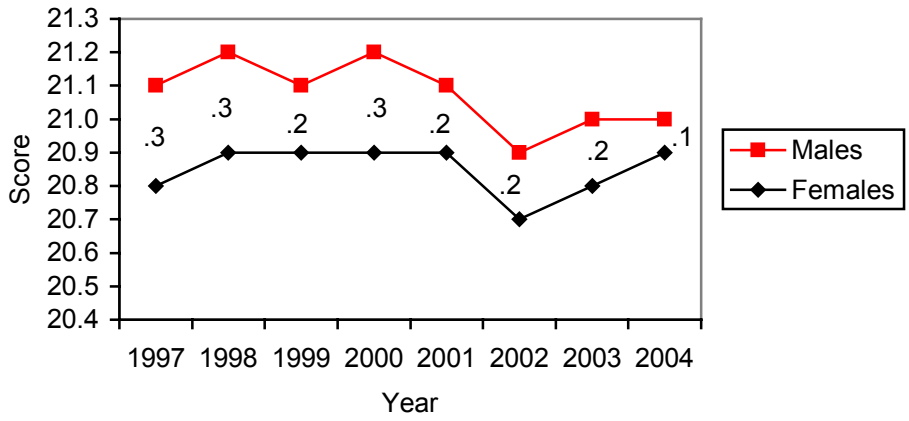
COLLEGE READINESS

ISSUES IN COLLEGE READINESS

Gender Fairness Using the ACT

A criticism made against standardized tests is that they may be biased against females because males typically outscore females. On the ACT, males perform only slightly better than females. Among the high school graduating class of 2004, for example, males outscored females by 0.1 point on the ACT Composite score, and this difference has been roughly consistent across the last 8 years, averaging 0.2 per year (Figure 1).

Figure 1: ACT Assessment Composite Score for Males and Females, 1999-2004



Most high schools have about the same number of males and females; high school course-taking patterns for the two sexes are roughly similar; and, most important, females earn higher grades on average in high school than do males. So why do males outperform females on standardized college entrance examinations such as the ACT?

The population of students who take the ACT is self-selected—that is, the ACT has traditionally been taken primarily by those planning to attend college. For the past decade, 56 percent of ACT test takers have been female, a figure identical to the percentage of females attending college during the same period. One theory is that if all students, not just the college bound, were to take the ACT, there would be no score difference between males and females.

To test this theory, we decided to study eight years' worth of data from the states of Colorado and Illinois, both of which recently moved from traditional self-selected administrations of the ACT to a system in which all students take the test.

In 2002, Colorado and Illinois adopted the ACT as part of mandated statewide assessment of all high school students in those states. This means that, rather than representing traditional, self-selected samples of ACT takers, the ACT-tested populations of these states now comprise all students. To examine the question of gender fairness on the ACT we compared score differences between

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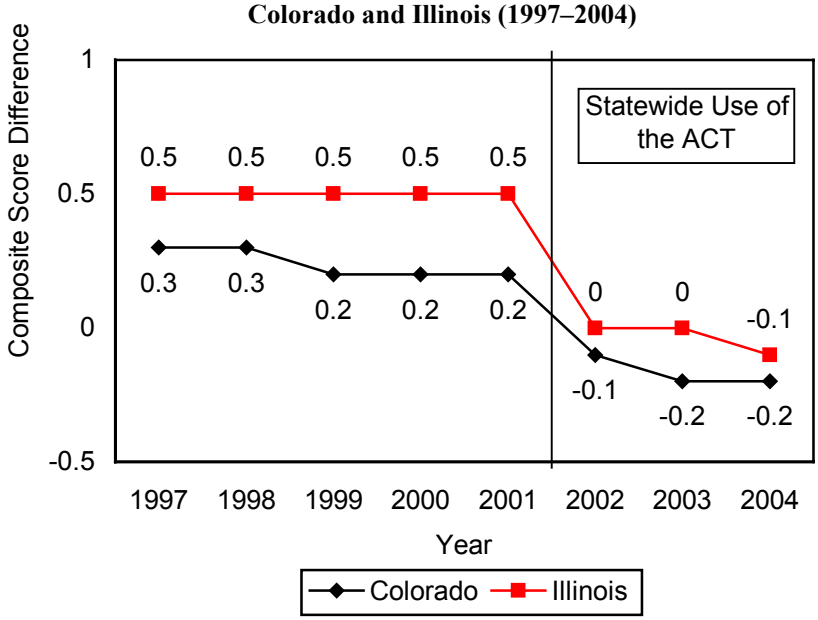
self-selected males and females prior to 2002 with the score differences of all students since 2002.

Figure 2 reports the differences in the average ACT Composite score for males and females in Colorado and Illinois for the last 8 years.

Figure 2: Yearly Differences in ACT Composite Scores (Male-Female) Colorado and Illinois (1997–2004)



The differences in scores are fairly constant across the first 5 years—then both show a large change in 2002, the year when statewide testing of all students, not just the college bound, was instituted. *The score gaps between males and females in these states disappeared when the ACT was administered to all students statewide.* In fact, there is now a slight difference in favor of females of 0.2 point in Colorado and 0.1 point in Illinois, differences that are consistent with the fact that females earn higher grade point averages than males (see Tables 1 and 2).

Table 1: Characteristics of 2004 Colorado High School Graduating Class by Gender

	Female	Male
% Test Takers	50	49
Avg. HS GPA	3.15	2.91
% Core or More:		
English	77	73
Mathematics	71	67
Social Science	75	71
Natural Science	63	61
% Less Than Core:		
English	11	14
Mathematics	17	18
Social Science	12	15
Natural Science	24	24

Note: Percentages do not sum to 100 due to rounding and non-respondents.

Table 2: Characteristics of 2004 Illinois High School Graduating Class by Gender

	Female	Male
% Test Takers	51	48
Avg. HS GPA	3.05	2.86
% Core or More:		
English	80	76
Mathematics	73	69
Social Science	64	60
Natural Science	64	62
% Less Than Core:		
English	9	12
Mathematics	16	18
Social Science	25	28
Natural Science	24	26

Note: Percentages do not sum to 100 due to rounding and non-respondents.

In Colorado, from 1997 through 2001, an average of 54 percent of test takers were female and the average composite score difference was 0.2 in favor of males. Since 2002, the average percentage of females has dropped to 50 and the average composite score difference has been 0.2 in favor of females. (During the same three-year period 2002–2004, the percentage of all students taking the ACT nationally who are female has been 56 and the average composite score difference has been 0.2 in favor of males.)

In Illinois, from 1997 through 2001, an average of 55 percent of test takers were female and the average score difference was 0.5 in favor of males. Since 2002, the average percentage of test takers who are female has dropped to 51 and the average score difference has been reduced to zero.

Figures 3 and 4 illustrate the score distributions for Colorado and Illinois, respectively, before and after the use of the ACT statewide. These figures show that there has been a shift downward in scores as a result of more students taking the test. Many of the students with these lower scores would not have tested voluntarily. Because these students are more likely to be male than female, the mean score for males is affected to a greater extent. Thus, the elimination of self-selection in taking the test can be seen as the primary reason that the score difference between the genders has disappeared.

Figure 3: Colorado ACT Composite Score Distributions,
1999-2001 and 2002-2004 Frequency Aggregates

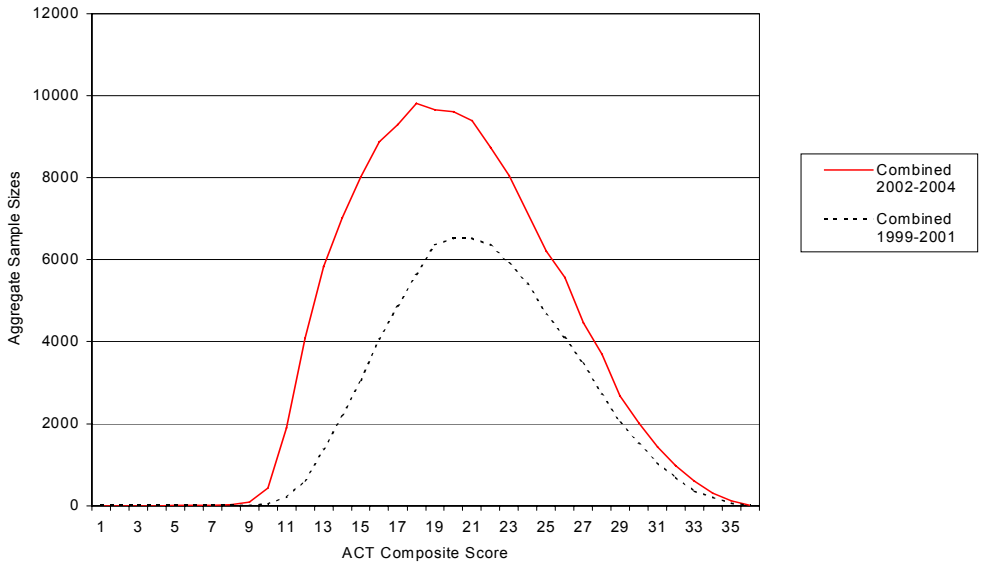
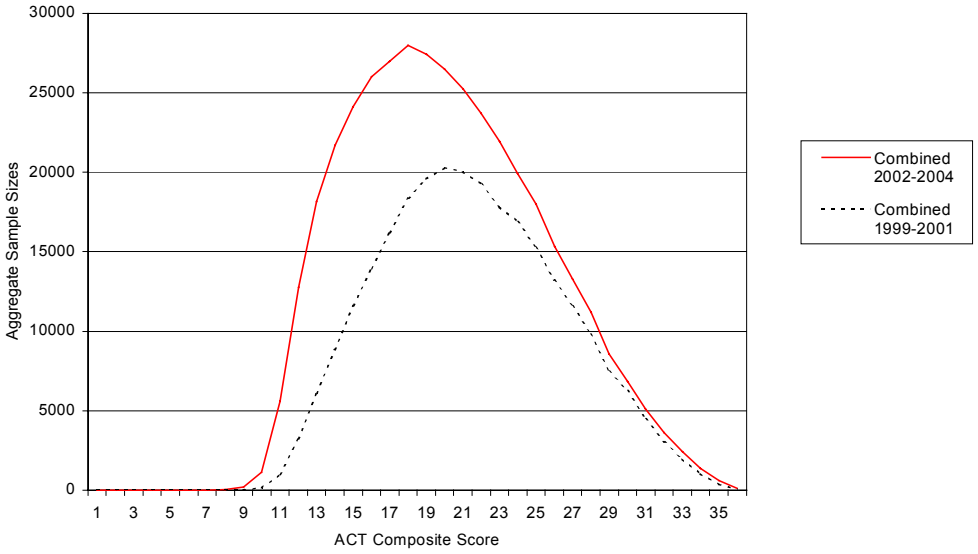


Figure 4: Illinois ACT Composite Score Distributions,
1999-2001 and 2002-2004 Frequency Aggregates



Conclusion

There is clear evidence that gender differences on the ACT are a function of self-selection and that these differences disappear (or reverse slightly in favor of females) when all students are tested. One can conclude, therefore, that the differences seen between males and females on the ACT are a function of self-selection—that is, who decides to take the test—rather than inherent bias in what the test is measuring.