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College Affordability: Implications for College Opportunity

By Laura W. Perna and Chunyan Li

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By examining trends in college affordability, this article explores the extent to which the public perception that college is not affordable is justified. First, the article describes trends in national indicators that contribute to ability to pay, including income growth, health care costs, debt burden, and personal savings rates. Trends in college pricing, including tuition and fees, unmet financial need, and student aid, are then examined. Finally, the article considers the potential contribution of these trends to college opportunity. Based on this examination, it is clear that college affordability has declined in recent years, especially for those in low-income and lower-middle-income families. In order to promote equality of college access and choice, policymakers should consider ways to improve affordability, particularly by targeting financial aid resources toward students from low- and lower-middle-income backgrounds.

Because of changes in ability to pay, college prices, and financial aid, college affordability has declined in recent years, especially for lower- and lower-middle-income students and their families. In order to ensure college access and choice for these students, federal, state, and institutional policymakers must improve college affordability. The most effective strategies are likely those that result in better targeting of scare financial aid resources toward students from lower- and lower-middle-income families.

The lack of college affordability is a common cry of prominent politicians. In their unsuccessful 2000 U. S. presidential campaign, Senators John Kerry and John Edwards (2005) claimed that because of increases in tuition, college is no longer affordable. Similarly, declaring that "Our nation is grappling with a college cost crisis that is threatening to push higher education out of reach for low- and middle-income students," U. S. Congressman Howard "Buck" McKeon introduced H.R. 3311, the "Affordability in Higher Education Act" in 2003 (U. S. House of Representatives Committee on Education and the Workforce, 2003). The 2003 proposed legislation called for capping the rate of tuition increases at colleges and universities and penalizing institutions that exceed the cap for two successive years with loss of federal funds.

More recently, H. R. 609 (legislation to reauthorize the Higher Education Act) called for the Secretary of Education to calculate a "college affordability index" for all colleges and universities, which would compare growth in tuition with growth in inflation. Institutions with tuition increases exceeding twice the

rate of inflation over a three-year period would be required to submit a report explaining reasons for the tuition increases, a management plan for reducing the college affordability index, and an action plan with a schedule for stabilizing tuition and fees. Institutions that do not meet the terms of their management and action plans in the subsequent two academic years would face such consequences as being listed on an "affordability alert status" and being subject to audit by the Department of Education's Inspector General (U. S. House of Representatives, 2005).

The perception that college is not affordable is shared by the general public. Data from a national poll of 850 Americans in May 2000 show that few adults, particularly middle-income adults, believe that college is affordable or that financial aid is sufficient. Less than 10% of adults with family incomes between $30,000 and $75,000 "strongly agree" that "a four-year college education is affordable for most Americans," compared with 13% of adults with family incomes below $30,000 and 19% of adults with incomes above $75,000 (Ikenberry & Hartle, 2001, pp. 34-35). Only half of adults with family incomes below $75,000, compared with 74% of those with family incomes above $75,000, believe that attending a four-year college is "usually" worth the price (Ikenberry & Hartle, 2001).

By examining trends in the affordability of college, this article explores the extent to which these perceptions are justified. The article assumes that affordability is determined by two sets of forces: ability to pay and college price. The article begins by examining trends in some of the national economic indicators that contribute to ability to pay, including income growth, health care costs, debt burden, and personal savings rates. Then the article describes trends in the price of college, with attention to tuition and fees, unmet financial need, and financial aid. The article concludes by discussing the potential contribution of these trends to college opportunity, and offering recommendations to federal, state, and institutional policymakers.

Indicators of Ability to Pay

Declines in several indicators of a family's standard of living suggest that, assuming no change in college prices, the ability of low- and middle-income families to pay college prices fell during the past 25 years. Over this period, incomes grew at a substantially slower rate for lower- and middle-income families than for upper-income families. At the same time, fewer families benefited from employer-provided health insurance and those who paid more for this benefit. Greater shares of lower- and middle-income families than of upper-income families had excessive debt burdens. Perhaps in part because of trends in income, health care coverage and costs, and debt, personal savings rates are remarkably low.

Growing Income Inequality

Regardless of whether measured by household income, family income, or wages, income inequality increased in the United

States over the past 25 years. As an example, average real household incomes increased substantially faster for those in the top quintile than for those with lower incomes. Between 1979 and 2001, average real household incomes increased by 5% for those in the lowest quintile and 12% for those in the middle quintile, but 53% for those in the top quintile (Mishel et al., 2005).

Because of these differential growth rates, the share of total household income held by the lowest and middle quintiles declined between 1979 and 2001 (from 5.8% to 4.2% and from 15.8% to 14.2%, respectively), while the share of total household income held by the top quintile increased from 45.5% to 52.4% (Mishel et al., 2005). In 2005, the lowest quintile accounted for 3.4% of total household income, while the top quintile accounted for 50.1% (U. S. Census Bureau, 2005). The ratio of the average income for the middle fifth of households to the average income of the bottom fifth of households increased only slightly during this period (from 3.3 in 1979 to 3.5 in 2001), while the ratio of incomes for the top fifth to the bottom fifth increased substantially. In 2001, the average income of the top fifth of households was 12.3 times greater than the average income of the bottom fifth, up from 8.4 times greater in 1979 (Mishel et al., 2005). The inequality of the distribution of income is even greater when the incomes of only the top 1% are compared to the incomes of other households (Mishel et al., 2005).

In 2001, the average income of the top fifth of households was 12.3 times greater than the average income of the bottom fifth.

Declining Employer-Provided Benefits and Increasing Health Care Costs

While income inequality is increasing, the availability of employer-provided benefits is declining and the cost of receiving these benefits is increasing. Over the past 25 years, the share of private-sector workers who received such employer-provided benefits as health insurance and pensions declined. The rate of decline in health insurance coverage did not vary by wage level, falling about 13 percentage points between 1979 and 2003 for all wage quintiles (Mishel et al., 2005). As a result, the share of private wage and salary workers with employer-sponsored health insurance in 2003 continued to vary by wage level, ranging from 25% of those in the lowest wage quintile, to 47% in the 2nd quintile, 62% in the 3rd quintile, 71% in the 4th quintile, and 78% in the highest quintile (Mishel et al., 2005). In 2004, 24% of people in households with incomes below $25,000 and 20% of those in households with incomes between $25,000 and $49,999 had no health insurance coverage (government or private), compared with 13% of people in households with incomes between $50,000 and $74,999 and 8% of people in households with incomes of $75,000 or more (U. S. Census Bureau, 2005).

Moreover, workers who have employer-sponsored health insurance coverage are paying a greater share of the rising costs of health care premiums, through increased deductibles, co-

payments, and co-insurance (Strunk, Ginsburg & Cookson, 2005; Mishel, Ettlinger & Gould, 2004). Between 2000 and 2003, the family premium for employer-provided health insurance increased by 49% and out-of-pocket health care expenditures increased by 33% among both married-couple families with children and single-mother families in the middle quintile of income (Mishel, Ettlinger, & Gould, 2004). About 14% of families nationwide self-reported problems paying medical bills in 2003. About two-thirds of families with self-reported difficulty paying medical bills had insurance (May & Cunningham, 2004).

Between 1979 and 2003, the share of private-sector wage and salary workers who were covered by employer-provided pensions also declined, falling by about 5 percentage points regardless of household income (Mishel et al., 2005). In 2003, only 15% of workers in the lowest wage quartile and 32% of workers in the 2nd quartile were covered by an employer-provided pension plan, compared with 49% of workers in the 3rd quintile, 62% of workers in the 4th quintile, and 73% in the top quintile (Mishel et al., 2005). Moreover, over the past 25 years, employer-provided pension plans have shifted from being primarily defined-benefit plans (i.e., guaranteed fixed payment at retirement) to defined-contribution plans (i.e., benefit depends on the employee's investment strategy, Mishel et al., 2005).

Increasing Debt, and Inverse Relationship between Debt Burden and Income

During the past 25 years, debt increased dramatically. Consumer debt increased, rising from 20% of disposable income in 1979 to 24% of disposable income in 2003 (Mishel et al., 2005). Mortgage debt also rose, increasing from 57% of disposal personal income in 1979 to 85% in 2003 (Mishel et al. 2005). Some may consider mortgage debt to be "good" debt, since growing mortgage debt may reflect rising home prices and increasing equity against which families may borrow. Nonetheless, persisting differences in rates of home ownership by income over the past 25 years suggest that the likelihood of realizing this benefit increases with income. In 2001, home ownership rates ranged from 51% for those in the lowest household income quartile, to 59% for those in the 2nd quartile, 74% in the 3rd quartile, and 88% of those in the highest quartile (Mishel et al., 2005).

Lower- and middle-income families are more likely than higher-income families to face debt-related financial challenges.

Moreover, lower- and middle-income families are more likely than higher-income families to face debt-related financial challenges. The average ratio of debt service to income did not vary across households with incomes below $90,000 in 2001 (Mishel et al., 2005). However, both the percentage of households with high debt burdens (i.e., debt service payments represented at least 40% of household income) and the share of households paying bills after the due date are inversely related to income (Mishel et al., 2005). In 2001, 27% of households with

incomes below $20,000 and 16% of households with incomes between $20,000 and $39,999 had high debt burdens, compared to only 2% of households with incomes between $90,000 and $100,000 (Mishel et al., 2005). About 13% of households with incomes below $20,000 paid bills more than 60 days late in 2001, compared with only 8% of households with incomes between $40,000 and $59,999 and 1% of households with incomes between $90,000 and $100,000 (Mishet et al., 2005).

Declining Personal Saving Rates

Given growth in income inequality, health care costs, and debt burden, it is not surprising that personal saving is declining. Although total personal income in the United States rose by 47% (in current dollars) between 1990 and 2003, total personal saving declined by 42% during the same period, falling from $299.4 billion in 1990 to $173.5 billion in 2003 (U.S. Census Bureau, 2004).

Looked at a different way, personal saving as a percentage of disposable income declined from 7.0% in 1990, to 4.6% in 1995, to 2.1% in 2003 (U. S. Census Bureau, 2004). Moreover, the growth since the early 1990s in home equity loans suggests that households are increasingly spending, not saving, accumulated equity (Mishel et al., 2005). Home equity loans became more common in the 1990s, representing 11% of disposable personal income in 2003 (Mishel et al., 2005).

College Prices

While ability to pay is declining, the price of college is increasing. Trends in tuition and fees, financial aid, and unmet financial need show that attending college requires a substantial financial obligation, especially for students from lower- and middle-income families.

Increasing Tuition and Fees

In each of the past two decades, increases in average tuition and fee charges at public four-year and private four-year institutions have exceeded increases in median family incomes for families headed by persons between the ages of 45 and 54 (The College Board, 2005b). Controlling for inflation, median family income increased by 2% between 1994-95 and 2004-05, while over the same period tuition and fees increased by 59% at public four-year institutions and 42% at private four-year institutions. Following the same pattern, median family income increased in real dollars by only 11% between 1984-85 and 1994-95, while average tuition and fees rose by 69% at public four-year institutions and 61% at private four-year institutions (The College Board, 2005b). In 2005-06, average enrollment-weighted tuition and fee charges ranged from $2,191 at public two-year institutions, to $5,491 at public four-year institutions, to $21,335 at private four-year colleges and universities (The College Board, 2005a).

Increasing Net Price of Four-Year Institutions

Many students and their families likely draw conclusions about the affordability of higher education based on published tuition and fees. Discerning the extent to which published prices will be reduced by some amount of financial aid is challenging for students and parents, at least in part because of the complexity of the financial aid determination process (Perna, in press). Nonetheless, because a substantial share of students receives some amount of financial aid to offset the costs of attendance, a more accurate indicator of the financial burden of higher education than published charges is the net price (price less aid).

Despite the availability of financial aid, awards do not cover the entire financial need of substantial numbers of students.

Over the past decade, net price increased substantially at four-year colleges and universities. Although definitions vary, net price is defined here as published prices less average grant and education tax benefits for full-time students (The College Board, 2005a). Controlling for inflation, the net price of tuition and fees increased by 22% at private four-year institutions and 16% at public four-year colleges and universities between 1995-96 and 2005-06, and declined by 56% at public two-year institutions. Over the same period, the net price of tuition, fees, room, and board increased in real dollars by 21% at private four-year institutions, 29% at public four-year institutions, and 7% at public two-year institutions (The College Board, 2005a).

Declining Value of Federal Pell Grants

The largest source of grants for reducing college prices is the Federal Pell Grant program. In 2004-05, Pell Grants comprised 10% of the total amount of federal, state, and institutional aid used to finance postsecondary education expenses ($13.1 billion of $128.9 billion, The College Board, 2005b). In 2004-05, 5.3 million students received a Pell Grant (The College Board, 2005b).

Although the total amount of Pell Grant aid increased by 86% in constant dollars over the past decade, increases in Pell Grant awards have failed to keep pace with increases in college prices (The College Board, 2005b). In 2004-05, the maximum Pell Grant covered only 36% of the average published price of tuition, fees, room, and board at a public four-year college or university, down from 42% in 2001-02 (The College Board, 2005b). The maximum Pell Grant covered only about 15% of the average published price of tuition, fees, room, and board at a private four-year institution in 2004-05 (The College Board, 2005b). The actual maximum Pell Grant ($4,050 in 2005-06) continues to be substantially less than the authorized maximum ($5,800).

Substantial Unmet Financial Need

Despite the availability of financial aid, awards do not cover the entire financial need of substantial numbers of students. In 1999-00, about half of all full-time, full-year dependent under-

graduates had some amount of unmet financial need (defined as expected family contribution [EFC][1]), less all financial aid, including grants and federal loans), regardless of the type of institution attended (Choy & Berker, 2003).

At all types of institutions, unmet need is especially common among undergraduates in the lowest and second-lowest family income quintiles. Table 1 shows that at public two-year institutions, nearly all full-time, full-year dependent undergraduates from low- and lower-middle-income families had some amount of unmet need (92% and 81%, respectively), compared with 38% of those from middle-income families, 2% of those from upper-middle-income families, and virtually none of those from high-income families. More than two-thirds of low-income and lower-middle-income, full-time, full-year dependent undergraduates also had some amount of unmet financial need at public and private four-year institutions (Choy & Berker, 2003).

Table 1
Percentage of Full-Time, Full-Year Dependent Undergraduates with Unmet Need, by Family Income and Institutional Type: 1999-2000

Family income	Public 2-Year College	Public 4-Year College	Public 4-Year University	Private 4-Year College	Private 4-Year University
Low-income (less than $30,000)	92.3	82.7	73.7	81.5	78.4
Lower-middle-income ($30,000 - $44,999)	81.2	74.6	75.4	73.6	70.4
Middle-income ($45,000 - $74,999)	38.3	43.9	49.0	50.7	64.6
Upper-middle-income ($75,000 - $99,999)	2.2	7.8	16.3	33.4	52.5
High-income ($100,000 or more)	0.0	1.9	4.6	15.2	34.7
All income levels	52.5	47.2	42.5	51.6	56.4

Source: Choy & Berker (2003).

Yet another measure of the financial challenges that are involved with enrolling and persisting in college is the average amount of unmet need among full-time, full-year dependent undergraduates with some amount of unmet need. In 1999-

[1]Expected family contribution (EFC), or the amount a family is expected to contribute to a student's college costs, is determined by a formula specified under Part F of Title IV of the Higher Education Act of 1965 as amended. The EFC considers such factors as family income and assets, family size, and number of other college students in the family (U. S. Department of Education, 2004).

2000, average amounts of unmet financial need were higher at private four-year colleges ($5,600) and universities ($9,700) than at public four-year colleges ($3,600) and universities ($4,700, Choy & Berker, 2003).

To fully understand the implications of these data, several aspects of unmet financial need must be recognized. First, these data describe the prevalence and amounts of unmet financial need only for students who enrolled. In other words, students who did not obtain funds sufficient to pay their expected contribution and their unmet need are excluded from these analyses (Choy & Berker, 2003). Second, the analyses do not reveal the sources that students and their families used to pay expenses that were not met by financial aid, but suggest that some portion of students and their parents covered their unmet financial need by engaging in such strategies as reducing their living expenses, utilizing private loans, working more hours, assuming credit card debt, and soliciting financial assistance from extended family and/or friends (Choy & Berker, 2003). Third, these calculations of unmet need assume that students and their families borrowed the maximum amount of federal loans for which they were eligible. Students and families who are unwilling to borrow must identify additional resources to pay college prices (Choy & Berker, 2003).

Trends in borrowing suggest that growing numbers of students are utilizing federal and non-federal loans to pay college-related expenses.

Increased Borrowing among Middle-Income Students

Trends in borrowing suggest that growing numbers of students are utilizing federal and non-federal loans to pay college-related expenses. Possibly reflecting changes in the federal loan programs resulting from the 1992 amendments to the Higher Education Act, the use of federal loans to pay the costs of attendance increased over the past decade, especially among middle-income and upper-income undergraduates. The 1992 amendments authorized the unsubsidized Stafford Loans, which are loans that are not limited to students with financial need, and also made changes that increased the number of students who were eligible to receive subsidized loans (Perna, 2001). By 1999-2000, the rate of borrowing among middle-income undergraduates had reached the rate of borrowing among low-income undergraduates. Between 1992-93 and 1999-2000, the percentage of full-time, full-year, dependent undergraduates who received federal loans remained virtually unchanged among those in the lowest family income quartile (about 47%), but increased from 31% to 47% among those in the two middle family income quartiles, and increased from 13% to 32% among those in the highest family income quartile (U. S. Department of Education, 2003).

Likely driven, at least in part, by growth in unmet financial need (described above), the use of non-federal loans also increased over the past decade. The total amount of non-federal loans used to finance postsecondary education expenses

increased in constant dollars by 734% between 1995-96 and 2004-05, to $13.8 billion in 2004-05 (The College Board, 2005b). Between 1996-97 and 2004-05, the share of loan dollars awarded from non-federal sources increased from 6% to 18% (The College Board, 2005b).

Increasing Availability of Non-Need-Based Forms of Financial Assistance

During the past 15 years, additional forms of financial assistance became available to undergraduate students and their families. These forms of assistance, including federal tax credits and deductions; federal and state tax incentives; and state-supported, non-need-based financial aid, disproportionately benefit students and families with upper-middle- and upper-incomes (The College Board, 2005b; Dynarski, 2004; Kane, 1999b). Among middle-income families, some of these forms of assistance may promote choice of institution to attend. However, research shows that the federal tax credits are unrelated to both overall college enrollment and the share of students who attend four-year institutions (Long, 2004).

The federal Hope Scholarship is available to students and parents of dependent students who are enrolled in the first two years of college and who have adjusted gross incomes (joint filers) below $105,000. The Lifetime Learning tax credit is available to all students and parents of dependent students with adjusted gross incomes (joint filers) below $105,000 (The College Board, 2005b). In 2003, low-income families (i.e., adjusted gross income [AGI] below $30,000) realized 27% of the savings associated with the federal education tax credits, while middle-income families (AGI between $30,000 and $49,999) realized 30% of the savings and upper-middle-income families (AGI between $50,000 and $99,999) realized 43% of the savings (The College Board, 2005b).

Federal tuition and fee tax deductions are available to parents of dependent students with annual incomes (joint filers) up to $160,000. In 2003, low-income families (AGI below $30,000) received 19% of the savings from federal tuition and fee deductions and lower-middle-income families (AGI between $30,000 and $49,999) received 11%, while upper-middle-income families (AGI between $50,000 and $99,999) received 37% and upper-income families (i.e., AGI between $100,000 and $200,000) received 34% (The College Board, 2005b).

The federal government (through the Coverdell Education Savings Accounts) and states also offer tax incentives to encourage families to save for their children's college costs. In 2002, 49 states offered their residents the option of investing in tax-advantaged college savings, up from just 12 states in 1996, and 19 states offered prepaid tuition plans (College Savings Plans Network, 2005; The College Board, 2005b). The number of section 529 accounts (state-sponsored college savings plans) grew

from less than 500,000 in 1996, to more than 7.46 million by March 2005 (College Savings Plans Network, 2005). Average savings per account rose by about 60% over this period, from $4,959 in 1996 to $9,481 in 2005 (The College Board, 2005b). Total assets invested in section 529 plans rose by nearly 300%, from $2.4 billion in 1996 to $72.3 billion in 2005 (The College Board, 2004b; College Savings Plans Network, 2005).

Both the rate of investment and the return on investment in federal and state education savings accounts increase with income (Dynarski, 2004). Only 3% of all households with children age 16 and younger had a federal or state education savings account in 2001 (Dynarski, 2004). Compared with households with children age 16 or younger, households with a state or federal education savings account average higher incomes (median of $91,000 versus median of $50,000), higher net worth (median of $281,000 versus median of $61,830), and higher levels of educational attainment (16.2 years versus 13.9 years, Dynarski, 2004).

An additional "new" source of financial assistance that disproportionately benefits students from upper-middle- and upper-income families is the availability of state-supported financial aid that is awarded based on academic achievement rather than financial need (Cornwell & Mustard, 2002; Farrell, 2004). In 1993-94, only about 10% of all state supported assistance for undergraduate students was awarded based on criteria other than financial need (The College Board, 2005b). Since the early 1990s, however, the share of all state supported aid awarded without financial need as an eligibility criterion has increased, rising to 26% in 2003-04 (The College Board, 2005b).

Among the criteria commonly used to award financial aid in these programs are curricular requirements; grade point averages; scores on SAT, ACT, or other examinations; and class rank (Farrell, 2004). In Florida, Michigan, and New Mexico, students attending high-poverty high schools are less likely than students attending more affluent high schools to receive state merit-aid awards (Farrell, 2004). Low-income families are also paying a disproportionate share of the costs of programs that are financed via lotteries (e.g., Florida, Kentucky, and New Mexico) because the purchase of lottery tickets is inversely related to income (Cornwell & Mustard, 2002).

College Affordability

Trends in national economic indicators suggest that families, especially those at lower- and middle-income levels, are increasingly challenged to save money for or otherwise pay the costs of attending college. Other trends suggest that net college prices are increasing and that many students from lower- and lower-middle-income families have a substantial amount of financial need that is not covered by grants. Indicators of affordability—composite measures of net price relative to ability to pay—also illustrate that the financial burden imposed by college prices is

increasing. The trends are most problematic for students from lower- and lower-middle-income families attending private four-year colleges and universities.

One measure of affordability is the share of family income that is required to pay the costs of attendance at a particular type of institution, less all grant aid. Table 2 shows that in 2003-04, for all income groups, the share of income that is required to pay the costs of attendance less grant aid was lowest at public two-year colleges, somewhat higher at public four-year institutions, and highest at private four-year institutions (The College Board, 2005b).

Table 2
Percentage of Income Required to Pay Total Costs of Attendance[a] Less Grant Aid, by Institutional Type: 1992-93 and 2003-04

Institution Type	Lowest Income Quartile[b]	Lower-Middle Income Quartile[b]	Upper-Middle Income Quartile[b]	Highest Income Quartile[b]
Public 2-year				
1992-93	29%	15%	13%	6%
2003-04	37%	19%	13%	7%
Public 4-year				
1992-93	41%	22%	16%	10%
2003-04	47%	26%	18%	11%
Private 4-year				
1992-93	60%	33%	25%	17%
2003-04	83%	41%	28%	19%

[a]Total cost of attendance includes tuition, fees, room, board, transportation, and personal expenses.
[b]Family incomes are for dependent, full-time undergraduates. Quartiles vary by type of institution. At public two-year institutions, average family incomes are $17,900 for the lowest quartile, $46,100 for the 2nd quartile, $73,800 for the 3rd quartile, and $142,200 for the highest quartile. At public four-year institutions, average family incomes are $19,100 for the lowest quartile, $46,100 for the 2nd quartile, $75,000 for the 3rd quartile, and $136,000 for the highest quartile. At private four-year institutions, average family incomes are $19,100 for the lowest quartile, $45,900 for the 2nd quartile, $76,100 for the 3rd quartile, and $142,800 for the highest quartile.
Source: The College Board (2005a).

Regardless of institutional type, cost of attendance less grant aid represents a substantially higher share of income for dependent, full-time undergraduates in the lowest family income quartile than for other dependent, full-time undergraduates. For example, at public two-year colleges in 2003-04, net cost of attendance represented 37% of income for those in the lowest family income quartile, but only 19% of income for those in the lower-middle quartile, 13% for those in the upper-middle quartile, and 7% for those in the highest quartile (The College Board, 2005a).

Moreover, trends in this measure suggest that affordability of four-year public and private colleges and universities is declining for all undergraduates, especially for those in the lowest income quartile. Table 2 shows that between 1992-

93 and 2003-04, the share of income required to pay the net cost of attendance at public four-year institutions increased from 41% to 47% for low-income dependent, full-time undergraduates, from 22% to 26% for lower-middle-income undergraduates, from 16% to 18% for upper-middle-income undergraduates, and from 10% to 11% for high-income undergraduates (The College Board, 2005a). At private four-year institutions, both lower- and lower-middle-income families faced substantially reduced affordability, as the share of their income required to pay the cost of attendance less grant aid increased from 60% to 83% for those in the lowest quartile and from 33% to 41% for those in the lower-middle quartile, compared with increases from 25% to 28% for those in the upper-middle quartile and from 17% to 19% for those in the highest quartile (The College Board, 2005a).

Implications for College Opportunity

Forty years after the enactment of the Higher Education Act of 1965, college access and choice continue to be positively related to family income (Baum, 2005). Although college enrollment rates increased over the past three decades regardless of family income, the size of the gaps across groups remained relatively stable. Specifically, the gap in college enrollment rates between students from low- and high-income families fluctuated around 30 percentage points, while the gap between students from middle- and high-income families fluctuated around 20 percentage points. In 2002, 51% of high school completers with family incomes in the lowest quintile were enrolled in college in the October after completing high school, compared with 61% of those from middle-income families and 80% of those from family incomes in the top quintile (U.S. Department of Education, 2005).

Family income is related not only to college access, but also to the type of college attended. In 1999-2000, family income was positively related to attendance at private, not-for-profit four-year institutions but negatively related to attendance at public two-year institutions or private for-profit, less-than-four year institutions (Choy, 2004). About one-third of full-time, full-year dependent undergraduates in the highest family income quartile attended private, not-for-profit four-year colleges and universities in 1999-00, compared with only 23% of those in the lowest family income quartile, 24% of those in the lower-middle-income quartile, and 28% of those in the upper-middle quartile (Choy, 2004). In contrast, only 13% of full-time, full-year dependent undergraduates in the highest family income quartile attended public two-year institutions in 1999-2000, compared with 25% of those in the lowest income quartile, 22% of those in the second income quartile, and 19% of those in the third income quartile (Choy, 2004).

Moreover, the share of undergraduates who attend public two-year colleges—especially students with the lowest family

Table 3
Distribution of Full-Time, Full-Year Dependent Undergraduates by Institutional Type and Family Income Quartile: 1989-90 and 1999-2000

Year	Income Quartile[a]	Public 2-Year	Public 4-Year	Private NFP 4-Year	Private, for-Profit <4-Year	Total
1989-90	All	16%	52%	28%	4%	100%
1999-00	All	19%	51%	27%	2%	100%
1989-90	Lowest quartile	16%	47%	28%	9%	100%
1999-00	Lowest quartile	25%	47%	23%	5%	100%
1989-90	Lower-middle quartile	20%	54%	23%	4%	100%
1999-00	Lower-middle quartile	22%	52%	24%	2%	100%
1989-90	Upper-middle quartile	16%	56%	25%	3%	100%
1999-00	Upper-middle quartile	19%	52%	28%	2%	100%
1989-90	Highest quartile	11%	52%	36%	1%	100%
1999-00	Highest quartile	13%	54%	33%	1%	100%

[a]Average incomes in 1999-00 were $18,800 for the lowest quartile, $43,100 for the lower-middle quartile, $67,600 for the upper middle-quartile, and $124,600 for the highest quartile.
Source: Adapted from Choy (2004).

incomes—increased during the 1990s. Although the share of full-time, full-year dependent undergraduates attending public two-year colleges increased for all family income quartiles, the shift was larger among undergraduates in the lowest income quartile. Table 3 shows that between 1989-90 and 1999-2000, the share of full-time, full-year dependent undergraduates in the lowest family income quartile attending public two-year colleges increased from 16% to 25% (Choy, 2004).

Implications for Federal, State, and Institutional Policymakers

The data described in this article suggest that the ability of lower- and middle-income families to pay the costs of college attendance declined in recent years as incomes grew more unequal, health care costs and debt burdens increased, and personal saving rates declined. At the same time, tuition and fee charges increased dramatically and the real value of the Federal Pell Grant declined. At all types of institutions, more than two-thirds of undergraduates from low- and lower-middle-income families face some amount of need that is not covered by grants and federal loans, requiring students and their families to identify other resources to finance college prices, including non-federal loans. Considering income and net costs of attendance together suggests that affordability declined during the 1990s, especially for students from lower- and lower-middle-income families at private four-year colleges and universities (The College Board, 2005a).

A consideration of these trends in light of enrollment patterns suggests that the decline in affordability has restricted

students' choice of college to attend. Regardless of income, higher shares of students are now attending public two-year colleges. In other words, although the observed relationship between family income and college access is relatively unchanged, the college choices of those who enroll appear to be increasingly related to family income.

Higher education leaders can do little to improve the ability of students and their families to pay college prices (e.g., by increasing their family incomes or reducing health care and other costs). However, higher education leaders can act to reduce the other half of the affordability equation: the net price that students and families must pay. In short, institutional policymakers should act to control the cost of higher education; state governments should maximize appropriations to higher education institutions; and federal, state, and institutional policymakers should better target available resources to students and families with the greatest financial need (Baum, 2005). These strategies are critical to ensuring college access and choice for students from low- and lower-middle-income families.

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Institutional policymakers will improve the affordability of higher education by controlling the costs of production. Determining trends in the costs of higher education is difficult because, at all types of non-profit higher education institutions, these costs are subsidized by various sources including state appropriations and private contributions. Nonetheless, trends in college prices suggest that the costs of production have increased over the past two decades. Sponsored by the Lumina Foundation for Education, the publication *Course Corrections*: *Experts Offer Solutions to the College Cost Crisis,* offers several recommended approaches for reducing college costs. These recommendations include outsourcing functions that are not central to the institution's mission (Bushman & Dean, 2005; Coplin, 2005), developing dual enrollment programs with high schools so that students can earn bachelor's degrees in less time, granting credit for programs conducted by student services (Coplin, 2005), and using technology to redesign the delivery of courses (Twigg, 2005). By identifying ways to reduce the costs of production, institutions will likely improve their affordability.

State policymakers can help ensure the affordability of higher education by maximizing appropriations to higher education institutions (Mumper, 2001). However, in recent years, the share of higher education revenues that is funded by state governments has declined (National Center for Public Policy & Higher Education, 2002), and some have concluded that that states are no longer committed to ensuring affordable higher education (Mumper, 2001). Moreover, higher education is unlikely to receive greater financial support in future years, because of projected gaps between revenue growth and costs of public services (Jones, 2006).

Given the challenges that are associated with cutting costs and increasing appropriations, it is likely that federal, state, and institutional policymakers can most effectively improve college affordability by better targeting scare financial aid resources toward students from lower- and lower-middle-income families. The data in this article reveal that students from lower- and lower-middle-income families experience greater college affordability challenges than students from upper-middle- and upper-income families. A review of the trends, including the use of "newer" forms of financial assistance, suggests the importance of carefully defining "middle-income."

F. Duane Quinn (1990), director of financial aid at Lesley College, reached a similar conclusion. Writing 15 years ago, Quinn argued for differentiating between the statistical middle class and the emotional middle class. Per Quinn, the emotional middle class has incomes above the 75th percentile of the distribution and "attempts to maintain a standard of living that equals or exceeds its annual income" (p. 12). The emotional middle class "finance[s] current expenditures out of future income" and, for this and other reasons, "is woefully unprepared to face the costs of higher education" (p. 12). The college affordability "problem" for the emotional middle class may be met by providing early information about college costs and college savings strategies, but should not be addressed by providing scarce financial aid resources (Quinn, 1990). On the other hand, financial aid resources are required to address the real financial needs of lower- and lower-middle-income students.

Policymakers may better target scarce financial resources toward lower- and lower-middle-income students by reconsidering the formula for determining eligibility for financial aid. More specifically, federal policymakers should consider how the Federal Methodology for determining the EFC should be modified to more accurately reflect students' and their families' ability to pay college prices and to distribute available aid more equitably (Baum, 2005). Congress has periodically modified the formula, with changes focusing on such issues as "the student's age at which their parents' income should be considered (currently age 24); how to treat noncustodial and stepparents' income when parents are divorced; how home equity should be treated; which assets should be counted; what percentage of income and assets should be contributed; and how much students should be expected to work" (Choy & Berker, 2003, p. 17). Policymakers should continue to assess the effectiveness of the current formula.

Federal, state, and institutional policymakers should also consider ways to maximize the availability of need-based grants for low- and lower-middle-income families. Although financial resources are scarce, federal policymakers should strive to fully fund the Federal Pell Grant Program. In addition, federal policymakers should modify the federal tax credits to increase

their effectiveness in promoting college enrollment for low-income students, by making them refundable and broadening eligible expenses to include room, board, and other college-related expenses (Baum, 2005).

Because of their political popularity, state-sponsored merit aid programs are probably here to stay. However, state policymakers should consider ways to modify these programs to reach more low-income students (e.g., by modifying eligibility criteria to also include financial need). To ensure college access and choice for all students, regardless of family income, financial aid administrators on individual college campuses should regularly examine affordability at their own institution. Regular attention to affordability is required not only to assess the extent to which the national patterns identified in this article pertain to individual campuses, but also to assess the effects on affordability of future changes in ability to pay and costs of attendance.

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Finally, federal, state, and institutional policymakers should work to increase the transparency of student financial aid processes and awards (Advisory Committee on Student Financial Assistance, 2005; Baum, 2005: Hearn, 2001; Heller, in press; Kane, 1999a; Perna, in press). The perception that college is not affordable is driven, in part, by the challenges that are associated with easily estimating financial aid eligibility and awards. In its congressionally mandated report, the Advisory Committee on Student Financial Assistance (2005) concluded that the nation's current system of student financial aid is daunting and onerous for many individuals, largely because of the inherent complexities.

Complexities with the student financial aid system arise from at least four sources. First, the FAFSA form is often difficult to complete (see Heller, in press; Kane, 1999; Venegas, in press). Second, the formula for determining eligibility for federal financial aid awards is complicated and changes over time (see Heller, in press; Kane, 1999). Changes in the federal methodology can reduce the federal financial aid for which students are eligible (see Burd, 2005). Third, the absence of coordination among different providers of student financial aid as well as providers of other means-tested public assistance, including the federal government, state governments, colleges and universities, and private organizations, also contributes to the complexity (Advisory Committee on Student Financial Assistance, 2005). Because of the lack of coordination, students and parents must repeatedly demonstrate their eligibility for different sources of aid, even when all aid is awarded based on financial need (Advisory Committee on Student Financial Assistance, 2005). Finally, complexity is attributable to the expansion of the available types of aid. Whereas aid once took the form of grants, loans, or work-study, now aid also comes in the form of prepaid tuition plans, college savings plan trusts, college savings bonds, and federal tuition tax credits (Hearn, 2001).

Conclusion

Because of changes in ability to pay, college prices, and financial aid, college affordability has declined in recent years, especially for lower- and lower-middle-income students and their families. In order to ensure college access and choice for these students, federal, state, and institutional policymakers must improve college affordability. The most effective strategies are likely those that result in better targeting of scare financial aid resources toward students from lower- and lower-middle-income families.

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