

**When the ACT is adopted statewide:**

- **Mean ACT Composite scores will typically decrease by 1.22 score points for each additional 25% tested.**
- **ACT participation rates increase most for male, African American, American Indian, and Hispanic students as well as students with lower family income and students whose parents did not attend college.**

<sup>1</sup> The 65% estimate is calculated as the 2001 participation ratio (27,260/41,659) divided by the 2002 participation ratio (43,744/43,181). The participation ratio for 2002 is greater than 1 because the number of ACT-tested students (43,744) exceeded the total number of high school graduates estimated by the Western Interstate Commission for Higher Education (43,181).

<sup>2</sup> This is calculated as the weighted mean across states using the number tested in the adoption year as weights.

# Anticipated Changes in ACT Scores and Participation Rates with ACT Statewide Adoption

JEFF ALLEN, PHD

## Introduction

From its inception in 1959 through the 1990s, the ACT® test was taken primarily by students interested in pursuing a college degree after high school. For this reason, a state's performance on the ACT did not reflect its entire population of eleventh-grade students. Then, in spring 2001, Colorado and Illinois became the first states to offer the ACT to all eleventh graders; other states have adopted the ACT statewide since. When a state adopts the ACT, its mean ACT scores are expected to decrease, as are gaps in ACT participation rates across socio-demographic subgroups. This issue brief examines changes in state mean ACT scores and ACT participation rates resulting from statewide adoption of the ACT. Historical data is used to anticipate how a state's mean ACT scores and subgroup participation rates would change with statewide adoption of the ACT.

## Anticipated Changes in ACT Scores

For twelve states with statewide ACT testing of eleventh graders, mean ACT Composite scores and number of students tested are presented in table 1. For each state, the *adoption cohort* is defined as the first high school graduating cohort with virtually all students tested. Before-adoption and after-adoption statistics are presented. Each state experienced an abrupt increase in ACT participation rates after ACT statewide adoption.

The data in table 1 show that each ACT-adoption state experienced decreases in mean ACT Composite score. States with lower participation rates before adoption tended to have larger score decreases (figure 1). For each state, table 1 also presents the decrease in mean ACT Composite score per each additional 25% tested. For example, about 65% of Colorado's preadoption cohort took the ACT,<sup>1</sup> and Colorado's mean ACT Composite score dropped by 1.4 score points. Therefore, we estimate that Colorado's mean ACT Composite score dropped by 1.01 score points for each additional 25% tested.

From table 1, we see that the decrease in mean ACT Composite score per additional 25% tested varies by state. The most extreme values were observed for Montana (0.67) and Illinois (1.39). Across the twelve states, the mean decrease in mean ACT Composite score per additional 25% tested is 1.22.<sup>2</sup> Therefore, a rule of thumb is that **mean ACT Composite scores will decrease by 1.22 score points after adoption of the ACT for each additional 25% tested.** This methodology can also be applied to the ACT subject area tests (table 2). The results suggest that mean ACT English scores are most sensitive to changes in tested students, and mean ACT Reading scores are least sensitive.

Table 1. Mean ACT Composite Scores and Number Tested, before and after ACT Adoption

| State          | Adoption cohort | Number tested |         | Estimated number of graduates |         | Mean ACT Composite score |       |                         |
|----------------|-----------------|---------------|---------|-------------------------------|---------|--------------------------|-------|-------------------------|
|                |                 | Before        | After   | Before                        | After   | Before                   | After | Decrease per 25% tested |
| Colorado       | 2002            | 27,260        | 43,744  | 41,659                        | 43,181  | 21.5                     | 20.1  | 1.01                    |
| Illinois       | 2002            | 89,311        | 128,753 | 126,245                       | 132,054 | 21.6                     | 20.1  | 1.39                    |
| Michigan       | 2008            | 78,135        | 123,918 | 120,360                       | 123,576 | 21.5                     | 19.6  | 1.36                    |
| Kentucky       | 2009            | 31,728        | 45,419  | 43,613                        | 45,788  | 20.9                     | 19.4  | 1.36                    |
| Wyoming        | 2009            | 4,361         | 5,530   | 5,550                         | 5,541   | 21.1                     | 20.0  | 1.31                    |
| Tennessee      | 2010            | 52,052        | 66,552  | 66,587                        | 66,686  | 20.6                     | 19.6  | 1.16                    |
| North Dakota   | 2011            | 5,882         | 7,057   | 7,554                         | 7,504   | 21.5                     | 20.7  | 1.18                    |
| Utah           | 2012            | 25,161        | 32,835  | 31,269                        | 31,441  | 21.8                     | 20.7  | 1.17                    |
| Louisiana      | 2013            | 36,736        | 45,305  | 43,792                        | 45,216  | 20.3                     | 19.5  | 1.22                    |
| North Carolina | 2013            | 18,817        | 95,782  | 94,072                        | 93,777  | 21.9                     | 18.7  | 0.99                    |
| Hawaii         | 2014            | 5,345         | 11,797  | 13,502                        | 13,125  | 20.1                     | 18.2  | 0.85                    |
| Montana        | 2014            | 6,631         | 9,611   | 9,176                         | 9,228   | 21.3                     | 20.5  | 0.67                    |

Source: Estimated number of graduates from Western Interstate Commission for Higher Education, *Knocking at the College Door: Projections of High School Graduates*, 8th ed. (Boulder, CO: Western Interstate Commission for Higher Education, 2012).

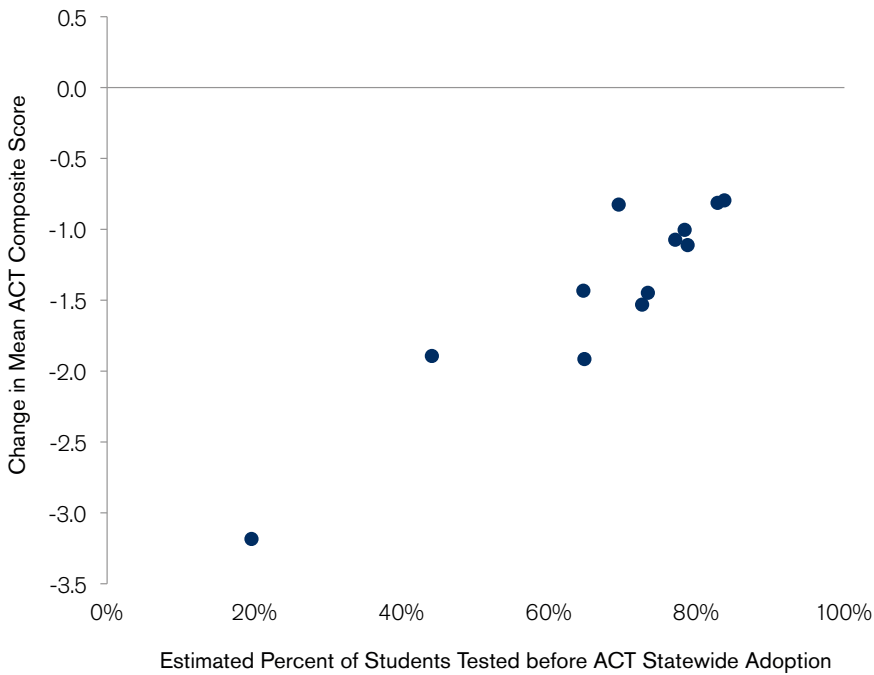


Table 2. Typical Decreases in Mean ACT Scores after ACT Statewide Adoption

| Subject area | Typical decrease in mean ACT score per 25% tested <sup>a</sup> |
|--------------|----------------------------------------------------------------|
| English      | 1.77                                                           |
| Mathematics  | 1.33                                                           |
| Reading      | 1.00                                                           |
| Science      | 1.20                                                           |
| Composite    | 1.22                                                           |

<sup>a</sup> Estimates are based on data from twelve ACT adoption states using the approach outlined in table 1.

Figure 1. Decrease in mean ACT Composite scores related to preadoption participation rate

After initial decreases in mean ACT scores, states tend to experience improvements in scores in subsequent years after adoption (figure 2).<sup>3</sup>

### Anticipated Changes in Subgroup ACT Participation

The states that have adopted the ACT have also observed decreased gaps in ACT participation rates across socio-demographic subgroups (table 3).

After ACT adoption, greater representation among the ACT-tested cohorts is observed for male, African American, American Indian, and Hispanic students. Students with lower family income and parents who did not attend

college are also more likely to be represented after statewide adoption.

### Summary

- Based on data from earlier ACT adoption states, states should expect decreases in mean ACT scores after statewide adoption of the ACT. ACT English scores are typically most sensitive to the effects of statewide adoption.
- After adoption of the ACT, states should expect greater ACT participation for male, African American, American Indian, Hispanic, and lower-income students, as well as for students whose parents did not attend college.

- Changes in ACT scores after statewide adoption have varied across states. Factors that may affect changes in ACT scores after adoption include the composition of the state's untested population, cohort differences in academic achievement, and substantial educational interventions which may be introduced and affect student learning and achievement.
- After initial decreases in mean ACT scores, states tend to experience improvements in scores in subsequent years after adoption. ■

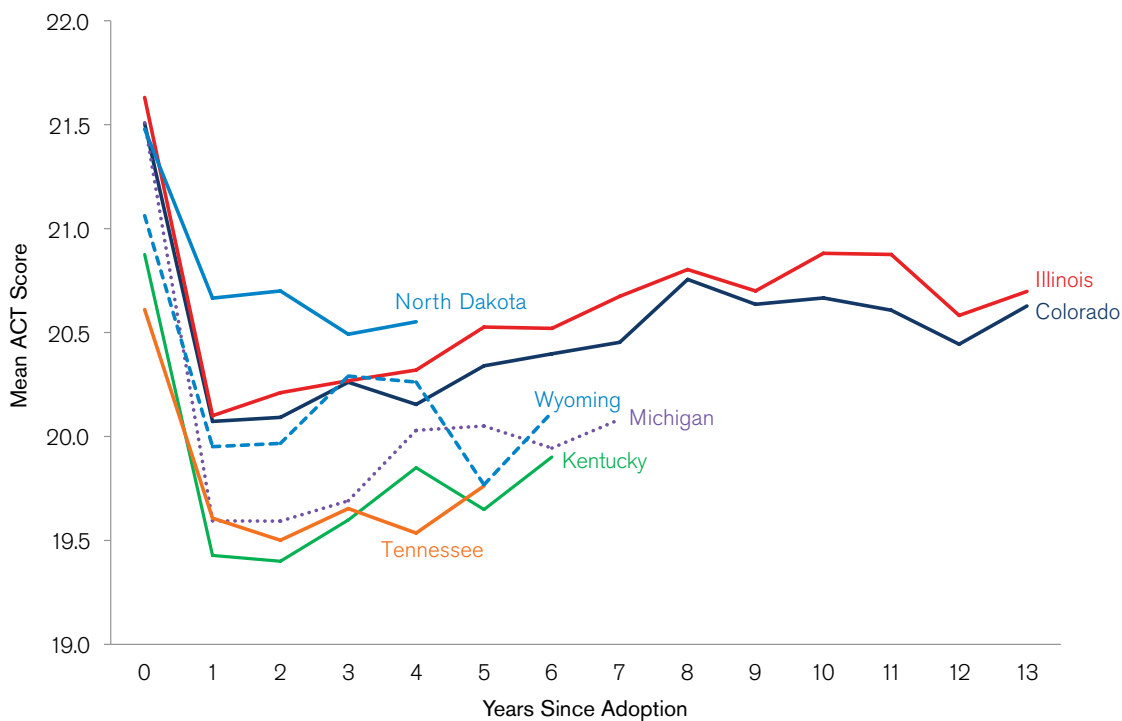


Figure 2. Mean ACT Composite scores after statewide adoption

<sup>3</sup> States with at least four postadoption high school graduating cohorts are included.

Table 3. Socio-Demographics of ACT-Tested Students, before and after ACT Adoption

| Student subgroup                            | Relative frequency among<br>ACT-tested students |                | Preadoption<br>participation<br>% <sup>a</sup> |
|---------------------------------------------|-------------------------------------------------|----------------|------------------------------------------------|
|                                             | Before N (%)                                    | After N (%)    |                                                |
| <b>Gender</b>                               |                                                 |                |                                                |
| Female                                      | 205,315 (54.6)                                  | 312,676 (51.4) | 67.2                                           |
| Male                                        | 170,708 (45.4)                                  | 296,089 (48.6) | 59.0                                           |
| No response                                 | 5,396                                           | 7,538          |                                                |
| <b>Race/ethnicity</b>                       |                                                 |                |                                                |
| African American                            | 49,181 (13.7)                                   | 84,511 (15.0)  | 59.5                                           |
| American Indian                             | 2,530 (0.7)                                     | 5,826 (1.0)    | 44.4                                           |
| Asian/Native Hawaiian <sup>b</sup>          | 13,980 (3.9)                                    | 20,897 (3.7)   | 68.4                                           |
| Hispanic                                    | 18,977 (5.3)                                    | 39,986 (7.1)   | 48.5                                           |
| White                                       | 262,693 (72.9)                                  | 383,730 (68.1) | 70.0                                           |
| Other/Multiracial                           | 13,037 (3.6)                                    | 28,161 (5.0)   | 47.3                                           |
| No response                                 | 21,021                                          | 53,192         |                                                |
| <b>Family income</b>                        |                                                 |                |                                                |
| <36,000                                     | 92,535 (30.6)                                   | 174,698 (37.5) | 54.2                                           |
| 36,000-60,000                               | 79,388 (26.2)                                   | 123,544 (26.5) | 65.7                                           |
| 60,000-100,000                              | 82,926 (27.4)                                   | 103,311 (22.2) | 82.1                                           |
| >100,000                                    | 47,986 (15.8)                                   | 64,035 (13.8)  | 76.6                                           |
| No response                                 | 78,584                                          | 150,715        |                                                |
| <b>Parent's education level<sup>c</sup></b> |                                                 |                |                                                |
| Less than high school                       | 1,669 (2.9)                                     | 7,826 (5.6)    | 21.4                                           |
| High school graduate/GED                    | 10,249 (18.0)                                   | 31,063 (22.1)  | 33.2                                           |
| Some college, less than Associate's         | 12,212 (21.5)                                   | 28,042 (20.0)  | 43.8                                           |
| Associate's degree                          | 6,038 (10.6)                                    | 16,881 (12.0)  | 35.9                                           |
| Bachelor's degree                           | 15,934 (28.0)                                   | 35,419 (25.2)  | 45.2                                           |
| More than Bachelor's degree                 | 10,829 (19.0)                                   | 21,252 (15.1)  | 51.2                                           |
| No response                                 | 10,598                                          | 22,012         |                                                |

<sup>a</sup> Estimated as the preadoption count divided by the postadoption count, adjusted for changes in the total number of graduates preadoption to postadoption.

<sup>b</sup> Beginning in 2010, Native Hawaiian was a response option for student race/ethnicity. To aggregate data across years, Native Hawaiian is combined with Asian.

<sup>c</sup> Highest educational level attained between students' mother and father. Parent educational level data are only available pre- and postadoption for states with adoption cohorts of 2013 and later (HI, LA, MT, NC). The participation rate estimates by parent education level are heavily influenced by data from North Carolina, which had an overall preadoption ACT participation rate of 20%.