The Condition of K-12 Education in Oregon 2007 Update

October 2007
Introduction

In July 2003, five of Oregon’s larger charitable foundations established “Foundations for a Better Oregon,” a new organization created to facilitate collaboration on projects to improve the state of Oregon. Its work is concentrated on The Chalkboard Project, an effort to share best practices, broaden perspectives, and bring the citizens of Oregon together to help assure a superior public education system.

Project sponsors, and the citizens they seek to engage, need a solid understanding of existing conditions. Few public policy issues generate as much heated debate as primary and secondary (Kindergarten-12th grade) education. The system’s importance to societal and individual wellbeing fuels the debate’s intensity. In Oregon, the condition of K-12 education routinely tops voters’ concerns when considering the state’s general direction.

Existing diagnoses of the condition of Oregon’s K-12 system run a wide spectrum. Recent reports by the state’s Department of Education and Progress Board generally describe a fundamentally sound system that is on the right track. Critics argue that, despite some improvements in recent years, the system is performing well below its potential. A January 2005 report from ECONorthwest / CEPR, “The Condition of K-12 Education in Oregon,” presented a comprehensive overview of Oregon’s K-12 educational system. This second annual update to the 2005 report presents a current look at Oregon K-12 spending and enrollment, a discussion of Oregon’s high school completion rate, and a new analysis of changes in Oregon’s NAEP scores over time.
Summary of Findings

- Oregon spent 3.8% of personal income on primary and secondary education in 2005-06, below the national average of 4.2%. Oregon has been below the national average in this category since 2002, although the gap between Oregon and the national average did not increase between FY 2005 and FY 2006, halting the recent trend towards devoting a smaller share of income to K-12 education.

- Per student expenditures grew at an annual rate of 4.0% between the FY 1997 and FY 2005. Increases in staff and student support services, student transportation, and employee benefits drove much of the increase, and these categories continue to grow rapidly. Instructional expenditures account for the largest dollar increase, but grew at a more modest annual rate of 3.6%. Growth in current expenditures between FY 2004 and FY 2005, at 5.9%, was more rapid than Oregon's long-term average, and more rapid than the increase of 4.7% for the United States.

- During the FY 2005, per student educational expenditures in Oregon were $8,071, 7.2% below the national average of $8,701, similar to the gap during FY 2004. The pattern of educational expenditures in Oregon also differs significantly from other states and from the nation as a whole. In FY 2005, per student expenditures on salaries lagged nearly 16% behind the national average but per student expenditures on employee benefits were nearly 16% higher than the national average. Per student instructional expenditures were 11% below the national average, although Washington and California spend a similar amount. Oregon's per student expenditures on support services were 19% higher than the national average.

- Total compensation per staff FTE in Oregon remains above the national average, although the gap has narrowed as both salary and benefits per FTE have grown more slowly in Oregon than for the nation as a whole.

- The average age of Oregon's elementary and secondary school employees is much higher than that of the state's overall workforce. The aging of educational staff has two important consequences. First, compensation per FTE will fall as teachers and administrators at the top of their experience-based wage scale retire and are replaced by younger, less experienced employees. Second, the retirement of experienced, high quality teachers will require districts to invest heavily in recruitment and retention of new teachers.

- The decline in Oregon's student/teacher ratio, begun in FY 2004, continued through FY 2005, although Oregon still relies on fewer staff and teachers than most states, resulting in relatively large classes. Oregon's 2005-06 student-teacher ratio, at 19.5, remains well above the ratio of 14.8 for the median state. Oregon ranks among the five states with the largest average class size, as it has for more than a decade.
The proportion of Oregon's K-12 student body with special needs continues to increase. The number of special education students has increased at a faster rate than total enrollment (2.0% versus 0.7%), while the rapid increase in Hispanic enrollment has driven English Language Learner students from 2.4% of total enrollment in 1992-93 to 11.7% in 2005-06. Schools reported a sizeable increase in the proportion of students eligible for the free lunch program, from 25.8% in 2000 to 33.1% in 2006. Oregon's child poverty rate increased 4.4 percentage points over the same period. This suggests that some of the growth in free lunch provision is due to more aggressive outreach by schools.

Average NAEP scores continued to trend upwards or hold steady in 2007, although Oregon also continued to lose ground relative to the rest of the nation. Oregon 8th graders still score above the national average in reading and math, as do urban students. On the other hand, 4th grade students eligible for free- or reduced-price school lunch scored at or below the national average in reading and math, reversing 2005 NAEP results.

Trends in Oregon's NAEP performance reflect not only changes in educational productivity, but also changing student demographics. Historically, the state has had relatively few minority students, and overall average scores tied closely to the average for White students. However, Hispanic students increased from 8.7% of K-12 enrollment in 1998 to 15.5% by 2005. Average 4th grade NAEP scores increased over this period for both groups, but the persistent achievement gap relative to White and Asian-American students manifests as comparatively small increases in average scores across all students.

The 2006 Update noted that Oregon has a relatively high rate of student absenteeism, a situation that has worsened since 2000. Data from the 2007 NAEP indicate little change. Not surprisingly, NAEP scores correlate strongly with student-reported absenteeism—on average, the more days a student reports being absent, the lower the student's score.

Oregon has made significant gains in reducing high school dropout rates over the past decade, but progress towards increasing on-time high school graduation rates has been minimal according to available data. This odd result may be driven as much by the lack of a comprehensive, cross-district student data system and by the multiplicity of formulae for calculating dropout and graduation rates as by school performance.

Estimates for Oregon's high school completion rate range between 65 and 82 percent using several common measures based on administrative enrollment data, but Oregon appears, at best, average across most of these measures.
Oregon Education Expenditures

Oregon spent 3.8% of personal income on primary and secondary education in FY 2006, below the national average of 4.2% (see Figure 1). Oregon has been below the national average in this category since 2002, although the gap between Oregon and the national average did not increase between FY 2005 and FY 2006. This reverses a downward trend, and increasing gap, caused by the recession that hit Oregon earlier in the decade. The downward slide in expenditures through 1997 reflects the impact of the Measure 5 property tax limitation, passed in 1990.

Figure 1: Current Expenditures a Share of Total Personal Income, Oregon and United States, 1991-2005

Figure 2: Current Expenditures per Student, Oregon and United States, 1991-2005

Figure 2 displays the similar trends in current expenditures per student—they have lagged significantly behind the national average since 2002. Over a longer horizon, because personal income tends to grow more quickly than do prices, current expenditures can also grow more quickly than inflation while absorbing a relatively stable share of residents’ income.
The relative decline in Oregon’s per student expenditures earlier in the decade mirrors an increase in the student-teacher ratio during the same period (see Figure 3). Similarly, the decline in Oregon’s student-teacher ratio, begun in 2003-04, reflects a shrinking gap between Oregon’s per student expenditures and the national average. Oregon still relies on fewer staff and teachers than most states, as do neighboring comparison states.

**Figure 3: Student-Teacher Ratio, Selected States, 1991-2005**

- Oregon’s overall student/teacher ratio increased from 18.0 to 19.5 between 1990 and 2005, peaking at 20.6 in 2003-04. The student/teacher ratio for the median state in the US fell from 16.8 to 14.8 over the same period.

- Oregon ranks 4th among states, and has ranked among the top five states with the largest class sizes for more than a decade.

Source: NCES Common Core of Data
Looking over the past decade, the trend in Oregon's spending per student largely mirrors national trends, but the purpose and type of educational expenditures made by Oregon's schools has changed over time, and remains quite different from expenditure patterns of other states. Table 1 illustrates the growth in current expenditures by function and object from FY 1997–FY 2005.

For a different look at education expenditures in Oregon, visit the Open Book$ Project at www.openbooksproject.org. The Open Book$ site categorizes spending differently than the charts below.

**Table 1: Oregon Education Spending Over Time, 1997-2005**

<table>
<thead>
<tr>
<th>Function</th>
<th>1997</th>
<th>2005</th>
<th>Average Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>3,584</td>
<td>4,743</td>
<td>3.6%</td>
</tr>
<tr>
<td>Staff and Student Support</td>
<td>782</td>
<td>1,378</td>
<td>7.3%</td>
</tr>
<tr>
<td>General and School Administration</td>
<td>525</td>
<td>626</td>
<td>4.0%</td>
</tr>
<tr>
<td>Operations and Maintenance</td>
<td>573</td>
<td>677</td>
<td>4.1%</td>
</tr>
<tr>
<td>Student Transportation</td>
<td>243</td>
<td>356</td>
<td>4.9%</td>
</tr>
<tr>
<td>Food and Enterprise</td>
<td>213</td>
<td>291</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Per student expenditures grew at an annual rate of 4.0% between FY 1997 and FY 2005. Increases in staff and student support services, student transportation, and employee benefits drove much of the increase, and these categories continue to grow rapidly. Employee benefits grew at an annual rate of 5.9%, support services at a rate of 7.3%, and student transportation at a rate of 4.9%. Instructional expenditures account for the largest dollar increase, but grew at a more modest annual rate of 3.6%. Growth in current expenditures between 2003-04 and 2004-05, at 6.0%, was more rapid than Oregon's long-term average, and more rapid than the increase of 4.7% for the United States.
During FY 2005, per student educational expenditures in Oregon were $8,071, 7.2% below the national average of $8,701, similar to the gap during FY 2004, ranking Oregon 26th among states, close to the median. However, Oregon expenditures are two to three percent above spending levels in nearby comparison states California, Colorado, and Washington (see Figure 4).

Figure 4: Current expenditures per fall enrollee by object, FY 2005

- Oregon’s relatively large class sizes result in smaller salary expenditures per student, although California has both larger average class sizes and per-student salary expenditures that exceed Oregon’s by 8.0%.
- Oregon’s per student expenditures on benefits exceeds California’s expenditures by 19.5% and Washington’s by 48.3%.
The pattern of per-student expenditures by function in Oregon is similar to that from recent years, with instructional expenditures somewhat below the national average and support services well above (see Figure 5).

Per student instructional expenditures were 11% below the national average, although Washington and California spend a similar amount as Oregon. The three states spend between 59% and 61% of total expenditures on instruction, close to the national average of 61% and slightly higher than Colorado’s 57%.

Oregon’s per student expenditures on support services are 19% higher than the national average, slightly up from the 17% difference in FY 2004, and much higher than in California and Washington.

Source: NCES Common Core of Data, National Public Education Financial Survey
Although total compensation per FTE in Oregon remains 11.0% above the national average, the gap between Oregon and the nation has narrowed for both salary and benefit components of compensation.

Salary per FTE increased 0.3% and benefits per FTE increased 3.6% in Oregon between FY 2005 and FY 2006. The increases were 1.8% and 7.8% for the nation as a whole.

New York paid $80,743 in total compensation per FTE in FY 2005, ranking the state first in the nation.

**Figure 6: Salary and Benefit Expenditures per Active Full-Time Equivalent Staff Member, Oregon and US Average, FY 2005**

- Although total compensation per FTE in Oregon remains 11.0% above the national average, the gap between Oregon and the nation has narrowed for both salary and benefit components of compensation.
- Salary per FTE increased 0.3% and benefits per FTE increased 3.6% in Oregon between FY 2005 and FY 2006. The increases were 1.8% and 7.8% for the nation as a whole.
- New York paid $80,743 in total compensation per FTE in FY 2005, ranking the state first in the nation.
Spending on special instruction is another important cost driver for the education system. The proportion of Oregon's K-12 student body with special needs continues to increase rapidly. The number of special education students has increased at a faster rate than total enrollment (2.0% versus 0.7%), while the rapid increase in Hispanic enrollment has driven English Language Learner (ELL) students from 2.4% of total enrollment in 1992-93 to 11.7% in 2005-06. Over the same period, the proportion of students that schools report as eligible for the free lunch program has increased from 21.9% to 33.1%.

The average age of Oregon's elementary and secondary school employees is much higher than that of the state's overall workforce. According to U.S. Census Bureau data, 57% of the state's elementary and secondary school employees are 45 or older, compared to just 41% of the Oregon's total labor force. The aging of educational staff has two important consequences. First, compensation per FTE will fall as teachers and administrators at the top of their experience-based wage scale retire and are replaced by younger, less experienced employees. Second, the retirement of experienced, high quality teachers will require districts to invest heavily in recruitment and retention of new teachers.

**Figure 7: Age Distribution of Primary and Secondary School Employees Compared with Oregon’s Overall Workforce, 2005.**

Source: ECONorthwest analysis of U.S. Census Bureau Longitudinal Employer-Household Dynamics data.
Between 2000 and 2005, the share of students eligible for the free lunch program in Oregon jumped from 25.8% to 32.5%.

Over the same period, the child poverty rate increased by a similar amount—from 14.0% to 18.4% between 2000 and 2005 as measured by the American Community Survey.

**Figure 8: Special Student Populations as a Percentage to Total Enrollment, FY 1993-FY 2006**

Source: Oregon Department of Education and NCES Common Core of Data
Average reading and math scores on the National Assessment of Educational Progress (NAEP) have generally increased over the past decade, and achievement in Oregon remains marginally above the national average in many categories, although the differences have shrunk over time. The 2007 NAEP results show Oregon 4th grade students falling below the national average in reading and math. Average scores for students in urban areas generally remain above the national average. Several student subpopulations have fallen behind, including White and African American students, and students eligible for free- or reduced-price school lunch (see Figure 9).

**Figure 9: Oregon and US Subpopulations Comparisons on Selected NAEP Examinations, Most Recent Year Available**

<table>
<thead>
<tr>
<th>Year</th>
<th>Assessment</th>
<th>All Students</th>
<th>White</th>
<th>Black</th>
<th>Hispanics</th>
<th>Asian / Pacific Islander</th>
<th>City</th>
<th>Suburb</th>
<th>Town</th>
<th>Rural</th>
<th>Lunch Eligible</th>
<th>Lunch Ineligible</th>
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<td>2007</td>
<td>Mathematics 4th Grade</td>
<td>▼</td>
<td>▼</td>
<td>O</td>
<td>▼</td>
<td>O</td>
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<td></td>
<td>Mathematics 8th grade</td>
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<tr>
<td></td>
<td>Reading 4th Grade</td>
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<td>O</td>
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<td></td>
<td>Reading 8th grade</td>
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<td>O</td>
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<td>O</td>
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<tr>
<td>2002</td>
<td>Writing 4th Grade</td>
<td>O</td>
<td>▼</td>
<td>O</td>
<td>▼</td>
<td>O</td>
<td>O</td>
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<tr>
<td></td>
<td>Writing 8th grade</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>▼</td>
<td>▲</td>
<td>O</td>
<td>***</td>
<td>▼</td>
<td>O</td>
<td>▼</td>
</tr>
<tr>
<td>2005</td>
<td>Science 4th Grade</td>
<td>O</td>
<td>O</td>
<td>***</td>
<td>O</td>
<td>***</td>
<td>▲</td>
<td>O</td>
<td>***</td>
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<tr>
<td></td>
<td>Science 8th grade</td>
<td>▲</td>
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<td>***</td>
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<td>▲</td>
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<td>O</td>
</tr>
</tbody>
</table>

▼ Share of Oregon subpopulation scoring at or above the basic achievement level is statistically higher than US share for that subpopulation.

▲ Share of Oregon subpopulation scoring at or above the basic achievement level is statistically lower than US share for that subpopulation.

● Share of Oregon subpopulation scoring at or above the basic achievement level is statistically indistinguishable from the US share for that subpopulation

*** Sample size is insufficient to permit a reliable estimate or the nature of the sample does not allow accurate determination of the variability of the statistic.
Figures 10 through 13 display average NAEP scores for Oregon 4th and 8th over time. Although 4th grade achievement shows stronger gains in both subjects, it is clear from both figures that the change in achievement across all students is smaller or more negative than the gains made within racial or ethnic subpopulations in nearly every instance, although changes are not statistically significant in some cases. Two factors drive this outcome: the relatively low, if increasing, average achievement of Hispanic and African-American students and the increasing share of Hispanic enrollment. NCES has not released average scores for the American Indian or “Unclassified” racial categories in Oregon because of small sample sizes.

Figure 10: Oregon’s Average 4th Grade Reading NAEP Scores 1998 and 2007, by Race and Ethnicity

Average NAEP scores for Oregon’s White and Hispanic 4th graders generally remained below the national average for the racial and ethnic group between 1998 and 2007, although both groups had measurably improved by 2007.

Average scores for African Americans and Asian Americans in Oregon were indistinguishable from the national averages. The average scores increased for both groups, but the increases were not statistically significant because of the small size of both student populations within Oregon.

In 1998, 82.3% of Oregon’s 4th grade students were White. By 2005, the proportion fell to 69.2%. Nearly all of the decline is accounted for by the increase in Hispanic students from 9.1% to 17.2%.
In contrast to the performance of 4th grade students, Oregon’s 8th grade students scored above the national average between 1998 and 2005, but scores did not increase significantly in total or by racial or ethnic categories. In addition, the average scores by race were in every case indistinguishable from national averages in both years.

**Figure 12:** Oregon’s Average 8th Grade Reading NAEP Scores 1998 and 2007, by Race and Ethnicity

**Figure 13:** Oregon’s Average 8th Grade Math NAEP Scores 2000 and 2007, by Race* and Ethnicity

*Average reading score for 8th grade African-American students not available for 2000.
Student absenteeism in Oregon ranks comparatively high across states, as it has since at least 2000, as indicated by survey responses from eighth grade students taking the NAEP. The proportion of students in schools with absenteeism rates between 6 and 10 percent is close to twice the percentage for the nation as a whole (see Figure 14).

Simply attending a school with high absenteeism does not appear to affect NAEP performance, but students who self-report high rates of absence perform significantly worse than students who report lower absenteeism (see Figure 15). While not surprising, this fact underscores the importance of encouraging student attendance.

Figure 14: School-Reported Absenteeism Rate

Figure 15: Percent of Oregon Students Scoring Below the NAEP Basic Proficiency Level, by Self-Reported Rate of Absence, 2007

The 2007 NAEP indicates that 25% of Oregon 8th graders miss three or more days of school in a typical month, compared to only 20% for the nation as a whole.
High School Completion

Oregon has made significant gains in reducing high school dropout rates over the past decade. Oregon's high school dropout rate has fallen from 6.7% in 1997-98 to 4.2% in 2005-06. On the other hand, progress towards increasing the high school completion rate over the same period has been minimal at best. Behind this unimpressive result lies a significant debate about what “high school completion” should measure and how best to calculate an appropriate completion rate.

Survey-based approaches are the most straightforward approach to calculating high school completion. Calculating a high school completion rate for the population of interest requires little more than tabulating survey responses. The Oregon Progress Board uses responses to the Oregon Population Survey to calculate the “High School Completion” benchmark. From the 1996 survey, 91% of adults over 25 had completed high school. In 2006, the indicator had fallen slightly to 90%. The US Census Bureau’s Current Population Survey, decennial census, and American Community Survey (ACS) allow similar calculations and produce similar results. For example, the 2005 ACS yields a high school completion rate of 87% for Oregon adults 25 and over.

The average educational attainment of adults 25 and over does not necessarily reflect on the recent success of the Oregon K-12 system, however. Immigration and emigration can affect average educational attainment, and older cohorts may have had educational experiences very different from younger cohorts. Regardless, the high school completion rate increases with age because of adult high school completion programs. Unfortunately, the most commonly used surveys from the Census Bureau do not distinguish between individuals with a high school diploma and those with a GED. Estimates from the 2005 ACS place Oregon’s high school completion rate at 86% for adults 19 to 24, slightly less than that for adults over 25. In addition, individuals may overstate educational attainment in their survey responses.

The other approach to calculating high school completion rates employs school enrollment and graduation data. Methods vary, but enrollment-based calculations typically produce much lower estimates of high school completion. Common measures include:

- The average freshman graduation rate (AFGR) as published by NCES is the number of high school diplomas awarded in a given year divided by average fall enrollment in 8th grade (five years earlier), 9th grade (four years), and 10th grade (three years). The averaging accounts for the “9th grade bulge” created because 9th graders are held back at relatively high rates. Jay Greene of the Manhattan Institute calculates a similar measure that accounts for changes in the size of the high school age population.

- The cumulative promotion index (CPI), developed by Christopher Swanson of the Urban Institute, uses current-year diploma and enrollment totals and prior-year enrollment to calculate the chances a student is promoted to the next grade or graduate. Multiplying the promotion probabilities for 9th-12th grade gives the CPI.

- The Oregon Department of Education releases yet another completion rate in their annual high school dropout reports. The calculated rate is the number of high school diplomas awarded divided by the total number of 9th-12th grade dropouts during the same school year.

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1 Oregon Department of Education

2 An analysis of transcripts for students participating in the National Educational Longitudinal Study suggests that this response bias may not significantly affect survey-based high school completion rates (see Lawrence Mishel and Joydeep Roy, Rethinking High School Graduation Rates and Trends, Economic Policy Institute, 2006).
The consensus “gold standard” of graduation rates is the four-year cohort graduation rate, and involves dividing the number of diplomas awarded to the cohort of students enrolling in 9th grade for the first time four years earlier.

The AFGR and CPI produce different estimates of high school completion, but are both much lower than estimates based on population surveys, although GED completion and other issues identified above account for some of the discrepancy between survey- and enrollment-based estimates. Figure 13 displays estimated high school graduation rates for 2005 using several of the described approaches.

Figure 16 displays estimated high school graduation rates for 2005 using several of the described approaches. The “naïve” graduation rate, the ratio of current graduates to 9th grade enrollment four years earlier, is similar to the two AFGR rates.

**Figure 16: Oregon’s 2005 High School Graduation Rate, Various Calculation Methods**

Source: ECONorthwest analysis of NCES and US Census Bureau data (AFGR, CPI, and ACS) and Oregon Department of Education

*Student population adjusted by dividing 2001-02 high school enrollment by 2004-05 high school enrollment as reported by NCES.*
A recent study for Connected by 25 (www.connectedby25.org) present a similar set of completion rates for Portland Public Schools based on 2004 graduation data, finding a high school completion rate for adults 19 to 24 of 86%, a graduation rate of 64% using the NCES AFGR method, a rate of 71% using Greene's AFGR, a CPI of 54%, and a four-year cohort graduation rate of 57%.3,4

The range of high school completion estimates discussed above highlights the need for better sharing of administrative data beyond district boundaries. Without such data-sharing, calculating true, regional on-time graduation rates is difficult because students routinely transfer from one district to another, breaking the link between initial enrollment and educational outcome four years later. As a result, policy makers and researchers must, at present, rely on the various methods for estimating high school graduation rates.

Cross-district and cross-state databases would allow a more precise look at where schools, states, and districts stand relative to their peers in producing on-time graduation. But even a common data system would not address every complexity. For example, how much credit should the origin and destinations get for a graduate who transferred half way through high school?

Regardless, the enrollment-based methods paint a picture of Oregon as less than stellar at producing on-time high school graduates. Oregon ranked 37th, 35th, and 30th using the NCES AFGR for the classes of 2002, 2003, and 2004, respectively.5 An analysis of 2002 graduation rates places Oregon 31st based on Greene's AFGR calculation method.6 Oregon's class of 2001 ranked 20th on the CPI.7

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3 Mary Beth Celio and Lois Leveen, The Fourth R: New research shows which academic indicators are best predictors of high school graduation – and what interventions can help more kids graduate, Connected by 25, 2007.


5 National Center for Education Statistics, The Averaged Freshman Graduation Rate for Public High Schools From the Common Core of Data, various years.


Comparisons of a single measure across time and across jurisdictions can also provide useful information. Figure 17 illustrates the geographic disparity in district graduation rates, as calculated by ODE. The figure shows the percentage of Oregon's 2005 12th grade class (graduates plus same-year high school dropouts) in districts with the indicated graduation rate. The high and low tails of the distribution include many smaller districts, but larger districts are also present. For example, Lake Oswego SD, with a cohort of 543, achieved a graduation rate of 95%, while Medford SD graduated 64.2% of the 1,088-student class.

**Figure 17: District graduation rates for Oregon's class of 2005 (ODE calculation method)**

Source: ECONorthwest analysis of Oregon Department of Education data