2020 EDUCATIONAL ATTAINMENT PROJECTIONS METHODOLOGY

Kentucky Council on Postsecondary Education
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House Bill 1 (1997) charges the Council on Postsecondary Education with the task of raising the educational attainment level of the Commonwealth to national levels by the year 2020. To get an idea of the scope of this charge, CPE staff have developed a set of 2020 projections which answer the following questions:

- What is the national level of educational attainment projected to be in 2020?
- What would Kentucky's level of educational attainment be in 2020 without policy intervention?
- What would it take to fill the gap?

This document lays out the methodology used to answer these questions. The first section details the national educational attainment projections used, and how our target attainment numbers for the Commonwealth were derived. The second section describes the degree production model used to estimate what type of system increases and improvements would be needed to fill the attainment gap in the next fifteen years (starting on page 8).

SECTION 1. EDUCATIONAL ATTAINMENT TARGETS AND GAPS

Baccalaureate Degree Goal: 791,000 Bachelor's degree holders in 2020

This number was generated by calculating the projected working-age population of Kentucky in 2020 and finding the proportion of this total who would need to have a Bachelor's or higher degree to match the projected national attainment level in that year. The Kentucky State Data Center has published population projections which estimate that there would be 2,462,557 Kentuckians ages 25-64 in 2020.[1] An adjusted U.S. Census projection of national attainment levels was used to calculate the proportion of these working-age Kentuckians, 32.1%, who will need to have at least a baccalaureate degree in 2020 to match the national average.

The estimate of national educational attainment in 2020 used in this analysis is based on a U.S. Census Working Paper which models national educational attainment levels through 2028 (Day and Bauman, 2000).[2] This paper presents an econometric model of educational attainment that draws on 15 years of best-available data and addresses differences by race, gender, age, immigrant status, and birth cohort. CPE staff considered and rejected other models such as an estimate which assumed that the national rate of change between 1990 and 2000 would continue at the same pace through 2020, which was rejected as being too high. CPE staff concluded that the Day and Bauman

paper presents the most sophisticated projection of national educational attainment available and is likely to have the lowest degree of error.

CPE staff adjusted the projections presented in the Day and Bauman paper in several ways to arrive at a national attainment estimate of 32.1% in 2020. First, Day and Bauman present two sets of estimates, a "low" estimate and a "high" estimate. The "high" estimate was chosen for use here because it includes the effects of cohort in educational attainment (Day and Bauman, 2000: p. 8). Secondly, the paper only presents percentage estimates of national attainment levels for two years, 2003 and 2028. To estimate the value for 2020, staff calculated a linear rate of change starting with the 2000 decennial census proportion of Bachelor's degree holders (26.5%) and ending at a 2028 attainment estimate based on the Day and Bauman projection.

CPE's 2020 estimate is based on Day and Bauman's 2028 projection of 30.8%, which is then adjusted to reflect the higher levels of education in younger cohorts and the model's degree of error in 2003. Day and Bauman's data include the entire population ages 25 and older, whereas CPE needed 2020 projections that included only the working-age population ages 25-64. To account for this difference, CPE staff added 2.2% to the 2028 estimate, reflecting the difference between the national attainment level for 25-64 year-olds and people 25 and older in the 2000 census.[3] Also, the entire regression line was bumped up to account for the degree of error it produced in 2003. Day and Bauman's "high" model of attainment produced an estimate of 25.6% in 2003, whereas the Current Population Survey (March Supplement) in 2003 estimated the national educational attainment level for those 25 and older at 27.2% (+/- 0.2%).[4] Thus, an upward adjustment of 1.6%, or the difference between these figures, was added. An additional adjustment was made to account for the interaction between these two adjustments, or the amount of error in 2003 that was attributable to those 65 and older and which must be factored out. So an additional (2.2%)(1.6%) = 0.04% was added to the 2028 estimate, resulting in a 2028 estimate of 34.6%. Finally, the 2020 estimate is derived from a straight line projection between the 2000 census number and the adjusted 2028 number.

Without Policy Intervention: 580,270 Bachelor's Degree holders in 2020

This number is the sum total of several factors, including population statistics and projections of future migration and degree production. The starting point is the 2000 Census, which reports that there were 402,094 people ages 25-64 with a Bachelor's or higher degree living in Kentucky in 2000. However, some of these people will be over the age of 64 in 2020, so the 167,173 Bachelor's degree holders who were ages 45-64 in 2000 must be subtracted, leaving a potential pool of 234,800 degree-holders in 2000 to include in our 2020 total.

Another important factor is migration. Some unknown number of these Bachelor's degree holders will move out of state by 2020, while people from other states or countries with Bachelor's degrees will move to Kentucky during this time. The best

available estimate of net in- and out-migration from Kentucky is also found in the "long form" of the 2000 Census (Public Use Microdata Sample), which collects information on where respondents were living five years previously. This migration data is presented below by degree level and age group:

Kentucky's Net Migration by Degree Level, 1995-2000[5]

Highest Educational Attainment Level	Ages 22-29	Ages 30-64	Ages 65+	Total	Annual average
Less than HS	6,264	10,866		17,130	3,426
High School	4,978	13,760		18,738	3,747.6
Some College	1,347	6,364		7,711	1,542.2
Associate	870	824	-435	1,259	338.8
Bachelor's	-1,398	3,489		2,091	418.2
Masters	540	848		1,388	277.6
Doc/Prof	197	-50		147	49.4
Total Bach+	-661	4,287		3,626	725.2

To estimate the effects of in- and out-migration between 2000 and 2020, we adopted a "no change" assumption that projects the average annual net migration level from 1995 to 2000 forward through 2020. This method results in a predicted net gain of 14,504 bachelor's or higher degree holders in Kentucky through interstate and international migration by 2020.

As of this writing, we have already moved several years into the period in question. This enables us to incorporate actual degree production numbers for the available years, 2001-2004. These numbers are given below:

Annual Bachelor's Degrees Awarded in Kentucky, 2001- 2004
Public and Independent Institutions[6]

	2000-01	2001-02	2002-03	2003-04	Total degrees produced 01-04	Three-year smoothed average 02-04
Total	14,882	16,368	16,200	17,320	64,770	16,629.3
Public	11,937	12,483	12,466	13,123		
Independent	2,945	3,885	3,734	4,197		

The estimates of new degrees to be produced between 2001-2020 are based on this data. We start with the actual total of Bachelor's degrees produced in Kentucky between 2001-2004, which is 64,770. We then project the smoothed three-year average annual degree production from 2002-2004 (16,629) over the next 16 years until 2020, producing an additional 266,069 Bachelor's degree holders under a "no growth" scenario.

It has been noted that this no-growth scenario may be too conservative. Since 1990, the number of Bachelor's degrees awarded has risen an average of 2.5% each year. Why then do we predict that moving forward there will be no growth whatsoever in the number of degrees awarded? This choice is made necessary by of the requirements of the Student Flow model, which is described below and which we use to predict future growth in enrollment and degrees produced. The Student Flow model starts with a baseline, in this case 2004, and predicts how much *additional* enrollment growth will be needed to net *additional* degree holders. Therefore, this effort to determine where we will be without policy intervention does not take into consideration this "natural" growth because *all* growth moving forward is included in the Student Flow model. And the strength of the Student Flow model is that it permits us to look at the impact of different policy interventions on the number of degrees produced.

To summarize, CPE conservatively estimates that without policy intervention, 580,264 working-age Bachelor's degree holders will be living in Kentucky in 2020:

- Start with the 402,094 working-age Bachelor's degree holders who were living in Kentucky in 2000
- Subtract the 167,173 of these who were ages 45-65 in 2000 and who age out of the working-age population by 2020
- Add 14,504 for predicted net migration 2000-2020
- Add 64,770 for the Bachelor's degrees produced 2000-2004
- Add 266,069 for the Bachelor's degrees that will be produced from 2005-2020

Rounded to the nearest hundred, CPE staff estimate that there will be 580,300 working-age Bachelor's degree holders in Kentucky in 2020. This number represents 23.6% of the projected working age population, a proportion that is well below the predicted national level of 32.1%.

Action Needed: 211,000 Additional Bachelor's degree holders

This number is simply the difference between the goal of 791,000 Bachelor's degree holders in 2020 and the 580,000 we estimate that Kentucky will have by then if nothing changes. Closing this gap will require substantial growth in postsecondary education in Kentucky along with the increased in-migration of highly-educated people.

Associate Degree Goal: 399,000 Kentuckians with an Associate degree as their highest degree in 2020

This number was generated by calculating the projected adult population of Kentucky in 2020 and finding the proportion of this total who would need to have an Associate's degree to match the projected national attainment level in that year. The age range of individuals included in this measure is 25 years and older, rather than the working-age range of 25-64 used in the Bachelor's degree projections above. This change is necessitated by the lack of publicly available data on Associate's degree attainment by detailed age group in the 1990 census, which is needed to estimate attainment in 2020. Adding in the projected 65 years and older population to the KSDC population projection above, we project that there will be 3,217,883 Kentuckians ages 25 and older in 2020.[7]

But how many of these Kentuckians will need to have an Associate degree as their highest degree to match national attainment levels in 2020? To answer this question, we begin by asking what percentage of people nationally will have an Associates degree in 2020. Unfortunately, the Census working paper used above to estimate Bachelor's degree attainment does not make projections for Associate's degrees. The best historical data available for predicting this attainment level in 2020 are the attainment levels given on the 1990 and 2000 Decennial Censes, using the 25 years and older age group. The national attainment level for Associate degrees in 1990 was 6.2%, a figure that grew only slightly to 6.3% in 2000 (in 2000, only 4.9% of Kentuckians ages 25+ were at the Associate degree attainment level). If this rate of change remains the same over the next twenty years, then we can expect that 6.6% of the nation's population ages 25 and older will have an Associate degree as their highest degree in 2020.

It is important to note that the Associate degree attainment level is defined differently than the Bachelor degree attainment level. Educational attainment level refers to the highest degree an individual has attained. However, we have chosen to include all those with a Bachelor or higher degree in the Bachelor degree projection, regardless of whether or not they hold a graduate or professional degree. This is because the Bachelor's degree is a prerequisite to graduate or professional study -- everyone who wants to go on to get a higher degree must first get a Bachelor's degree, making this necessary step along the graduate and professional educational pipeline. There is also a mathematical relationship between the total number of Bachelor's degree holders and those who have only a Bachelor's degree. In any population, the number who hold only a Bachelor's degree, when added to the number who have a graduate or professional degree, will always equal the total number who have ever earned a Bachelor's degree.

This mathematical relationship does not hold true for Associate degrees. Some Associate degree holders will also hold a Bachelor's or higher degree, but one does not need an Associate degree to get a Bachelor's degree. Consequently, it is not possible to calculate the total number of Associate degree holders from attainment statistics, because these statistics measure only the highest degree a person has attained. Only those who stopped at an Associate level will be included in this attainment category, while an unknown number of Associate degree holders will have attained a Bachelor's or higher

degree. For this reason, attainment statistics at the Associate degree level are phrased as "just an Associate degree" or "Associate as their highest degree" and, unlike the Bachelor's degree statistics, this attainment category does not include all those individuals who have ever gotten an Associate degree.

Without Policy Intervention: 260,000 Kentuckians will have just an Associates' degree in 2020

The same factors that contributed to the predicted number of Bachelors degree holders in 2020 are used in this estimate. Again, the starting point is the 2000 Census, which reports that there were 129,481 people ages 25 and older with an Associate degree as their highest degree in 2000. The impact of Associate degree holders migrating in and out of Kentucky is also estimated as above (chart on pg. 2), resulting in a predicted net growth of 5,036 Associate degree holders through in-migration between 2000 and 2020.

The inclusion of those who are 65 and older raises an additional question about how many 2000 degree holders will still be included in attainment statistics in 2020; namely how many people in this older group will survive until then? To answer this question, mortality tables based on 2000 Census population estimates were consulted [8]. Taking the one-year mortality rate for Kentuckians 65 and older in 2000 and projecting it through the rest of the period, we can expect attrition through mortality of approximately 84% of the population 65 and older in 2000 by 2020. Given that the Associate degree attainment rate of this older population is quite low in Kentucky, 1.4% according to the 2000 Census, we project a small loss of 5,870 degree-holders due to mortality in this older population by 2020.

The number of Associate degrees produced in Kentucky since the 2000 Census are given below:

Annual Associate Degrees Awarded in Kentucky, 2001- 2004
Public and Independent Institutions[9]

	2000-01	2001-02	2002-03	2003-04	Total degrees produced 01-04	Three-year smoothed average 02-04
Total	5,078	6,157	6,617	7,212	25,064	6,662
Public	4,748	5,221	5,872	6,456		
Independent	330	936	745	756		

The estimates of new degree-holders to be produced between 2001-2020 are based on this data. We start with the total number of Associate degrees produced in Kentucky between 2001-2004, which was 25,064. We then project the smoothed three-year average annual degree production from 2002-2004 (6,662) over the next 16 years until 2020, producing an additional 106,592 Associate's degree holders under a "no growth" scenario.

To summarize, CPE predicts that without change, approximately 260,000 Kentuckians will have an Associate degree as their highest degree in 2020:

- Start with the 129,481 Kentuckians with just an Associate degree in 2000
- Subtract 5,870 for those who were 65 and older in 2000 and are not expected to survive to 2020
- Add 5,036 for predicted net migration 2000-2020 (pg.2)
- Add 25,064 for the Associate's degrees produced 2001-2004
- Add 106,592 for the Associate's degrees that will be produced from 2005-2020

CPE staff estimate that there will be 260,303 (260,000) Kentuckians ages 25 and older with just an Associate degree in 2020. This number represents 8.5% of the projected population ages 25 and older, a proportion that is well above the predicted national level of 6.7%.

Action needed: Maintain Current Production Associate degree Production Levels

Kentucky is well on its way to matching the projected national attainment level of associate degree holders in 2020. These programs need to continue to ensure that Kentucky meets this goal. The possibility that Kentucky will produce more associate degree holders than will be needed to match national proportions suggests that further efforts could be made to convert some of these associate degree holders to baccalaureate students to help meet the ambitious 2020 attainment goal for baccalaureate degree holders.

Graduate and Professional Degree Goal: None at this time

The Council on Postsecondary Education is not making 2020 projections for graduate and professional degrees at this time. The wide variety of programs included in these categories prevents the use of a single projection strategy. The size of professional degree programs depend in large part on the often highly specialized labor markets into which they send their graduates. The size of doctoral programs relates to the programs' national prestige level and to regional and national labor market trends which vary by discipline. Also, doctoral graduates participate in national labor markets which undermine the assumption that the majority of projected graduates will stay in-state to add to Kentucky's future attainment level. Finally, the two primary statistics used to describe educational attainment in the research literature are attainment percentages at the high school and baccalaureate levels, suggesting that projections for these advanced degree levels are not necessary for this 2020 projection process.

SECTION 2. DEGREE PRODUCTION PROJECTIONS: HOW WE COULD FILL THE GAP

Overview of the Student Flow Model

In 2004, the Council on Postsecondary Education commissioned the National Center on Higher Education Management Systems (NCHEMS) to design the Kentucky Degree-Enrollment Model, referred to as the Student Flow model or "StuFlow." The Student Flow model is a stocks-and-flows model implemented as an Excel spreadsheet. The "stocks" consist of students entering the Kentucky postsecondary educational system, participating in various segments of that system, and then exiting the system. The "flows" represent the movement of students between and through the various postsecondary education sectors. The model projects the number of additional degrees (above and beyond a 2003 baseline level) that are likely to be awarded by Kentucky postsecondary institutions in response to policy interventions which will manipulate certain input and throughput "valves." These valves focus on the pool of potential students for Kentucky postsecondary education, the student enrollment (participation) rates from those pools, the retention rates of students once they are in college, the graduation rates of college students, and the distribution of students among the various sectors of the Kentucky postsecondary educational system. The model also projects the resulting additional annual Fall enrollment for each year broken down by institutional sector.

The stocks or inputs into the Student Flow model that determine the number of students entering postsecondary study are:

- Projected number of high school graduates in 2020
- Projected college-going rate directly out of high school in 2020
- Projected number of GED recipients in the past year in 2020
- Projected college going rate of GED recipients in 2020
- Projected number of students transferring from KCTCS to four-year institutions in 2020
- Projected adult population ages 25-49 in 2020
- Projected college participation rate of 25-49 year-olds in 2020
- Projected number of "other first-time freshmen" (High school graduates who graduated before 2020, but who are less than 25 or more than 49 years old)

First year enrollments are then distributed among five institutional sectors. The default distribution of students to the five sectors below is based on actual student data, but can be manipulated as part of the model:

- University of Kentucky
- University of Louisville
- Public regional comprehensive institutions
- Private independent institutions
- KCTCS

The "piping" for this stocks-and-flows model is built out of several cohorts of student data from the Kentucky postsecondary education system. For the four-year institutions (public and private), the default sector of enrollment and throughput rates of the various types of entering students are based on actual student data from the 1994-97 entering cohorts, tracked through 2003. The window for two-year programs is smaller, so the actual data used to model KCTCS encompasses the 1997-2002 entering cohorts, also tracked through 2003.

Students "flow" through each of the sectors according to that sector's projected 2020 throughput rates, which are fed into the model:

- Retention of entering students into their second year
- Six year graduation rate for baccalaureate degree seekers
- Three year graduation rate for associate's degree seekers

Given all the factors above, the Student Flow model produces the following outputs:

- Annual fall semester undergraduate enrollment for each year from 2005-2020 (assuming straight-line growth from actual data to the 2020 target)
- Cumulative additional Bachelor's degrees produced from 2005-2020 beyond current production levels.
- Cumulative additional Associate degrees produced from 2005-2020 beyond current production levels.

It is important to be clear about the role of targets in the Student Flow model. This model does not provide a means of determining what targets are reasonable or achievable. Targets must first be determined through means that are external to the model, then the model provides information on what levels of inputs and throughputs would be needed to achieve the desired outputs or targets.

These production numbers may underestimate the number of degree holders that would be needed to reach national attainment levels for two reasons. Some unknown proportion of recent degree completers in 2020 will be under 25 and will not be included in the age range used to report attainment. Also, not every degree recipient from 2005-2019 will remain in the state until 2020. A constant migration rate equal to that of 1995-2000 is factored into the targets, but this does not affect the additional degrees produced under the Student Flow model. If net migration levels for the baccalaureate-educated remain positive, this may completely counter-balance the effect of post-graduation "brain drain." More information on this and other issues is contained in the sections below which detail the models parameters and assumptions and give some caveats.

Detailed Description of Student Flow Model Valves (Inputs and Throughputs)

1. Total number of Kentuckians graduating from high school (public and private) in 2020.

2. Percentage of Kentuckians graduating from high school in 2020 who matriculate as first-time freshmen at a Kentucky college (public or private) in 2020.

3. Total number of Kentuckians earning a GED in 2020.

4. Percentage of Kentuckians earning a GED in 2020 who matriculate as first-time freshmen at a Kentucky college (public or private) in 2020 or 2021.

5. Percentage of Kentuckians aged 25-49 in 2020 who are enrolled as undergraduates in a Kentucky college (public or private) in Fall 2020.

6. Total number of students transferring from KCTCS to a four-year Kentucky college (public or private) in 2020.

7. Total number of students matriculating as first-time freshmen at a Kentucky college (public or private) in 2020 who did not graduate from high school in 2020, did not earn a GED, and were not aged 25-49 years.

8. Twenty-four distributional valves: The Student Flow model focuses on the matriculation, retention, and graduation of students in five categories (first-time freshmen who matriculate in the same year they graduate from a Kentucky high school, first-time freshmen who matriculate within two years of receiving a Kentucky GED, first-time freshmen who are Kentuckians aged 25-49, all other first-time freshmen, and students who transfer from KCTCS to a four-year Kentucky college (public or private)). The performance of these five categories of students is modeled within five institutional sectors (the University of Kentucky, the University of Louisville, Kentucky public regional comprehensive universities, Kentucky independent (private) four-year institutions, and the Kentucky Community and Technical College System). The percentage of each of the five categories of students found in each of the five institutional sectors is assignable in the model, except that no students transferring from KCTCS can be assigned to KCTCS, resulting in 24 categories.

9. Five retention rate valves: the first-year retention rates in each of the five institutional sectors identified under point 8 *supra*.

10. Five graduation rate levers: the three-year graduation rate at KCTCS and the six-year graduation rates in each of the other four institutional sectors identified under point 8 *supra*.

Assumptions Underlying the 2020 Projections and the Student Flow Model

1. If the additional baccalaureate degrees projected by the Student Flow model are to be counted in the 2020 educational attainment statistics for the state, these assumptions must hold true: 1) All of the additional baccalaureate degrees will be awarded to persons who will be greater than 24 years old and less than 65 years old in 2020; 2) None of the additional baccalaureate recipients will die before 2021; 3) The additional baccalaureate recipients leaving Kentucky before 2021 will be balanced by an identical number of persons holding baccalaureate or higher degrees moving into Kentucky before 2021; 4) Of the present and baseline Kentuckians holding baccalaureate or higher degrees by 2020 and who would be greater than 24 years old and less than 65 years old in 2020, none will die before 2021.

2. If the additional associate degrees projected by the Student Flow model are to be added to the baseline number of Kentuckians holding associate but no higher degrees in 2020 to reach the Kentucky 2020 target, several assumptions must be made: 1) All of the additional associate degrees will be awarded to persons who will be greater than 24 years old in 2020; 2) None of the additional associate recipients will die before 2021; 3) The additional associate recipients leaving Kentucky before 2021 will be balanced by an identical number of persons holding associate but no higher degree moving into Kentucky before 2021; 4) None of the additional associate recipients will go on to earn baccalaureate degrees prior to 2021. 5) None of the present and baseline Kentuckians holding associate but no higher degrees will go on to earn baccalaureate degrees prior to 2021.

3. The annual number of students coming to Kentucky colleges and universities from out-of-state is assumed to remain constant. Because of the data sources from which it draws, the Student Flow model does not include out-of-state students in any of the input categories except the “other first-time freshmen” category.

4. GED recipients matriculating as first-time freshmen within the two-year enrollment reporting window are assumed to matriculate in equal numbers in each of the two years.

5. One quarter of all undergraduates aged 25-49 enrolled in any given year are assumed to be first-time freshmen.

6. Retention rates for students in the four-year institutional sectors going into years two through nine in the model are assumed to remain constant at their average rates for the 1994-1997 entering cohorts.

7. Retention rates for students at KCTCS going into years two through six in the model are assumed to remain constant at their average rates for the 1997-2002 entering cohorts.

8. Increased baccalaureate and associate degree graduation rates are assumed to be due in equal part to increased retention and more timely graduation.

Student Flow Model Caveats

The Student Flow model double-counts Kentuckians aged 25-49 who have matriculated as first-time freshmen within two years of receiving a GED.

The Student Flow model and its projections are based on entry cohorts followed for nine years. Conceptually, to come up with 2020 estimates, it "averages" across the nine discrete entry cohorts who would be entering school between 2011 and 2019 and who would exit between 2020 and 2028. Tn other words, the model interpolates all the year-to-year statistics out to 2030 for the entering class of 2020, and then applies these same rates backwards by cohort year. A consequence of this methodology is that the Student Flow model does not capture the effects of change after baseline but prior to the year of entry of the first cohort included in the estimation. The effects of change between the "baseline" (here 2003) and the year nine-years previous to the target year (here 2011) are not included in the model. This underestimate of total cumulative degrees conferred is balanced by the inclusion of enrollment and degrees produced in the cohorts that "trail" 2020, such as the entry cohorts of 2019 and 2018. Given that the numbers and rates applied here to the 2020 estimates are much higher than those at baseline, it is likely that the inclusion of post-2020 results in the 2020 estimate would actually overcompensate for the exclusion of enrollment and degrees occurring before the first entry cohort used for estimation.

Data Sources and Citations:

[1] Kentucky State Data Center population projections are available as a downloadable spreadsheet entitled "Detailed Tables of Projections by Age and Sex, and Components of Change" on the KSDC webpage: http://ksdc.louisville.edu/kpr/pro/projections.htm (accessed 2/78/05).

[2] Day, Jennifer Cheeseman and Bauman, Kurt J., 2000, *Have We Reached the Top? Educational Attainment Projections of the U.S. Population* (Working Paper Series No. 43, Population Division, U.S. Census Census Bureau: Washington, DC), issued May, 2000. Available on-line at: http://www.census.gov/population/www/documentation/twps0043/twps0043.pdf (Accessed 2/9/05).

[3] All U.S. Census 2000 data downloaded from: http://www.census.gov/main/www/cen2000.html (Accessed July 2004).

[4] Stoops, Nicole, 2004, *Educational Attainment in the United States, 2003* (Current Population Reports, #p20-550, U.S. Census Bureau: Washington, DC), issued June 2004. Available on-line at: http://www.census.gov/prod/2004pubs/p20-550.pdf (Accessed 2/9/05).

[5] Downloaded from higheredinfo.org, an information website maintained by The National Center for Higher Education Management Systems: http://www.higheredinfo.org/dbrowser/index.php?measure=84 (Accessed 2/7/05).

[6] Data from CPE's Comprehensive Database and from institutional reporting to the federal Integrated Postsecondary Education Data System (IPEDS): http://nces.ed.gov/ipeds/ (2004 degree data is not yet publicly available on-line).

[7] Kentucky State Data Center population projections are available as a downloadable spreadsheet entitled "Detailed Tables of Projections by Age and Sex, and Components of Change" on the KSDC webpage: http://ksdc.louisville.edu/kpr/pro/projections.htm (accessed 2/78/05).

[8] National Center for Health Statistics, *Work Table 23R. Death rates by 10 year age groups, US and each state, 2001*. Posted 3/11/05 (accessed 3/17/05) http://www.cdc.gov/nchs/data/statab/mortfinal2001_work23R.pdf

[9] Data from CPE's Comprehensive Database and from institutional reporting to the federal Integrated Postsecondary Education Data System (IPEDS): http://nces.ed.gov/ipeds/ (2004 degree data is not yet publicly available on-line).