/college-pricing/figures-tables/published-prices-national#Student%20Budgets,%202015-16> Expense categories are based on institutional budgets for students as reported by colleges and universities in the College Board's Annual Survey of Colleges. Other expense categories are the average amounts allotted in determining the total cost of attendance and do not necessarily reflect actual student expenditures (College Board, 2015 October), *Annual Survey of Colleges*.

Equity Indicator 3b(i): Average undergraduate full-time college costs and maximum Pell Grant award: 1974-75 to 2015-16 (constant 2015-16 dollars)



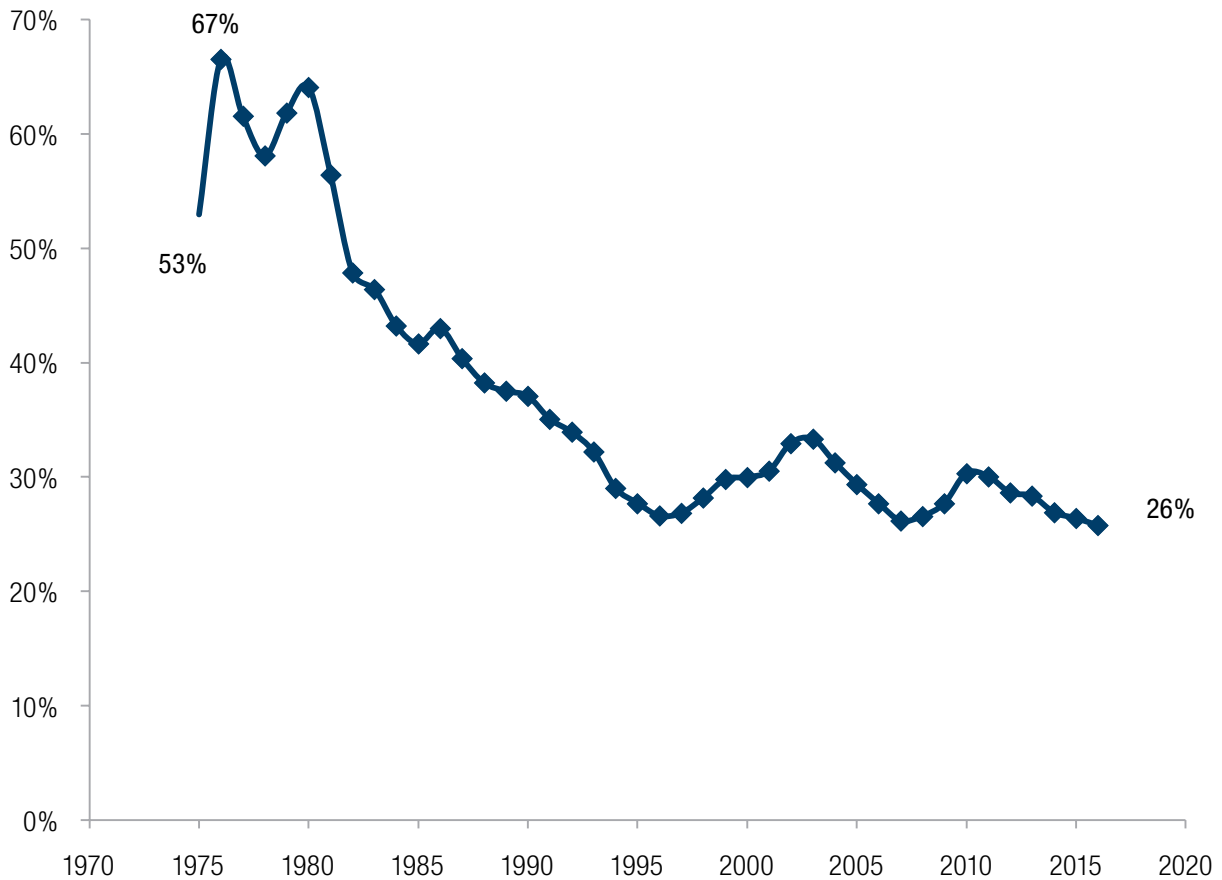
Indicator Status: High Inequality and Widening Gap

From 1974-75 to 2015-2016, average college costs increased by 146 percent (in constant 2015-16 dollars). In contrast, over the same period, the maximum Pell Grant increased by 20 percent.

NOTE: College costs are weighted by undergraduate total full-time enrollment at all types of institutions, as reported by NCES, https://nces.ed.gov/programs/digest/d16/tables/dt16_330.10.asp?current=yes College costs are those reported in Equity Indicator 3a and represent the average for all types of institutions. College costs include tuition, fees, and room and board. The maximum Pell Grant is the highest amount allowed by law. The average Pell award is substantially lower than the maximum.

SOURCE: U.S. Department of Education (2016). *Summary Pell Grant Statistics for Cross-Year Comparison, Pell End of Year Report*, various years <https://www2.ed.gov/finaid/prof/resources/data/pell-data.html>
National Center for Education Statistics (2016). *Digest of Education Statistics 2016* [Table 330.10].

Equity Indicator 3b(ii): Percent of average college costs covered by maximum Pell Grant: 1974-75 to 2015-16



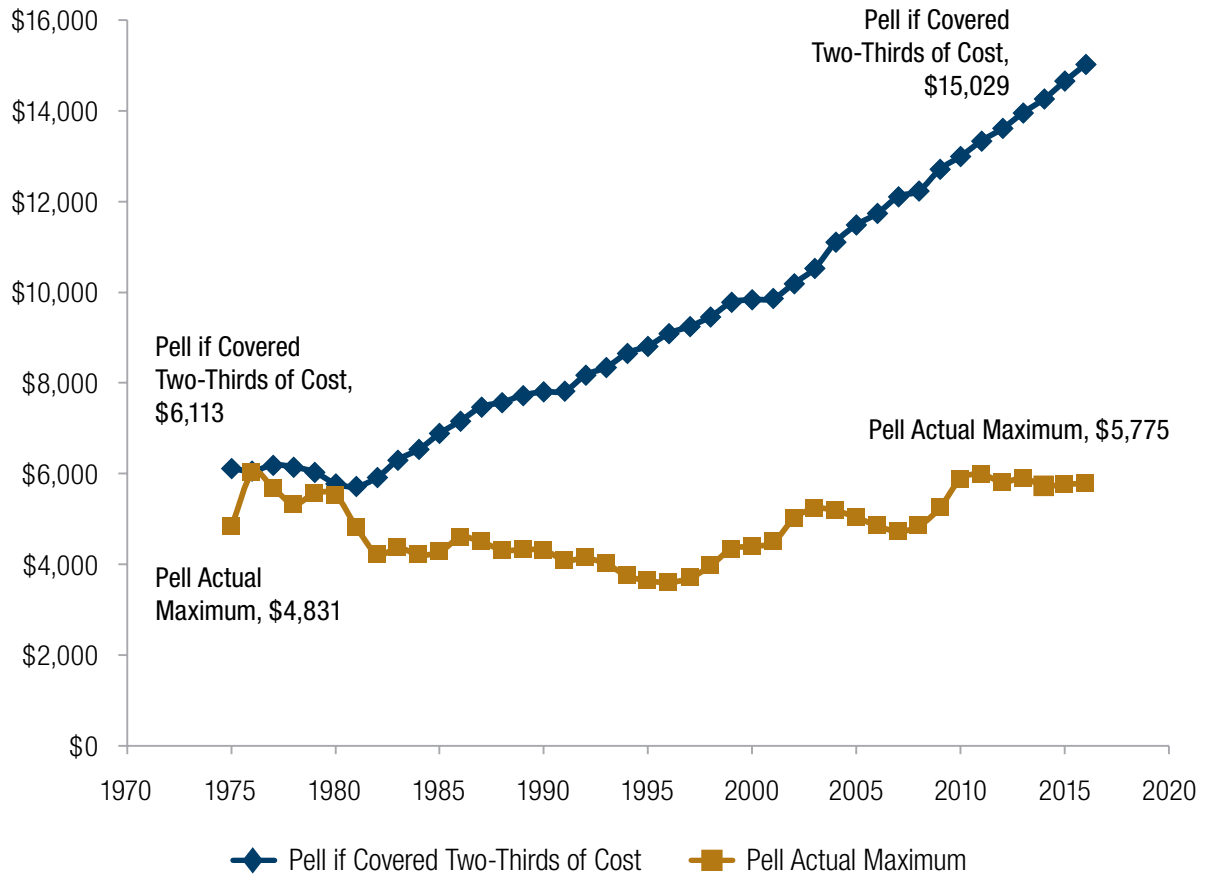
Indicator Status: Declining Opportunity

The percentage of average college costs covered by the maximum Pell Grant declined from 67 percent in 1975-76 to 27 percent in 1995-96. In 2015-16, the maximum Pell Grant covered 26 percent of college costs.

NOTE: Figure 3b(ii) shows the maximum Pell Grant as a percent of average college cost weighted by enrollment, among all types of institutions, as reported by NCES.

SOURCE: U.S. Department of Education (2016). *Summary Pell Grant Statistics for Cross-Year Comparison, Pell End of Year Report*, various years <https://www2.ed.gov/finaid/prof/resources/data/pell-data.html>; National Center for Education Statistics (2016). *Digest of Education Statistics 2016* [Table330.10]. https://nces.ed.gov/programs/digest/d16/tables/dt16_330.10.asp?current=yes

Equity Indicator 3b(iii): Maximum Pell Grant needed to cover two-thirds of average cost of attendance: 1974-75 to 2015-16 (constant 2015-16 dollars)



Indicator Status: Reduced Opportunity

The maximum Pell Grant in 2016 would be \$15,029 (in constant 2015-16 dollars) rather than \$5,775 if it covered two-thirds of college costs as in 1976.

NOTE: Figure 3b(iii) shows what the maximum Pell Grant would need to be to cover two-thirds of the average college costs for a given year as reported by NCES in IPEDS.

SOURCE: U.S. Department of Education (2016). *Summary Pell Grant Statistics for Cross-Year Comparison, Pell End of Year Report*, various years <https://www2.ed.gov/finaid/prof/resources/data/pell-data.html>
 National Center for Education Statistics (2016). *Digest of Education Statistics 2016* [Table 330.10].
https://nces.ed.gov/programs/digest/d16/tables/dt16_330.10.asp?current=yes

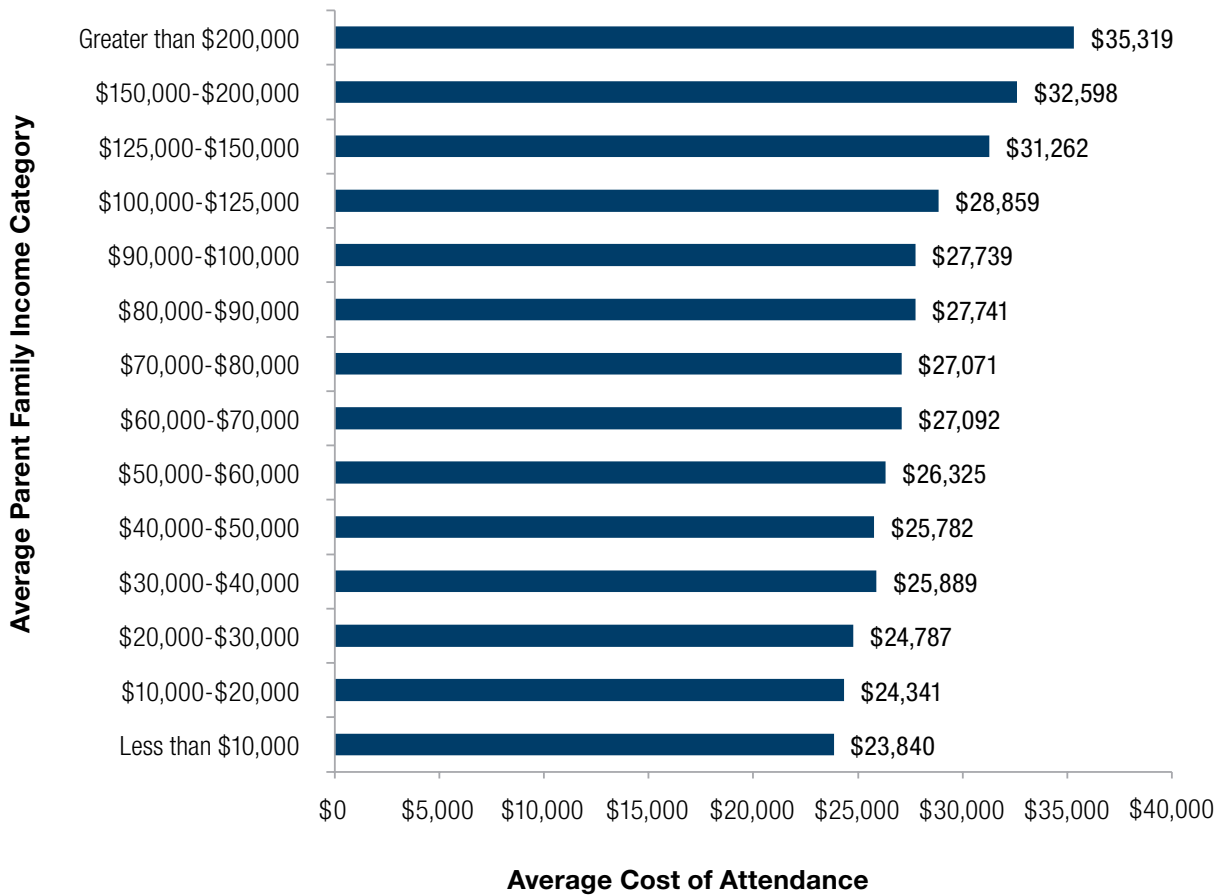
Equity Indicator 3c(i and ii): What is the Average Cost of Attendance (COA) by Adjusted Family Income and What Percentage of Income is Required to Cover COA?

Using data from the most recently available NPSAS (2011-12), Indicator 3c(i) displays the average cost of attendance (COA) for dependent students by adjusted parents' family income category.⁵⁴ Average cost of attendance (COA) increases with family income, ranging from \$23,840 for students with annual family incomes below \$10,000 to \$35,319 for students from families with incomes greater than \$200,000. This pattern suggests that students from lower family incomes, on average, choose institutions with lower prices (as measured by total cost of attendance).

Indicator 3c(ii) shows differences in the ratio of family income (as measured by the mid-point of each family income category) to average college costs. The COA was 238 percent of family income for dependent students with family incomes below \$10,000 and 74 percent for those with family incomes of \$30,000 to \$40,000, but 18 percent for students with family incomes greater than \$200,000. For families in the median income category for U.S. families (\$60,000 to \$70,000), the average COA for one year was 42 percent of yearly income.

⁵⁴ NPSAS categorizes students based on dependency status as defined for federal financial aid purposes.

Equity Indicator 3c(i): Average cost of attendance (COA) for dependent students by adjusted parents' family income quartile category: 2012



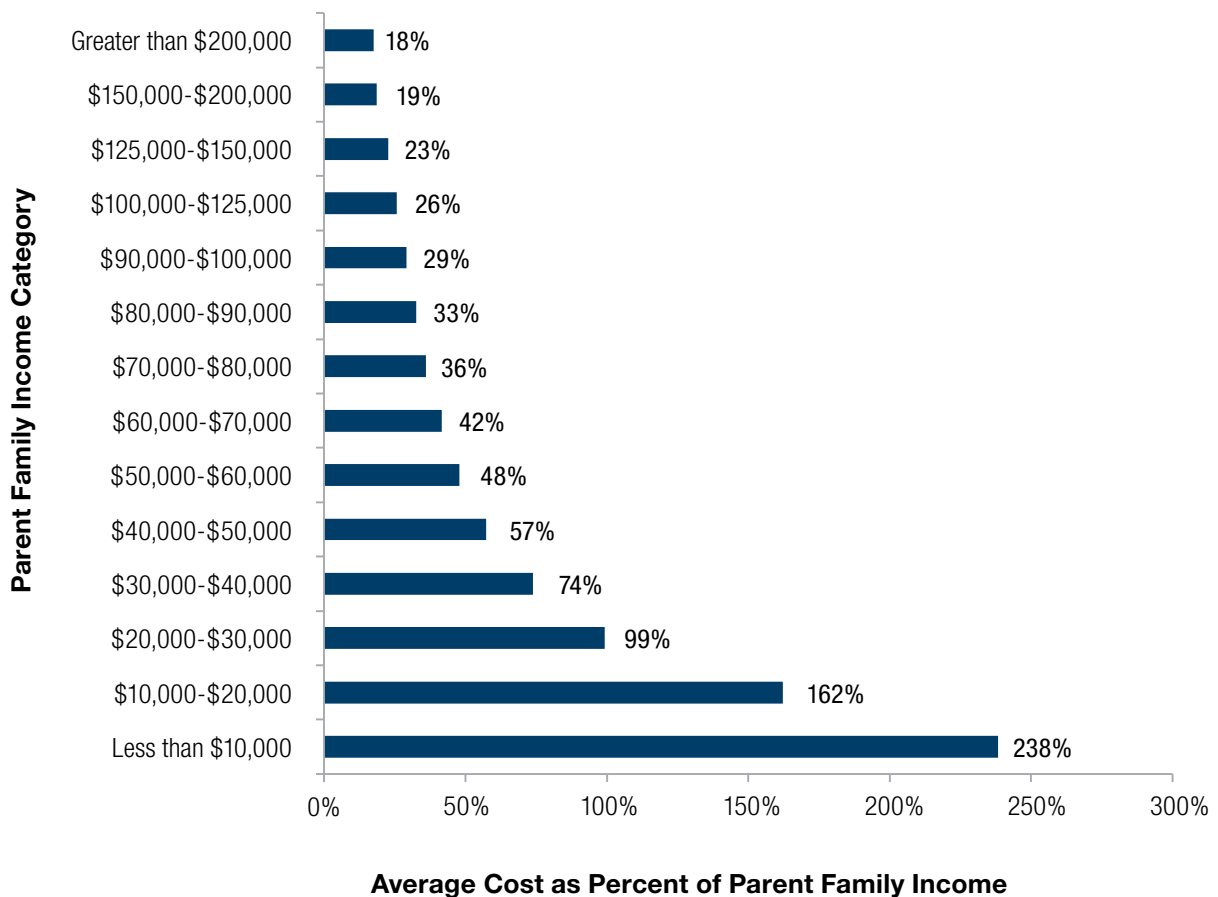
Indicator Status: Wide Disparity in Average Cost of Attendance across Income Categories

Students from lower-income families, on average, attend institutions with lower costs of attendance.

NOTE: Cost of attendance (COA) represents the estimated average cost based on tuition, fees, room and board, and transportation for a full-time, full-year, dependent student attending a single institution. The COA represents college costs before any financial aid (grants or loans) is taken into account. Family income is measured as the midpoint of each family income category and as \$200,000 for the category of “greater than \$200,000.”

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS), 2012; Tabulations from Mortenson, T. *Postsecondary Education Opportunity Newsletters*, 2016.

Equity Indicator 3c(ii): Average cost of attendance (COA) as a percentage of parents' family income quartile category for dependent students: 2012



Indicator Status: COA Relative to Income Declines as Income Increases

In 2012, cost of attendance (COA) was 238 percent of family income for dependent students with family incomes less than \$10,000, but 18 percent of family income for students with family incomes greater than \$200,000. For families in the median income category for U.S. families (\$60,000 to \$70,000), the average COA for one year was 42 percent of yearly income.

NOTE: Cost of attendance (COA) includes the estimated average cost based on tuition, fees, room and board, and transportation for a full-time, full-year, dependent student attending a single institution. Family income is measured as the midpoint of each family income category and as \$200,000 for the category of “greater than \$200,000.”

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS), 2012; Tabulations from Mortenson, T. *Postsecondary Education Opportunity Newsletters*, 2016.

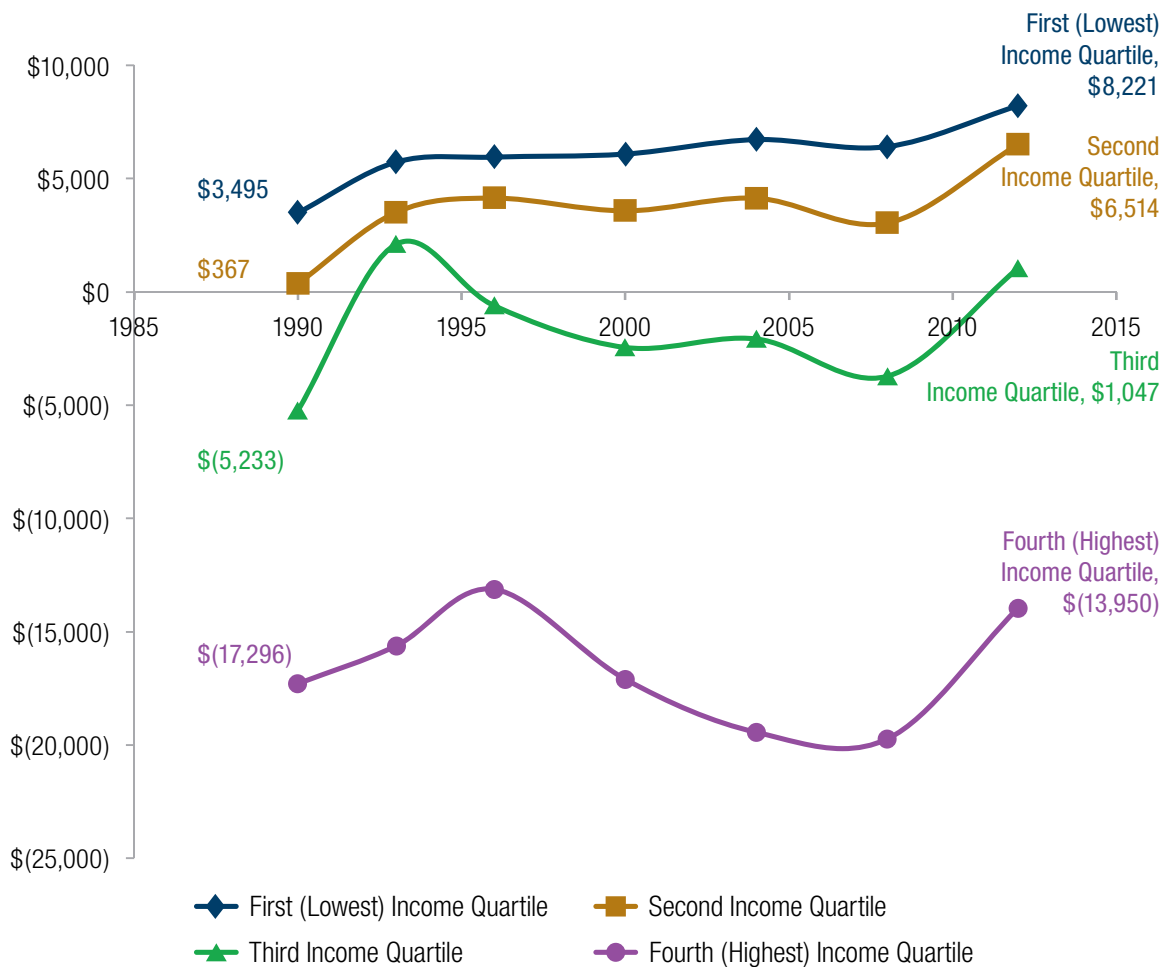
Indicator 3d: What is the Unmet Financial Need for Dependent Undergraduates by Parents' Family Income Quartile?

Indicator 3d displays trends in “unmet need” for dependent full-time undergraduates by parents’ family income quartile. We define unmet need as the remaining COA after subtracting Expected Family Contribution (EFC) and all grants and other discounts that do not have to be repaid. Unmet need, as measured here, does not include loans.

Although more likely than other students to attend community colleges and other institutions with lower average COA, dependent full-time undergraduates in the lowest family income quartile had an average unmet need of \$8,221 in 2012. Students in the second lowest family income quartile averaged \$6,514 in unmet need, while students in the third quartile averaged \$1,047 in unmet need. By comparison, students in the highest-income quartile had an average surplus of \$13,950 after Expected Family Contribution (EFC) and grants were deducted from average cost of attendance.⁵⁵ Average unmet financial need was more than twice as high in 2012 than in 1990 (in constant 2012 dollars) for full-time dependent undergraduates in the lowest family income quartile (\$8,221 vs. \$3,495, respectively).

55 A related trend is the increase in the percent of students for whom the Expected Family Contribution (EFC) is zero. According to NPSAS:2012, 23 percent of dependent students had an EFC of zero, up from 10 percent in 2000. Over the same period, the percent of families with an EFC greater than the cost of attendance decreased from 28 percent in 2000 to 17 percent in 2012 (NPSAS:2000 and NPSAS:2012).

Equity Indicator 3d: Unmet financial need of dependent full-time undergraduates by parents' family income quartile: 1990 to 2012



Indicator Status: High Inequality

For dependent full-time undergraduates in the lowest family income quartile, average unmet financial need more than doubled between 1990 and 2012 in constant 2012 dollars.

NOTE: Data points are for years when NPSAS was conducted: 1990, 1993, 1996, 2000, 2004, 2008, and 2012. Unmet Need is defined as financial need after Expected Family Contribution (EFC) and all discounts and grants that do not have to be repaid are subtracted from average COA. It does not include loans.

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS), 1990, 1993, 1996, 2000, 2004, 2008, 2012.

EQUITY INDICATOR 4:

HOW DO STUDENTS IN THE UNITED STATES PAY FOR COLLEGE?

Since 1980, the percent of college costs paid by state and local public funds has decreased and the percent of costs paid by students and their families has increased. Despite the fact that low-income students on average attend lower-priced colleges, for those in the lowest family income quartile, after all grant aid is subtracted, the average price of attendance represents 84 percent of the average family income.

Equity Indicator 4(a-c): Definitions

Indicator 4 reports how students and families pay college costs. The major sources of data are the Bureau of Economic Analysis (BEA) National Income and Product Accounts (NIPA) and the National Postsecondary Student Aid Studies (NPSAS) that have been conducted at approximately 4-year intervals from 1990 to 2012.⁵⁶

- **Data on Sources for Financing Public and Private Higher Education** are from the BEA's National Income and Product Accounts (NIPA). Available since 1952, these data identify the percent of total funding coming from State and Local Government Expenditures, Federal Government Expenditures, and Personal Consumption Expenditures. Personal Consumption Expenditures represent costs that are borne by students and their families.
- **Net Price** is cost of attendance (COA) minus all grant aid. The Higher Education Act of 1965 (HEA), as amended, requires the U.S. Department of Education to make publicly available information about the average net price of each postsecondary institution that participates in Title IV federal student aid programs. The HEA defines institutional net price as "the average yearly price actually charged to first-time, full-time undergraduate students receiving student aid at an institution of higher education after deducting aid." Essentially, net price moves beyond an institution's "sticker price" and provides students and families with an idea of how much a first-time, full-time undergraduate student who was awarded aid pays to attend a particular institution after grant or scholarship aid, but not loan aid, is subtracted from the published cost of attendance (COA).
- **Net Price of Attendance as a Percent of Average Family Income** uses data from the various NPSAS 1990-2012 surveys. The average family income for a quartile reflects the distribution of the NPSAS sample in study year for dependent undergraduate students. For the 2012 NPSAS average family incomes for the quartiles were as follows: First (lowest), \$16,311; Second, \$49,837; Third, \$89,119; Fourth (highest), \$172,729.

⁵⁶ Data for NPSAS:2016 have been collected, but not yet released.

- **Dependent Student** status has a particular definition for financial aid eligibility and is defined as a student who is an undergraduate, unmarried, not a veteran, and younger than 24 years of age. For dependent students, parents' income and assets are used to determine the Expected Family Contribution (EFC) even if the parents have no intention of helping pay students' college expenses. In exceptional cases (e.g., parental child abuse, parental communication with the child prohibited by a court), the institution's financial aid office may change a student's status from dependent to independent.
- **Unmet Financial Need** is the amount that remains after Expected Family Contribution (EFC) and financial aid that does not have to be repaid (that is, excluding loans) are deducted from COA.
- **Debt Burden** is the average cumulative debt for those graduating with a bachelor's degree in a given year. Data are from the NPSAS surveys administered between 1990 and 2012. As reported here the debt burden is among those who have any debt.

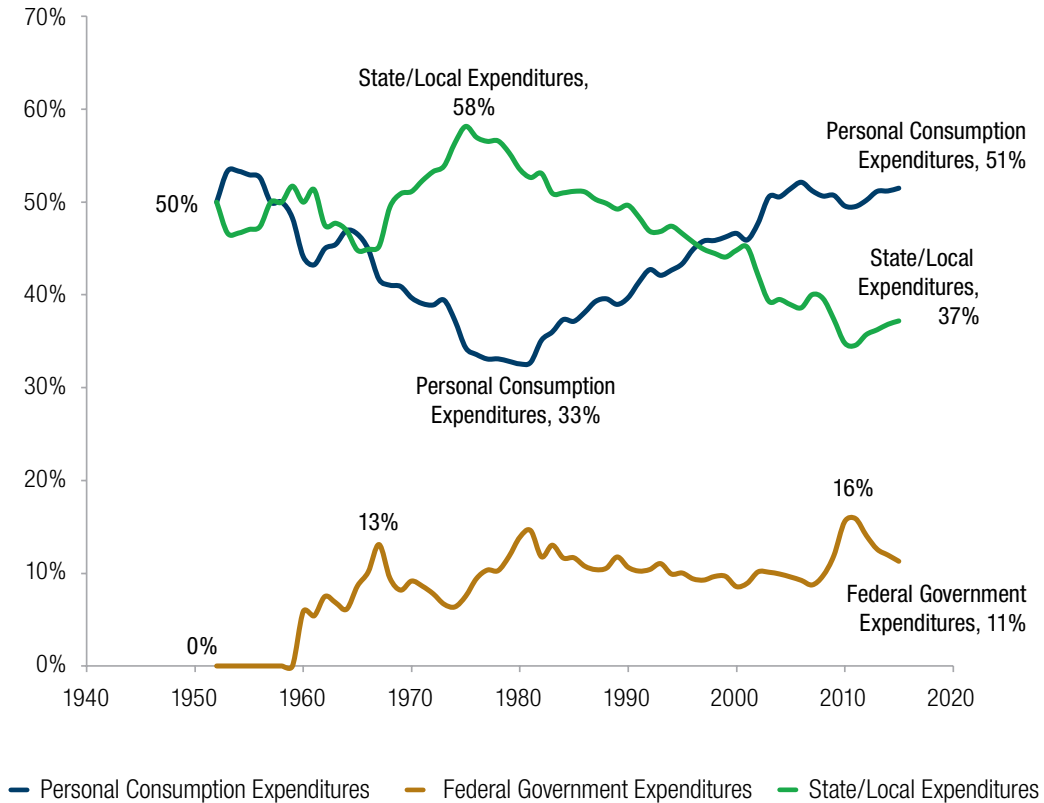
Equity Indicator 4a: What Share of Higher Education Costs is Paid by Students and their Families?

Equity Indicator 4a describes the responsibilities for funding the costs of attending U.S. public and private higher education institutions, as reported in the National Income and Product Accounts (NIPA) from 1952 to 2015. Since 1975, the percent of higher education costs covered by state and local governments has declined, shifting the responsibility for paying for college costs to students and parents.

State and local sources accounted for 58 percent of higher education expenditures in 1975, but just 37 percent in 2014 and 2015. The percent of the total costs borne by parents and students fluctuated around 33 percent from 1975 to 1981, and then rose to 51 percent in 2014 and 2015.

The share of higher education costs provided by the federal government was about the same in 2015 as in the later half of the 1980s (11 percent). During the Great Recession, the federal government provided additional funding through the American Recovery and Reinvestment Act of 2009, which temporarily raised the share of costs covered by the federal government to a high of 16 percent in 2011.

Equity Indicator 4a: Percentage distribution of higher education funding responsibilities: 1952 to 2015



Indicator Status:

The share of higher education costs paid by students and families increased from 33 percent in the late 1970s to 51 percent in 2014 and 2015.

SOURCE: U.S. Department of Commerce. Bureau of Economic Analysis (2016). National Income and Product Accounts (NIPA). *Higher Education's Share of Gross Domestic Product and Distribution of Higher Education Funding Responsibilities: 1952 to 2015*. <http://bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>

Equity Indicator 4b(i): What is the Net Price of Attendance by Family Income?

Using NPSAS data from 1990 to 2012,⁵⁷ Indicator 4b(i) tracks the net price of attendance. The net price of attendance is the cost of attendance (COA) minus all grant aid.⁵⁸ Net price does not include loan aid. Indicator 4b(i) shows that, when grant aid and discounts are included, average net price increased in constant dollars for all quartiles, but increased at a greater rate for those in the top two income quartiles than the bottom two quartiles.

Equity Indicator 4b(i) also shows that the difference in net price of attendance between dependent full-time students in the highest and lowest family income quartiles increased between 1990 and 2012. In 1990, average net price ranged from \$10,881 for those in the lowest income quartile to \$18,123 for those in the highest income quartile. In 2012, average net price ranged from \$13,699 for those in the lowest income quartile to \$26,580 for those in the highest income quartile.

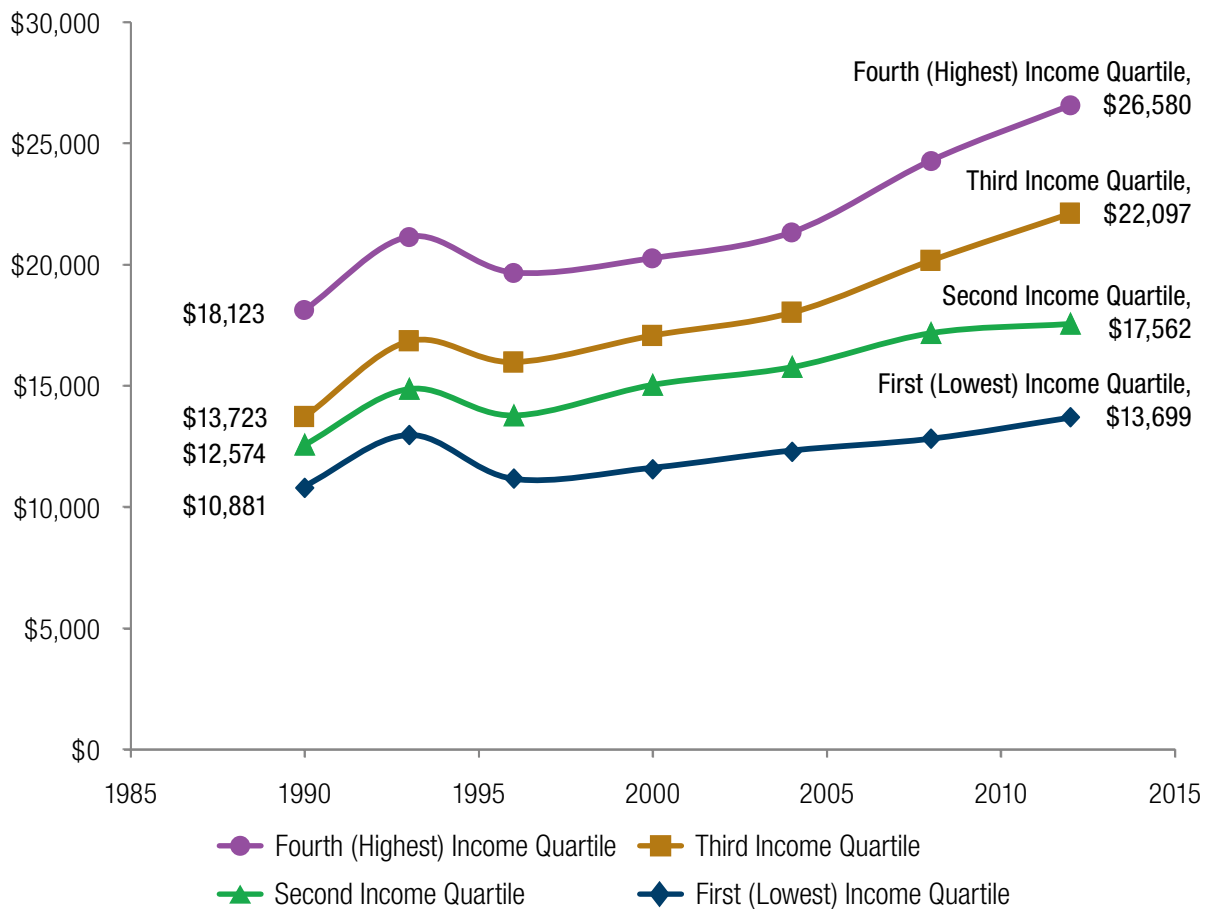
The meaning for equity of the widening gap in college net price by parent income is ambiguous. On the one hand, a widening gap signifies that net price has not risen as rapidly at the colleges most frequently attended by low-income students as at the colleges attended by more affluent students. This may be because these institutions have allocated available financial aid to students with the greatest financial need. On the other hand, the widening gap also suggests that colleges in the United States have over time become more segregated by family income and that students are increasingly sorted by family income into colleges they can afford to attend.

If low-income students are receiving a higher education of equivalent quality of the learning experience and market value upon completion, then this net price differential would signal an increase in equity. In so far as differences in net price reflect differences in educational quality and market rewards, then the increasing difference in average net price for students in the upper- and lower-family income quartiles may reflect growing inequity and increased stratification of the nation's higher education system.

57 NPSAS data are collected approximately every 4 years. Indicator 4b(i) used 1990, 1993, 1996, 2000, 2004, 2008 and 2012 waves of this cross-sectional survey.

58 The Higher Education Act of 1965 (HEA), as amended, requires the U.S. Department of Education to make publicly available information about the average net price of each postsecondary institution that participates in Title IV federal student aid programs.

Equity Indicator 4b(i): Average net price of attendance for dependent full-time undergraduate students by family income quartile: 1990 to 2012 (constant 2012 dollars)



Indicator Status: Less Increase in Net Price for the Lowest Quartile; More Differences in Net Price by Family Income Quartile

Average net price of attendance in 2012 was 94 percent lower for students in the lowest family income quartile than for students in the highest family income quartile. In 1990, the average net price was 67 percent lower.

NOTE: Net price of attendance is defined as cost of attendance (COA) minus all grant aid.

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS), 1990, 1993, 1996, 2000, 2004, 2008, 2012; Mortenson, T. (2014, May). "Financial Barriers to Higher Education by Parental Income and Institutional Level/Control, 1990 to 2012." *Postsecondary Education Opportunity*, 263; Mortenson, T. (2014, March). "Deteriorating Abilities of Families to Pay Costs of College Attendance." *Postsecondary Education Opportunity*, 261.

Equity Indicator 4b(ii): What Percentage of Family Income is Necessary to Pay the Average Net Price of Attendance?

Indicator 4b(ii) tracks average net price of attendance as a percentage of average family income by NPSAS parents' family income quartiles for dependent students.⁵⁹ The Indicator displays the average net price for all students by family income quartile regardless of the type of college or university attended.

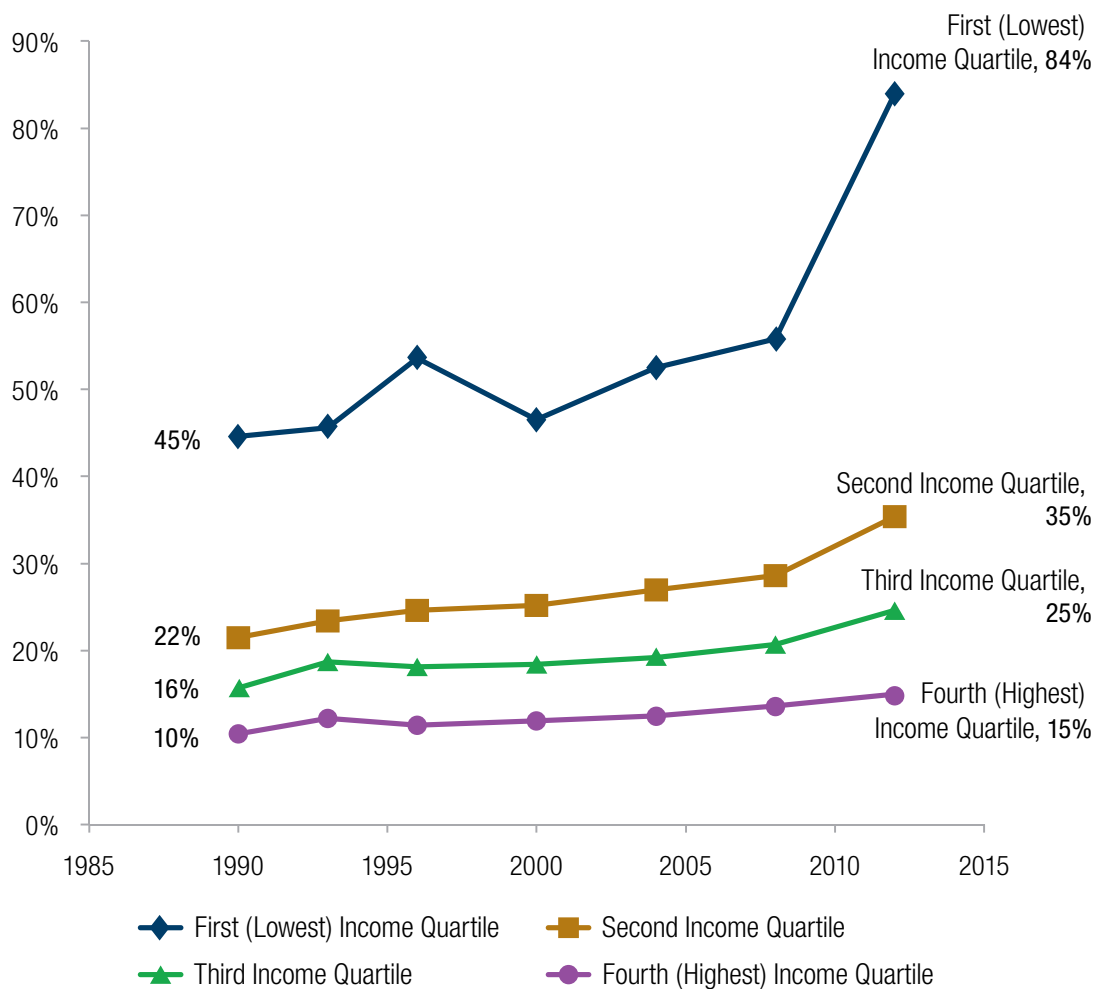
In 2012, average net price as a percent of average family income was 84 percent for students in the lowest family income quartile, compared with 35 percent for students in the second lowest family income quartile, 25 percent for students in the third income quartile, and 15 percent for students in the highest income quartile.

Between 1990 and 2008, average net price as a percentage of family income slowly increased for students in all four family income quartiles. For students in the lowest family income quartile, the percentage increased from 45 percent in 1990 to 56 percent in 2008. Between 2008 and 2012, in the wake of the Great Recession, average net price as a percentage of family income increased for all income quartiles, but increased more dramatically for students in the lowest income quartile.⁶⁰ For these students, average net price as a percentage of average family income increased from 56 percent in 2008 to 84 percent in 2012.

59 Net Price is different from "Out-of-Pocket Price," as the latter accounts for both grants and loans. See Horn, L. & Paslov, J. (2014). *Out-of-Pocket Net Price for College*. Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, NCES 2014-902.

60 Choitz, V., & Reimherr, P. (2013). *Mind the Gap: High Unmet Financial Need Threatens Persistence and Completion for Low-Income Community College Students*. Washington, D.C.: Center for Postsecondary and Economic Success at CLASP.

Equity Indicator 4b(ii): Average net price of attendance as a percentage of average family income by income quartile for dependent full-time undergraduate students: 1990 to 2012



Indicator Status: High Inequality: Widening Differences in College Cost Burden

In 2012, average net price represented 84 percent of average family income for dependent students in the lowest quartile, compared with 15 percent of average family income for students in the highest quartile. In 1990, average net price was 45 percent of family income for dependent students in the lowest quartile and 10 percent for the highest quartile.

NOTE: Family income quartiles are based on the distribution of family income in each NPSAS survey. In 2012, average family incomes by quartile were: First (Lowest), \$16,311; Second, \$49,837; Third, \$89,119; Fourth (Highest), \$172,729.

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS), 1990, 1993, 1996, 2000, 2004, 2008, 2012. Mortenson, T. (2014, May). Financial Barriers to Higher Education by Parental Income and Institutional Level/Control, 1990 to 2012. *Postsecondary Education Opportunity*, 263.

Equity Indicator 4c(i and ii): What Percentage of Students Borrow and How Much Do They Borrow?

Indicator 4c(i) and 4c(ii) describes the frequency and amount of borrowing, among borrowers, for graduating bachelor's degree-seeking seniors, for the classes of 1993, 2000, 2008, and 2012 using data from the NPSAS studies.⁶¹ In 2012, 71 percent of seniors graduating with a bachelor's degree were borrowers. Borrowing rates were higher for graduating seniors who attended private for-profit 4-year institutions (88 percent) and private non-profit 4-year institutions (75 percent) than for those who attended public 4-year institutions (66 percent).

Both the percentage of students who borrow to pay college costs and the average amount borrowed among those who borrow have risen over time, although rates of growth were greater in the 1990s than since 2000. The share of graduating bachelor's degree-seekers who borrowed was 15 percentage points lower for 1993 seniors (49 percent) than 2000 seniors (64 percent), and then increased to 68 percent for 2008 seniors and 71 percent for 2012 seniors.

In constant 2012 dollars, among those who borrowed, the average amount borrowed increased by 49 percent between 1993 and 2000 (from \$16,500 to \$24,640), and then by 10 percent between 2000 and 2008 (from \$24,640 to \$27,170) and 8 percent between 2008 and 2012 (from \$27,170 to \$29,400).

Pell Grant recipients typically attend less expensive colleges and universities, but borrowers who receive Pell Grants borrow somewhat higher amounts, on average, than borrowers who do not receive Pell Grants. In 2012, bachelor's degree-seeking Pell recipient seniors averaged \$31,007 in loans at graduation, while non-Pell Grant recipients averaged \$27,443.

The Project on Student Debt at The Institute for College Access and Success (TICAS) reports similarly that 68 percent of college graduates from public and non-profit colleges in 2015 had student loan debt, with an average of \$30,100 per borrower. TICAS reports that this debt represents a 4 percent increase from the average debt of 2014 graduates. Debt at graduation varies by state and institution attended.⁶²

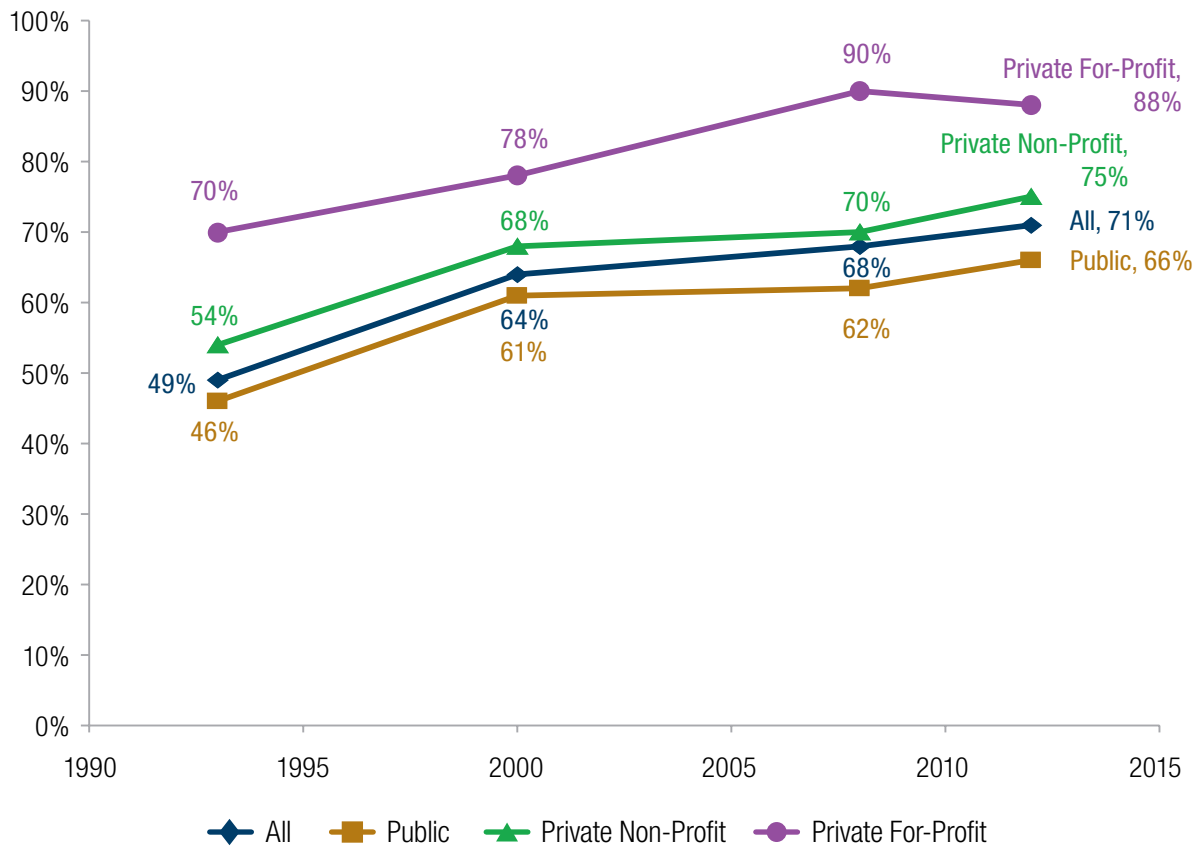
Also important are student loan default rates. In FY2013, about 5.2 million borrowers entered into repayment and, of those, about 11 percent were counted as having defaulted on their loans. The 3-year national cohort default rate, based on about 6,000 postsecondary institutions, rose to 13 percent for FY2009 and 15 percent for FY2010, during the Great Recession. The cohort default rate has since declined to 12 percent for FY2012 and 11 percent for FY2013.⁶³

61 NPSAS 1993, 2000, and 2008 oversampled graduating seniors to provide a representative sample by major field for the Baccalaureate and Beyond (B&B) Longitudinal study. The 2012 data are not from a NPSAS/B&B sample year but are from the most recently available NPSAS.

62 The Institute for College Access and Success (TICAS). *Student Debt and the Class of 2015*. Retrieved from <http://ticas.org/posd/home>

63 U.S. Department of Education, Federal Student Aid Office (2016, September). *National student loan cohort default rate declines steadily*. Retrieved from <https://www.ed.gov/news/press-releases/national-student-loan-cohort-default-rate-declines-steadily>
U.S. Department of Education, Federal Student Aid Office (n.d.). National Student Loan Default Rates. Retrieved from <http://www.ifap.ed.gov/eannouncements/attachments/093015AttachOfficialFY20123YRCDBriefing.pdf>

Equity Indicator 4c(i): Percentage of graduating bachelor's degree-seeking seniors who borrowed by institutional control: 1993, 2000, 2008, 2012



Indicator Status: Increasing Percentages of Students Borrow

Regardless of institutional control, the percentage of students who borrow to pay college costs has increased over time. The percentage of bachelor's degree-seeking seniors who borrowed increased from 49 percent in 1993 to 71 percent in 2012.

NOTE: NPSAS 1993, 2000, and 2008 oversampled graduating seniors to provide a representative sample by major field for the Baccalaureate and Beyond (B&B) Longitudinal study. The 2012 data are not from a NPSAS/B&B sample year but are from the most recently available NPSAS.

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS) 1993, 2000, 2008, 2012, Data Analysis System (DAS) and Mortenson, T. (2014). "Financial Barriers to Higher Education by Parental Income and Institutional Level/Control," no. 263, *Postsecondary Education Opportunity*, Pell Institute for the Study of Opportunity in Higher Education, Washington, D.C.

Equity Indicator 4c(ii): Average debt burden of graduating bachelor's degree-seeking seniors who borrowed by Pell Grant status: 1993, 2000, 2008, 2012 (constant 2012 dollars)



Indicator Status: Large Increases in Debt Burden

In constant dollars debt levels increased 78 percent from 1993 to 2012 (from \$16,500 to \$29,400). Despite going to lower-cost institutions on average, borrowers who receive Pell Grants borrow somewhat higher amounts, on average, than borrowers who do not receive Pell Grants (\$31,007 versus \$27,443 in 2012).

NOTE: Data represent the average amount borrowed among those who borrow. NPSAS 1993, 2000, and 2008 oversampled graduating seniors to provide a representative sample by major field for the Baccalaureate and Beyond (B&B) Longitudinal study. The 2012 data are not from a NPSAS/B&B sample year but are from the most recently available NPSAS.

SOURCE: U.S. Department of Education, National Postsecondary Student Aid Study (NPSAS) 1993, 2000, 2008, 2012, Data Analysis System (DAS); and Mortenson, T. (2014), "Financial Barriers to Higher Education by Parental Income and Institutional Level/Control," no. 263, *Postsecondary Education Opportunity*, Pell Institute for the Study of Opportunity in Higher Education, Washington, DC.

EQUITY INDICATOR 5:

HOW DO EDUCATIONAL ATTAINMENT RATES AND EARLY INCOME OUTCOMES VARY BY FAMILY CHARACTERISTICS?

In 2015, estimated bachelor's degree attainment rates by age 24 were nearly 5 times greater for those from the highest family income quartile than for those from the lowest family income quartile (58 percent vs. 12 percent). In 1970, those in the highest income quartile were 6.6 times as likely as those in the lowest quartile to attain a bachelor's degree by age 24 (40 percent vs. 6 percent).

Equity Indicator 5 (a-d): Definitions

Equity Indicator 5 compiles data on educational attainment and early earning outcomes by sociodemographic characteristics. The sources of data are: 1) Current Population Survey (CPS) data from 1970 to 2015 on estimated dependent family members' bachelor's degree attainment rates by family income; 2) three NCES high school longitudinal studies tracing high school students' bachelor's degree attainment 8 or 10 years after expected high school graduation year; 3) Beginning Postsecondary Students (BPS) longitudinal studies following first-time college entrants through 5 or 6 years after college entrance; 4) IPEDS Completions Surveys' data on associate's and bachelor's degrees awarded by race/ethnicity from 1980 to 2015, and 5) Baccalaureate and Beyond Longitudinal Study (B&B) data for 2008 graduates at the 1-year (2009) and 4-year (2012) follow-ups. We utilize multiple data sources for Indicator 5, given the limitations of each source as described below. Indicator 5 focuses primarily on bachelor's degree attainment, with some attention to associate's degree attainment by race/ethnicity. Definitions of terms not already provided in the report are presented below.

- **Estimated rates of bachelor's degree attainment by age 24 for primary dependent family members.** This Indicator reports 3-year average estimated rates of bachelor's degree attainment by age 24 by family income quartile for primary dependent family members using data from the October supplement to the Current Population Survey (CPS). CPS is the only available national annual data source that measures attainment, but the data have important limitations and caution is warranted when interpreting the results. The CPS household survey data are reported in aggregate for cross-sectional groupings and include only individuals who were considered "primary dependent family

members” at the time of the CPS survey. Recent years have seen differential changes across income groupings in dependency patterns and length of time for bachelor’s degree completion. We use data from the NCES longitudinal studies to improve the calibration of the CPS estimates.⁶⁴

- **Percentage of first-time beginning postsecondary dependent students earning bachelor’s degrees within 5 or 6 years of initial enrollment by family income quartile and TRIO eligibility.** These measures use data from the Beginning Postsecondary Students (BPS) Longitudinal Study. BPS tracked students first enrolling in a postsecondary educational institution in academic years 1989-90, 1996-97, and 2003-04 from the cross-sectional NPSAS studies. Bachelor’s degree attainment rates are shown by parent income quartile for dependent students. We also use BPS data to examine differences in attainment by TRIO eligibility criteria (i.e., low-income and first-generation college status).⁶⁵
- **Distributions of associate’s and bachelor’s degrees conferred by race/ethnicity.** These measures use the annual IPEDS Completion Surveys to report the distribution of associate’s and bachelor’s degrees conferred by race/ethnicity in 1980 and 2015.
- **Early career earnings by major field of study for recent bachelor’s degree recipients.** Using data from NCES’s Baccalaureate and Beyond (B&B) Longitudinal Study, this Indicator reports annual income by major field and parent family income quartile 1 and 4 years after 2008 bachelor’s degree recipients leave college.

64 Because of the relationships among family income, dependency status, and degree attainment, CPS data published in the 2015 Indicators Report overestimated bachelor’s degree attainment for the highest income quartile. In 2016, we reported only on the 100 percent distribution of bachelor’s degrees in the text and reported attainment estimates in the methodological appendix. For 2017, we have returned the attainment rate indicator to the main body of the report. The 2016 appendix table and 2017 Indicator 5a have updated CPS attainment rate estimates with improved calibration from NCES longitudinal survey data from the appropriate time periods. Caution is warranted when interpreting the adjusted CPS estimates given the many underlying assumptions.

65 TRIO is a set of federal competitive grant programs first authorized under the HEA of 1965, as amended most recently in 2008. TRIO programs are designed to increase college access and degree completion for low-income students, first-generation college students, and students with disabilities. The first three TRIO programs began in 1964, 1965, and 1968, respectively. TRIO now consists of eight programs that collectively provide services from middle school through graduate school. The eight TRIO programs are: Upward Bound (UB), Upward Bound Math Science (UBMS), Veterans Upward Bound (VUB), Talent Search, Student Support Services (SSS), Educational Opportunity Centers (EOC), and Ronald E. McNair Post-Baccalaureate Achievement Program (McNair), as well as a training program for TRIO project staff. In 2016, 2,889 TRIO projects were housed at colleges and universities and community organizations, with projects in all 50 states, Washington, D.C., and U.S. territories. Federal TRIO program services are estimated to reach less than 5 percent of the eligible population in any given year.

Equity Indicator 5a: How Do Estimates of Dependent Family Members' Bachelor's Degree Attainment Rates by Age 24 Vary by Family Income Quartile?

Equity Indicator 5a reports a 3-year moving average of the estimated rates of bachelor's degree attainment by age 24 for dependent family members using data from the annual Current Population Survey (CPS).⁶⁶ Estimates are derived using aggregate cross-sectional CPS data with calibration from the NCES longitudinal studies from similar time frames.

Indicator 5a shows that bachelor's degree attainment rates increased in each family income quartile over the period but remain highly unequal. In 2015, 12 percent of dependent family members in the lowest family income quartile had attained a bachelor's degree by age 24, compared with 20 percent of those in the second quartile, 35 percent of those in the third quartile, and 58 percent of those in the highest quartile.

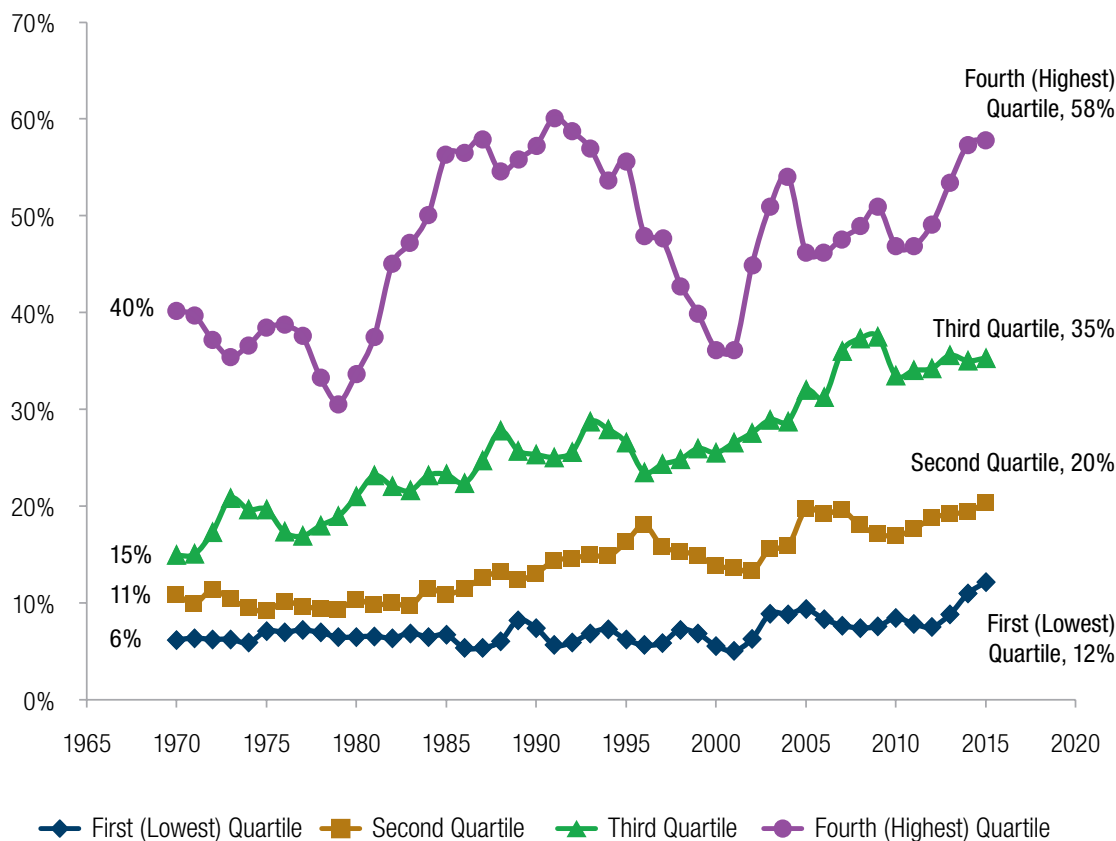
The gap in bachelor's degree attainment rates between those in the highest and lowest quartiles was 46 percentage points in 2015. Estimated bachelor's degree attainment rates by age 24 were almost 5 times higher for those in the highest income quartile than for the lowest income quartile (58 percent vs. 12 percent) in 2015. In 1970, those in the highest income quartile were 6.6 times as likely as those in the lowest quartile to attain a bachelor's degree by age 24 (40 percent vs. 6 percent).

Between 1970 and 2000, bachelor's degree attainment rates for those in the lowest family income quartile remained relatively unchanged (approximately 6 percent to 7 percent). Between 2000 and 2015, bachelor's degree attainment rates for this group increased to reach 12 percent in 2015.

For those in the second quartile, bachelor's degree attainment remained around 11 percent from 1970 to 1990, and then increased to 20 percent by 2015. For those in the third quartile, bachelor's degree attainments rose more steadily over time, rising from 15 percent in 1970 to 35 percent in 2015. For those in the highest family income quartile, bachelor's degree attainment rates rose from 40 percent in 1970 to 58 percent in 2015.

⁶⁶ Indicator 5a reports a 3-year moving average of the estimated bachelor's degree attainment rate by age 24 for dependent family members. The 2016 Indicator 5a presented the percentage distribution of all bachelor's degree holders across the four quartiles rather than attainment rates. As a result, Indicator 5a in the 2017 Report is not comparable to that reported in the 2016 report.

Equity Indicator 5a: Estimated bachelor's degree attainment rate by age 24 for dependent family members by family income quartile: 1970 to 2015



Indicator Status: High and Persisting Inequality

After remaining relatively unchanged between 1970 and 2000 (at 6 percent to 7 percent), the bachelor's degree attainment rate doubled for those in the lowest family income quartile between 2000 and 2015 (rising from 6 percent to 12 percent). Estimated bachelor's degree attainment rates by age 24 are almost 5 times higher for those in the highest income quartile than for those in the lowest income quartile (58 percent vs. 12 percent). In 1970 those in the highest income quartile were 6.6 times as likely as those in the lowest quartile to attain a bachelor's degree by age 24 (40 percent vs. 6 percent).

NOTE: This figure reports a 3-year moving average of the estimated bachelor's degree attainment rate by age 24 for dependent family members using the CPS data with calibrations from the NCES high school longitudinal studies. Due to estimation assumptions and sampling error, caution is warranted when interpreting changes over time, especially large single year fluctuations. See Appendix A for further discussion of the methodology and limitations.

SOURCE: U.S. Census Bureau, Current Population Survey, October Education Supplement, 1970-2015. Data from 1970 to 1986 consider unmarried 18- to 24-year-olds and data from 1987 to 2015 are based on dependent 18- to 24-year-olds. These data were previously published in Table 14 in Census Bureau P20 report on School Enrollment. After 2006, the Census Bureau no longer published Table 14. Data were tabulated using the Census Bureau table production tool (2006-2015). See Mortenson, T. Unequal Family Income and Unequal Higher Education Opportunity, 1970 to 2015, *Postsecondary Education Opportunity*, 287 (forthcoming).

Equity Indicator 5b: What Percentage of Youth Attain a Bachelor's Degree or Higher in 8 or 10 Years of Expected High School Graduation by Socioeconomic Status (SES)?

Equity Indicator 5b uses data from the three most recently released NCES high school longitudinal studies that report bachelor's degree attainment rates for students 8 or 10 years after their expected high school graduation.⁶⁷ For this Indicator we use socioeconomic status (SES), a composite measure based on parental income, education, and occupation, rather than a single measure of self-reported income.⁶⁸

As noted in the discussions of other indicators in this report, comparisons of bachelor's degree attainment across the three longitudinal studies are limited somewhat by differences in the starting dates for the nationally representative samples in each study. High School and Beyond (HS&B:1980) sampled 1980 high school 10th graders and followed the cohort until 1992, 10 years after expected high school graduation in 1982. The National Education Longitudinal Study of 1988 (NELS:88) sampled 8th graders in 1988 and followed students until 2000, 8 years after their expected high school graduation in 1992. The Educational Longitudinal Study of 2002 (ELS:2002) sampled 2002 10th graders and followed them until 2012, 8 years after their expected high school graduation in 2004. Because NELS:88 began with 8th graders rather than students in high school, data from NELS:88 might be expected to report a higher percentage of students who did not complete high school than the HS&B and ELS 10th grade studies. Other observed differences in bachelor's degree attainment over time may reflect differences in the willingness of high-poverty schools to participate in the three studies,⁶⁹ thereby altering the composition of schools and students (despite non-response adjustments by NCES) in the three samples.⁷⁰

With these cautions in mind, Indicator 5b shows that the share of youth attaining a bachelor's degree within 8 or 10 years of their expected high school graduation varies by their parents' socioeconomic status (SES) in all three studies. In the most recent study (ELS:2002), 10th graders from the highest SES quartile were 4 times as likely to attain a bachelor's degree in 8 years as 10th graders from the lowest SES quartile. Indicator 5b shows that 60 percent of 2002 10th graders from the highest SES quartile attained a bachelor's degree within 8 years, compared with 15 percent of those from the first (lowest) quartile, 22 percent of those from the second quartile, and 37 percent of those from the third SES quartile.

67 In 2009, NCES began another nationally representative survey of high school students entitled *High School Longitudinal Study of 2009*. This study began with 9th graders in 2009. Data for bachelor's degree attainment within 8 or 10 years of expected high school graduation are not yet available from this source, as this latest longitudinal study sampled 9th graders who had an expected high school graduation of 2013.

68 SES is a composite measure that NCES derived in a comparable manner for the three studies. We use the SES measure rather than family income, as SES is a more robust measure than the single measure of self-reported family income. The latter tends to have a high rate of missing data and is subject to reporting error in the high school studies.

69 While NCES adjusted for non-response and has engaged in increased follow-up efforts, over time there has been growing reluctance of high-poverty schools to participate in the NCES-sponsored (voluntary) sample surveys. This unwillingness to participate was especially pronounced in ELS:2002.

70 See methodological appendices of Lauff, E., & Ingels, S. J. (2014). *A first look at 2002 high school sophomores 10 years later*, Education Longitudinal Study of 2002 (ELS:2002), NCES 2014-363. U.S. Department of Education; Ingels, S. J., Kaufman, P., Curtin, T. R., Alt, M. N., & Chen, X. (2002). *Initial results from the Fourth Follow-up to the National Education Longitudinal Study of 1988 coming of age in the 1990s: The eighth grade class of 1988 12 years later*. Research Triangle Institute, Statistical Analysis Report, March 2002, U.S. Department of Education Office of Educational Research and Improvement, NCES 2002-321; Tuma, J., & Geis, S. (1995, January). *High School and Beyond 1992 descriptive summary of 1980 high school sophomores 12 years later with an essay on educational attainment of 1980 high school sophomores: by 1992*. U.S. Department of Education, National Center for Education Statistics.

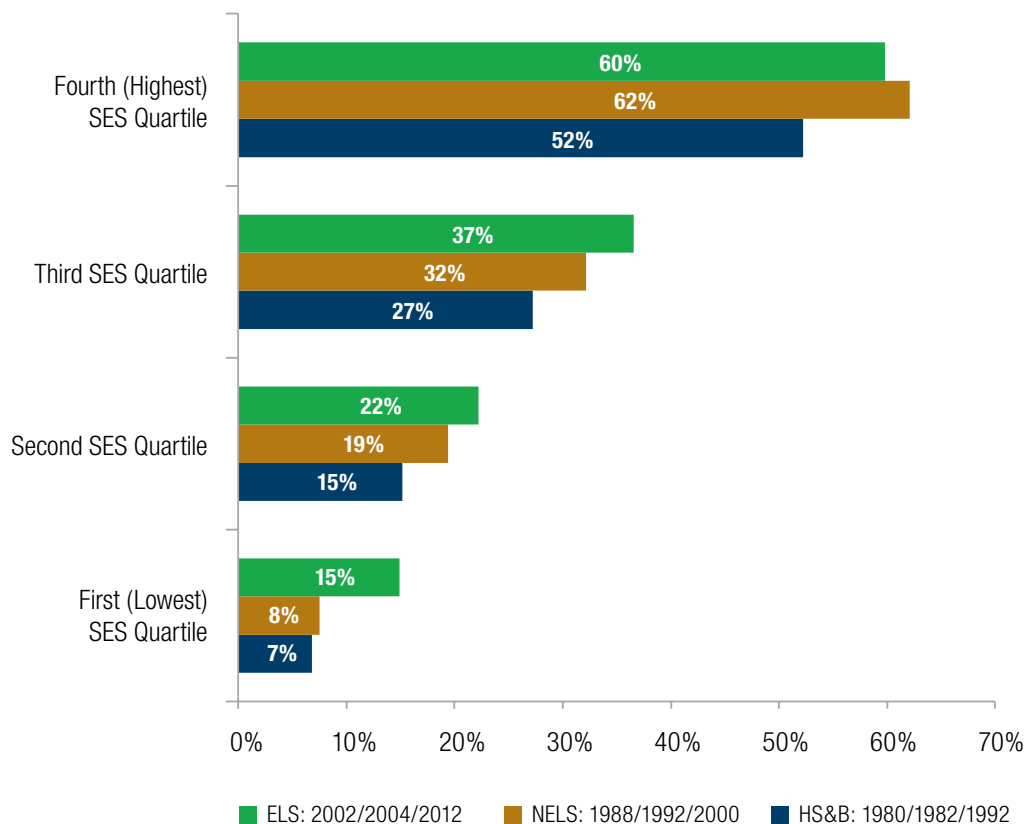
The percentage of individuals from the lowest SES quartile who attained at least a bachelor's degree within 8 or 10 years of their expected high school graduation was virtually the same for the HS&B:80 cohort (7 percent) as for the NELS:88 cohort (8 percent). But the percentage of individuals from the lowest SES quartile nearly doubled to 15 percent for the 2002 10th graders in ELS. As noted above, some of the increase in educational attainment between 1988 8th graders and 2002 10th graders may be related to the fact that the NELS:88 sampled cohort was younger, allowing students two additional years to potentially drop out of high school. This difference would downward bias bachelor's degree completion rates compared with a study that had an older entering cohort. Census Bureau data show that high school non-completion rates are higher for those with lower incomes than for those with higher incomes (see Appendix A). Thus, this caution may be more applicable for understanding trends over time in completion rates for the lowest than the highest quartile.⁷¹ Over the three study periods, the highest SES quartile has shown less variability in high school dropout rates and less gain in both high school and bachelor's degree completion rates than the bottom three SES quartiles. For youth in the highest SES quartile, the percentage attaining at least a bachelor's degree within 8 or 10 years of expected high school graduation was similar in the two most recent studies (62 percent for NELS and 60 percent for ELS), but higher than the earlier study, HS&B (52 percent).

Bachelor's degree attainment rates also increased across the three cohorts for youth in the middle SES quartiles. Attainment rates for youth in the second SES quartile increased from 15 percent in the HS&B:1980 cohort, to 19 percent in the NELS:88 cohort, to 22 percent in the ELS:2002 cohort. For those in the third SES quartile, bachelor's degree attainment rates increased from 27 percent, to 32 percent, to 37 percent.

Bachelor's degree attainment rates within 8 or 10 years of expected high school graduation were 45 percentage points lower for youth in the lowest than the highest SES quartile in ELS:2002. This gap is smaller than the 54 percentage point difference found for the longitudinal study of 1988 8th graders (NELS:88) but the same as for the longitudinal study of 1980 10th graders (HS&B).

71 Although SES quartiles and income quartiles are not the same measures, family income is one component of the SES-derived variable from the NCES high school longitudinal studies (the other components are parents' education and occupation). On average, in the high school longitudinal studies there is a high degree of overlap between the distributions for SES and income within the samples. In general, parental education has been found to be more highly associated with educational attainment than parental income. Cahalan, M., & Maxwell, J. (2007). *Exploring demographic and selected state policy correlates of state level educational attainment and achievement indicators*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL. <https://www.slideshare.net/chearsdotorg/exploring-demographic-and-selected-state-policy-correlates-of-state-level-educational-attainment-and-achievement-indicators-aera2007-cahalan>

Indicator 5b: Percentage of youth attaining a bachelor's degree or higher within 8 or 10 years of expected high school graduation by parents' socioeconomic status (SES) quartile: 10th grade cohort from HS&B 1980; 8th grade cohort from NELS 1988; 10th grade cohort from ELS 2002



Indicator Status: High Inequality and Persisting Gap

For the ELS:2002 cohort, 10th graders from the highest SES quartile were 4 times as likely to attain a bachelor's degree within 8 years of expected high school graduation as 10th graders from the lowest SES quartile (60 percent vs. 15 percent). The magnitude of the gap in attainment between the lowest and highest SES quartiles for the 2002 10th grade cohort (45 percentage points) was the same as for the HS&B 1980 10th grade cohort (45 percentage points).

NOTE: Comparisons across surveys are limited due to differences in survey methods, as described in the text.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond (HS&B:1980-class of 1982-1992 follow-up), National Education Longitudinal Study, (NELS:1988-class of 1992-2000 follow-up), and Educational Longitudinal Study (ELS:2002-class of 2004-2012 follow-up). Data tabulated using NCES Data Analysis System (DAS).

Equity Indicator 5c(i): What Percentage of Beginning First-Time Dependent Postsecondary Students Obtain a Bachelor's Degree by Parents' Family Income Quartile?

Whether first enrolling in a 4-year or 2-year-or-less postsecondary institution, most students report aspiring to obtain a bachelor's degree.⁷² Indicator 5c(i) describes the percent of dependent students who first enrolled in any type of postsecondary education institution who earned a bachelor's degree within 5 or 6 years of initial enrollment.⁷³ Data for this Indicator come from three waves of NCES's longitudinal Beginning Postsecondary Students (BPS) studies. These surveys track students who first enrolled in academic years 1989-90, 1995-96, and 2003-04 through the follow-up studies conducted in 1994, 2001, and 2009, respectively.

The share of dependent students who earned a bachelor's degree within 5 or 6 years of initial enrollment increases with family income quartile. Among dependent students who first enrolled in the 2003-04 academic year, the percentage obtaining a bachelor's degree within 6 years increased from 26 percent for those in the lowest income quartile, to 36 percent for those in the second quartile, to 46 percent for those in the third quartile, to 59 percent for those in the highest quartile.

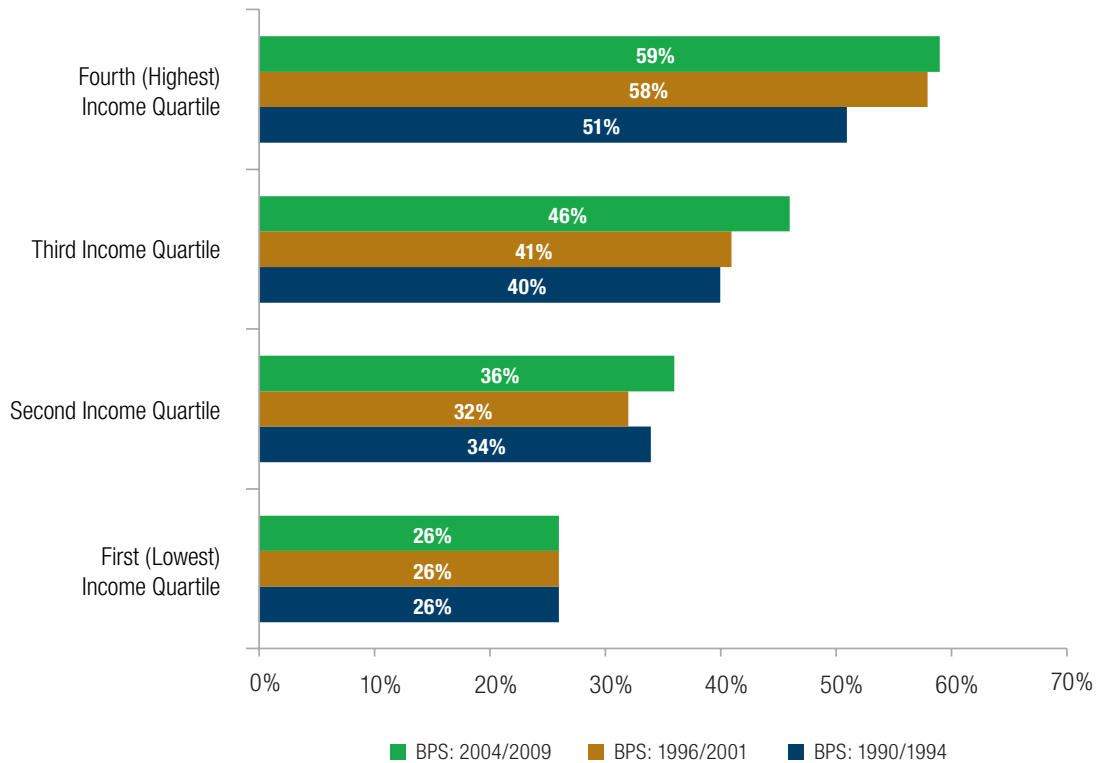
The percentage of dependent students from the lowest income quartile who obtained a bachelor's degree or higher within 5 or 6 years of initial enrollment remained unchanged at 26 percent for all three cohorts. For those in the highest income quartile, the percentage of dependent students obtaining a bachelor's degree increased from 51 percent for those who entered in 1989-90, to 58 percent for those who entered in 1995-96, and remained at 59 percent for those who entered in 2003-04.

The 5- or 6-year bachelor's degree completion rate also showed little change for those in the second quartile (34 percent for those who enrolled in 1989-90; 32 percent for those who enrolled in 1995-96; and 36 percent for those who enrolled in 2003-04). For dependent students in the third income quartile, the percentages obtaining a bachelor's degree were 40 percent for those who entered in 1989-90, 41 percent for those who first entered in 1995-96, and 46 percent for those who first entered in 2003-04. Consistent with these relatively stable rates, the gap in bachelor's degree completion rates between those in the highest and lowest family income quartiles remained virtually unchanged for those first entering in 1995-96 and 2003-04 (at approximately 33 percentage points).

72 For example, data from ELS:2002 show that 80 percent of all high school students, and 60 percent of those in the lowest SES quartile, hoped to obtain a bachelor's degree or higher. Cahalan, M., Ingels, S., Burns, L., & Planty, M. (2006). *United States high school sophomores: A twenty-two year comparison, 1980–2002*, Statistical Analysis Report U.S. Department of Education, NCES 2006–327, <http://files.eric.ed.gov/fulltext/ED493609.pdf>. Similarly, data from the *Condition of College and Career Readiness 2014* ACT Survey data indicate that 80 percent of first-generation college students expect to obtain a bachelor's degree or higher.

73 BPS includes first-time enrollees in 4-year, 2-year, and less-than-2-year institutions.

Equity Indicator 5c(i): Percentage of dependent first-time students who obtained a bachelor's degree or higher within 5 or 6 years of first enrolling in a 4-year or 2-year-or-less postsecondary education institution by parents' family income quartile: BPS:1989-90 (1994 follow-up), BPS:1995-96 (2001 follow-up), and BPS:2003-04 (2009 follow-up)



Indicator Status: High and Persistent Inequality

The percentage of dependent first-time postsecondary education students in the lowest family income quartile who obtained a bachelor's degree within 5 or 6 years of first enrolling remained unchanged over the BPS survey waves at 26 percent. Bachelor's degree completion rates were 32 to 33 percentage points lower for those in the lowest than highest income quartile for those who first enrolled in 1995-96 and 2003-04, up from a gap of 25 percentage points for those who first enrolled in 1989-90.

NOTE: Income quartiles are based on applicable Beginning Postsecondary Students (BPS) sample parent income at the start of the study. For example, dependent BPS:2004 parent income levels by quartile were as follows: Lowest, less than \$32,000; Second, \$32,000- \$59,999; Third, \$60,000-\$91,999, and Highest, \$92,000 or more. The BPS:2004 quartiles reflect 2002 parent family incomes for the first-time, college-going population entering in 2003-04, whereas the CPS reflects the income distribution of families of 18- to 24-year-olds for the entire nation for the year specified and thus is not directly comparable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students (BPS) Longitudinal Surveys (BPS:1989-90/1996; BPS:1996/2001; BPS:2003-2004/2009). Data tabulated using NCES Data Analysis System (DAS). See also Radford, A., Berkner, L., Wheelless, S., & Shepherd, B. (2010). *Persistence and attainment of 2003-04 beginning postsecondary students: After 6 years*. U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study (BPS:2004/2009).

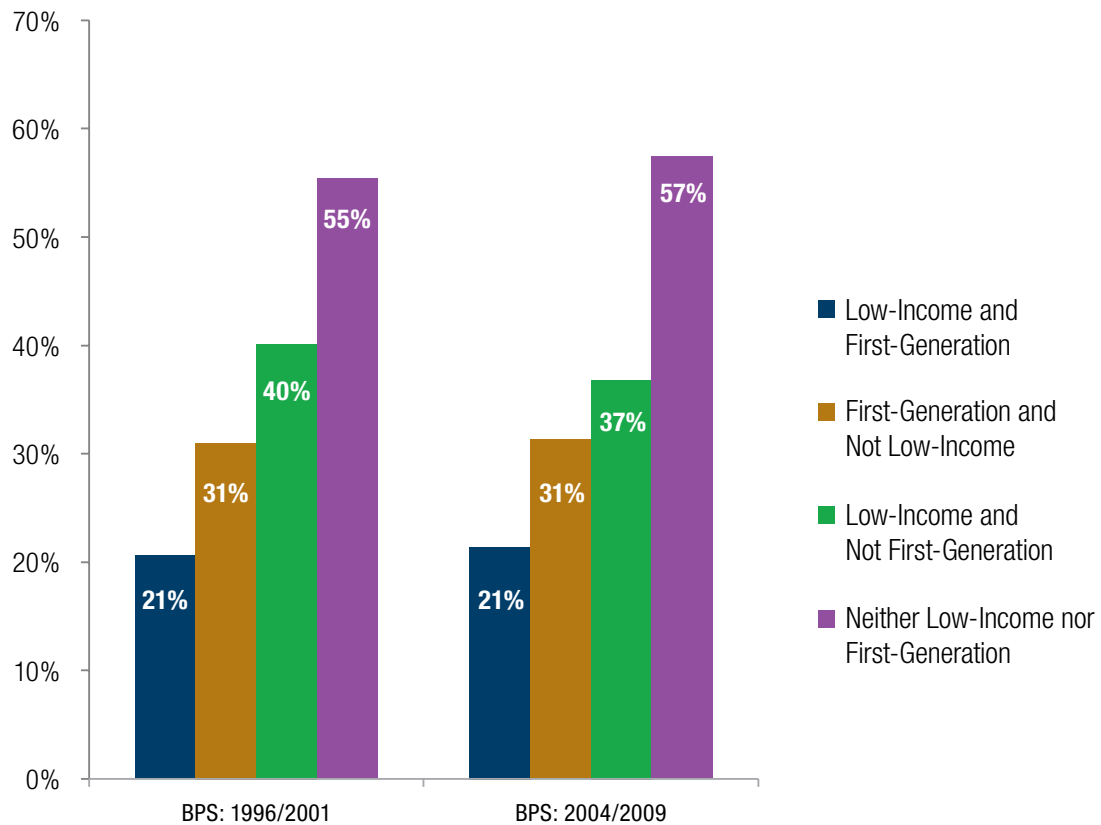
Equity Indicator 5c(ii): What Percentage of Beginning First-Time Low-Income and First-Generation Students Complete Bachelor's Degrees within 6 Years?

Using data from the 2001 follow-up of the 1995-96 Beginning Postsecondary Students (BPS:1996/2001) and the 2009 follow-up of the 2003-04 Beginning Postsecondary Students (BPS:2004/2009) surveys, Indicator 5c(ii) shows rates of completing a bachelor's degree within 6 years of first enrolling. Students are classified as to whether they would qualify for the Federal TRIO programs based on their parents' family income and first-generation college status. Family-income thresholds for TRIO eligibility are established by law and reflect an adjusted income that is at or below 150 percent of the federal poverty level. First-generation is defined as neither parent nor guardian having attained a bachelor's degree. Eligibility requirements vary by TRIO program, but for most TRIO programs, two-thirds of participants must be both low-income and first-generation or students with disabilities, and the other one-third must be either low-income or first-generation. In any given year, the federal TRIO programs serve under 5 percent of low-income students across the nation who would be eligible to be served.

As displayed in Indicator 5c(ii), 6-year bachelor's degree completion rates for the BPS 2009 follow-up ranged from 21 percent for beginning postsecondary students who are both low-income and first-generation to 57 percent among students who are neither low-income nor first-generation. Students who are first-generation but not low-income had a bachelor's degree completion rate of 31 percent, while students who are low-income and not first-generation had a bachelor's degree completion rate of 37 percent.

Indicator 5c(ii) shows little change over time in bachelor's degree completion rates based on these demographic characteristics. The gap in 6-year bachelor's degree completion rates between those who were both low-income and first-generation and those who were neither low-income nor first-generation was 36 percentage points for 2003-04 beginning first-year students (BPS:2004/2009) and 34 percentage points for 1995-96 beginning first-year students (BPS:1996/2001).

Equity Indicator 5c(ii): Percentage of dependent first-year students who first enrolled in a postsecondary education institution in academic years 1995-96 and 2003-04 who completed a bachelor's degree or higher within 6 years, by low-income and first-generation status



Indicator Status: High and Persisting Inequality

The gap in bachelor's degree completion rates between students who were low-income and first-generation and students who were neither low-income nor first-generation was 36 percentage points for dependent students who first entered in 2003-04 (BPS:2004/2009) and 34 percent for those who first entered in 1995-96 (BPS:1996/2001).

NOTE: For this classification, TRIO eligibility criteria were used. TRIO income thresholds are established by law and are set at an adjusted income at or below 150 percent of the federal poverty line. First-generation is defined as neither parent nor guardian having attained a bachelor's degree. In any given year, TRIO programs serve less than 5 percent of eligible low-income and first-generation students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students (BPS) longitudinal studies (BPS:1996/2001; BPS:2004/2009). Data were tabulated using NCES PowerStats.

Equity Indicator 5d: What is the Distribution of Associate's and Bachelor's Degrees Awarded to U.S. Citizens by Race and Ethnicity?

Indicator 5d uses data from the Integrated Postsecondary Education Data System (IPEDS) on degrees conferred to U.S. citizens by race/ethnicity and total civilian population data from the U.S. Census Bureau to compare degree attainment in 1980 and 2015. Additionally, in Indicator 5d we include the population distribution of 18-24 year olds in 2015 as a point of reference. Race and ethnicity are dynamic classifications, and changes in racial/ethnic classification over time should be considered when interpreting these data, especially for relatively small population categories such as American Indian/Alaska Natives and Asian and Pacific Islanders. The statistics are also impacted by the introduction of the “Two or More Races” category, a category that was not present in the 1980 classifications. Race/ethnicity classifications are self-reported using varying categories in the data collection instruments, and some change in distribution of degrees by race/ethnicity over time may be attributable to differences in population self-identifications as well as changes in the categories used in data collection instruments.

With these cautions in mind, the comparisons in Indicator 5d suggest some progress in aligning the racial/ethnic representation of associate's and bachelor's degree recipients to that of the civilian population.⁷⁴ In 1980, Blacks were about 12 percent of the U.S. civilian population, yet attained 9 percent of associate's degrees conferred and 7 percent of the bachelor's degrees conferred. Thus, Blacks were 75 percent as likely to have parity of representation among associate's degree recipients and just over half (58 percent) as likely to be represented among bachelor's degree recipients as in the U.S. population. By 2015, Blacks remained about 12 percent of the total civilian population. In 2015, Blacks earned 15 percent of the associate's degrees and 12 percent of the bachelor's degrees conferred. Looking at these statistics would suggest that Blacks have achieved parity among bachelor's degree recipients and are overrepresented among associate's degree recipients. However, Blacks are about 15 percent of the population of 18-to-24-year-olds, which demonstrates a continuing underrepresentation among bachelor's degree recipients and parity among associate's degree recipients.

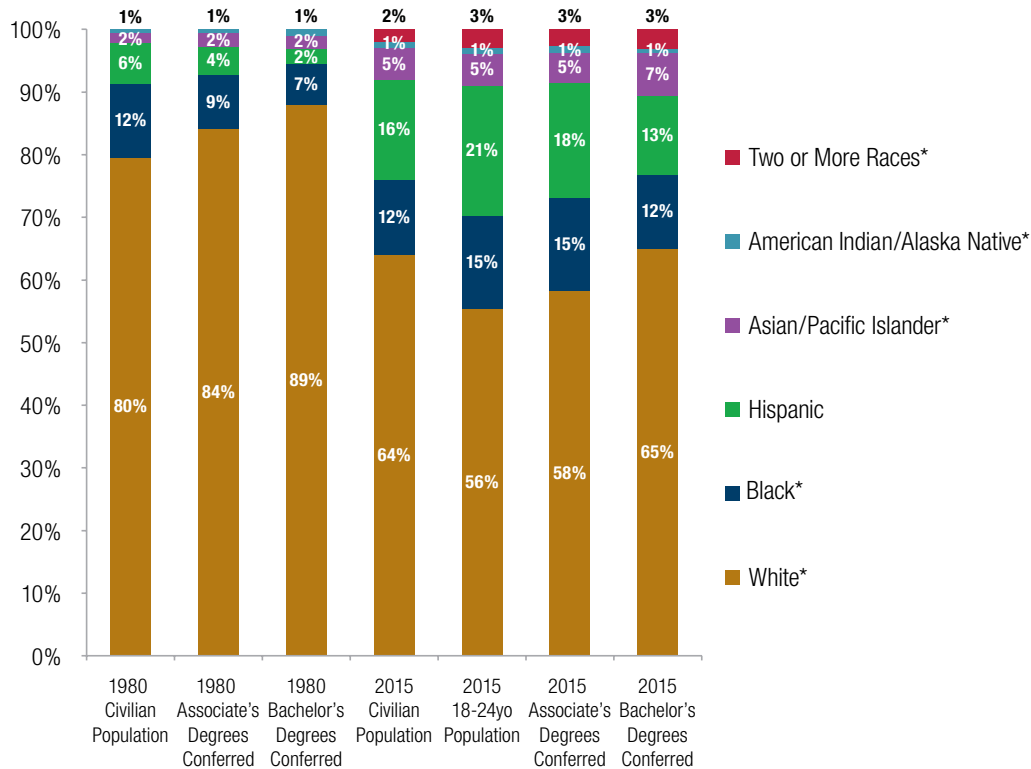
In 1980, those of Hispanic origin represented 6 percent of the population, yet earned 4 percent of associate's degrees conferred and 2 percent of bachelor's degrees conferred. By 2015, Hispanics were about 16 percent of the civilian population and earned 18 percent of the associate's degrees and 13 percent of the bachelor's degrees conferred. These data demonstrate Hispanics have gone from being about a third as likely to be represented among bachelor's degree recipients as in the population to being 81 percent as likely to be represented in the bachelor's degrees conferred. As with Blacks, looking at this data alone would suggest Hispanics are now overrepresented among associate's degree recipients relative to their representation in the civilian population. However, Hispanics are about 21 percent of the population of 18-to-24-year-olds, which demonstrates a continuing underrepresentation among both bachelor's degree recipients and associate's degree recipients.

Over time, the representation of Whites in the civilian population has declined from 80 percent in 1980 to 64 percent in 2015. Over the same period, the White share of associate's degrees declined from 84 percent to 58 percent and the share of bachelor's degrees awarded to Whites declined from 89 percent to 65 percent. This data suggests that in 2015, considering the civilian population as a whole, Whites were underrepresented in associate's degrees and just above parity in bachelor's degree representation. However, Whites are about 56 percent of the population of 18-to-24-year-olds, which demonstrates a continuing overrepresentation among bachelor's degree recipients and just above parity among associate's degree recipients.

⁷⁴ Caution is needed in these comparisons, due to changes in the race and ethnicity classifications over time, such as the separation of Hispanics from race/ethnicity classifications and the introduction of the “Two or More Races” category. NCES has data on degrees conferred from to 1976; however, data identifying those of Hispanic origin were not available until 1980. The category “Two or More Races” was not used until 2010 following new OMB regulations.

In 1980, Asian/Pacific Islanders represented 2 percent of the population and 2 percent of associate's and 2 percent of bachelor's degrees conferred, demonstrating parity with their representation in the U.S. population. In 2015, Asian/Pacific Islanders were 5 percent of the civilian population, as well of the population of 18-to-24-year-olds, and 5 percent of associate's and 7 percent of bachelor's degrees conferred. While all broad racial/ethnic categories mask variation in outcomes among groups within the category, it is especially important to recognize the variation within the Asian/Pacific Islander category.

Indicator 5d: Percentage distributions of associate's and bachelor's degrees conferred and of the civilian population by race/ethnicity: 1980 and 2015



Indicator Status: Gains in Equity Over the Period Since 1980

Between 1980 and 2015, Blacks and Hispanics have made gains in their representation among associate's and bachelor's degree recipients relative to their representation in the population.

NOTE: * The categories (White, Black, Asian/Pacific Islanders, American Indian/Alaska Native and Two or More Races) exclude Hispanics. Race/ethnicity categories used reflect the current titles used by NCES in reporting degrees earned. Caution is warranted in interpreting this Indicator as categories used for race and ethnicity classifications have changed over time. The category "Two or More Races" was not included in 1980. In 2015, in the population figures by the Census Bureau, Native Hawaiian and Other Pacific Islanders were classified separately from Asians and were 0.2 percent of the U.S. population. The inclusion of the "Two or More Races" category likely reduced slightly the percent of persons who classified themselves as Black, American Indian/Alaska Native or Asian.

SOURCE: U.S. Department of Education, National Center for Education Statistics (2016). *Digest of Education Statistics 2016*. [Table 322.20] [Table 321.10]; Hobbs, F., & Stoops, N. (2002). *Demographic trends in the 20th century*, U.S. Census Bureau, Washington DC. <https://www.census.gov/prod/2002pubs/censr-4.pdf>; Quick Facts, U.S. Census Bureau 2017, <https://www.census.gov/quickfacts/table/PST045216/00>

Equity Indicator 5e(i) and 5e(ii): What are the Differences in Average Income for Recent Bachelor's Degree Recipients in Different Major Fields by Parents' Family Income?

Using data from the NCES Baccalaureate and Beyond Longitudinal Study (B&B) for the 2008 cohort of graduating bachelor's degree recipients, Indicators 5e(i) and 5e(ii) report the average annualized income 1 year after graduation (in 2009) and 4 years after graduation (in 2012) by parents' family income quartiles. The average annualized incomes presented are for students who, when they were first surveyed in NPSAS: 2008, were classified as dependent students for financial aid purposes. Data are displayed according to the income quartiles as derived from NPSAS and reflect dependent students' parents' family income.

While the B&B study is a stratified nationally representative sample of graduating seniors, some caution is warranted when interpreting the data displayed in Indicator 5e(i) and 5e(ii). Disaggregating the sample by both dependent students' parents' family income and major field increases sampling errors, especially for less frequently chosen major fields of study. Caution is also needed in drawing conclusions from these data due to the wide variety of occupational categories covered by the broad major field categories. Study major fields differ in the extent to which graduate study is required, and early career income averages include those who may still be in graduate or professional school or have recently completed these programs. Students continuing their education after the bachelor's degree may have lower incomes in the 2009 follow-up and also in the 2012 follow-up but may have a greater earning potential over time.

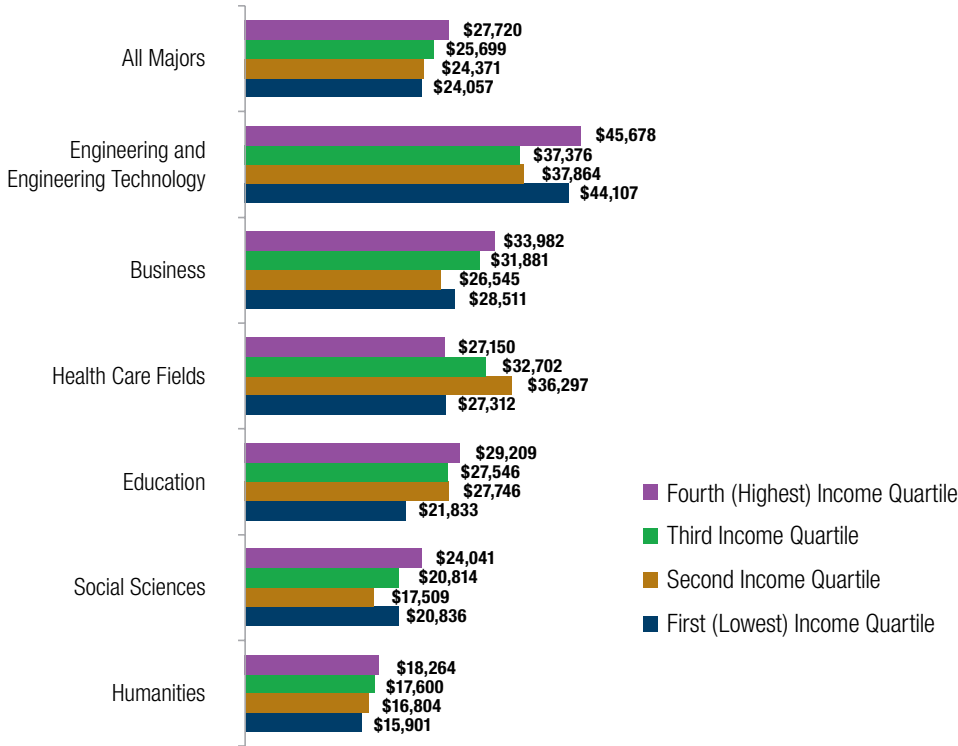
Indicators 5e(i) and 5e(ii) show substantially more variation in students' average income by major field than by the parents' family income quartile. This pattern is observed in both the 1-year and 4-year follow-ups. Indicator 5e(i) shows that, 1 year after graduating with a bachelor's degree (in 2009), average annualized incomes ranged from \$17,142 for Humanities majors to \$41,256 for Engineering and Engineering Technology majors. (These incomes represent the average across the four family income quartiles and are not shown in the figure.) In the 4-year follow-up (in 2012), average annualized incomes ranged from \$27,948 for Humanities majors to \$61,503 for Engineering and Engineering Technology.

The annualized income for "All Majors" (i.e., aggregate average for all bachelor's degree completers) at the 1-year and 4-year follow-ups is highest for bachelor's degree recipients from the highest family income quartile and lowest for those from the lowest family income quartile. One year after graduating (in 2009), the average annualized income for "All Majors" was \$24,057 for students from the lowest parent income quartile and \$27,720 for students from the highest parent income quartile. As Indicator 5e(ii) shows, 4 years after graduating (in 2012), the average annualized income ranged from \$34,589 for dependent students from the lowest parent family quartile to \$41,387 for those from the highest quartile.

For some major field categories, the positive association between family income quartile and short-term annualized earnings does not hold. For example, at the 1-year 2009 follow-up, bachelor's degree holders from the lowest and highest family income quartiles with Engineering and Engineering Technologies majors had comparable earnings, and earnings that were higher than those in the two middle quartiles. For Health Care majors, degree holders from both the highest and lowest family income quartiles had comparable earnings, although lower average earnings than for those in the two middle quartiles. Average earnings may be similar for degree holders from the lowest and highest family income quartiles at this point in time, but diverge in later years, if graduate school attendance rates in these fields increase with parent family income. Similar average earnings for degree holders in the lowest and highest income quartiles may also indicate that students from low-income families who are able to complete a degree in a given major field are able to earn competitive salaries in the job market.

Equity Indicator 5e(ii) shows data for 10 major fields and reports annualized income at the time of the 4-year follow-up in 2012. As in the 1-year follow-up, bachelor’s degree recipients etc. degree recipients with Engineering and Engineering Technologies majors again show the highest average earnings among all occupational categories. Average earnings for Engineering and Engineering Technologies majors at the 4-year follow-up also show some inconsistency in the average incomes by parent income quartiles. This relatively small major field category may be more subject to sampling error and the inclusion of outliers. The major field categories with

Indicator 5e(i): Average annualized income in 2009 for dependent students who received bachelor’s degrees in 2008 by selected major field category and parents’ family income quartile (1-year follow-up)



Indicator Status:

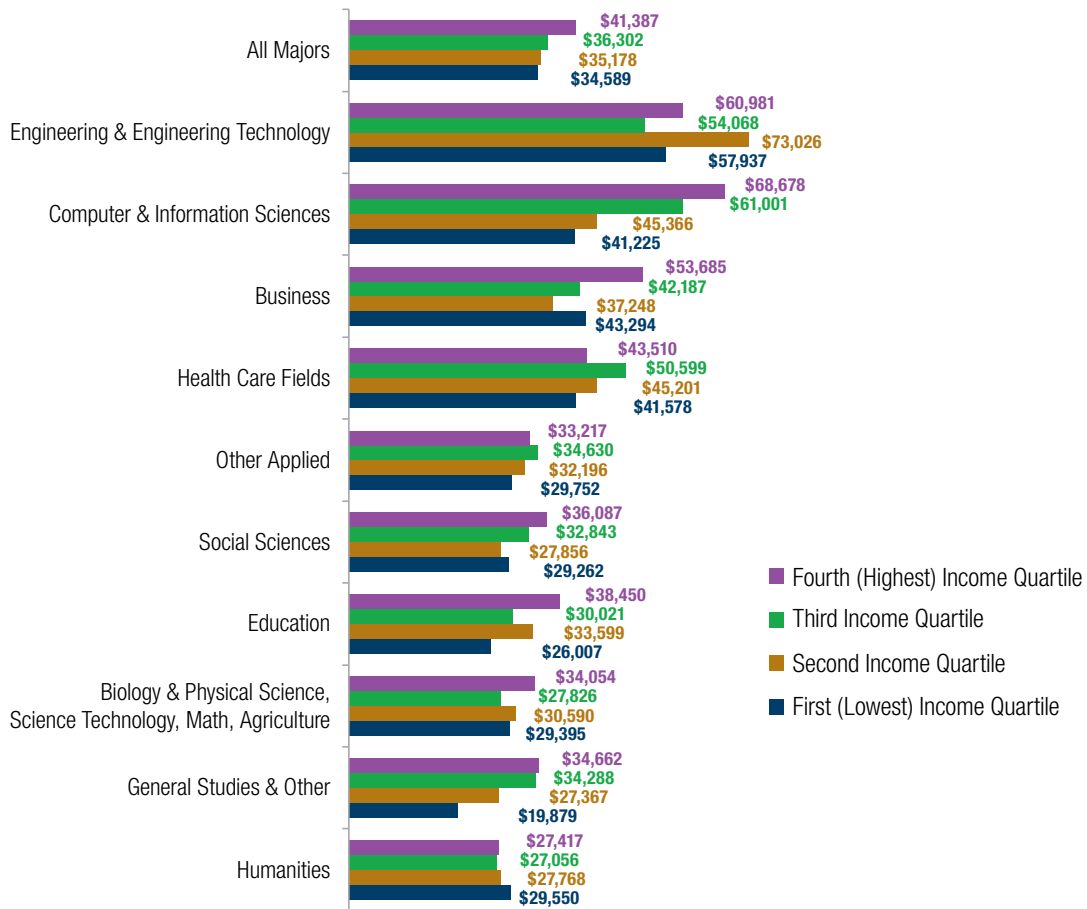
Differences in average annualized income 1 year after receiving a bachelor’s degree are greater across major fields than within major fields by income quartiles. Although patterns are inconsistent, for several major field categories average earnings are lower for dependent students from the lowest parent family income quartile than for those in the highest income quartile.

NOTE: Data reflect income 1 year after bachelor’s degree receipt for a nationally representative sample of students receiving a bachelor’s degree in 2008 by major field. Caution is needed in interpreting the results, especially for the smaller major field categories.

SOURCE: United States Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (B&B). Tabulated from PowerStats at <https://nces.ed.gov/surveys/b&b/>

higher numbers of graduates (i.e., Education, Computer and Information Sciences) show the most consistent differences in average earnings by students' parents' income, with those from the highest family income quartile averaging higher earnings within their chosen major field than those from the lowest family income quartile.

Indicator 5e(ii): Average annualized income in 2012 for dependent students who received bachelor's degrees in 2008 by selected major field category and parents' family income quartile (4-year follow-up)



Indicator Status:

Four years after bachelor's degree receipt, differences in average earnings are greater across major fields than between family income quartiles within a given major field. As with the 1-year follow-up, bachelor's degree recipients from higher-income families tended to average somewhat higher earnings than those from lower-income families within a given major field.

NOTE: Data reflect annualized income four years after bachelor's degree receipt for a nationally representative sample of students receiving a bachelor's degree in 2008 by major field. Caution is needed in interpreting the results, especially for the smaller major field categories.

SOURCE: United States Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (B&B). Tabulated from Power Stats at <https://nces.ed.gov/surveys/b&b/>

EQUITY INDICATOR 6:

HOW DOES EDUCATIONAL ATTAINMENT IN THE U.S. COMPARE WITH OTHER COUNTRIES?

International comparisons show that the U.S. has fallen from 2nd in tertiary-type A (bachelor's) degree attainment in 2000 to 18th in 2015.

The final Indicator looks at educational attainment in the United States as compared with other countries. The current stated mission of the U.S. Department of Education reflects interest in international comparison as it seeks “to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.”⁷⁵ Indicator 6 uses data from the Organisation for Economic Co-operation and Development (OECD) to compare educational attainment in the United States with other countries. Since 1991, OECD has reported educational attainment by country in its annual report, *Education at a Glance*. Differences across countries in educational systems and degree classifications limit international comparisons; however, OECD strives to apply common definitions across countries and collect and report data in a consistent manner over time.⁷⁶

Equity Indicator 6(a-b): Definitions

Indicator 6 tracks the percentage of the population that has attained tertiary degrees in different countries. Indicator 6a reports tertiary-type A degree attainment and Indicator 6b combines attainment of tertiary-type A with tertiary-type B degrees. For both Indicators, we present attainment for the population aged 25 to 34 in the years 2000 and 2015.

As defined in the OECD's glossary of statistical terms:⁷⁷

- **Tertiary-type A programs** are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programs and professions with high skill requirements. Tertiary-type A programs have a minimum cumulative theoretical duration (at tertiary level) of three years full-time equivalent, although they typically last four or more years. These programs are not exclusively offered at universities. This classification is comparable to the BA or BS or above in the U.S. system. Starting in May 2014, OECD began to use a more detailed new classification of

⁷⁵ For a detailed comparison of widening participation policies in six countries (Australia, Ireland, Netherlands, Norway, South Africa, United States), see <http://www.hefce.ac.uk/pubs/rereports/year/2013/wpeffectiveness/>

⁷⁶ For more information on the methods used and limitations of international comparisons, see http://www.oecd-ilibrary.org/education/education-at-a-glance-2015_eag-2015-en

⁷⁷ OECD (2008). *OECD glossary of statistical terms*. Paris: OECD Publishing. Retrieved from http://www.oecd-ilibrary.org/economics/oecd-glossary-of-statistical-terms_9789264055087-en

levels of education to align with the current International Standard Classification of Education (i.e., ISCED 2011).⁷⁸ These are: ISCED 2011 level 5 (short-cycle tertiary education), level 6 (bachelor's or equivalent level), level 7 (master's or equivalent level), and level 8 (doctoral or equivalent level). In this Report, we combine levels 6 through 8 into the category of bachelor's degree or above and refer to this category as tertiary-type A.

- **Tertiary-type B programs** are typically shorter than tertiary-type A degrees and focus on practical, technical, or occupational skills for direct entry into the labor market, although some theoretical foundations may be covered in the programs. These programs have a minimum duration of two years full-time equivalent at the tertiary level. For reporting 2015 data that followed ISCED 2011, we present data on ISCED 2011 level 5 (short-cycle tertiary education) as equivalent to tertiary-type B programs in 2000. For presenting Indicator 6, we use tertiary-type B programs, short-cycle tertiary education, and associate's degree interchangeably.⁷⁹

Equity Indicator 6a: What Percentage of 25- to 34-Year-Olds Has Completed a Type A (Bachelor's or above) Tertiary Degree?

Using the OECD classifications described above, the Russian Federation (58 percent), Lithuania (55 percent), Switzerland (49 percent), and Korea (47 percent) each reported in 2015 that at least 45 percent of their populations aged 25 to 34 had completed a bachelor's degree or above. These rates surpass the 30 percent for the U.S. in 2000 and 36 percent for the U.S. in 2015. The U.S. ranked 2nd out of 30 countries on this indicator in 2000 but 18th out of 43 countries in 2015.

Equity Indicator 6a shows that all of the countries (for which data are reported in both 2000 and 2015) that ranked above the U.S. in bachelor's or above degrees for the population aged 25 to 34 in 2015 were below the U.S. in 2000. The countries ranking above the U.S. in 2015 that were ranked below the U.S. in the rankings of 2000 were: Switzerland, Korea, Luxembourg, Netherlands, Poland, Belgium, United Kingdom, Denmark, Finland, Ireland, Japan, Greece, Australia, and Iceland.⁸⁰ The U.S. now ranks lower than these other countries because the rate of increase in bachelor's degree or above attainment in the U.S. is below that of many other developed countries. Between 2000 and 2015, the share of the population aged 25 to 34 that had attained a bachelor's degree or higher increased by 20 percent in the U.S. For countries that ranked ahead of the U.S. in 2015, the average rate of increase between 2000 and 2015 was 132 percent.

Equity Indicator 6b: What Percentage of 25- to 34-Year-Olds Has Completed a Type A (Bachelor's or Above) or a Type B (Short-Cycle or Associate's) Tertiary Degree?

In 2015, 47 percent of adults ages 25 to 34 in the U.S. had attained the equivalent of at least a 2-year (type B) or 4-year or above (type A) tertiary degree. The U.S. ranked 12th out of 43 countries on this indicator in 2015, down from 2nd out of 30 countries in 2000.

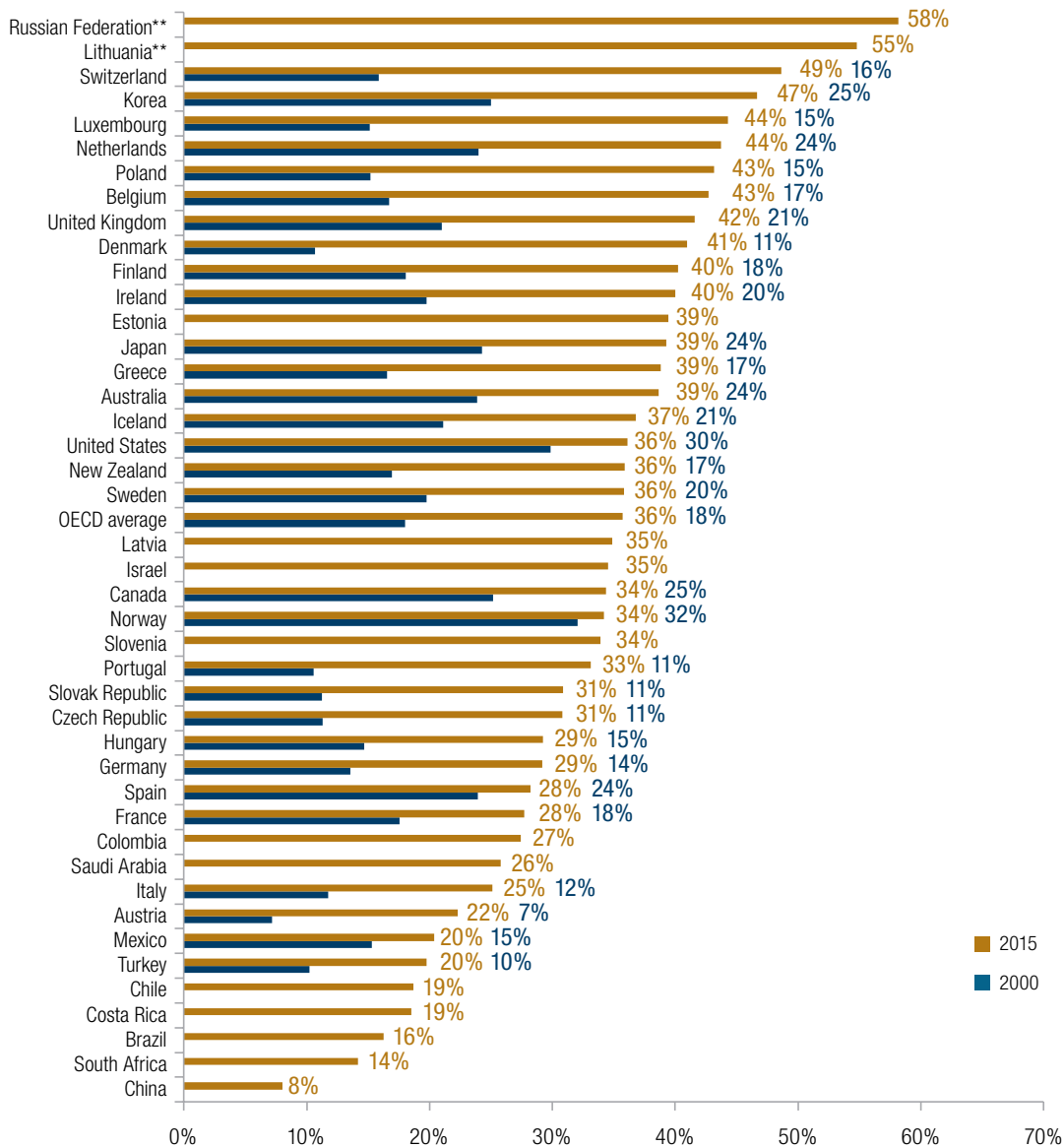
⁷⁸ OECD(2013). *Education at a Glance 2013*: OECD Indicators, OECD Publishing.

⁷⁹ In *Education at a Glance 2016*, short-cycle tertiary education (ISCED level 5) is explained as follows: "Programmes classified at ISCED level 5 may be referred to in many ways, for example: higher technical education, community college education, technician or advanced/higher vocational training, associate's degree, bac+2." (OECD, 2016, p.28). We use "associate's degree" in this report because it is the term commonly used in the U.S.

⁸⁰ Data for 2000 are not reported for the Russian Federation, Lithuania, or Estonia, countries which, in 2015, ranked above the United States.

By 2015, at least half of the 25- to 34-year-old population had attained a type A or type B tertiary degree in 7 countries: Korea (69 percent), Japan (60 percent), Canada (59 percent), Russian Federation (58 percent), Lithuania (55 percent), Ireland (52 percent), and Luxembourg (50 percent).

Equity Indicator 6a: Percentage of 25- to 34-year-olds with a type A (bachelor's equivalent or above) tertiary degree: 2000 and 2015



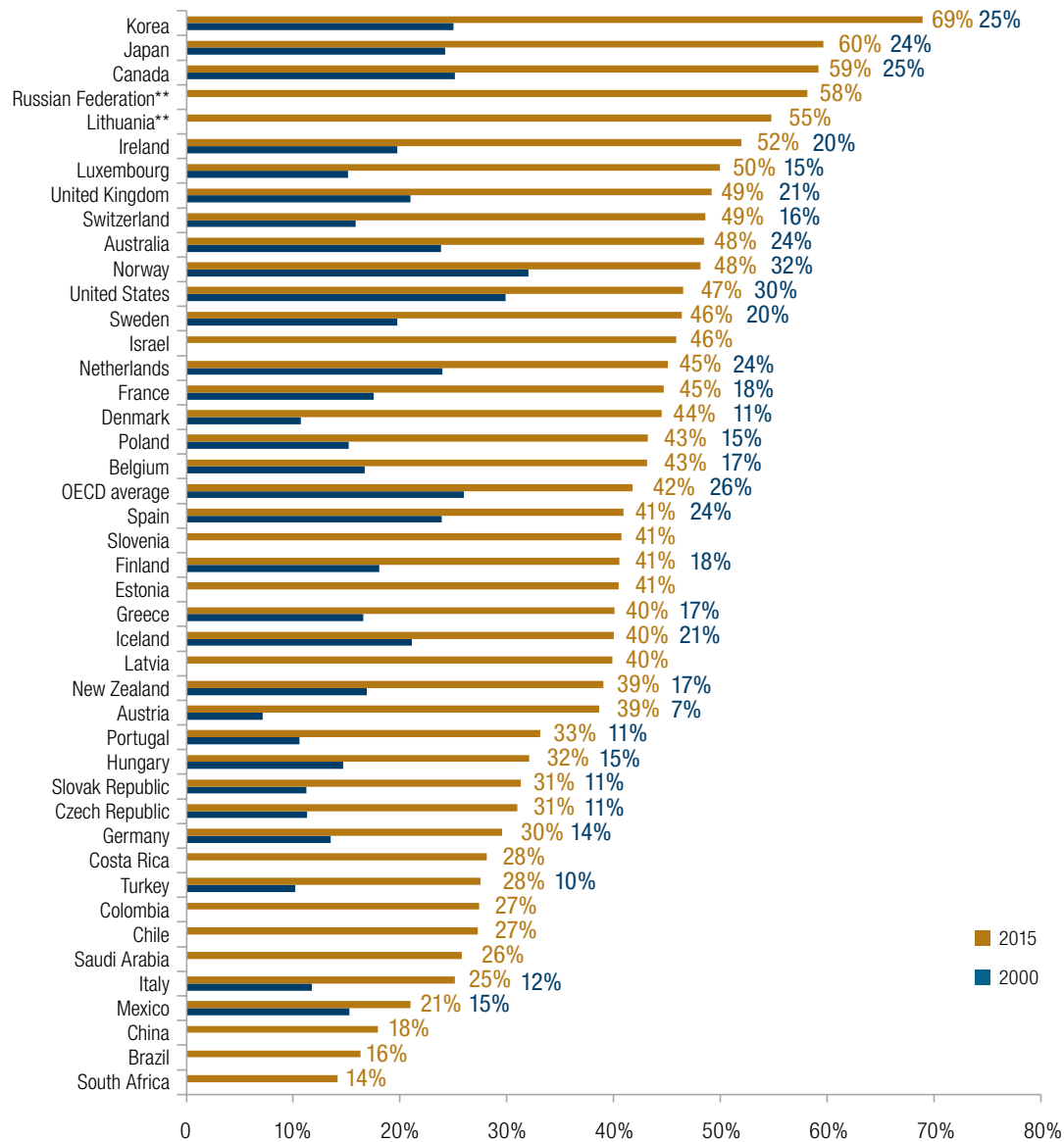
NOTE: Caution is needed in making international comparisons given differences in educational degree classifications among countries and across years.

**All degrees reported by the Russian Federation and Lithuania are bachelor's degree or higher. As such, we report the same attainment rates for type A (Indicator 6a) and type A and B combined (Indicator 6b) for these two countries.

SOURCE: Organisation for Economic Co-operation and Development (OECD, 2016). *Education at a Glance 2016*. Retrieved from <http://www.oecd.org/edu/education-at-a-glance-19991487.html>

Between 2000 and 2015, the share of the U.S. population aged 25 to 34 that had attained a type A or type B tertiary degree increased by 57 percent, rising from 30 percent in 2000 to 47 percent in 2015. The OECD average rate of type A or type B attainment for 25- to 34-year-olds increased from 26 percent in 2000 to 42 percent in 2015, a 61 percent increase.

Equity Indicator 6b: Percentage of 25- to 34-year-olds with a type A (bachelor's or above) or type B (short-cycle or associate's) tertiary degree: 2000 and 2015



NOTE: Caution is needed in making international comparisons given differences in educational degree classifications among countries and across years.

**All degrees reported by the Russian Federation and Lithuania are bachelor's degree or higher. As such, we report the same attainment rates for type A (Indicator 6a) and type A and B combined (Indicator 6b) for these two countries.

SOURCE: Organisation for Economic Co-operation and Development (OECD, 2016). *Education at a Glance 2016*. Retrieved from <http://www.oecd.org/edu/education-at-a-glance-19991487.html>

WHAT DOES IT MEAN? THE SEARCH FOR SOLUTIONS-SHARED DIALOGUES ESSAY

In this concluding section, we present an essay that addresses challenges and possible solutions to rural educational attainment in an effort to increase equity of higher education outcomes regardless of place.

The Indicators Reports are written to inform the conversation about higher education equity issues and to foster the mandate to both monitor our progress and to search for and support policy and practices leading to greater equity in educational opportunity. To this end, Roman Ruiz and Laura Perna have prepared a timely reflection essay, *The Geography of College Attainment: Dismantling Rural “Disadvantage.”* It is the intent of the Equity Indicators Report project that each year’s report will initiate ongoing dialogues that will accompany the annual monitoring of our progress with periodic essays on related topics of interest.

The Geography of College Attainment: Dismantling Rural “Disadvantage”

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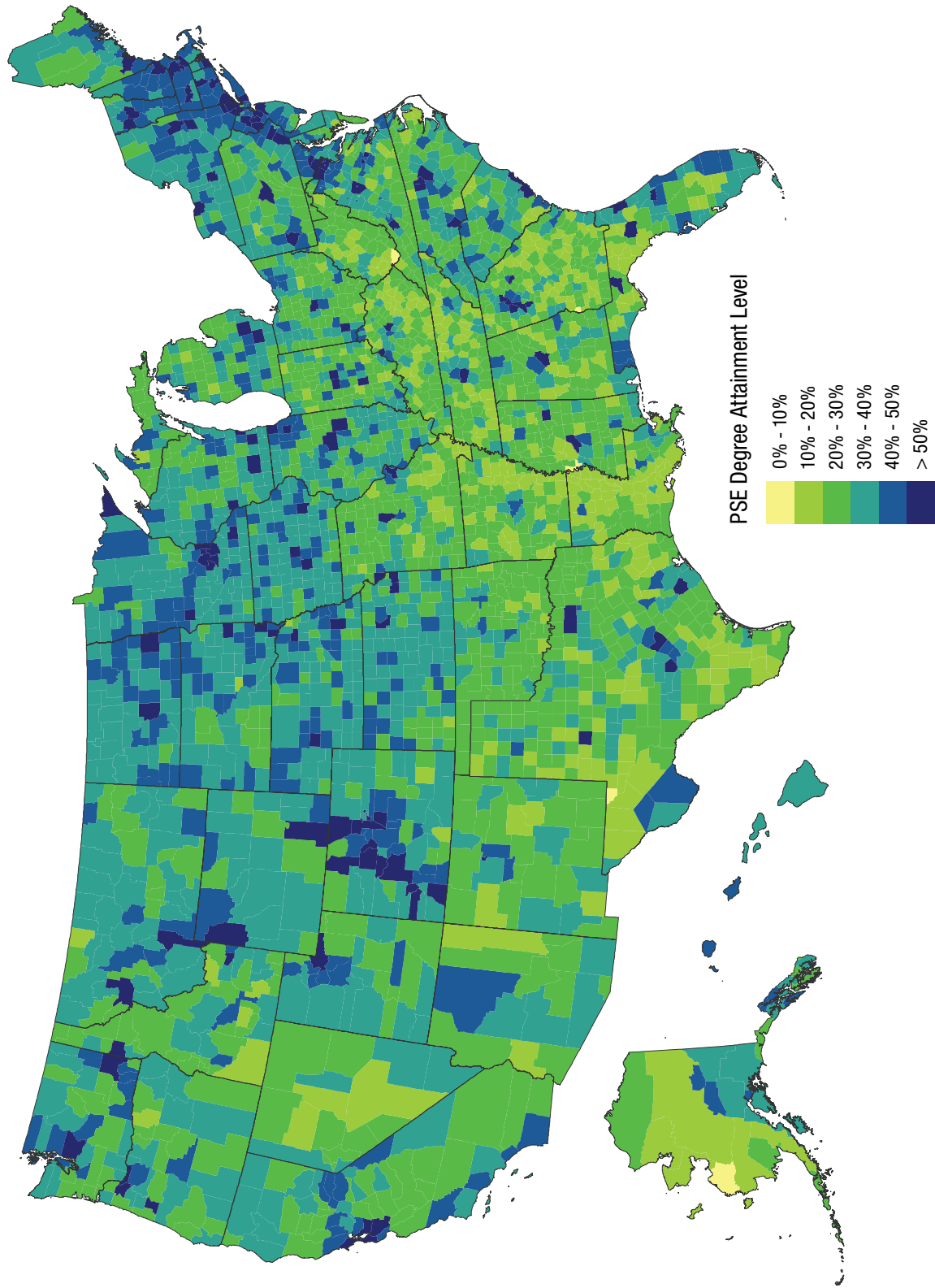
Increasing college attainment should be a priority of public policymakers in the United States, given the many economic and non-economic benefits afforded to both individuals and society when attainment rises (Carnevale, Jayasundera, & Gulish, 2016; Ma, Pender, & Welch, 2016; Oreopoulos & Salvanes, 2011). But, like the 2015 and 2016 editions, the 2017 Indicators Report demonstrates persisting variation across demographic groups in college attainment. Inequality in college attainment translates into inequality in access to the many benefits of higher education.

In our efforts to identify effective policies and practices for closing persisting gaps in higher education attainment and ensuring that all have the opportunity to benefit, we must recognize the spatial aspects of higher education attainment. While providing a useful reference point, national- and even state-level estimates mask the variation in college opportunities and outcomes that exists within smaller geographic boundaries (e.g., Misra, 2017).

Examining smaller geographic units (e.g., county) reveals the spatial nature of the college attainment process, allowing for greater contextual understanding of how social, economic, and educational resources that are available at the local level impact college attainment. Where one lives, particularly during childhood, is a determinant of college participation, as well as economic mobility and other life course outcomes (Chetty & Hendren, 2016; Rothwell & Massey, 2015; Sampson, Morenoff, & Gannon-Rowley, 2002). Figure 1 displays the variation in the percent of the population age 25 to 64 that has attained at least an associate’s degree by county. Counties with higher levels of college attainment are clustered in the Mid-Atlantic region, Southern California, and the Bay Area, among other locations. Even in regions with historically low college attainment (e.g., the Southeast), there are pockets of counties with relatively high attainment. Counties with high attainment are typically located near metropolitan areas.

⁸¹ All views expressed in this essay are the sole responsibility of the authors, and do not represent the position of the Pell Institute for the Study of Opportunity in Higher Education or the Alliance for Higher Education and Democracy of the University of Pennsylvania (PennAHEAD).

Figure 1: Percentage of adults age 25 to 64 with an associate's degree or higher by U.S. county: 2015

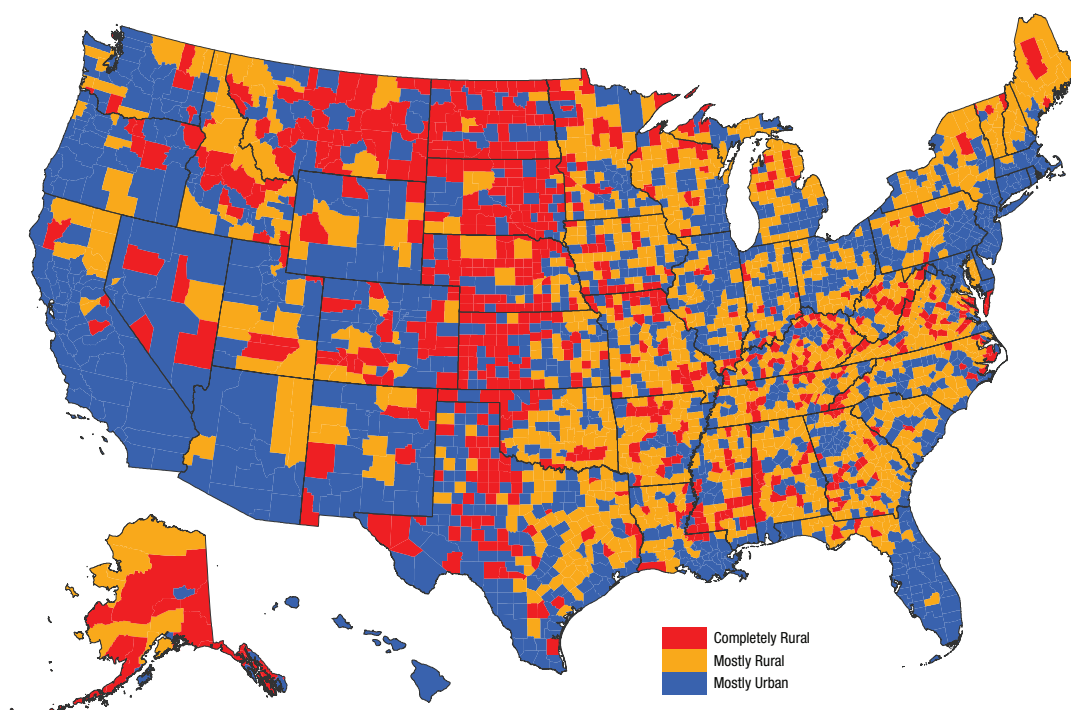


SOURCE: U.S. Census Bureau. (2016). *American Community Survey 2015 (5-year estimates)*.

Applying a spatial lens offers especially valuable insights into college attainment among the nation's rural population. Although representing a relatively small share of the nation's population, this segment can exert a substantial influence on U.S. political and social life. While some attention focuses on urban areas, rural communities are often neglected in conversations about how to improve postsecondary educational opportunity and outcomes.⁸²

The U.S. Census Bureau classifies counties into three rurality categories: completely rural, mostly rural, and mostly urban.⁸³ Figure 2 shows that completely and mostly rural counties are more frequently located in the interior of the U.S., particularly in the Upper Midwest and South, whereas mostly urban counties are disproportionately located in the Mid-Atlantic region, South Florida, Southwest, and West Coast. Completely rural counties account for 22 percent of the nation's 3,124 counties, but less than 2 percent of the U.S. population. Mostly rural counties account for 38 percent of all counties, but 12 percent of the U.S. population. Mostly urban counties represent 40 percent of all counties, but 87 percent of the total U.S. population (Ratcliffe, Burd, Holder, & Fields, 2016). Although representing a small percentage of the U.S. population (14 percent), completely and mostly rural counties still account for approximately 42 million people (Ratcliffe et al., 2016).

Figure 2: Rurality of U.S. counties: 2010

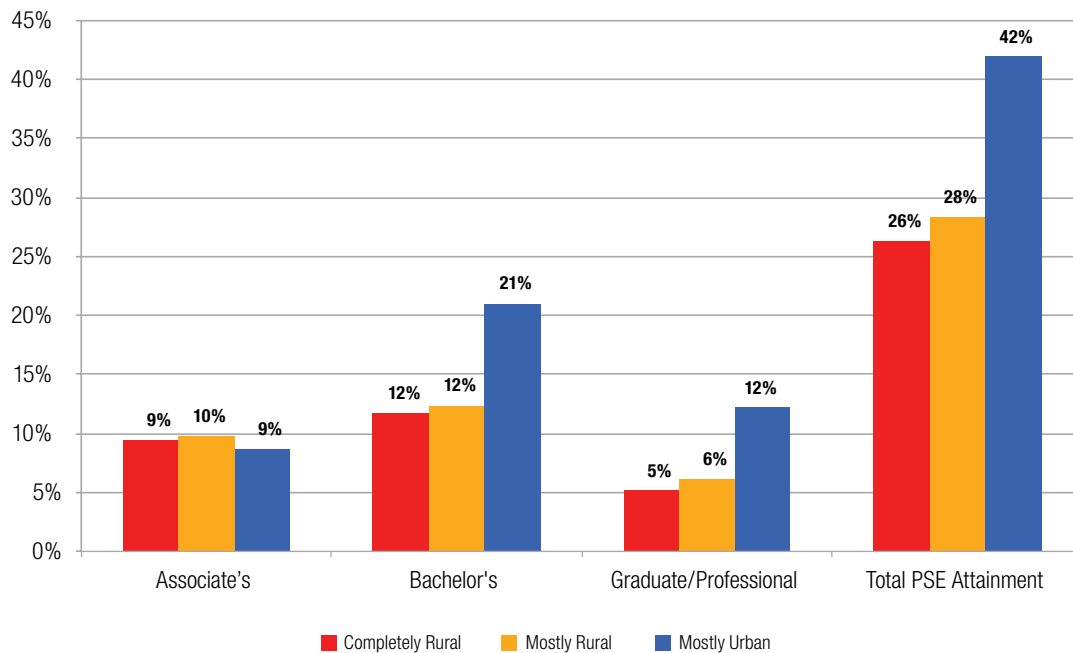


SOURCE: U.S. Census Bureau. (2016). *County classification lookup table* [Data file].

- 82** Although inconsistently operationalized, the term “rural” generally refers to places with low population counts or density and that are located some distance from urbanized places (Ratcliffe et al., 2016). Definitions of “rurality” and “urbanicity” vary across the research literature and among governmental agencies. The U.S. Department of Agriculture’s Economic Research Service (2016b), Office of Management and Budget (U.S. Census Bureau, 2015), and National Center for Education Statistics (n.d.) define these terms and related concepts slightly differently, which limits comparisons of study findings across data sources.
- 83** The U.S. Census Bureau (Ratcliffe et al., 2016) defines mostly urban counties as those with less than 50 percent of residents in a county living in rural areas, mostly rural as those with 50 to 99 percent of residents living in rural areas, and completely rural as those with all residents living in rural areas.

College attainment is typically lower in rural than urban counties. Figure 3 shows that in 2015, approximately a quarter of adults age 25 to 64 in completely rural and mostly rural counties held at least an associate’s degree, compared with 42 percent of working-age adults in mostly urban counties.

Figure 3: Percentage of adults ages 25 to 64 with at least an associate’s degree by rurality: 2015



SOURCE: U.S. Census Bureau. (2016). *American Community Survey 2015 (5-year estimates)*.

Comparable shares of working-age adults in completely rural, mostly rural, and mostly urban counties count an associate’s degree as their highest level of attainment (approximately 10 percent). Figure 3 shows that differences in attainment by rurality are due to differential rates of attainment of a bachelor’s or graduate degree. One-third (33 percent) of working-age adults in mostly urban counties have attained a bachelor’s degree or higher, compared with 17 percent in completely rural counties and 18 percent in mostly rural counties.⁸⁴

The social, economic, and geographic contexts of rural places influence postsecondary trajectories for rural youth (McDonough, Gildersleeve, & Jarsky, 2010; Perna, 2006; Roscigno, Tomaskovic-Devey, & Crowley, 2006). In addition to having lower postsecondary attainment rates, rural residents are, on average, more likely than urban residents to be White, employed within agriculture, mining, and manufacturing industries, have lower earnings, and live in poverty.⁸⁵

About 20 percent of the nation’s public school students (9.7 million students) attend rural elementary and secondary schools (Johnson, Showalter, Klein, & Lester, 2014). Rural schools educate large shares of economically disadvantaged students yet, on average, spend fewer dollars per pupil than schools located in

⁸⁴ Even within the same rurality classification, county-level college attainment levels vary by county. See Appendix A for disaggregated county-level attainment levels by county rurality.

⁸⁵ See Appendix B for demographic and economic profiles of the U.S. population by county rurality.

urban and suburban areas, likely because they draw financing from a lower tax base (Roscigno et al., 2006). Rural high schools tend to offer fewer rigorous college preparatory courses such as Advanced Placement (AP), which places students from rural schools at a structural disadvantage in terms of college enrollment and ultimately completion (Byun, Irvin, & Meece, 2012b; Byun, Meece, & Irvin, 2012a; Roscigno et al., 2006).

Family and community ties also shape educational outcomes (McDonough et al., 2010; Perna, 2006; Roscigno et al., 2006). Rural youth are more likely to have parents who not only lack a bachelor's degree, but also have lower expectations that their children will attain a four-year degree; parental educational attainment and parents' expectations for a child's attainment are predictors of college attendance and attainment (Byun et al., 2012a). Some rural students are reluctant to disassociate themselves from their families and communities by attending college away from home and instead "choose" to attend a local two-year option, conforming to the norms of their community (McDonough et al., 2010). However, rural youth with high academic expectations or who perceive poor local job opportunities tend to place less importance on remaining in their home communities after high school and travel greater distances to attend college (Johnson, Elder, & Stern, 2005).

Local economic conditions likely influence rural students' willingness to invest in postsecondary education (Becker, 1993; Perna, 2006; Roscigno et al., 2006). Compared to urban economies, rural economies are more dependent on farming, manufacturing, and mining industries (U.S. Department of Agriculture, 2016a). But these industries are employing declining shares of the population (Bureau of Labor Statistics, 2015), and technological improvements are increasing the educational requirements of the jobs that remain and are being created in these and other sectors (Carnevale & Rose, 2015).

Although the magnitude varies, median earnings increase with postsecondary attainment regardless of rurality. Figure 4 shows that, compared to high school completers, median earnings are 53 percent higher in mostly rural counties and 63 percent higher in mostly urban counties for those who hold a bachelor's degree.⁸⁶

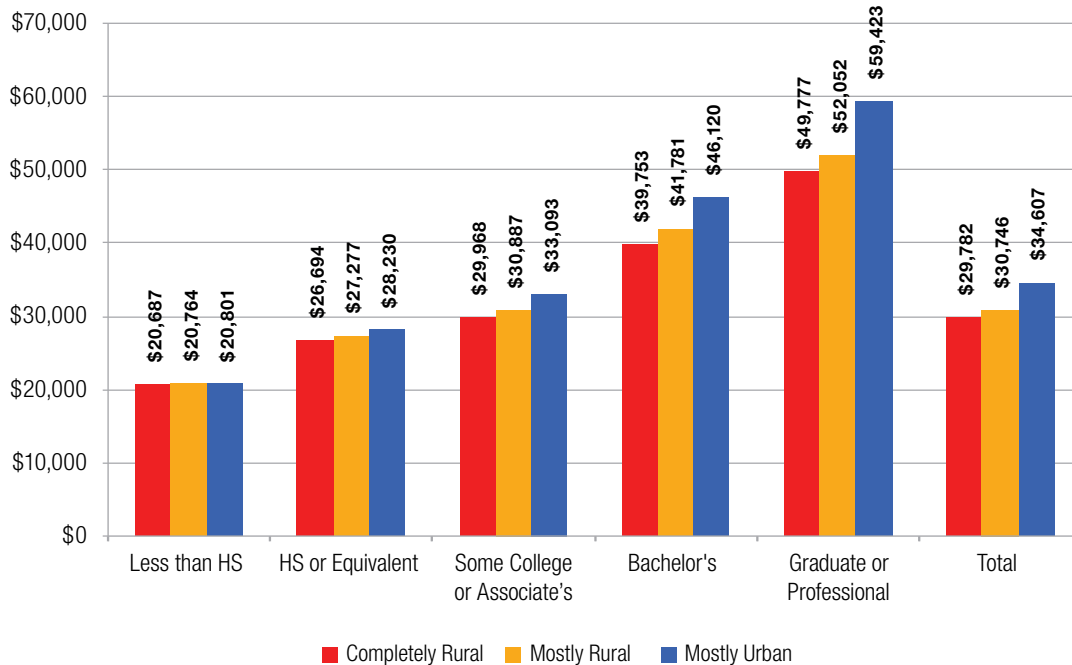
College attainment in rural areas is also restricted by the lack of geographic proximity to postsecondary institutions. As the share of rural residents increases, the likelihood of a four-year college or university (particularly broad and open access institutions) within a commuting zone decreases, while the likelihood of a community college marginally increases (Hillman, 2016). Research demonstrates that students' proximity to postsecondary institutions is positively related to the number of college applications submitted (Griffith & Rothstein, 2009; Turley, 2009), likelihood of college enrollment (Frenette, 2006; Kling, 2001), and selectivity of institution attended (Alm & Winters, 2009; Do, 2014; Rouse, 1995). Rural youth who enroll in higher education are more likely than non-rural youth to delay college enrollment after completing high school, attend community colleges or less selective four-year institutions, and experience discontinuous college enrollment (Burke, Davis, & Stephan, 2015; Byun, Irvin, & Meece, 2015; Koricich, 2014).

Despite differences in college-related outcomes, rural youth should not be pathologized as deficient. Rural Americans possess cultural wealth, diversity of perspective, and other attributes that can enrich the enterprise of higher education (Byun et al., 2012b; McDonough et al., 2010; Yosso, 2005).

Recognizing the value of enrolling rural students, some colleges and universities are actively recruiting students from rural communities and providing them with relevant supports. For example, Texas A&M University provides

⁸⁶ The unit of analysis for Figure 4 is the county. The American Community Survey (ACS) data to which we have access reports median earnings by attainment level for each county. The number of adult earners within each attainment level that is used to derive these county-level aggregate earnings estimates is unknown. We do not report in the text the earnings premium for bachelor's degree attainment for completely rural counties because of the magnitude of missing data in ACS for these counties. Earnings data are not reported for 9 percent of mostly urban counties, 15 percent of mostly rural counties, and 52 percent of completely rural counties.

Figure 4: Median earnings of adults age 25 and older by educational attainment and rurality: 2015



SOURCE: U.S. Census Bureau. (2016). *American Community Survey 2015 (5-year estimates)*.

bus transportation for distant, rural prospective students from West Texas and New Mexico to participate in on-campus recruitment events. Drexel University School of Medicine includes rural students as one demographic served by its Office of Diversity, Equity & Inclusion (Pappano, 2017). McDonough and colleagues (2010) challenge four-year higher education institutions to provide pathways for rural youth by actively engaging with rural communities and creating an institutional presence in rural high schools.

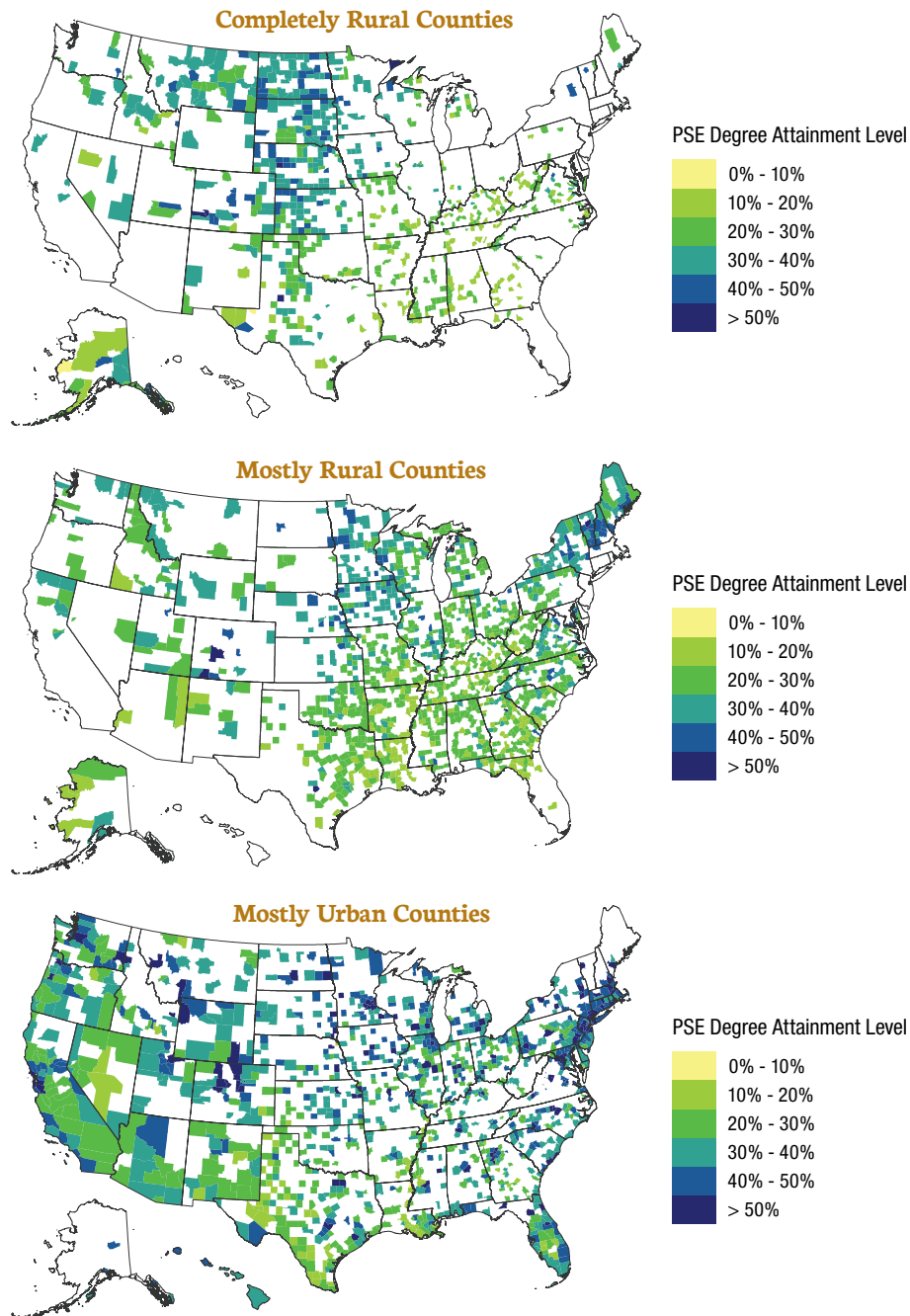
Place-based strategies may also improve postsecondary opportunity for rural populations. One federal initiative that recognized the importance of place is the federally designated Promise Zone. Administered by the Department of Housing and Urban Development between 2014 and 2016, this initiative awarded competitive grants to 22 geographically diverse high-poverty communities across the U.S. to combat a range of social, economic, and educational challenges. Of the 22 funded programs, four are in rural locations (in Kentucky, South Carolina, Florida, and Puerto Rico, U.S. Department of Housing and Urban Development, 2016).

Over the past decade, place-targeted financial aid programs, commonly known as “promise programs,” have also emerged as a strategy for increasing college access and attainment. Whereas traditional financial aid programs make awards based only on financial need or merit-based criteria, promise programs typically require residency in a particular place and/or attendance at a particular school or district (Perna, 2016). Place-based scholarship programs like the Kalamazoo Promise are intended to promote local community economic development by increasing postsecondary educational attainment of residents (Miller-Adams, 2015).

Lower rates of postsecondary attainment for rural students, families, and communities are the result of structural barriers endemic to the nation’s social, economic, and educational systems (Soja, 2010). Policymakers and practitioners need to understand the contexts in which students live and make college-related decisions in order to design policies and practices that improve college-related opportunity and outcomes for this population.

By including attention to rurality in public policy (Farrington & Farrington, 2005) and institutional practice (McDonough et al., 2010), we can begin to dismantle rural “disadvantage” and allow for greater postsecondary attainment of rural youth. Explicitly recognizing the needs and attributes of rural students will enable these students – and our nation – to realize the numerous benefits of college attainment.

Essay Appendix A: Percentage of adults age 25 to 64 with an associate's degree or higher by rurality: 2015



SOURCE: U.S. Census Bureau. (2016). *American Community Survey 2015 (5-year estimates)*.

Essay Appendix B: Percentage of adults age 25 to 64 with an associate's degree or higher by rurality: 2015

	Mostly Urban %	Mostly Rural %	Completely Rural %
Demographics			
White Non-Hispanic	59	82	82
Black Non-Hispanic	13	9	9
Hispanic (any race)	19	5	4
Native Born Citizen	85	97	98
Employment & Industry			
Labor Force Participation	65	58	55
Unemployment Rate	8	8	8
Agriculture, Mining	2	5	10
Construction	6	7	8
Manufacturing	10	15	12
Information	2	1	1
Finance, Insurance, Real Estate	7	4	4
Professional, Scientific, Management	12	7	6
Education and Health Care	23	23	22
Income & Poverty			
Avg. Median Household Income	\$51,625	\$43,736	\$43,450
Avg. Per Capita Income	\$26,354	\$22,576	\$23,717
Poverty Status (children under 18)	21	24	26
Poverty Status (adults 18-64)	14	16	17
Health Insurance Coverage	87	87	86

SOURCE: U.S. Census Bureau. (2016). *American Community Survey 2015 (5-year estimates)*.

American Community Survey 2015 Definitions

Native Born Citizen: Share of total U.S. population born in the United States, which excludes naturalized U.S. citizens and non-citizens.

Labor Force Participation: Share of total population 16 years and over in the labor force.

Unemployment Rate: Share of total civilian population 16 years and over in the labor force that is unemployed.

Employment by Industry: Share of total civilian population 16 years and over employed within each industry.

Poverty Status (children under 18): Share of population under 18 years of age for whom poverty status is determined that lives below the federal poverty level.

Poverty Status (adults 18-64): Share of population 18 to 64 years of age for whom poverty status is determined that lives below the federal poverty level.

Health Insurance Coverage: Share of civilian non-institutionalized population that has health insurance through public health coverage or private health insurance.

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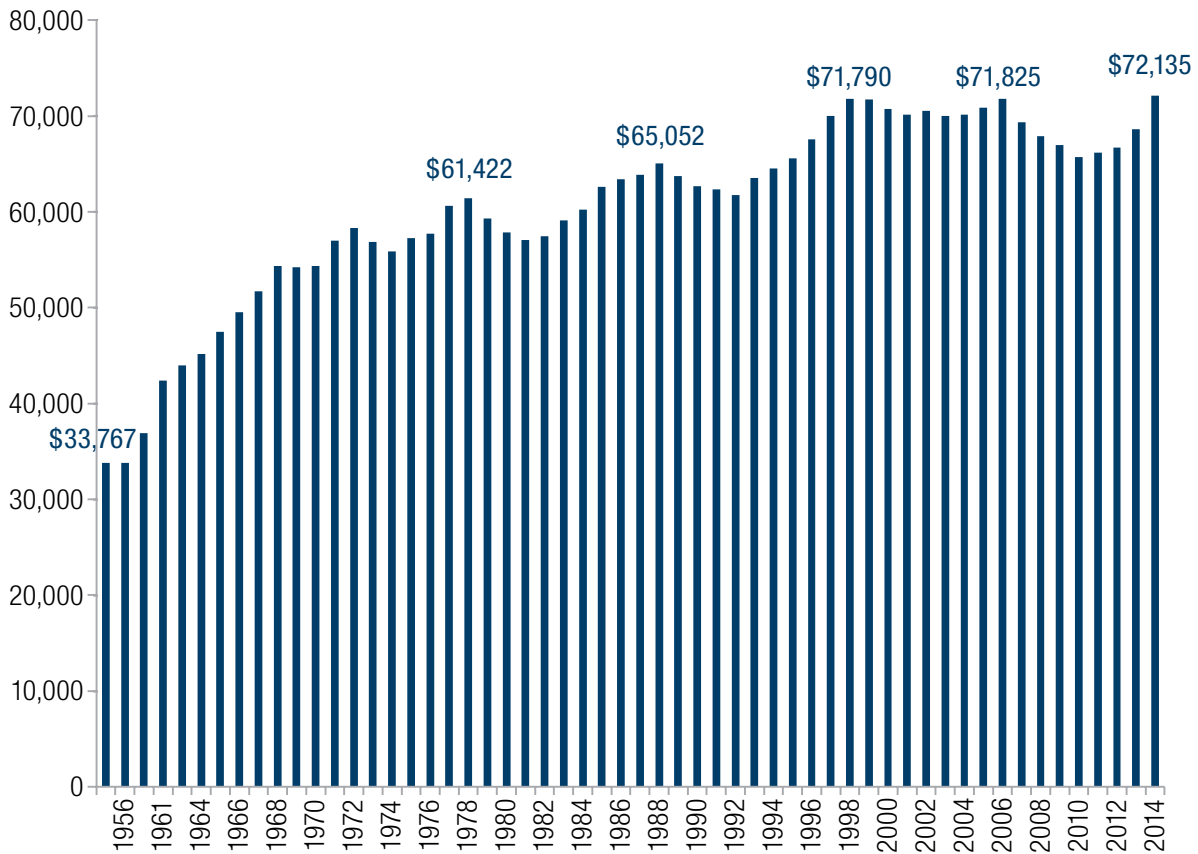
Appendix A: Additional Methodological Notes and Figures

This Appendix includes methodological notes, figures, and tables not included in the report body. Notes and figures are ordered under the headings of the sections in which they are first referenced.

Introduction and Setting the Stage

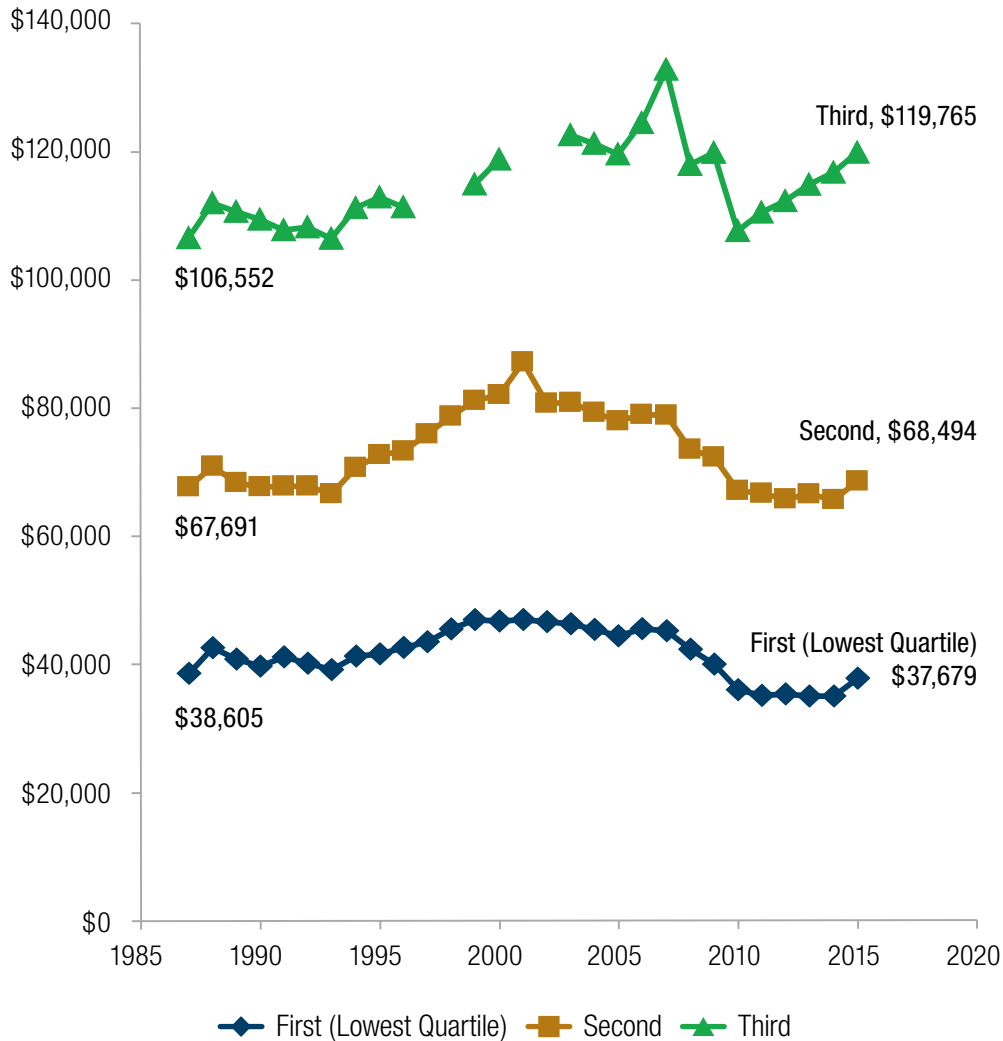
- **Figures 5a and 5b:** The data sources for Figure 5 are IPEDS and Barron’s *Profiles of American Colleges* (2016). The latter provides a competitiveness index of 4-year colleges and universities. The following notes provide detail on the coding of institutions by competitiveness and the assigning of codes to institutions not ranked by Barron’s. The competitiveness index categories from Barron’s were matched (by name and state) to institutional enrollment data found in IPEDS. For those institutions that appeared in IPEDS but were not ranked by Barron’s, the institutional sector was used to develop the remaining categories (e.g., “4-Year Not Ranked” and “Private For-Profit”). All institutions that were administrative units or had zero undergraduate enrollment (e.g., medical schools) were omitted from the analyses as these schools do not enroll undergraduates (the variable we’re counting for this indicator). To determine enrollment share by competitiveness category, we first added total fall enrollment (IPEDS variable “DRVEF2014_RV” defined as “Total undergraduate men and women enrolled for credit in the fall of the academic year”). For each category, we then divided the number of students in each selectivity category by total undergraduates. Enrollment includes both part-time and full-time students.
- **Additional Referenced Figures:** Appendix Figure A-1 shows the median family income for households in which the householder is over 25 from 1956 to 2015 in 2015 constant dollars. Appendix Figure A-2 shows the upper limits of each family income quartile from 1987 to 2015 in constant 2015 dollars.

Appendix Figure A-1: Median income for families with a householder 25 years of age and over in constant 2015 dollars: 1956 to 2015



SOURCE: U.S. Census Bureau, Current Population Survey. (1956-2015). [Table F-18] Educational Attainment of Householder--Families with Householder 25 Years Old and Over by Median and Mean Earnings: 1991 to 2015; <http://www2.census.gov/programs-surveys/cps/tables/time-series/historical-income-families/f18.xls> (1956-1990) <https://www.census.gov/income/ftp/histinc/CPI-U-RS/family/f19.lst>

Appendix Figure A-2: Upper limits for the first (lowest), second, and third family income quartiles for dependent 18-to-24-year-olds in constant 2015 dollars: 1987 to 2015



NOTE: Upper family income limits of family income quartiles in constant 2015 dollars using CPI. The upper limit of the third quartile is the **minimum** for the fourth (highest) quartile. The fourth (highest) quartile minimum is thus \$119,765. The maximum for the fourth (highest) quartile is unknown.

SOURCE: U.S. Census Bureau, CPS data, Calculated from the October Current Population Survey File (Formerly Table 14 in the Census Bureau's School Enrollment Report). Compiled by Tom Mortenson.

Equity Indicator 2: What Type of Postsecondary Educational Institution Do Students Attend?

- **Indicator 2d:** This Indicator uses a data table in the online appendix (<http://www-personal.umich.edu/~bastedo/papers/EEPA-Appendix.pdf>) to the 2011 article, Running in place: Low-income students and the dynamics of higher education stratification, by Michael Bastedo and Ozan Jaquette, published in *Educational Evaluation and Policy Analysis*. To develop the data table, Bastedo and Jaquette constructed an analytic dataset using four federal longitudinal surveys: National Longitudinal Study of 1972 (NLS); High School and Beyond Study of 1980 (HS&B); National Education Longitudinal Study of 1988 (NELS), and Education Longitudinal Study of 2002 (ELS). In their analyses of the four surveys, the authors examined only students who were seniors in the specified year and who had graduated within 1.5 years of their scheduled high school graduation year. For more detailed explanation of dataset construction and analytic methodology, see Bastedo and Jaquette (2011). Appendix Figure A-3 shows Table 6 from the article's online appendix, which presents the SES representation in each category of institutional destinations (row percentages). We used these data to construct Indicator 2d. Appendix Figure A-4 shows Table 3 from the body of the article and presents the distribution of students in each SES quartile across different categories of institutions (column percentages).

Appendix Figure A-3: SES representation in each institutional destination (row percentages) by cohort

Appendix Table 6. SES representation of each institutional destination (row percentages), by cohort

SES Quartile	1972				1982			
	SES Q1	SES Q2	SES Q3	SES Q4	SES Q1	SES Q2	SES Q3	SES Q4
No PSE	38.1%	28.1%	22.0%	11.9%	39.6%	30.6% **	20.0% *	9.7% ***
2yr/ LT 2yr (pub)	20.7%	23.5%	26.8%	29.1%	19.0%	26.7% **	29.2% *	25.0% ***
2yr/ LT 2yr (priv)	23.2%	22.7%	31.8%	22.3%	26.8%	30.5% ***	28.3%	14.4% ***
Non Competitive	19.9%	20.8%	23.9%	35.5%	18.4%	22.0%	28.8% **	30.8% **
Competitive	13.1%	17.7%	25.6%	43.6%	9.4% ***	20.8% **	29.0% *	40.8%
Very Competitive	10.8%	14.4%	18.9%	55.9%	9.8%	13.8%	21.6%	54.8%
Highly Competitive	8.9%	10.8%	20.8%	59.6%	4.0% **	9.7%	25.1%	61.2%
Most Competitive	5.2%	7.4%	9.9%	77.5%	3.8%	11.4%	17.8% **	67.0% **

SES Quartile	1992				2004			
	SES Q1	SES Q2	SES Q3	SES Q4	SES Q1	SES Q2	SES Q3	SES Q4
No PSE	41.8%	27.9% **	21.1%	9.1%	42.0%	31.2% **	19.1%	7.7%
2yr/ LT 2yr (pub)	24.6% ***	30.4% ***	28.7%	16.3% ***	25.2%	28.7%	28.2%	17.9%
2yr/ LT 2yr (priv)	29.8%	28.9%	22.5% *	18.8%	30.7%	32.8%	27.6%	9.0% ***
Non Competitive	15.4% *	22.7%	34.3% **	27.5%	19.6% **	25.4%	29.1% ***	25.9%
Competitive	12.7% ***	21.4%	28.6%	37.3% **	13.0%	19.1%	30.2%	37.8%
Very Competitive	10.2%	13.4%	27.2% ***	49.2% **	7.3% **	15.0%	26.8%	50.9%
Highly Competitive	6.4%	10.6%	20.5%	62.6%	5.0%	9.3%	19.5%	66.2%
Most Competitive	5.0%	2.9% ***	23.9% *	68.3%	4.1%	8.1% ***	18.7% *	69.0%

Note: Difference in proportion for SES quartile=i and cohort=t compared to proportion for SES quartile=i and cohort=t-1, significant at the 1% (***), 5% (**), or 10% (*) level, two tailed test

SOURCE: Analyses of data from U.S. Department of Education, NCES, High School Longitudinal Studies (NLS, HS&B, NELS, ELS). Published as online Appendix Table 6 from Bastedo, M. N., & Jaquette, O. (2011). Running in place: Low-income students and the dynamics of higher education stratification. *Educational Evaluation and Policy Analysis*, 33(3), 318-339. Retrieved from <http://www-personal.umich.edu/~bastedo/papers/EEPA-Appendix.pdf>. Reprinted by permission from Sage Publishing Copyright Clearance Center.

Appendix Figure A-4: Distribution of students in each SES quartile across institutional destinations by cohort (column percentages)

TABLE 3
Institutional Destination by Cohort (Column Percentages), by SES Quartile, "Weighted SES" Sample

	SES Quartile 1				SES Quartile 2			
	1972 (%)	1982 (%)	1992 (%)	2004 (%)	1972 (%)	1982 (%)	1992 (%)	2004 (%)
No PSE	63.2	57.6***	48.2***	37.6***	52.3	41.9***	31.8***	25.8***
2yr/LT 2yr (pub)	14.2	19.9***	25.8***	31.5***	18.1	26.2***	31.5***	33.1
2yr/LT 2yr (priv)	4.7	6.2**	3.8***	3.9	5.2	6.7**	3.7***	3.8
Noncompetitive	6.9	6.8	6.9	11.2***	8.1	7.7	10.1***	13.5***
Competitive	6.5	5.5	9.0***	11.1**	9.8	11.3*	15.0***	15.2
Very competitive	3.1	3.1	4.3**	3.3*	4.6	4.1	5.6**	6.3
Highly competitive	0.9	0.5	1.1**	1.0	1.3	1.2	1.9*	1.7
Most competitive	0.4	0.3	0.8**	0.5	0.6	0.9	0.4*	0.8
	SES Quartile 3				SES Quartile 4			
	1972 (%)	1982 (%)	1992 (%)	2004 (%)	1972 (%)	1982 (%)	1992 (%)	2004 (%)
No PSE	40.3	27.6***	21.8***	14.7***	18.6	12.9***	9.5***	5.7***
2yr/LT 2yr (pub)	20.3	28.9***	26.9	30.3**	18.8	23.7***	15.3***	18.5***
2yr/LT 2yr (priv)	7.2	6.2	2.6***	3.0	4.3	3.0**	2.2*	0.9***
Noncompetitive	9.2	10.2	13.8***	14.4	11.7	10.4	11.1	12.3
Competitive	14.0	15.9*	18.1*	22.3***	20.4	21.5	23.7*	26.8**
Very competitive	6.0	6.6	10.3***	10.4	15.1	15.9	18.8***	18.9
Highly competitive	2.4	3.2	3.3	3.3	5.9	7.4**	10.0***	10.6
Most competitive	0.8	1.4**	3.3***	1.7***	5.2	5.2	9.5***	6.2***

Note. SES = socioeconomic status.

Difference in proportions for current and previous year is significant at the 1% (***), 5% (**), or 10% (*) level, two-tailed test.

SOURCE: Analyses of data from U.S. Department of Education, NCES, High School Longitudinal Studies (NLS, HS&B, NELS, ELS). Published as Table 3 in Bastedo, M. N., & Jaquette, O. (2011). Running in place: Low-income students and the dynamics of higher education stratification. *Educational Evaluation and Policy Analysis*, 33(3), 318-339. Reprinted by permission from the Sage Copyright Publishing Clearance Center.

- **Indicator 2e:** The values reported in Indicator 2e represent the average of the percentage of undergraduates within an institution who receive Federal Grants by institutional selectivity and sector. The Integrated Postsecondary Education Data System (IPEDS) and Barron’s *Profiles of American Colleges* (2016) are the primary data sources for this Indicator. This Indicator is constructed by merging the Institutional Characteristics (IC) and Student Financial Aid (SFA) IPEDS survey components on Federal Grant (Pell and other Federal Grants) receipt with the information from the Barron’s 2016 publication. The IPEDS variable used was the “FGRNT_P,” which NCES defines as: “Percentage of full-time, first-time degree/certificate-seeking undergraduate students who were awarded federal grants.” This Indicator does not reflect a weighted average but the arithmetic mean of the distribution of percent Pell and other Federal Grants for each selectivity group by year. This Indicator tracks the percentage of undergraduate students who receive any Federal Grant by institution each academic year from 1999-2000 to 2013-2014, the most current year of available Student Financial Aid (SFA) data. As in Figures 5a and 5b in *Setting the Stage*, institutional selectivity is measured using Barron’s Admissions Competitive Index (2016) and institutional sector as reported in IPEDS.

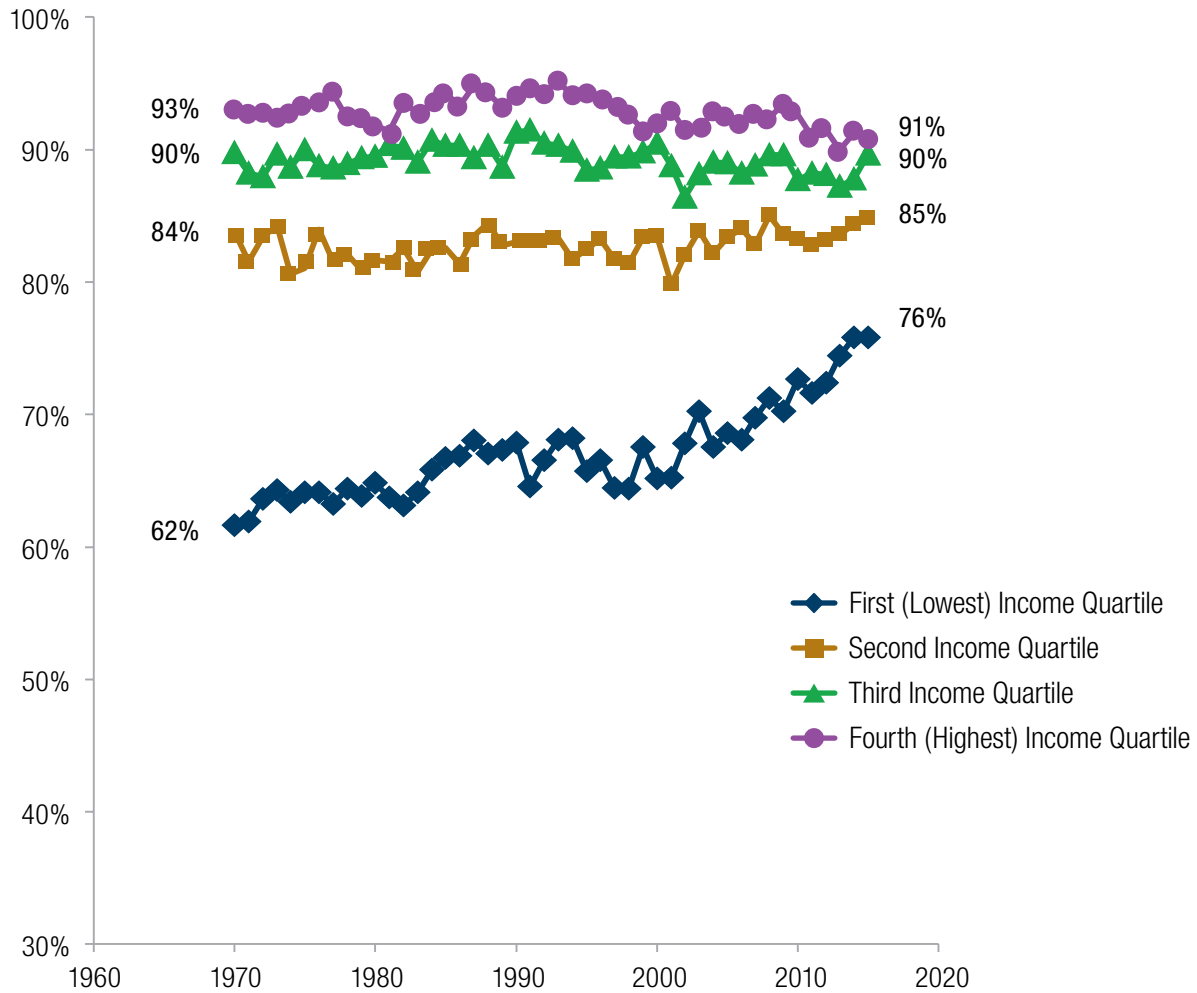
Equity Indicator 4: How Do Students in the United States Pay for College?

- **Indicator 4a:** Data for this Indicator come from National Income and Product Accounts (NIPA). (<http://bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>). Table 2.4.5 provides personal consumption expenditures on higher education, and Table 3.16 provides federal and state higher education expenditures. NIPA data are continually updated and revised by the Bureau of Economic Analysis. Indicator 4a reflects data reported in December 2016.

Equity Indicator 5: How do Educational Attainment Rates and Early Income Outcomes Vary by Family Characteristics?

- **High School Graduation Rates.** Bachelor’s degree attainment is possible only for those who graduate from high school. Using data from the CPS, Appendix Figure A-5 shows the high school graduation rates by family income quartile from 1970 to 2015. These data show that, despite the rise in high school graduation rates for those in the first (lowest) income quartile, especially over the past decade, high school graduation rates continue to vary by family income.

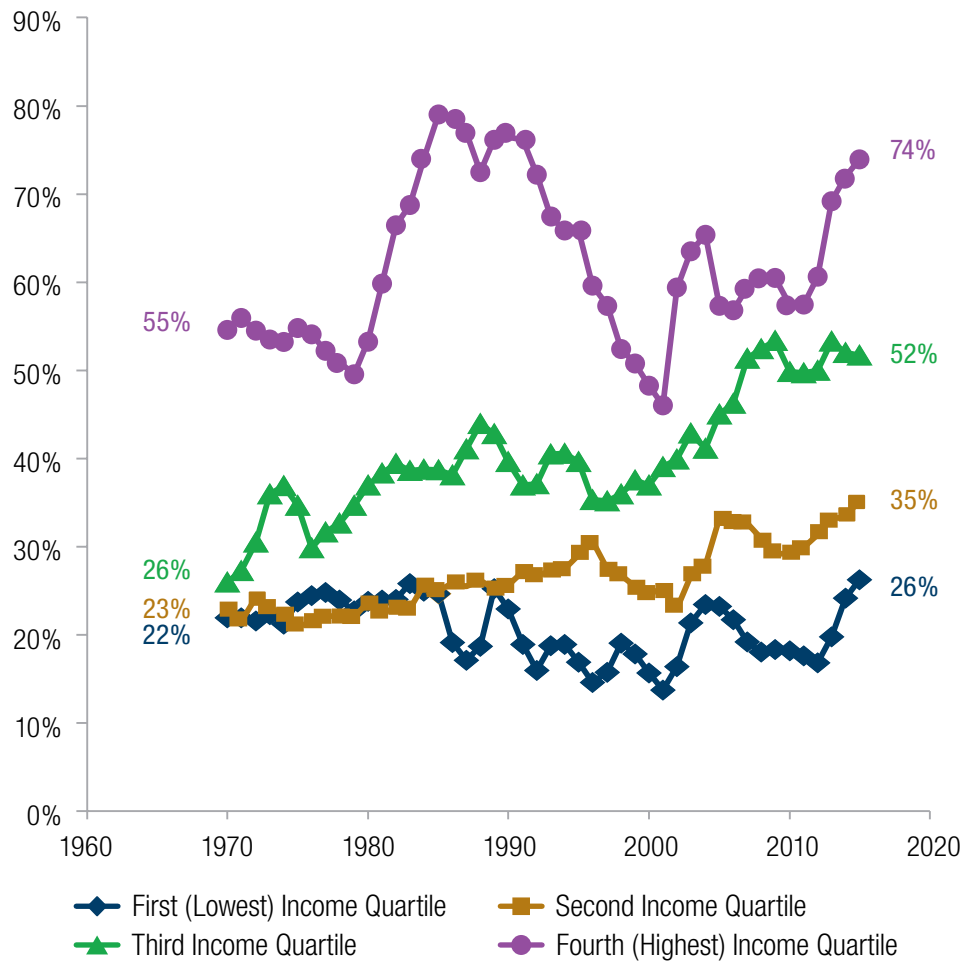
Appendix Figure A-5: High school graduation rates by family income quartile for dependent 18-to-24-year-olds: 1970 to 2015



SOURCE: U.S. Census Bureau, CPS data as reported by BLS. Compiled by Tom Mortenson.

- Equity Indicator 5a-5e.** We report multiple measures of bachelor’s degree attainment and completion for Indicator 5, given concerns about the limitations of each of the data sets, but particularly the annual CPS. The CPS is the only available annual source of data on bachelor’s degree completion, but the data have important limitations. As a result, caution is needed in interpreting results using these data. The CPS data are based on household surveys and are reported in aggregate. The data are cross-sectional and include only individuals who were considered “primary dependent family members of the household” at the time of the CPS survey. Recent years have seen differential changes across income groups in dependency patterns and length of time for bachelor’s degree completion. For these reasons, the 2016 and 2017 Indicators Reports also present estimates of bachelor’s degree completion using the NCES High School Longitudinal Studies and the Beginning Postsecondary Students (BPS). We also use IPEDS completions data to report associate’s and bachelor’s degrees awarded by race/ethnicity.
- Recalibration of Bachelor’s Degree Attainment by Age 24:** In the 2015 edition of the Indicators Report, we included data on attainment rates by age 24 for the cohort (Indicator 5a) and for those who had entered college (Indicator 5b). The 2015 Indicators Report used the HS&B longitudinal study of 1980 10th graders to calibrate the aggregate CPS data to arrive at an estimate of bachelor’s degree attainment by age 24. These estimates were criticized as overestimating degree attainment rates for the highest quartiles, given changes in dependency patterns that have occurred over time. Because of the strong positive relationships among family income, dependency status, and degree attainment, data published in the 2015 Report using CPS data overestimated bachelor’s degree attainment rates for the top income quartile. Since then, Tom Mortenson, who has analyzed these data for over 20 years, has updated these estimates using calibrations from the more recent NCES longitudinal studies corresponding with the time frames to be estimated. In addition to continuing to use the HS&B (1980 10th graders) to calibrate estimates for the earlier periods, he also used estimates from the more recent high school longitudinal studies, NELS (1988 8th graders) and ELS (2002 10th graders), to improve the estimates for the corresponding periods. Using data from these additional longitudinal surveys resulted in little change from the 2015 CPS-based estimates of bachelor’s degree attainment rates for the first (lowest), second, and third income quartiles but reduced the CPS-based estimates of bachelor’s degree attainment for the fourth (highest) quartile considerably. Caution is still needed in using these adjusted CPS estimates in the 2016 and 2017 Reports, given the many underlying assumptions. For the 2016 Indicators Report, this calibration work was still in progress and we reported only on the distribution of bachelor’s degrees between the quartiles in Indicator 5a. We presented a preliminary revision of the attainment by age 24 estimates in the Appendix of the 2016 Report (Appendix Table A-6). Indicator 5a in the body of the 2017 Report presents revised estimates using three-year moving averages of bachelor’s degree attainment by age 24 for 1970 to 2015 from the CPS data. Appendix Figure A-6 shows re-calibrated estimates for attainment by age 24 for those who have entered college.

Appendix Figure A-6: Estimates of bachelor's degree attainment by age 24 for dependent family members who have entered college by family income quartile: 1970 to 2015



NOTE: Three-year moving average using CPS data calibrated with constant factors derived from HS&B, NELS, and ELS.

SOURCE: Current Population Survey (CPS) Compiled and estimated by Tom Mortenson.

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