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An Analysis of Employing the Circuit Breaker as an Alternative Approach for Targeting Aid to Low-Income Students in Kentucky

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An Analysis of Employing the Circuit Breaker as An Alternative Approach for Targeting Aid to Low-Income Students in Kentucky

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[1] Family net price is only computed for students who complete a Free Application for Federal Student Aid (FAFSA).

EXECUTIVE SUMMARY

Affordability is an essential element of college opportunity. The federal government and the states have acknowledged this belief by adopting policies to ensure that no academically qualified student who desires an education is limited access due to a lack of financial resources. But, many lower-income families today are having trouble paying for college due to a unique set of circumstances. First, the cost of higher education as a percentage of income has been increasing for over a decade, causing families to spend increasingly larger proportions of their incomes to afford postsecondary education. Second, the federal government has shifted its emphasis from providing aid through grants, which tend to benefit lower-income students, to loans and education tax benefits, which tend to benefit wealthier students. Third, many states have created merit-based financial aid programs, which also benefit higher income students, as achievement tends to be positively correlated to income. Combined, these elements have put higher education out of reach for many low-income students and families. These trends have been especially acute in Kentucky.

The purpose of this paper is to introduce a relative measure of ability-to-pay for higher education services. In the process, this study

- identifies the factors that have contributed to the affordability problem.
- surveys the various federal and state financial aid programs currently available to Kentucky students and families
- designs and estimates the cost of a comprehensive program which targets financial aid to Kentucky's poorest students

The approach designed in this study was modeled after a widely-used policy for providing property tax relief to low-income and elderly homeowners. Named for how they are activated, circuit breakers provide benefits only when property taxes exceed a certain percentage of a taxpayers' income and tend to direct benefits to the most disadvantaged taxpayers. The cost of the program was calculated using enrollment and cost of attendance data obtained from an affordability study conducted for the Kentucky Council on Postsecondary Education in 2005. The results of this study indicate that such a program could serve as a reasonable program for supplementing need-based aid to Kentucky's most disadvantaged students.

The study recommends that the state conduct studies to examine the benefits and costs of adopting an approach based more on a student's ability to pay. In line with the 2005 affordability study, this paper also recommends state policy makers develop a standard measure of affordability for the state and to begin gather longitudinal student data to better estimate how ability-to-pay affects college choices. Targeting benefits to those students that need them the most may be the only way to ensure that all high-ability students have equal access to higher education regardless of income.

Developing new affordability measures and methods that target financial aid to low-income and disadvantaged students will help reduce financial barriers and enhance access to and participation in higher education in Kentucky.   Although most evidence suggests that the benefits from college tend to be distributed to the individuals consuming higher education, it provides a number of positive externalities to society such as better citizenship; higher degrees of compliance with public laws, increased per-capita income. In the end such policies will improve the overall lives of Kentuckians and provide a more promising future for the state.

INTRODUCTION

Over the last two decades, the cost of attending college in the United States has outpaced growth in both core inflation and real incomes. The rising cost of higher education has been particularly problematic for low-income students, as their share of income required to pay for tuition has nearly doubled since the 1980s.

The following trends have contributed to this widespread affordability problem:

- Tuition inflation continues to outpace increases in real income
- An increasing percentage of federal need-based aid provides a majority of benefits to middle and higher-income students
- Financial aid as a percentage of incomes continues to decrease
- States have been shifting from need-based to merit-based financial aid
- The decreasing proportion of state budget appropriations dedicated to higher education

(Kentucky Legislative Research Commission)

In this study, an income-tested model for providing financial aid to low income students and student families in Kentucky will be developed. The model in this study will be designed based on the property tax circuit breaker, which provides a flexible way of targeting property tax relief to elderly and low-income homeowners.

Higher Education Affordability and Access

Extraordinarily high tuition inflation has been the principal driver of this affordability problem. In 1980, tuition at a public four-year institution represented approximately 13 percent of income for the lowest income quintile, nationally. In 2000, tuition approximated 25 percent of income for these families and students. Conversely, incomes for wealthy families have kept pace with inflation. In 1980, tuition at a public four-year institution represented 2 to 3 percent of income for the highest two respective

income quintiles, compared to 3 to 5 percent in 2000. (National Center on Public Policy and Higher Education [NCPPHE] 2006; U.S. Census Bureau).

The largest growth in the cost of attendance has occurred recently. As indicated in Table 1 below, average tuition, fees, room and board costs as a percentage of median family income increased over four and half percentage points between 2000 and 2005. In academic year 2001, these costs represented 17 percent of median family income. These costs represented almost 22 percent of median family income in academic year 2005. Overall, the average cost of attendance as a percentage of median family income increased 27.6 percent from academic year 1996 to academic year 2005 or 2.8 percent annually.

Table 1 – Average Annual Published Tuition, Fees, Room and Board (TFRB) Costs at Public four-year Institutions (1995-96 to 2004-05); U.S. Median Family Income (1995 to 2004); TFRB Costs as a Percentage of U.S. Median Family Income[2]

	Average TFRB Costs		Median Family Income[3]		Average TFRB Costs as a Percentage of Median Family Income
	Current Dollars	Constant (2004-05) Dollars	Current Dollars	Constant (2004) Dollars	
1995-96	6,743	8,550	40,611	50,337	17.0%
1996-97	7,142	8,805	42,300	50,927	17.3%
1997-98	7,469	9,046	44,568	52,454	17.2%
1998-99	7,769	9,258	46,737	54,197	17.1%
1999-00	8,080	9,360	48,831	55,434	16.9%
2000-01	8,439	9,442	50,732	55,652	17.0%
2001-02	9,032	9,930	51,407	54,832	18.1%
2002-03	9,672	10,404	51,680	54,265	19.2%
2003-04	10,530	11,085	52,680	54,083	20.5%
2004-05	11,376	11,709	54,061	54,061	21.7%

Sources: College Board, *Trends in College Pricing (2005)*; U.S. Census Bureau.

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[2] Median family income in Kentucky in 1999 was $40,939. This amount was adjusted for inflation using the consumer Price Index for all urban dwellers (the CPI-U) is used to adjust for inflation. Updated CPI data are available from the Bureau of Labor Statistics web site (http://stats.bls.gov/cpihome.htm). The academic base year 2005-06 was extrapolated from the current CPI data and covers July 2005 to June 2006 (estimated). See Appendix A for the formula for constant dollar conversion. To calculate 2005 inflation adjusted median family income for 1999, $40,939 was divided by 0.858 to obtain the result of $47,705.

[3] Note that median family income data are presented on a calendar year basis. For instance, median family income in constant 2004 dollars for calendar year 1995 was $50,337.

These results reinforce that fact that incomes have not kept pace with the rising costs of higher education.

Similar trends have been identified in Kentucky. Between 1997 and 2005, tuition and fees at Kentucky public postsecondary institutions have increased at an average annual rate of 9 percent from $2,509 in 1997 (adjusted for inflation) to $4,502 in 2005 (National Center of Educational Statistics). Over the same period, median family income has decreased at annual rate of 0.4 percent when adjusted for inflation, from $47,705 in 1999 to $46,214 in 2005.

The NCPPHE recently found that net college cost to attend a four-year institution in Kentucky, represented 40 percent of annual family income for low and middle-income students[4] (2006). As a result, the Center gave Kentucky a failing grade on its state report card for affordability from *Measuring Up 2006*[5]. A summary of the nets costs for Kentucky families is provided in Table 2.

Table 2 – Net Costs to Attend Public four-year Colleges as a Share of Income for Kentucky Families by Income Quintile (1992 and 2005)

	Net Costs as a Share of Income		
	Highest 20%	Middle 20%	Lowest 20%
Average Family Income	$104,412	$39,770	$10,000
Net College Cost*	$9,356	$9,088	$6,952
1992	7%	16%	53%
2005	9%	23%	70%
Percentage Point Increase	2%	7%	13%

Source: NCPPHE (2006).

It is important to emphasize that the Kentucky's median family income in 2005 was $46,214, ranking 44th nationally.

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[4] Net college cost is the cost of attending college less grants from all sources. Most researchers assert that net college cost provides the best measure of a student's price of attending college.

[5] Note that 43 states received failing grades on their state reports cards for affordability from the NCPPHE's *Measuring Up 2006* and no states received an "A" or "B" grade.

In 2005, the Kentucky Council on Postsecondary Education (CPE) conducted a comprehensive study of college affordability in Kentucky (hereto referred to as the Affordability Study). The results of the study suggested that higher education is reasonably affordable for most full-time students. However, the study did indicate that lower-income, especially independent students, face a higher net price, which usually requires these students to undertake larger relative debt burdens[6]. Chart A demonstrates that low-income students pay lower net price than do most affluent students. However, Chart A also demonstrates that these same lower-income students pay a higher net family price, which according to the Affordability Study is the best measure of affordability.

Chart A - Average sticker price, net price (sticker price-grants), family net price (sticker price–grants–family contribution) and out-of-pocket costs (sticker price-grants-loans) for all full-time Kentucky undergraduates by income group (Academic Year 2004)[7]
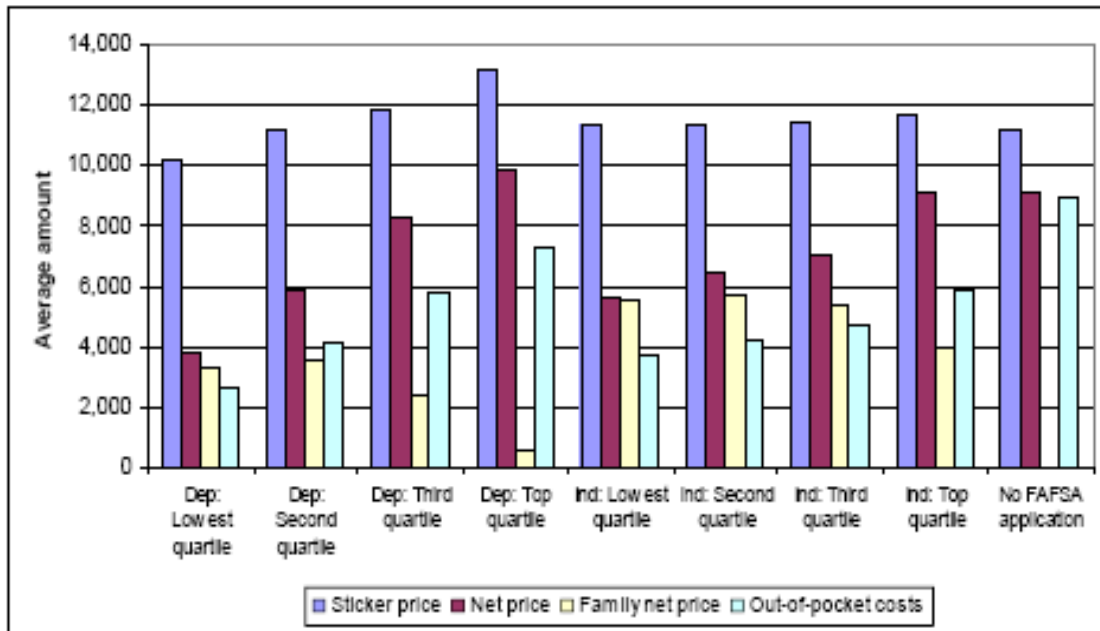
Source: Kentucky Council on Postsecondary Education.

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[6] Although the federal government's definition of an independent student is more encompassing, the Affordability Study defined an independent student as any student age 24 or older.

[7] Family net price is only computed for students who complete a Free Application for Federal Student Aid (FAFSA).

The federal government began subsidizing the cost of higher education with the passage of the Higher Education Act of 1965 (HEA). Part of Lyndon B. Johnson's Great Society programs, the HEA established a broad federal policy for higher education by creating numerous scholarships and low-interest loan programs for students and families. The primary goal of aid programs authorized under the HEA is to guarantee that no "academically qualified student who desires an education is denied access because of a lack of financial resources" (National Association of Student Financial Aid Administrators).

The Federal government awarded over $90 billion in grants and loans in academic year 2005, with nearly of $63 billion or 70 percent provided in the form of student loans. Federal loans represent approximately 45 percent of all aid awarded to students attending postsecondary educational institutions. Student loans represent the fastest growing form of student aid provided at all levels of government. Figure A demonstrates the growth in all forms of financial aid used to finance higher education expenses over the last decade.

Figure A: Ten Year Trend in Funds Used to Finance Postsecondary Education Expenses: 1994-95 to 2004-05
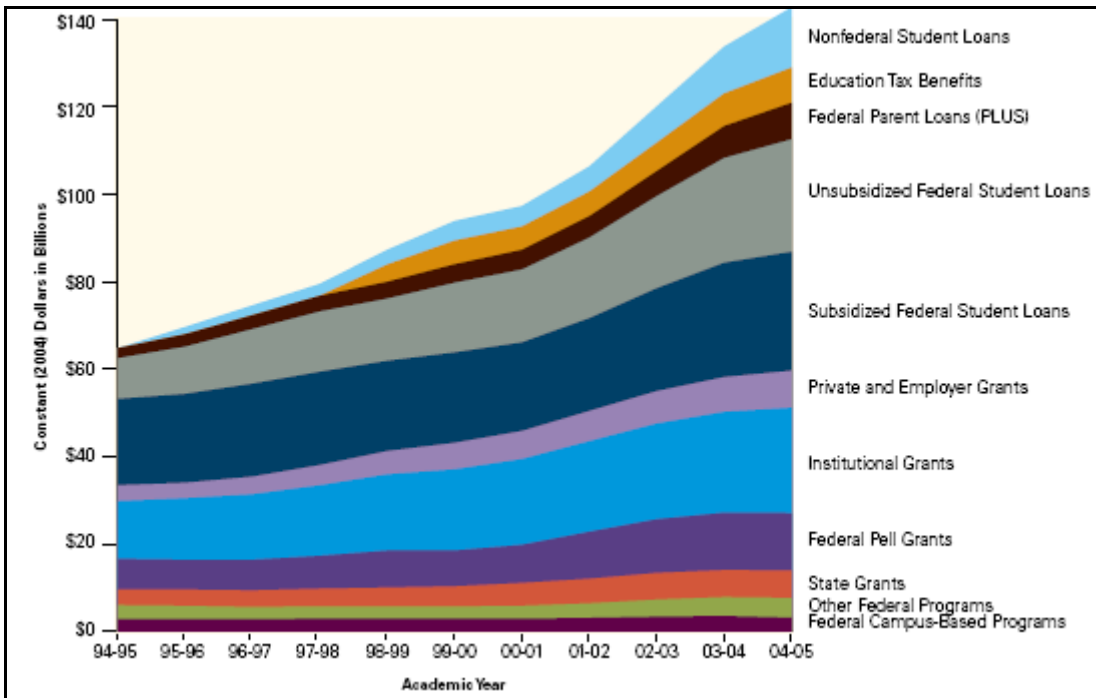
Source: College Board, *Trends in Student Aid (2005).*

As illustrated, most of growth in funding has occurred from nonfederal student loans, unsubsidized federal student loans, education tax benefits, and institutional grants. See Appendix B for summary of federal student aid categories illustrated in Figure A.

Approximately $15 billion is provided annually in grants through the Federal Pell Grant and Supplemental Educational Opportunity Grants (SEOG) programs. During academic year 2005, Kentucky students received over $128 million in Pell Grants and over $12 million in Federal SEOG programs. A summary of total awards provided through federal financial aid grant programs is available below in Table 3. The average Federal Pell Grant and SEOG program awarded to Kentucky students for academic year 2005 was $2,528 and $592, respectively. A summary of federal grants awarded Kentucky students is provided in Table 4. With the exception of veteran and military

educational benefits, nearly all aid awarded at the federal level is allocated on the basis on need and can be used at almost any type of public or private institution in the United States. A summary of eligibility criteria for federal grant awards is provided in Table 5.

In response to severe tuition inflation in the early 1990s, the federal Taxpayer Relief Act of 1997 created the HOPE Scholarship and Lifetime Learning Tax Credits, indicating a new period of need-based federal aid. The federal government awarded over $8 billion in tax credits from these two programs in calendar year 2005. One study found that Kentucky students received approximately $55 million in education tax benefits from the federal government for tax year 2003 (Long).

During the late 1960s and through the 1980s, the conventional wisdom was that government subsidies should be targeted through means-tested and resource-based eligibility requirements to the most disadvantage students and families (Mumper). But things changed in the early 1990s when college affordability emerged as an important issue for the middle class due to steep tuition increases during a period economic recession. Since most middle class families and students were not eligible for means-tested aid, the federal government and the states began to shift the emphasis of financial aid from low-income students to those more affluent groups that were attending college (NCPPHE, 2002).   The extent of this change is demonstrated in Figure A. This was accomplished by relying more heavily on loans and less on grants to fund higher education.   Although some researchers claim that loans might encourage students to work harder while in school, no evidence was identified suggesting that loans have a positive effect on enrolment.

Table 3: Summary of Federal Financial Aid Grant Programs (Academic Year 2004-2005)

Program	Total Awards 2004-05	Total Awards to Kentucky Recipients 2004-05	Awards to Kentucky Recipients as % of Total Awards 2004-05	Total Dollars Awarded 2004-05	Total Dollars Awarded to Kentucky Recipients 2004-05	Dollars Awarded to Kentucky Recipients as % of Total Dollars Awarded 2004-05	Average National Award 2004-05[1]	% of Total Federal Student Financial Aid
Federal Pell Grant	5,302,000	83,762	1.6%	$13,090,000,000	$202,468,947	1.7%	$2,469	14.5%
Federal SEOG[2]	1,278,000	20,292	1.4%	$771,000,000	$12,005,929	1.1%	$603	0.9%
Federal Work Study	826,000	11,676	1.4%	$1,194,000,000	$19,867,677	1.8%	$1,446	1.3%
LEAP[3]	N/A	N/A	N/A	$64,000,000	N/A	N/A	N/A	0.1%
Veterans	N/A	N/A	N/A	$2,894,000,000	N/A	N/A	N/A	3.2%
Military/Other Grants	N/A	N/A	N/A	$1,404,000,000	N/A	N/A	N/A	1.6%
Education Tax Benefits[4]	N/A	128,000	1.2%	$8,037,000,000	$54,628,000	1.1%	N/A	8.9%
Total Federal Grant Aid				**$27,454,000,000**				
Federal Loan Programs[5]		64,157		$62,614,000,000	$353,394,843	0.6%		
Total Federal Non-Grant Aid				**$62,614,000,000**			**$1,334**	

Sources: The U.S. Department of Education; The College Board; CPE, State-Wide Fact Sheet, U.S. Department of Education studentaid.ed.gov.

[1] Average award was calculated by dividing *Total Dollars Awarded* by *Total Awards to Kentucky Recipients*
[2] Supplemental Educational Opportunity Grant (FSEOG)
[3] Leveraging Educational Assistance Partnerships (LEAP)
[4] Information on education tax benefits for Kentucky were obtained from a study conducted Bridget Terry Long: *The Impact of Federal Tax Credits for Higher Education* (2003)
[5] Federal loan programs include Perkins Loans, Subsidized and Unsubsidized Stafford Loans, PLUS and other minor loan program

Table 4: Summary of KHEAA-Administered and Federal Financial Aid Grant Programs Awarded to Kentucky Resident Students (Academic Year 2004-2005)

Program	Need-Based	Merit-Based	Special-Purpose	Maximum Award 2004-05	Total Awards 2004-05	Total Dollars Awarded 2004-05	Average Award 2004-05[7]	Dollars Awarded as a % of Total State Student Financial Aid	Dollars Awarded as a % of State Need-Based Financial Aid
KEES Scholarships		X		$2,500	63,641	$80,872,626	$1,271	49.1%	N/A
College Access Program Grants	X			$1,400	44,244	$50,133,217	$1,133	30.5%	64.9%
Kentucky Tuition Grants	X			$2,900	11,681	$26,232,595	$2,246	16.0%	34.0%
KHEAA Teacher Scholarships			X		521	$2,025,533	$3,888	1.3%	N/A
KHEAA Work Study	X				1,042	$843,274	$809	0.5%	1.1%
National Guard Tuition Scholarships			X		1,064	$2,607,094	$2,450	1.6%	N/A
Early Childhood Development Scholarships			X		962	$846,539	$880	0.5%	N/A
Osteopathic Medicine Scholarships			X		85	$888,080	$10,448	0.5%	N/A
Total KHEAA-Administered Aid						**$164,448,958**	**$1,334**		
Federal Pell Grant	X			$4,050	83,762	$202,468,947	$2,417[2]	N/A	N/A
FSEOG[1]	X[2]			$4,000	20,292	$12,005,929	$592	N/A	N/A
Federal Work Study	X			No Max	11,676	$19,867,677	$1,702	N/A	N/A
LEAP[3]	X			$5,000	N/A	N/A	N/A	N/A	N/A
Veterans			X		N/A	N/A	N/A	N/A	N/A
Military/Other Grants			X		N/A	N/A	N/A	N/A	N/A
Education Tax Benefits[4]	X				128,000[5]	$54,628,000	$708	N/A	N/A
Total Federal Grant Aid									
Federal Loan Programs[6]					64,157	$353,394,843	$5,508		

Sources: KHEAA; AIKCU; The U.S. Department of Education; Long.

[1] Federal Supplemental Educational Opportunity Grant (FSEOG)

[2] The FSEOG is for undergraduate students with "exceptional" financial need with the lowest EFC

[3] Leveraging Educational Assistance Partnerships (LEAP)

[4] Information on education tax benefits for Kentucky were obtained from a study conducted Bridget Terry Long: *The Impact of Federal Tax Credits for Higher Education* (2003)

[5] Amount represents expected number of beneficiaries (projected by the federal government based on approximately 77 million tax returns)

[6] Federal loan programs include Perkins Loans, Subsidized and Unsubsidized Stafford Loans, PLUS and other minor loan programs

[7] Average award was calculated by dividing *Total Dollars Awarded* by *Total Awards*

Table 5: Summary of Eligibility Criteria for KHEAA-Administered and Federal Aid Grant Programs (Academic Year 2004-2005)

Program	Awarded to Students attending a Kentucky Public Institution	Awarded to Students attending a Kentucky Private Institution	Awarded to Students attending a Kentucky Independent Institution	Awarded to Students attending a Kentucky Junior or Technical College	Awarded to Full-time Students	Awarded to Part-time Students	Awarded to Undergraduate Students	Awarded to Graduate and Professional Students	Related Funding Supports Educational Costs in Addition to Tuition
KEES Scholarships	X	X	X	X	X		X		X
College Access Program Grants	X	X	X	X	X	X	X		X
Kentucky Tuition Grants		X	X	X	X		X		X
KHEAA Teacher Scholarships	X	X	X		X		X	X	X
KHEAA Work Study	X[1]				X	X	X		X
National Guard Tuition Scholarships[2]									X
Early Childhood Development Scholarships	X					X			X
Osteopathic Medicine Scholarships[3]			X		X			X	X
Federal Pell Grant	X	X	X	X	X	X	X		X
Federal SEOG[4]	X	X	X	X	X	X	X		
Federal Work Study	X	X	X	X	X	X	X	X	
LEAP[5]	X	X	X	X	X[6]	X[6]	X[6]	X[6]	
Veterans	X	X	X	X	X	X	X	X	
Military/Other Grants	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Education Tax Benefits	X	X	X	X	X	X	X	X	

Sources: KHEAA; AIKCU; The College Board, studentaid.ed.gov.

[1] Only includes select Kentucky public institutions

[2] No eligibility information was collected for the National Guard Tuition Scholarships

[3] Only eligible to students attending Pikeville's College's School of Osteopathic Medicine

[4] Supplemental Educational Opportunity Grant (SEOG)

[5] Leveraging Educational Assistance Partnerships (LEAP)

[6] Average award and eligibility criteria varies state to state

Most commentators indicate that grants are more likely to encourage enrollment of lower-income students[8]. Since lower-income students tend to be more risk adverse, they are less willing to accept debt to cover the costs of higher education and as a result tend to enroll less than wealthier students.

A report from the 2001 Advisory Committee on Student Financial Assistance found that the funding of state merit-based programs increased in 336 percent in real dollars, whereas funding for need-based aid programs had increased on 88 percent, since 1993 (Mumper). In Kentucky, nonneed-based grant aid awarded increased 917 percent from academic year 2000 to academic year 2005. Over the same period, need-based grant aid awarded increased 88 percent, and total grant aid awarded increased 230 percent. Note that the extraordinary growth in nonneed or merit-based aid can attributed to the fact that the Kentucky Educational Excellence Scholarships (KEES) program did not begin making awards until fiscal year 2000 and did not reach its full granting potential until 2006[9]. Today fifteen states have adopted comprehensive merit-based financial aid programs and another nine states have implemented programs with a merit component. A summary of these programs is available in Appendix C.

Kentucky reformed its higher education system with the passage of the Kentucky Postsecondary Education Improvement Act of 1997, commonly known as House Bill 1. The bill created the CPE which serves as the primary oversight body for Kentucky's higher education institutions. The Kentucky Higher Education Assistance Authority (KHEAA) was established by an act of the General Assembly in 1966 to improve access

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[8] Leslie and Brinkman (1987) reviewed over 20 studies and found that lower-income students tend to be more sensitive to changes in the price of higher education than higher-income students. Heller updated Leslie and Brinkman study in 1997 referring to McPherson and Shapiro (1989, 1993). Manski and wise (1983) estimated that Pell Grants raised enrollments by 21 percent, with the greatest effect on poorer students (Wahl).
[9] Approximately $7 million in awards were made from the KEES Program in FY2000, representing approximately 3% of all KHEAA awards distributed that year.

to higher education for Kentucky students. The Authority serves as the primary agency for administering financial aid programs for the state.

Kentucky provides over 95 percent of its grant aid through three flagship grant programs – the KEES Program, College Access Program (CAP) Grants, and the Kentucky Tuition Grant (KTG). Although restricted to undergraduate students, the awards provided by each of these programs can used at nearly any public or private institution in the state of Kentucky. Furthermore, financial aid awards from the KEES, KTG, and CAP Grant program support educational costs beyond tuition and fees (room and board, books, and living expenses). Table 4 provides a summary of merit and need-based financial aid programs provided through the KHEAA. Table 5 provides a summary of eligibility requirements for financial aid programs provided through the KHEAA.

Shortly following the passage of House Bill 1, the state created the KEES. The KEES provides the largest source of merit-based awards for the state, representing 93 percent of all state-provided merit-based financial aid. During academic year 2005, over $80 million were awarded to Kentucky undergraduate students. The amount of a KEES award is determined by a student's high school grade point average in five courses of study defined by the CPE, and a student's ACT score.   A detailed summary of the KEES Program and how it operates is provided in Appendix D.

The KEES program is that it awards financial aid to students based on academic achievement. The problem with this approach is that such achievement is positively correlated with family income (Heller, 2001). In 2003, the Kentucky Legislative Research Commission found that students from wealthy families tend to have better grades and ACT scores and as result tend to receive larger KEES awards than lower-

income students[10]. As demonstrated in Figure B, students with family incomes between

$15,000 and $19,999 earned an average KEES award of approximately $775, while

students with family incomes between $100,000 and $104,999 received an approximate

award of $1,150. Note that most independent students are not eligible to participate in

the KEES program because of age.

Figure B – Average KEES Award FY2000 to FY2003 by Net Family Income Range
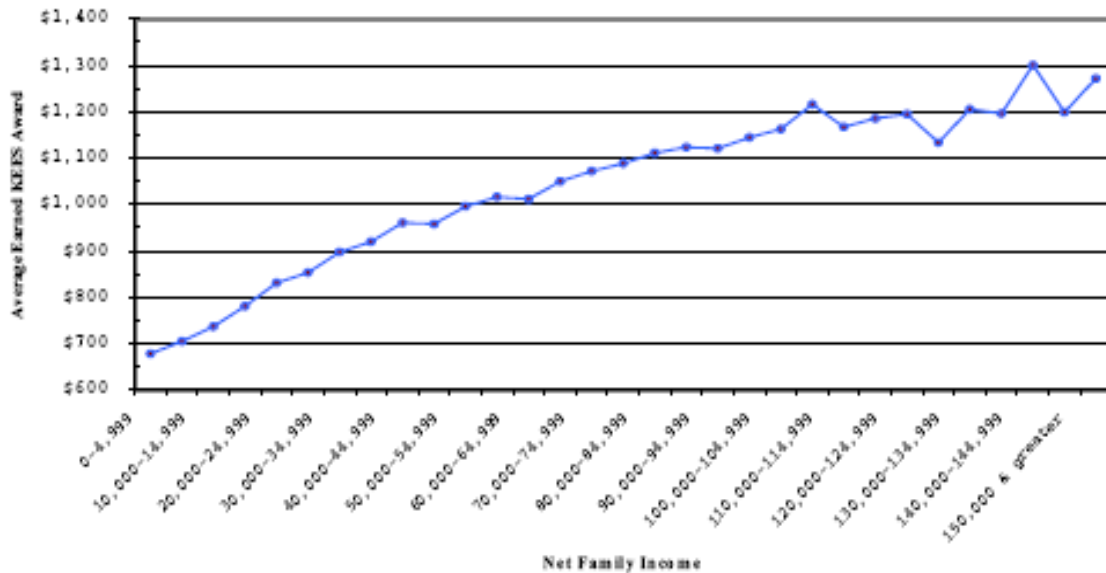
Source: LRC; KHEAA (based on federal income data collected for FAFSA completers).

Some researchers argue that this problem is mitigated for many disadvantaged

students because Kentucky allows KEES and need-based grants to be used together

without penalty (Kentucky Legislative Research Commission). This may be true, but it

discounts the fact that nearly half of Kentucky's state-based grant funding is provided

through merit-based aid.

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[10] Research indicates that there is a correlation between socioeconomic status and student achievement as measured by grades and test scores (Heller 2001; Kentucky Legislative Research Commission).

The Kentucky Tuition Grant and College Access Program (CAP) grants provide nearly all of the state's need-based grant aid. Over $76 million was awarded to Kentucky's lowest-income students through these combined programs for academic year 2005. Table 4 demonstrates that CAP Grants represent almost 65% of state need-based grant aid.

When compared to the top performing states, Kentucky makes a below average investment in need-based financial aid[11]. In academic year 2005, the state awarded over $76 million in need-based awards, representing approximately 47 percent of total grant-provided aid. Of the $6.7 billion state grant aid awarded nationally to undergraduate students in academic year 2005, 73 percent were awarded on the basis of need[12]. Although Kentucky does not fair well nationally in terms of the proportion of financial aid it allocates on the basis of need, it ranked 4th in terms of the grant dollars awarded per undergraduate enrollment and 11th in terms of the need-based grant dollars awarded per undergraduate enrollment.

Although this study does not consider it a factor, some might argue that the declining proportion of state budgets committed to higher education has compounded the affordability problem. Even though appropriations have increased, the share of state budgets funding higher education has been decreasing since the 1980s. In *Losing Ground*, the NCPPHE attributes these declines to the increased responsibilities placed on states for elementary and secondary education, Medicaid and other public assistance programs. Again, these trends translate to Kentucky. When adjusted for inflation, total general fund appropriations to postsecondary education in Kentucky increased almost

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[11] In *Measuring Up 2006*, the NCPPHE identified California, Utah, Idaho, and New York as having the some of the best performing need-based financial aid programs for low-income students.

[12] National Association of State Student Grant and Aid Programs (NASSAP), *36th Annual Survey Report on State-Sponsored Student Financial Aid*

$234 million from $1.01 billion in fiscal year 1998 to $1.24 billion in fiscal year 2007, representing an average annual increase of 2.5 percent[13]. Over this same period, appropriations to postsecondary education as a proportion of the state's general fund budget have decreased almost a whole percentage point, from 15.5 percent in fiscal year 1998 to 14.7 percent in fiscal year 2007. However, this decline most likely emerged from rising healthcare costs crowding out spending on higher education rather than from a decreased state commitment to higher education. In other words, the declining proportion of the state's budget committed to higher education decreased due to the cost Medicaid and public services rising faster than the cost of higher education services.

The longer states allow these trends to continue unchecked, the more difficult it will become to address college affordability for low-income students on a comprehensive basis. This study introduces the circuit breaker model as a possible design alternative for targeting financial aid to Kentucky's most disadvantaged students.

Circuit Breakers: Means-Tested Property Tax Relief

Originally adopted in Wisconsin in 1964, circuit breakers became a tremendously popular way of providing targeted property-tax relief to elderly and low-income taxpayers during the 1970s. Today, thirty-two states and the District of Columbia continue to offer circuit breaker programs to low-and-moderate income elderly and non-elderly homeowners and renters. Appendix E provides a summary of states currently operating property tax circuit breakers programs. This summary demonstrates that most of these programs have been adopted in northeastern, western, and mid-western states where property taxes are relatively high.

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[13] The increase from FY1998 to FY2007 using current dollars was $409 million, from $836 million to $1.24 billion, representing an average annual increase of 5.5%.

State circuit breaker programs differ considerably in their coverage. Whereas most states have developed their programs for elderly households, especially low-income households, some states have extended the benefits to renters and younger homeowners. Besides income and age restrictions, the cost of each state circuit breaker program depends on the design of the program and the number of participants. Program costs typically increase when benefits are expanded, income ceilings are lowered, and participation rates rise.

The circuit breaker model has also been used to improve the affordability of other high-inflation goods and services, such as prescription drugs. Like the benefits provided under traditional property tax relief programs, the benefits provided from these circuit breakers are targeted to low-income elderly and disabled citizens.

The main advantage of circuit breakers is that they can provide more meaningful relief at less cost, and like most means-tested policies, to the most disadvantaged. Circuit breakers accomplish this by taking into account a taxpayers' ability of to pay their property taxes given their income level. Circuit breakers typically offer benefits that are inversely proportional to income – decrease as income rises. Circuit breakers have been employed to limit the property tax burden on lower income groups whereby the allowable burden relative to income rises as income rises. Most states have established income ceilings preventing middle and high-income homeowners from qualifying for benefits.

Unfortunately, circuit breakers are extremely cumbersome for taxpayers and participation rates are often less than 50 percent. One of the main drawbacks of circuit breakers is that the benefits are application-based, whereby taxpayers submit a separate application annually to receive a tax credit against their income taxes. Many eligible taxpayers are not even aware of that these programs exist. In addition, benefits can be

complicated to calculate. But, this complexity emerges in part from the flexibility of the circuit breaker, as it offers a wide range of choice for policy makers in regards to who receive benefits and how much they receive (Gold).

Circuit breakers can be designed using two approaches. Under the threshold approach, relief is determined as property tax in excess of some fixed percentage of income. This approach is based on the ability-to-pay concept. Most states using the threshold approach use a set of percentage thresholds (income ceilings) for the lowest income earners whereby the acceptable tax level increases as income rises (Advisory Committee on Intergovernmental Relations). An example of this circuit breaker approach can be found in Vermont, where the program provides relief as follows.

Income	Relief
Under $4,999	Property tax in excess of 3.5 percent of income
$5,000 - $9,999	Property tax in excess of 4.0 percent of income
$10,000 - $24,999	Property tax in excess of 4.5 percent of income
$25,000 - $47,000	Property tax in excess of 5.0 percent of income

Sources: Gold; Vermont Department of Taxes, 2005 HS-139 (Rebate Claim Form)

Under the sliding-scale approach, no income threshold is defined. Relief is provided as a percentage of property taxes paid, whereby percentage decreases as income increases. This approach also weighs on the ability-to-pay principle, but offers benefits more in line with the benefits-received principle of taxation, whereby tax payments should be in proportion to the benefits received. Iowa provides property tax relief using the sliding-scale approach, where the program provides relief as follows:

Income	Relief
Under $9,451	100 percent of property taxes paid
$9,452 - $10,564	85 percent of property taxes paid
$10,565 - $11,676	70 percent of property taxes paid
$11,677 - $13,900	50 percent of property taxes paid
$13,901 - $16,124	35 percent of property taxes paid
$16,125 - $18,348	25 percent of property taxes paid
Greater than $18,348	No credit allowed

Sources: Gold; Iowa Department of Revenue, 2005 Property Tax Credit Claim Form

To illustrate, a household making $10,000 and property taxes in the amount $1,000, would receive a $550 rebate check in Vermont ($1,000 minus 4.5 percent of $10,000). In Iowa, this same taxpayer would receive a rebate check in the amount of $850 (85 percent of $1,000). No matter what approached is selected, most governments pay the benefits through a refundable tax credit after property taxes have been paid and the household files an application for credit. Yet, some states still apply the benefits to a household's property tax bill before the payment is made. Most state circuit breaker programs provide relief using a threshold approach.

PROBLEM STATEMENT AND RESEARCH QUESTIONS

State-funded, especially KHEAA-administered financial aid programs, fail to fully address the higher education financing needs of low-income families and students in Kentucky. A circuit breaker could be designed so that it would activate when the cost of public higher education exceeds a certain percentage of a student's or a student family's income. In other words, the financial burden could be modified on an incremental basis to meet the unique affordability concerns of this group of students. Under this design, eligible students would receive benefits through a tax deduction or a refundable tax credit for the cost of education above some pre-defined threshold.

The following research questions will be addressed in this study:

1) Given the circuit breaker's unique ability to target property tax relief to the most disadvantaged taxpayers, could a similar design be a reasonable policy for providing supplemental financial aid to low-income families and students in Kentucky?
2) At what level of income would the circuit breaker shut-off?
3) How many undergraduate students enrolled in a four-year public institution would be eligible for such a hypothetical circuit breaker program
4) What would be the median benefit provided by the hypothetical circuit breaker program
5) How much would such a circuit breaker cost for eligible undergraduate students enrolled in a four-year public institution in the state of Kentucky?

METHODOLOGY

The primary units of analysis for this evaluation were full-time low-income undergraduate students attending four-year public institutions in the state of Kentucky. This group represents a major proportion of low-income students confronted by special affordability problems due to the eligibility criteria provided by existing state financial aid policies. The cost of the hypothetical circuit breaker was calculated for this group of disadvantage students.

To determine program eligibility under the hypothetical circuit breaker, this study used the income cohorts identified in the Affordability Study. The Affordability Study divided students into two groups - dependent and independent. Both independent and dependent students are divided into income quartiles. The income groups for both independent and dependent students are provided below in Table 6.

Table 6 – Income Range and Median Income of Kentucky Undergraduates Who Applied for Student Aid (Fall 2004)

	Income Rage	
	Dependent Students	**Independent Students**
1st income quartile	Less than $24,097	Less than $6,581
2nd income quartile	$24,097 - $45,181	$6,581 - $16,647
3rd income quartile	$45,182 - $73,924	$16, 648 - $31,327
4th income quartile	$73,925 and over	$31,328 and over

Source: Kentucky CPE.

A number of factors were required to estimate the cost of a hypothetical circuit breaker program. Many of these factors were evaluated in this study. Yet, a number of elements are much more difficult to estimate and beyond the scope of this study.

Consequently, assumptions were made about the following components in determining

the cost of the hypothetical circuit breaker for the state:

- The income ceiling for receiving benefits
- The estimated number of eligible students per income cohort
- The median benefit received per income cohort

The following equation was developed to calculate the net cost of a hypothetical circuit

breaker program for the state of Kentucky.

$$C = A + P(\sum_{\kappa=8} n_i B_i)$$

Where,

C = net cost of the circuit breaker program for the state of Kentucky
A = administrative cost directly related to the circuit breaker program
P = average annual participation rate for the circuit breaker program
n_i = number of students within each income cohort i
B_i = median benefit (refund) amount for each income cohort i
K = number of income cohorts

Note that this study will only attempt to calculate the variable cost of the hypothetical

circuit breaker program or $P(\sum n_i B_i)$. Although important when comparing this

approach to other approaches, estimating the administrative cost of operating the

hypothetical circuit breaker is beyond the scope of this study. Note that the

administrative cost for any circuit breaker program is dependent to some degree on the

level of participation.

Although the actual calculation of benefits is beyond the scope of this evaluation,

it is important to understand how an individual refund would be calculated under such a

program design. Ultimately, the calculation would depend on the relief approach used.

The following equation demonstrates the equation for calculating the rebate using

threshold approach:

$$R = r_i \, (E_i - pY_i)$$

Where,

R = amount of rebate per student or student family $_i$
r_I = threshold percentage or percentage of higher education expenses paid
  by student or student family $_i$
E_i = higher education expenses paid by student or student family $_i$
P = higher education expenses in excess of a proportion income
Y_i = combined student or student family $_i$ income

When using the threshold approach, the percentage of higher education expenses paid r

and their proportion of higher education expenses in excess of a proportion income p may

vary with income. Other variables that can be manipulated included the maximum

amount of higher education expenses E; the maximum rebate R; and the maximum

family income Y eligible to participate. Such determinations are beyond the scope of this

study.

When calculating the rebate R using the sliding scale method p is zero and r must

decline as income rises (Gold). The following equation demonstrates the general

equation for calculating the rebate using this approach:

$$R = r_i \, E_i$$

Where,

R = amount of rebate per student or student family
r_i = threshold percentage or percentage of higher education expenses paid
  by student or student family $_i$
E_i = higher education expenses paid by student or student family $_i$

Since students were divided between dependent and independent, this study employed

different eligibility ceilings for each group of students. This analysis defined the income

ceiling for dependent students as $45,181 and independent students as $16,647. These

ceilings were used in lieu of established limits for need-based aid, because determinations

for most need-based aid are made from the federal needs analysis system, which

determines need based on information students provide when complete a FAFSA. Both

of these amounts represent the upper limit of income used to define the second income

quartile for both types of students in the Affordability Study. These ceilings were

considered appropriate due to the comparability of the ceiling for dependent students to

the median family income for the state of Kentucky, which in 2005 was $46,214 (U.S.

Census Bureau).

Estimating the Number of Eligible Students

To estimate the enrollment distribution of full-time Kentucky undergraduates by income

group, enrollment data were compared from the Affordability Study to data obtained

from the University of Kentucky, Office of Student Financial Aid (SFA). A summary of

enrollment distribution data for full-time undergraduate students attending four-year

public institutions in Kentucky is provided below in Table 7.

Table 7 – Enrollment Distribution of Full-time Kentucky Undergraduates Attending a Four-Year Public Institution by Income Quartile (Fall 2004)[14]

	Enrollment					
	Dependent Students		Independent Students		No FAFSA Application	
	Number	Percentage	Number	Percentage	Number	Percentage
1st income quartile	4,992	8.9%	2,867	5.1%	20,140	35.8%
2nd income quartile	6,442	11.5%	2,819	5.0%		
3rd income quartile	7,259	12.9%	1,984	3.5%		
4th income quartile	8,053	14.3%	1,654	2.9%		

Source: Kentucky CPE, Appendix C.

In order to compare this data to the information obtained from the SFA, the enrollment distribution from Table 7 was recalibrated to exclude enrollment figures for students who did not complete a Free Application for Federal Student Aid (FAFSA). A summary of the data follows in Table 8.

Table 8 – Recalibrated Enrollment Distribution of Full-time Undergraduates Attending a Four-Year Public Institution by Income Quartile (Fall 2004)

	Enrollment			
	Dependent Students		Independent Students	
	Number	Percentage	Number	Percentage
1st income quartile	4,992	13.8%	2,867	7.9%
2nd income quartile	6,442	17.9%	2,819	7.8%
3rd income quartile	7,259	20.2%	1,984	5.5%
4th income quartile	8,053	22.3%	1,654	4.6%

Source: Kentucky CPE, Appendix C.

The recalibrated enrollment proportions were almost identical to those obtained from the SFA. For purposes of consistency, enrollment distribution data obtained from the SFA was prepared using the income cohorts defined in Table 1. A summary of the data provided by the SFA follows in Table 9.

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[14] Note that the percentages provided in Table 4 represent the ratio of students by income cohort for all Kentucky undergraduates (dependent, independent, and those students who did not complete a FAFSA). In other words, percentages were calculated using a denominator of 56,210 or the total number of Kentucky undergraduate students attending four public institutions.

Table 9 – Enrollment Distribution of Full-time Undergraduates Attending the University of Kentucky by Income Quartile (Fall 2004)

| | Enrollment | | | |
| | Dependent Students | | Independent Students | |
	Number	Percentage	Number	Percentage
1st income quartile	1,337	12.9%	1,508	14.6%
2nd income quartile	1,705	16.5%	299	2.9%
3rd income quartile	2,100	20.3%	122	1.2%
4th income quartile	3,218	31.1%	48	0.5%

Source: University of Kentucky Office of Student Financial Aid.

In order to estimate the number of students per income cohort, and the number of qualifying students as determined by the income ceiling, a profile of undergraduate enrollment was obtained from the Affordability Study. Although many financial aid programs use full-time equivalent (FTE) enrollment as a basis for estimating program costs, this study used the total number of students because the benefits from the circuit breaker program are allocated on the basis of total cost rather than per credit hour. A summary of Kentucky's enrollment in postsecondary education by institution type is provided below in Table 10.

Table 10 – Total Enrollment Distribution of Full-Time and Part-Time Kentucky Undergraduates by Institution Type (Fall Semester 2005)

| | Enrollment | | |
	Full-Time	Part-Time	Total by Institution
Four-Year Public	76,452	17,726	94,178
Two-Year Public	33,857	51,074	84,931
Independent	N/A	N/A	23,088
Total	N/A	N/A	**202,197**

Source: Kentucky CPE, Appendix C.

To estimate the total enrollment of undergraduate students attending four-year public institutions by income quartile, the percentages (of students per income quartile) from the recalibrated enrollment distribution in Table 8 were applied to the total number of students enrolled at the beginning of the Fall 2005 semester ($76,452). A summary of the estimated distribution of full-time undergraduate students attending four-year public institutions by income quartile follows in Table 11.

Table 11 – Estimated Total Enrollment Distribution of Full-time Kentucky Undergraduates Attending a Four-Year Public Institution by Income Quartile (Fall Semester 2005)

| | Enrollment | | | | | |
| | Independent | | Dependent | | Total | |
	Number	Percentage	Number	Percentage	Number	Percentage
1st income quartile	10,550	13.8%	6,040	7.9%	16,590	21.7%
2nd income quartile	13,685	17.9%	5,963	7.8%	19,648	25.7%
3rd income quartile	15,443	20.2%	4,205	5.5%	19,648	25.7%
4th income quartile	17,049	22.3%	3,517	4.6%	20,566	26.9%
Total by Status	56,727		19,725		76,452	

Source: Kentucky CPE, Appendix C.

Estimating Median Benefits

This study will estimate the cost of a circuit breaker program that would completely fill the current funding gap for low-income Kentucky undergraduate students attending four-year public institutions. The Affordability Study indicated that net price provides the most meaningful measure of affordability[15]. Net price equals the amount a student and family have to pay after grant aid is distributed. The hypothetical circuit breaker was designed to provide a benefit equal to the net price of attendance in excess of $4,000. This is considered a reasonable amount that a student would earn working part-time or could borrow without assuming excessive debt burdens[16]. This study used the average net price for full-time Kentucky undergraduate dependent and independent students by income cohort from the Affordability Study. Table 12 provides the calculated median benefit by income and student type. Variations of these amounts will be used to estimate the total cost of the hypothetical circuit breaker.

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[15] Sticker price equals tuition and fees plus room and board plus books + living expenses (CPE)

[16] The Affordability Study calls for agreement on a standard definition of affordability. One approach would be to identify a ceiling on the amount that a student and his or her family are left to pay after the distribution of financial aid and the expected family contribution.

Table 12 – Family Net Price[17] of Full-Time Undergraduates less $4,000 by Income and Dependency Status (Academic Year 2004)

	Dependent	Independent
1ˢᵗ income quartile	1,006	1,321
2ⁿᵈ income quartile	2,905	2,633

Source: Kentucky CPE, Appendix C.

Scenario Analysis

       Scenario analysis was employed to demonstrate how the cost of the program would vary with changes in eligibility requirements, benefit levels, and participation rates. As indicated in the net cost equation, eight different groups of low-income students will be eligible for benefits under this hypothetical circuit breaker – four groups of both independent students and dependent students. To define the number of students per group, I divided the estimated enrollment for the first two income quartiles for both dependent and independents students from Table 12 into four equivalent groups. Table 13 summarizes of income ranges and baseline students per income cohort.

Table 13 – Baseline Income Range and Estimated Number of Low-Income Undergraduates Attending a Four-Year Public Institution by Income Quartile

	Independent		Dependent	
	Income Range	Number of Students	Income Range	Number of Students
1ˢᵗ income quartile	Less than $11,295	5,275	Less than $4,162	3,020
	$11,296 - $22,591	5,275	$4,163 - $8,324	3,020
2ⁿᵈ income quartile	$22,592 - 33,8786	6,843	$8,325 - $12,486	2,982
	$33,887 - $45,181	6,843	$12,487 - $16,647	2,982

Source: Kentucky CPE, Appendix C.

Unlike most circuit breakers, the model used in this study provides an increasing level of benefits due to how median benefits were defined.

       Twelve scenarios using varying levels of participation were simulated for both dependent and independent students. Scenario's B, E, H, and K calculated net cost using

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[17] Note that family net price equals the sticker price less grants less expected family contribution (EFC). EFC is calculated from information on the FAFSA using a formula set by Congress. The EFC is the amount of money that a student or a student's family will be expected to contribute to education costs each year. As indicated, family net price excludes grant awards, but makes no consideration for loans.

the baseline number of students indicated in Table 13. The outcomes using the median

benefit for Scenario E for both dependent and independent students served as the baseline

case for analyzing the results of the scenario analysis. In order to determine how the

program's variable cost would fluctuate with changes in participation, additional

scenarios were developed that decreased and increased the baseline students by 10

percent. This degree of variation was used to simplify calculations when analyzing the

results of the scenario analysis. Scenario's A, D, G, and J calculated net cost using 10

percent less students than the baseline number of students. Scenario's C, F, I, and L

calculated net cost using 10 percent more students than the baseline number of students.

Each scenario calculated the cost of the program using three different sets of median

benefits. The results for each set of scenarios for independent and dependent students

were then combined to estimate a range of the total program costs based on the varying

levels of benefits.

RESULTS

Ultimately, the cost of a higher education circuit breaker for the state of Kentucky

is dependent on the interaction of factors such as the coverage of the program (income

levels, dependency status, age limits), the level of participation, the cost of attendance,

relief limits set by legislature, availability of other federal and state relief, and income

distribution.

Using the baseline number of students and the amount of median benefits, the

average variable cost of a hypothetical circuit breaker across all participation levels was

determined to be $46,213,190. The average variable cost at a participation rate of 50

percent was $38,020,552. The total baseline program cost (Scenario E; median benefits)

was calculated to be $37,026,591. Overall, the variable program cost ranged from

$15,846,679 at a participation rate of 25 percent to $92,004,603 if all eligible students participated. Total variable program costs fluctuated $14,308,943 for the baseline scenario. Tables 14-16 present the results of the scenario analysis for dependent students, independent students, and combined dependent and independent students. Table 17 provides an analysis of the results based on the results supplied in Tables 14-16.

The baseline program cost for dependent and independent students were $25,185,565 and $11,841,026, respectively. Dependent program costs represented 68 percent of the total baseline program cost. Although not specifically calculated in this study, the results suggest that dependent students classified in the upper two qualifying income quartiles would represent a majority of total program costs.

At a participation rate of 50 percent and using baseline students and benefits, it was estimated that the total cost of the program would increase $12,118 and $6,002 for every dollar change in the median benefits for dependent and independent students respectively. Under the same parameters, it was estimated that the total cost of the program would increase $251,381 and $128,350 for every percentage change in the respective number of eligible dependent independent students. These results suggest that the total cost is more a function of eligibility rather than that of benefits.

Table 14 - Summary of Results: Dependent Students

P=25%

	Scenario A			Scenario B			Scenario C		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $11,295	4,748			5,275			5,803		
$11,296 - $22,591	4,748			5,275			5,803		
$22,592 - $33,886	6,159			6,843			7,527		
$33,887 - $45,181	6,159			6,843			7,527		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $11,295	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106
$11,296 - $22,591	906	1,006	1,106	906	1,006	1,106	906	1,006	1,106
$22,592 - $33,886	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
$33,887 - $45,181	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
Estimated Cost	**$ 10,788,308**	**$ 11,333,630**	**$ 11,878,953**	**$ 11,986,883**	**$ 12,592,783**	**$ 13,198,683**	**$ 13,185,377**	**$ 13,851,877**	**$ 14,518,377**

P=50%

	Scenario D			Scenario E [1]			Scenario F		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $11,295	4,748			5,275			5,803		
$11,296 - $22,591	4,748			5,275			5,803		
$22,592 - $33,886	6,159			6,843			7,527		
$33,887 - $45,181	6,159			6,843			7,527		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $11,295	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106
$11,296 - $22,591	906	1,006	1,106	906	1,006	1,106	906	1,006	1,106
$22,592 - $33,886	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
$33,887 - $45,181	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
Estimated Cost	**$ 21,576,615**	**$ 22,667,260**	**$ 23,757,905**	**$ 23,973,765**	**$ 25,185,565**	**$ 26,397,365**	**$ 26,370,753**	**$ 27,703,753**	**$ 29,036,753**

P=75%

	Scenario G			Scenario H			Scenario I		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $11,295	4,748			5,275			5,803		
$11,296 - $22,591	4,748			5,275			5,803		
$22,592 - $33,886	6,159			6,843			7,527		
$33,887 - $45,181	6,159			6,843			7,527		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $11,295	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106
$11,296 - $22,591	906	1,006	1,106	906	1,006	1,106	906	1,006	1,106
$22,592 - $33,886	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
$33,887 - $45,181	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
Estimated Cost	**$ 32,364,923**	**$ 34,000,890**	**$ 35,636,858**	**$ 35,960,648**	**$ 37,778,348**	**$ 39,596,048**	**$ 39,556,130**	**$ 41,555,630**	**$ 43,555,130**

P=100%

	Scenario J			Scenario K			Scenario L		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $11,295	4,748			5,275			5,803		
$11,296 - $22,591	4,748			5,275			5,803		
$22,592 - $33,886	6,159			6,843			7,527		
$33,887 - $45,181	6,159			6,843			7,527		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $11,295	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106	$ 906	$ 1,006	$ 1,106
$11,296 - $22,591	906	1,006	1,106	906	1,006	1,106	906	1,006	1,106
$22,592 - $33,886	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
$33,887 - $45,181	2,805	2,905	3,005	2,805	2,905	3,005	2,805	2,905	3,005
Estimated Cost	**$ 43,153,230**	**$ 45,334,520**	**$ 47,515,810**	**$ 47,947,530**	**$ 50,371,130**	**$ 52,794,730**	**$ 52,741,506**	**$ 55,407,506**	**$ 58,073,506**

[1] Scenario E represented the baseline case for evaluating the results of the scenario analysis.

Table 15 - Summary of Results: Independent Students

P=25%

	Scenario A			Scenario B			Scenario C		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $4,162	2,718			3,020			3,322		
$4,163 - $8,324	2,718			3,020			3,322		
$8,325 - $12,486	2,684			2,982			3,280		
$12,487 - $16,647	2,684			2,982			3,280		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $4,162	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421
$4,163 - $8,324	1,221	1,321	1,421	1,221	1,321	1,421	1,221	1,321	1,421
$8,325 - $12,486	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
$12,487 - $16,647	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
Estimated Cost	$ 5,058,372	$ 5,328,462	$ 6,940,452	$ 5,620,413	$ 5,920,513	$ 7,711,613	$ 6,182,454	$ 6,512,564	$ 8,482,774

P=50%

	Scenario D			Scenario E [1]			Scenario F		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $4,162	2,718			3,020			3,322		
$4,163 - $8,324	2,718			3,020			3,322		
$8,325 - $12,486	2,684			2,982			3,280		
$12,487 - $16,647	2,684			2,982			3,280		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $4,162	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421
$4,163 - $8,324	1,221	1,321	1,421	1,221	1,321	1,421	1,221	1,321	1,421
$8,325 - $12,486	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
$12,487 - $16,647	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
Estimated Cost	$ 10,116,743	$ 10,656,923	$ 13,880,903	$ 11,240,826	$ 11,841,026	$ 15,423,226	$ 12,364,909	$ 13,025,129	$ 16,965,549

P=75%

	Scenario G			Scenario H			Scenario I		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $4,162	2,718			3,020			3,322		
$4,163 - $8,324	2,718			3,020			3,322		
$8,325 - $12,486	2,684			2,982			3,280		
$12,487 - $16,647	2,684			2,982			3,280		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $4,162	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421
$4,163 - $8,324	1,221	1,321	1,421	1,221	1,321	1,421	1,221	1,321	1,421
$8,325 - $12,486	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
$12,487 - $16,647	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
Estimated Cost	$ 15,175,115	$ 15,985,385	$ 20,821,355	$ 16,861,239	$ 17,761,539	$ 23,134,839	$ 18,547,363	$ 19,537,693	$ 25,448,323

P=100%

	Scenario J			Scenario K			Scenario L		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
Less than $4,162	2,718			3,020			3,322		
$4,163 - $8,324	2,718			3,020			3,322		
$8,325 - $12,486	2,684			2,982			3,280		
$12,487 - $16,647	2,684			2,982			3,280		
Income	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**	**Median Benefit (-$100)**	**Median Benefit**	**Median Benefit (+$100)**
Less than $4,162	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421	$ 1,221	$ 1,321	$ 1,421
$4,163 - $8,324	1,221	1,321	1,421	1,221	1,321	1,421	1,221	1,321	1,421
$8,325 - $12,486	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
$12,487 - $16,647	2,533	2,633	3,733	2,533	2,633	3,733	2,533	2,633	3,733
Estimated Cost	$ 20,233,487	$ 21,313,847	$ 27,761,807	$ 22,481,652	$ 23,682,052	$ 30,846,452	$ 24,729,817	$ 26,050,257	$ 33,931,097

[1] Scenario E represented the baseline case for evaluating the results of the scenario analysis.

Table 16 - Summary of Results: Combined Dependent and Independent Students

P=25%

	Scenario A			Scenario B			Scenario C		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
1st Income Quartile	7,466			8,295			9,125		
2nd Income Quartile	2,718			8,295			9,125		
3rd Income Quartile	8,843			9,825			10,808		
4th Income Quartile	8,843			9,825			10,808		
Income	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**
1st Income Quartile	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264
2nd Income Quartile	1,064	1,164	1,264	1,064	1,164	1,264	1,064	1,164	1,264
3rd Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
4th Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
Estimated Cost	$ 15,846,679	$ 16,662,092	$ 18,819,404	$ 17,607,296	$ 18,513,296	$ 20,910,296	$ 19,367,831	$ 20,364,441	$ 23,001,151

P=50%

	Scenario D			Scenario E [1]			Scenario F		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
1st Income Quartile	7,466			8,295			9,125		
2nd Income Quartile	2,718			8,295			9,125		
3rd Income Quartile	8,843			9,825			10,808		
4th Income Quartile	8,843			9,825			10,808		
Income	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**
1st Income Quartile	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264
2nd Income Quartile	1,064	1,164	1,264	1,064	1,164	1,264	1,064	1,164	1,264
3rd Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
4th Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
Estimated Cost	$ 31,693,358	$ 33,324,183	$ 37,638,808	$ 35,214,591	$ 37,026,591	$ 41,820,591	$ 38,735,662	$ 40,728,882	$ 46,002,302

P=75%

	Scenario G			Scenario H			Scenario I		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
1st Income Quartile	7,466			8,295			9,125		
2nd Income Quartile	2,718			8,295			9,125		
3rd Income Quartile	8,843			9,825			10,808		
4th Income Quartile	8,843			9,825			10,808		
Income	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**
1st Income Quartile	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264
2nd Income Quartile	1,064	1,164	1,264	1,064	1,164	1,264	1,064	1,164	1,264
3rd Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
4th Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
Estimated Cost	$ 47,540,038	$ 49,986,275	$ 56,458,213	$ 52,821,887	$ 55,539,887	$ 62,730,887	$ 58,103,492	$ 61,093,322	$ 69,003,452

P=100%

	Scenario J			Scenario K			Scenario L		
Income	**Number of Students (-10%)**			**Number of Students**			**Number of Students (+10%)**		
1st Income Quartile	7,466			8,295			9,125		
2nd Income Quartile	2,718			8,295			9,125		
3rd Income Quartile	8,843			9,825			10,808		
4th Income Quartile	8,843			9,825			10,808		
Income	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**	**Average Median Benefit (-$100)**	**Average Median Benefit**	**Average Median Benefit (+$100)**
1st Income Quartile	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264	$ 1,064	$ 1,164	$ 1,264
2nd Income Quartile	1,064	1,164	1,264	1,064	1,164	1,264	1,064	1,164	1,264
3rd Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
4th Income Quartile	2,669	2,769	2,869	2,669	2,769	2,869	2,669	2,769	2,869
Estimated Cost	$ 63,386,717	$ 66,648,367	$ 75,277,617	$ 70,429,182	$ 74,053,182	$ 83,641,182	$ 77,471,323	$ 81,457,763	$ 92,004,603

[1] Scenario E represented the baseline case for evaluating the results of the scenario analysis.

Table 17: Analysis of Results

Scenario	Participation Rate	Estimated Cost			Average Cost by Level of Participation
		- $100	Baseline Benefit	+ $100	
A		$ 15,846,679	$ 16,662,092	$ 18,819,404	
B	25%	$ 17,607,296	$ 18,513,296	$ 20,910,296	
C		$ 19,367,831	$ 20,364,441	$ 23,001,151	$ 19,010,276
D		$ 31,693,358	$ 33,324,183	$ 37,638,808	
E	50%	$ 35,214,591	$ 37,026,591	$ 41,820,591	
F		$ 38,735,662	$ 40,728,882	$ 46,002,302	$ 38,020,552
G		$ 47,540,038	$ 49,986,275	$ 56,458,213	
H	75%	$ 52,821,887	$ 55,539,887	$ 62,730,887	
I		$ 58,103,492	$ 61,093,322	$ 69,003,452	$ 57,030,828
J		$ 63,386,717	$ 66,648,367	$ 75,277,617	
K	100%	$ 70,429,182	$ 74,053,182	$ 83,641,182	
L		$ 77,471,323	$ 81,457,763	$ 92,004,603	$ 76,041,104
Average Cost by Median Benefit for All Levels of Participation		$ 44,018,171	$ 46,283,190	$ 52,275,709	

Scenario	Participation Rate	Change in Total Cost for Every Dollar Change in Median Benefits	
		Dependent	Independent
A		$ 5,453	$ 2,701
B	25%	$ 6,059	$ 3,001
C		$ 6,665	$ 3,301
D		$ 10,906	$ 5,402
E	50%	$ 12,118	$ 6,002
F		$ 13,330	$ 6,602
G		$ 16,360	$ 8,103
H	75%	$ 18,177	$ 9,003
I		$ 19,995	$ 9,903
J		$ 21,813	$ 10,804
K	100%	$ 24,236	$ 12,004
L		$ 26,660	$ 13,204

Scenario	Participation Rate	Change in Total Cost for Every Percentage Point Change in Students	
		Dependent	Independent
A B C	25%	$ 125,915	$ 64,175
D E F	50%	$ 251,831	$ 128,350
G H I	75%	$ 377,746	$ 192,525
J K L	100%	$ 503,661	$ 256,701

LIMITATIONS

Given unlimited resources and time, there are several elements that would need to be improved about the methodology chosen. Many of the research limitations encountered in this study were directly linked to the shortcomings identified in the Affordability Study. Since federal and state governments determine eligibility based on expected family contribution, I encountered some problems designing a model based on income.

Data from the Affordability Study were limited only to KHEAA-administered programs. No institutional level data were used in this study. Also, the data from the Affordability Study and that collected by the KHEAA were limited to only those students that completed a FAFSA. It is also important to note that very few independent students complete a FAFSA due to eligibility requirements. As a result, data gathered on independent students were neither reliable nor replicable.

Although requested, custom data on unmet need could not be provided by the CPE because cost of attendance data, a primary component of unmet need, is dependent on non-standardized calculations at the institutional level. Unmet need represents the net cost of attending college less a student's or student family's estimated financial contribution and thus cannot be calculated in a reliable nor equitable manner across institutions. As a result, this study used a function of net price to define the level of benefits which would be distributed. Also, annual income distribution by income quintile, quartile, nor percentile was not collected by the U.S. Census Bureau prior to 2002. As a result, it was difficult to illustrate how the cost of education has increased relative to median family income for poorest students and student families in the state of Kentucky.

Research indicates that family net price is a better measure of affordability than net price because it accounts for estimated family contribution. However, family net price data in the Affordability Study was segmented by race and ethnicity. The decision to base benefits on net price rather than family net price was considered reasonable because it provides a more inclusive cost estimate.

RECOMMENDATIONS

The state should conduct further studies to explore the benefits and costs involved in adopting a comprehensive income-tested financial aid program which would target benefits to Kentucky's most disadvantage students and student families. More specifically, efforts should be undertaken to determine the cost-effectiveness of such a program compared the current approach of for funding higher education. As demonstrated, such a program may serve as a more cost-effective approach, because benefits could be targeted to low-income students who tend to be more sensitive to changes in price than wealthier students. In other words, the higher education circuit breaker may provide the state with a bigger bang for its buck, whereby enrollment would increase more had the subsidies been directed to higher-income students.

In the line with the recommendations presented in the Affordability Study, policy makers should work with the CPE and the KHEAA to develop a standard measure of affordability for the state of Kentucky (CPE). This would provide the state agencies and higher education institutions with a system for monitoring affordability patterns. Furthermore, policy makers should begin gathering longitudinal student data in order to better estimate how ability-to-pay affects college choices (CPE). Again, such efforts could provide a more reliable measure of higher education affordability in Kentucky. Targeting benefits to those students that need them the most may be the only way to

ensure that all high-ability students have equal access to higher education regardless of income.

CONCLUSION

Investing in state-provided need-based financial aid not only enhances access to higher education for Kentucky's lowest income students, but is crucial for preparing the state's population to compete in today's fast-changing economy. This exploratory study introduced a method of providing financial aid based on a student's ability to pay to improve the affordability of higher education for Kentucky's most disadvantage students. Such a measure may help reduce financial barriers and enhance access and participation for low-income and other disadvantaged students.

Although most evidence suggests that the benefits from college tend to be distributed to the individuals consuming higher education, it provides a number of positive externalities to society such as better citizenship; higher degrees of compliance with public laws, increased per-capita income. In the end, policies that seek to target aid to those students most in need could improve the overall lives of Kentuckians and provide a more promising future for the state.

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APPENDIX A:
Formula for Constant Dollar Conversion

Formula for Constant Dollar Conversion:

Constant	=	Current	X	**CPI for the Base Year**
(Base-Year) Dollars		**Year Dollars**		**CPI for the Current Year**

Table B provides academic and calendar year CPI data. The factor column provides the user with a multiplication factor equal to that of CPI (base year) divided by CPI (current year), as illustrated in the right-hand side of the above equation. A simple multiplication of a current-year figure by the associated factor will yield a constant-dollar result.

Table A – Consumer Price Index (1982-84 = 100)

Academic Year			Calendar Year		
Academic Year	**CPI**	**Factor**	**Calendar Year**	**CPI**	**Factor**
1995-96	154.4	1.2680	1995	152.4	1.2724
1996-97	158.9	1.2328	1996	156.9	1.2361
1997-98	161.7	1.2112	1997	160.5	1.2079
1998-99	164.4	1.1916	1998	162.9	1.1905
1999-00	169.1	1.1584	1999	166.4	1.1652
2000-01	175.1	1.1188	2000	172.2	1.1259
2001-02	178.2	1.0994	2001	177.1	1.0950
2002-03	182.1	1.0757	2002	179.9	1.0779
2003-04	186.1	1.0527	2003	184.0	1.0540
2004-05	190.2	1.0301	2004	188.9	1.0265
2005-06	195.9	1.0000	2005	193.9	1.0000

Sources: College Board (2005).

APPENDIX B:
Federal Student Aid Summary Chart

FEDERAL STUDENT AID SUMMARY CHART

Federal Student Aid Program	Type of Aid	Program Details	Annual Award Limits
Federal Pell Grant	Grant: does not have to be repaid	Available almost exclusively to undergraduates; all eligible students will receive the Federal Pell Grant amount they qualify for	$400 to $4,050 for 2006-07
Federal Supplemental Educational Opportunity Grant (FSEOG)	Grant: does not have to be repaid	For undergraduates with exceptional financial need; priority is given to Federal Pell Grant recipients; funds depend on availability at school	$100 to $4,000
Federal Work-Study	**Money is earned** while attending school; does not have to be repaid	For undergraduate and graduate students; jobs can be on campus or off campus; students are paid at least federal minimum wage	No annual minimum or maximum award amounts
Federal Perkins Loan	Loan: must be repaid	Interest charged on this loan is 5 percent for both undergraduate and graduate students; payment is owed to the school that made the loan	$4,000 maximum for undergraduate students; $6,000 maximum for graduate and professional students; no minimum award amount
Subsidized Direct or FFEL Stafford Loan	Loan: must be repaid	Subsidized: U.S. Department of Education pays interest while borrower is in school and during grace and deferment periods; you must be at least a **half-time*** student	$2,625 to $8,500, depending on grade level
Unsubsidized Direct or FFEL Stafford Loan	Loan: must be repaid	Unsubsidized: Borrower is responsible for interest during life of the loan; you must be at least a **half-time*** student; financial need is not a requirement	$2,625 to $18,500, depending on grade level (includes any subsidized amounts received for the same period)
Direct or FFEL PLUS Loan	Loan: must be repaid	Available to parents of dependent undergraduate students who are enrolled at least **half-time***	Maximum amount is **cost of attendance*** minus any other financial aid the student receives; no minimum award amount

Source: U.S. Department of Education, 2006.

APPENDIX C:
Summary of State Merit-Based Aid Programs

Program (year implemented)	Funding Source	Award Criteria	Award Amount
Alaska Scholars Award (1999)	Land leases & sales	Class rank	$2,750 per year at the University of Alaska
Florida Bright Futures Scholarship (1997)	Lottery	GPA and SAT/ACT	Up to full tuition and fees at a FL public institution plus $300, or a comparable amount at a FL private institution
Georgia Helping Outstanding Pupils Educationally (HOPE) Scholarship (1993)	Lottery	GPA	Full tuition and fees at a GA public institution plus $300, or up to $3,000 at a GA private institution
Kentucky Educational Excellence Scholarship (1999)	Lottery	GPA and SAT/ACT	Up to $1,000 per year at a KY public or private institution
Louisiana Tuition Opportunity Program for Students (TOPS) (1998)	General revenues	GPA and ACT	Full tuition and fees at a LA public institution plus up to $800, or a comparable amount at a LA private institution
Massachusetts John and Abigail Adams Scholarship Program (2005)	General revenues	State curricular framework test (MCAS)	Tuition (but not mandatory fees) at any public institution in Massachusetts
Michigan Merit Award Scholarship (2000)	Tobacco settlement	State curricular framework test (MEAP)	One-time award up to $2,500 at a MI public or private institution; $1,000 out of state
Mississippi Eminent Scholars Program (1996)	General revenues	GPA and SAT/ACT	$2,500 at a MS public or private institution
Missouri Higher Education Academic Scholarship Program ("Bright Flight") (1997)	General revenues	SAT/ACT	$2,000 at a MO public or private institution
Nevada Millennium Scholarship (2000)	Tobacco settlement	GPA	$80 per credit hour at a NV four-year public or private institution or $40/$60 per credit hour (lower division/upper division) at a NV community college
New Mexico Lottery Success Scholarship (1997)	Lottery	College GPA	Full tuition and fees at a NM public institution
South Carolina Legislative Incentive for Future Excellence (LIFE) Scholarship (1998) Palmetto Fellows (1998) HOPE Scholarship (2001)	General revenues and lottery	GPA, SAT/ACT, and class rank	Up to $6,700 at a public SC institution; comparable amount at a SC private institution (award amount cannot exceed tuition charges)
Tennessee Education Lottery Scholarship Program (2004)	Lottery	GPA or SAT/ACT	Up to $4,000 at a TN four-year public or private institution and $2,500 at a TN two-year institution (see Table 1-2 for more information)
West Virginia Providing Real Opportunities for Maximizing In-State Student Excellence (PROMISE) Scholarship (2002)	Lottery and taxes on amusement devices	GPA and SAT/ACT	Full tuition at a WV public institution or comparable amount at a WV private institution

Sources: Heller, 2004 (Krueger 2001; Selingo, 2001 and state program websites)

APPENDIX D:
Overview of the Kentucky Educational Excellence Scholarship Program

The KEES program, created in 1998, provides merit-based grants to graduates of Kentucky high schools to help pay for college at public and private postsecondary institutions in the state. The amount of a KEES award is determined by two factors – a student's high school grade point average (GPA) in five courses of study defined by the CPE, and a student's ACT score. Over time, it has come to be funded almost entirely through net proceeds from the Kentucky Lottery, which also provides student's funding for need-based student financial aid programs.

Base Award
The base KEES scholarship amount is determined based on the student's GPA during high school. A student can earn between $125 and $500 on a graduated scale for a GPA of 2.5 to 4.0 for each high school year, for a maximum award of $2,000 for each year of college.

Supplemental Award
A supplemental award, based on a student's best score on the ACT or SAT prior to graduation, provides additional support between $36 and $500 for an ACT score between 15 and 36.

The maximum annual award amount a student can be awarded is $2,500 for each year of college.

Source: Kentucky Legislative Research Commission (2003).

APPENDIX E:
Summary of State Property Tax Circuit Breaker Programs

State / Jurisdiction	Age Limit	Income Limit (single/joint)	Form of Relief
Arizona	65 and over	$3,750/$5,550	State income tax credit or rebate
California	62 and over	$37,119	State income tax credit or rebate
Colorado	65 and over	$11,000/$14,700	State rebate
Connecticut	65 and over	$24,500/$30,000	Reduction in tax bill
District of Columbia	None	$20,000	Income tax credit
Hawaii			Not Available
Idaho	65 and over	$19,570	Reduction in tax bill
Illinois	65 and over	$21,218/$28,480	State rebate
Iowa	All Ages	$16,500	State rebate
Kansas	55 and over or households with dependent children	$25,000	State rebate
Maine	62 and over / All Ages	$7,400/$9,200 / $25,700/$40,000	State rebate
Maryland	All Ages	Net worth less than $200,000	Credit against proerty tax bill (cash payment to renters)
Massuchusettes	65 and over	$40,000/$60,000 residence less than $400,000	Not Available
Michigan	All Ages	$82,650	State income tax credit or rebate
Minnesota	All Ages	$80,180	State income tax credit or rebate
Missouri	65 and over	$25,000/$27,000	State income tax credit or rebate
Montana	All Ages / 62 and over	$16,457/$21,942 / $45,000	Not Available
Nevada	62 and over	$21,500	State rebate
New Jersey		$35,000/$70,000 / $40,000	Not Available
New Mexico	65 and over	$16,000	Not Available
New York	65 and over / All Ages	$18,000 value of property cannot exceed $85,000	Not Available
North Dakota	65 and over	$14,000	State rebate
Oklahoma	65 and over	$12,000	Refundable income tax credit
Pennsylvania	65 and over	$15,000	Not Available
Rhode Island	65 and over	$30,000	Not Available
South Dakota	65 and over	$9,750/$12,750	Not Available
Utah	65 and over	$23,873	Not Available
Vermont	All Ages	$47,000	State rebate
Washington	61 and over	$30,000	Not Available
West Virginia	65 and over	$5,000	State rebate
Wisconsin	All Ages	$24,500	State income tax credit or rebate
Wyoming	All Ages	180% of federal poverty level	Not Available

Sources: National Conference of State Legislatures, 2002; U.S. Advisory Commission on
Intergovernmental Relations, 1975.