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An Index of Kentucky's Educational Progress

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Sufficient time has passed since the Kentucky Education Reform Act of 1990 and the Postsecondary Education Improvement Act of 1997 to ask: *Are we making educational progress in Kentucky and, if so, are we gaining relative to the nation?* The simplicity of these questions belies the multidimensionality of the educational system, which is vast in its scope—from early childhood to adult—and its outcomes, achievement and attainment. Using 11 education indicators, we examine Kentucky's progress from 1992 to 2005 and conclude that we have made substantial progress, both in an absolute sense as well as relative to the nation. However, we cannot afford to lose the momentum of reform because we still trail roughly two-thirds of the states.

Kentucky has made across-the-board educational progress.

These indicators of educational progress show an across-the-board improvement from 1992 to 2005 (see Table 1).¹ Educational attainment, as measured by the percentage of

the population with a high school diploma, two- or four-year degree, and the high school dropout rate, steadily improved. Likewise, each measure of educational achievement, from ACT scores to the percentage of students scoring proficient or higher on the NAEP exams, was at or near its highest level in 2005.

Kentucky's progress relative to the nation has been mixed.

While Kentucky has made educational progress, so has the nation. We calculate Kentucky's position relative to the other states in each of the indicators of educational progress using percentile ranks.² First, for each indicator, we order the states from lowest to highest. Second, we calculate Kentucky's percentile rank; the worst performing state is at the 1st percentile while the best is at

the 99th percentile. For example, in 2005 Texas had the lowest percentage of working-age adults with a high school diploma or higher at 81%, placing it at the 1st percentile.

TABLE 1 Selected Education Indicators for Kentucky, Selected Years							
	1992	1996	1998	2000	2002	2003	2005
HS Diploma or Higher*	77%	81%	82%	84%	86%	87%	85%
Two-Year Degree or Higher*	22%	27%	28%	29%	32%	32%	32%
Bachelor's Degree or Higher*	18%	20%	22%	23%	23%	22%	22%
9-12th Grade Dropout Rates	—	—	5.2%	5.0%	4.0%	3.3%	3.3%†
ACT State Composite Scores	20.0	20.1	20.2	20.1	20.0	20.2	20.4
8th Grade Math NAEP**	14%	16%	—	20%	—	24%	23%
8th Grade Reading NAEP	—	—	30%	—	32%	34%	31%
8th Grade Science NAEP	—	23%	—	28%	—	—	31%
4th Grade Math NAEP	13%	16%	—	17%	—	22%	26%
4th Grade Reading NAEP	23%	—	29%	—	30%	31%	31%
4th Grade Science NAEP	—	—	—	28%	—	—	36%

*Percentage of adults 25 to 64 years old.
**The six NAEP indicators show the percentage of students scoring proficient or higher.
†2004 data used in 2005 for dropout rates.
A dash (—) in a cell indicates that data are not available.
Source: KLTPRC calculations based on multiple data sources (see Appendix for more information)

TABLE 2 Kentucky's National Percentile Rank, Selected Education Indicators, Selected Years (higher ranking indicates better standing)							
	1992	1996	1998	2000	2002	2003	2005
HS Diploma or Higher	8th	8th	8th	8th	22nd	22nd	6th
Two-Year Degree or Higher	10th	8th	8th	10th	10th	8th	8th
Bachelor's Degree or Higher	12th	8th	14th	18th	8th	4th	6th
9th-12th Grade Dropout Rates	—	—	32nd	31st	40th	63rd	61st
ACT State Composite Scores	20th	20th	20th	20th	17th	20th	20th
8th Grade Math NAEP	25th	21st	—	37th	—	29th	22nd
8th Grade Reading NAEP	—	—	57th	—	48th	57th	49th
8th Grade Science NAEP	—	36th	—	51st	—	—	51st
4th Grade Math NAEP	20th	26th	—	26th	—	8th	10th
4th Grade Reading NAEP	25th	—	58th	—	40th	39th	45th
4th Grade Science NAEP	—	—	—	55th	—	—	81st
Indicators Used in the Index	7	7	7	9	7	9	11

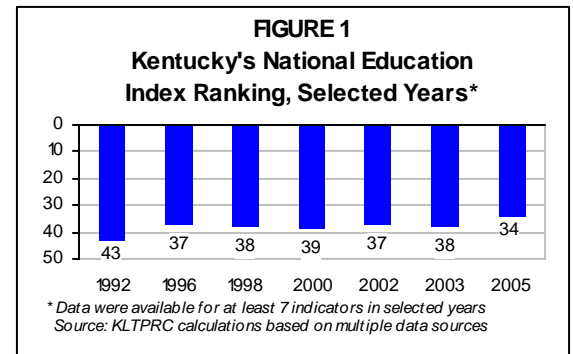
Source: KLTPRC calculations based on multiple data sources (see Appendix for more information)



At the 99th percentile is Minnesota with the highest high school completion rate of 96%. Kentucky's 85% was higher than only 6 percent of the states (e.g., Texas, California's 82%, and Louisiana's 83%); this placed Kentucky at the 6th percentile (see Table 2). That same year 36% of Kentucky's 4th graders scored proficient or higher on the NAEP science exam, a number that was better than 81% of the states, placing Kentucky at the 81st percentile. In general, Kentucky performs poorly on educational attainment relative to the rest of the country, languishing near the bottom in the percentage of its working-age population with a high school diploma or more (6th percentile in 2005), a two-year degree or more (8th percentile), or a bachelor's degree or more (6th percentile). Kentucky's highest percentile rankings are for the dropout rate (61st percentile) and 4th grade science (81st percentile). We are in the middle of the pack for 8th grade reading (49th percentile), 8th grade science (51st percentile), and 4th grade reading (45th percentile).

Kentucky outperformed better than a third of the states in 2005.

To create an index of Kentucky's educational progress over time relative to other states, we combined all available data into a single number.³ Based on this index, Kentucky has generally progressed since the early to mid-1990s. Figure 1 shows that Kentucky has improved its national education ranking from 43rd in 1992 to 34th in 2005. The ranking is consistent with *Education Week's Quality Counts 2007 Achievement Index*, which ranks Kentucky at 34th, and the Morgan Quitno 2006-07 Smartest State Index, which ranks Kentucky at 31st.⁴ This improvement has been driven primarily by the 4th and 8th grade science scores, 4th grade reading, and the steady decline in the dropout rate from 5.6% in 1996 to 3.3% in 2004.



Caveats

At least three caveats to this index should be noted. First, 2005 is the only year for which data are available for all 11 indicators, and for three years (1992, 1998, and 2002) data are available for only 7 of the factors.⁵ Consequently, one should be aware of the factors being compared when making year-to-year comparisons. Second, we give equal weight to each indicator, but, arguably, some indicators are more important than others. However, due to its somewhat subjective nature, any weighting scheme would have its own limitations. Third, while rankings are ideal for determining the relative position of states, they reveal nothing about the *distance* between states. Knowing that Kentucky is ranked 34th and that Massachusetts ranks 1st does not reveal how near or far Kentucky is from Massachusetts. Table 3, however, shows how Kentucky's values compare to the average for the top 10 states, which is illustrative of how far Kentucky must go before reaching the upper echelon of "smart states."

TABLE 3
Comparing Educational Indicators for Kentucky and the Average of the Top Ten States, 2005

Educational Indicators	Kentucky	Average for Top 10 States
HS Diploma or Higher	85%	93%
Two-Year Degree or Higher	32%	46%
Bachelor's Degree or Higher	22%	34%
9th-12th Grade Dropout Rates	3.3%	2.9%
ACT State Composite Scores	20.4	22.1
8th Grade Math NAEP	23%	37%
8th Grade Reading NAEP	31%	37%
8th Grade Science NAEP	31%	39%
4th Grade Math NAEP	26%	43%
4th Grade Reading NAEP	31%	37%
4th Grade Science NAEP	36%	35%

Note: The top 10 states based on the State of Education Index are, from first through tenth, MA, MN, VT, NH, CT, ND, NJ, WI, SD & MT.

Conclusions

As we reach the 10-year anniversary of postsecondary education reform and approach the 20-year mark of primary and secondary education reform, these data show real educational progress, compared to our past *and* relative to the nation. Kentucky has moved from the bottom fifth of states in educational performance in 1992 to just ahead of the bottom third in 2005. However, comparing Kentucky to the top-10 states in 2005 reveals that the Commonwealth still has far to go in almost every facet of educational attainment and achievement. We should celebrate our progress while remembering that educational reform is not a destination, but rather an ongoing process.

¹A list of sources for the indicators is available at <http://www.kltprc.net/policynotes/pn0023_appendix.pdf>. ²We use percentile ranks because of missing data. For example, in 1992 Kentucky ranked 31st in the NAEP 8th Grade Math results. However, only 41 states actually participated that year. By using percentile ranks, we can get around this problem by instead showing that Kentucky's performance placed it at the 25th percentile. ³Each indicator was standardized (mean=0 and standard deviation=1) by a z-score transformation. The index is the average of the probability values, using a cumulative standard normal distribution of these z-scores and ranges from 0 to 1, with 0 being the worst performing state and 1 the best. ⁴The *Education Week Quality Counts 2007 Achievement Index* is available online at <<http://www.edweek.org/ew/toc/2007/01/04/index.html>>; the Morgan Quitno 2006-07 Smartest State Index is available at <<http://www.morganquitno.com/edpress06.htm>>. ⁵See the last row in Table 2.