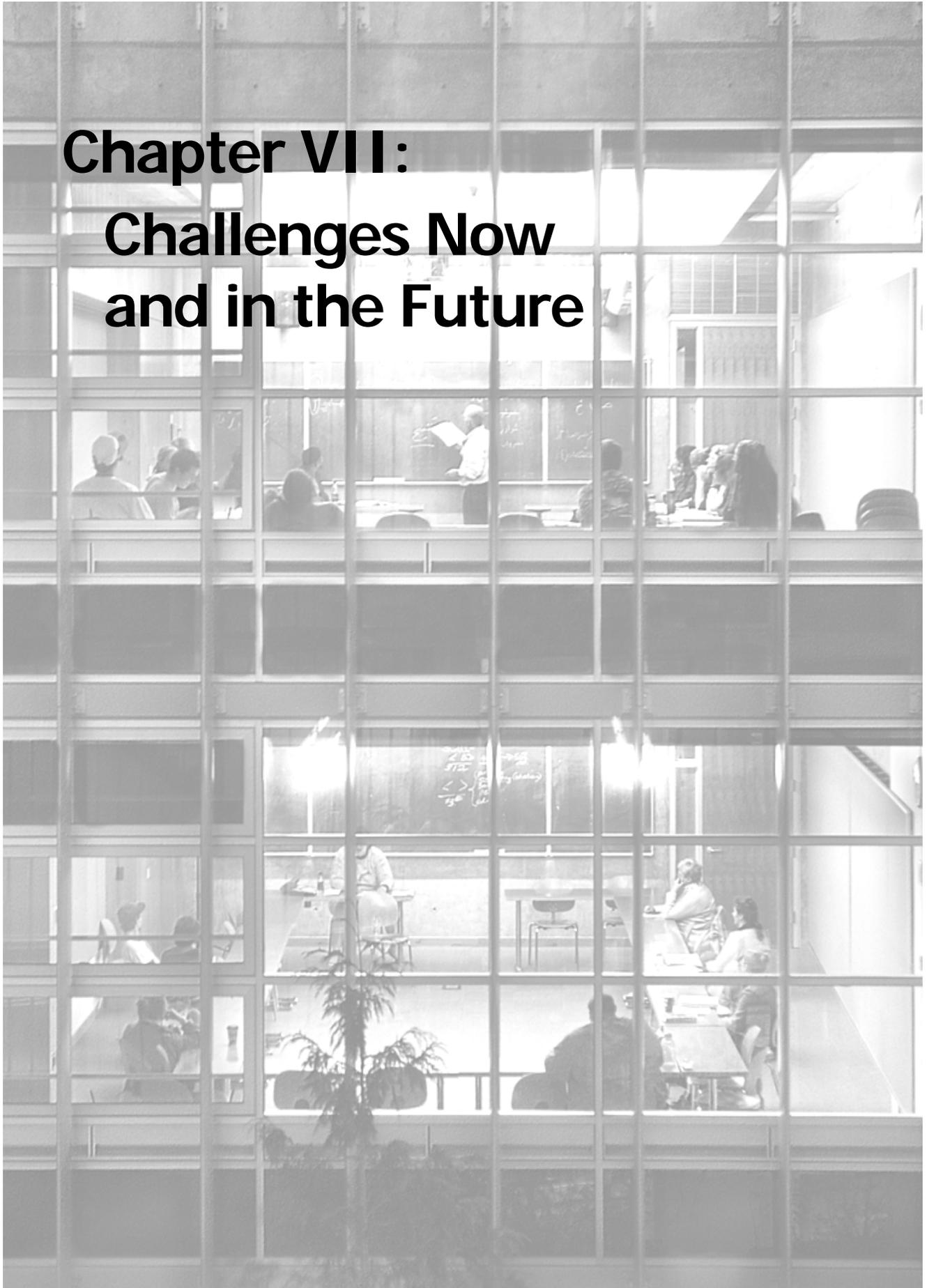


# Chapter VII: Challenges Now and in the Future





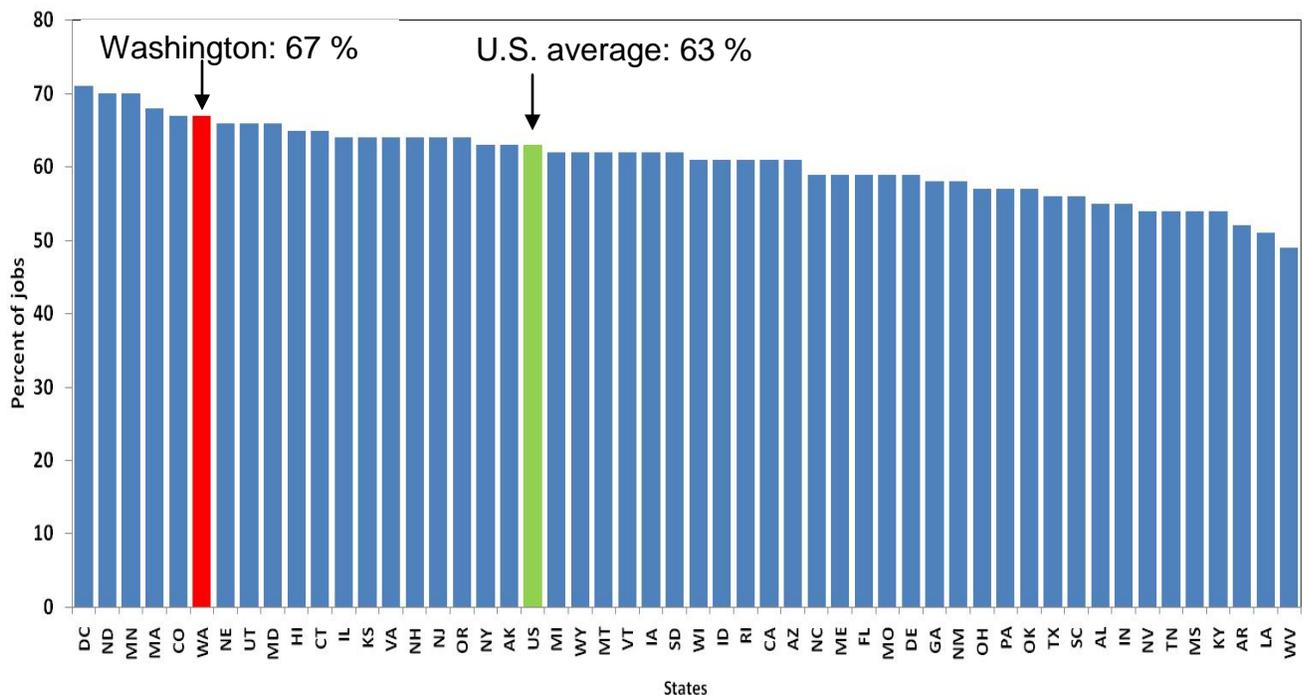
### Washington near top among states in which jobs will require postsecondary education

While Washington continues to feel the painful effects of the national recession, its full impact may have been buffered by past employment growth in areas such as medicine, technology, and engineering. Many of these jobs require higher levels of education. Workers with such skills remained in high demand, even during the recession.

Studies suggest that the number of jobs requiring postsecondary education will continue to grow in the years ahead, and Washington will remain above the national average in the percentage of such jobs. A 2010 study by the Georgetown University Center on Education and the Workforce projected that, between 2008 and 2018, 677,000 jobs requiring postsecondary credentials would open in Washington, either through creation of new jobs or through retirements. This compares with 257,000 jobs for high school graduates and 94,000 jobs for high school dropouts. By 2018, 67 percent of Washington jobs are projected to require postsecondary education.

For Washington's educational system, these numbers present a serious challenge. Public and private colleges, universities, and trade schools will be called upon to educate the next generation of workers to fill the more knowledge-intensive jobs. The state's K-12 system will be asked to prepare more students—many from families without experience in higher education—to meet the academic demands of postsecondary education. Resources will be required to help needy, college-ready students acquire education beyond high school.

**Percentage of Jobs in 2018 that Will Require Postsecondary Education**



Source: Georgetown University Center on Education and the Workforce, "Projections of Jobs and Education Requirements through 2018," 2010. Available at <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/State-LevelAnalysis-web.pdf>.

### **How changes in student funding, student enrollment and institutional efficiency affect college degree production**

To meet the expected demand for workers with postsecondary education in the future, the number of Washington residents who earn college degrees or certificates will have to be significantly increased. One factor affecting this outcome is the number of high school graduates and returning adults who are able to enroll in college.

Another factor is higher education system “efficiency,” or an increase in the number of FTEs required to produce each degree or certificate. Both enrollments and efficiency are affected by funding available from tuition and state appropriations.

Improvements in efficiency can result in more college degrees being produced. But there’s a limit to that assumption. Normally, when efficiency improves, students get through a bachelor’s degree faster. But efficiency can also decline due to negative effects, such as students not being able to get into required classes when they need them because classes fill up. This can lengthen the time it takes for them to graduate.

### **The following chart shows how degree production can be affected by funding, student enrollments and efficiency.**

The dark arrows represent increases or decreases in degree production resulting from changes in the number of students enrolled; the light symbols represent changes due to efficiency; the white symbol represents “no change” in degree production.

The cell in the upper right corner shows what happens when both total student funding per FTE and real enrollment (which includes both funded and over-enrollments) increase. In that case, an increase in degree production can also be expected, as indicated by the upward-pointing arrow.

The lower left corner represents the opposite scenario in which per student funding and real enrollment both decrease—resulting in lower degree production.

The bottom row of cells represents today’s reality, reflecting decreased student funding resulting from the poor economy. The bottom-middle cell presents a scenario in which real enrollment stays constant but total student funding decreases, resulting in overloaded classes and other conditions that cancel out or, worse, reverse degree increases due to greater inefficiency.

In the bottom right hand cell we see much uncertainty about whether continued enrollment increases also will increase degree production.

## Chapter VII: Challenges Now and in the Future

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Degree production could increase because more students are enrolled. But there's a limit to the supposition that simply enrolling more and more students will produce more and more degrees. At some point, the number of students pressing to get into classes or see advisors is greater than what the colleges can handle and backlogs, delays and other inefficiencies occur.

### Degree Production Expectations as Related to Real Enrollment and Total Student Funding per FTE

Real Enrollment Includes Budgeted and Non-Budgeted FTE

Total Student Funding per FTE includes State Funding and Tuition Revenue

---

		Real Enrollment		
		Decreased	Constant	Increased
Total Student Funding per FTE	Increased	↓ -or- ▬	↑	↑
	Constant	↓	□	↑
	Decreased	↓	↓ -or- ▬	↑ -or- ▬ -or- ↓

**Key**

<p>↕ Output Change due to Volume</p> <p>↕ Output Change due to Efficiency</p>	<p>□ No Output Change</p> <p>▬ No Output Change due to Efficiency</p>
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### State falling short of two-year degrees needed to meet future job growth

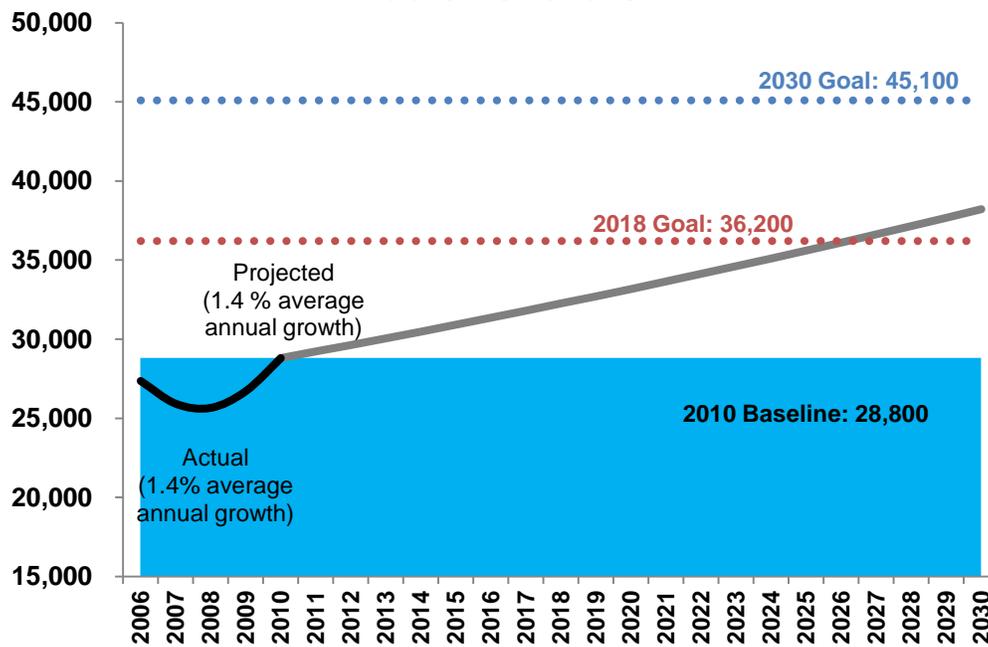
Based upon current trends, Washington is producing well below the level of degrees and certificates needed to ensure that the greatest number of state residents take full advantage of the well-paying, knowledge-based jobs that will be available in the future.

To meet the state’s needs for educated workers, Washington’s *2008 Strategic Master Plan for Higher Education* called for a 40 percent increase in the annual number of residents earning degrees and certificates by 2018. However, the national recession and its impact on higher education funding stymied efforts to achieve those goals. As a result, the 2018 degree goals were scaled back, and a new 2030 degree target was established.

The baseline in the chart below represents the 28,800 one- and-two-year certificates and degrees that were produced at public institutions in Washington in 2010. The upward-trending line shows the projected number of additional certificates and degrees that would be produced *if* we maintain the same 1.4 percent annual growth rate achieved between 2006 and 2010.

Based on that projection, Washington would fall nearly 7,000 certificates and degrees short of achieving its 2030 goal. That represents 7,000 Washington residents who would not be eligible for jobs requiring those certificates or degrees. Some residents also would miss out on jobs requiring higher levels of education, since two-year degrees and certificates often serve as pathways to bachelor’s or advanced degrees.

**Projected Growth of Mid-Level Degrees and Certificates vs. State Goals  
Public Institutions**



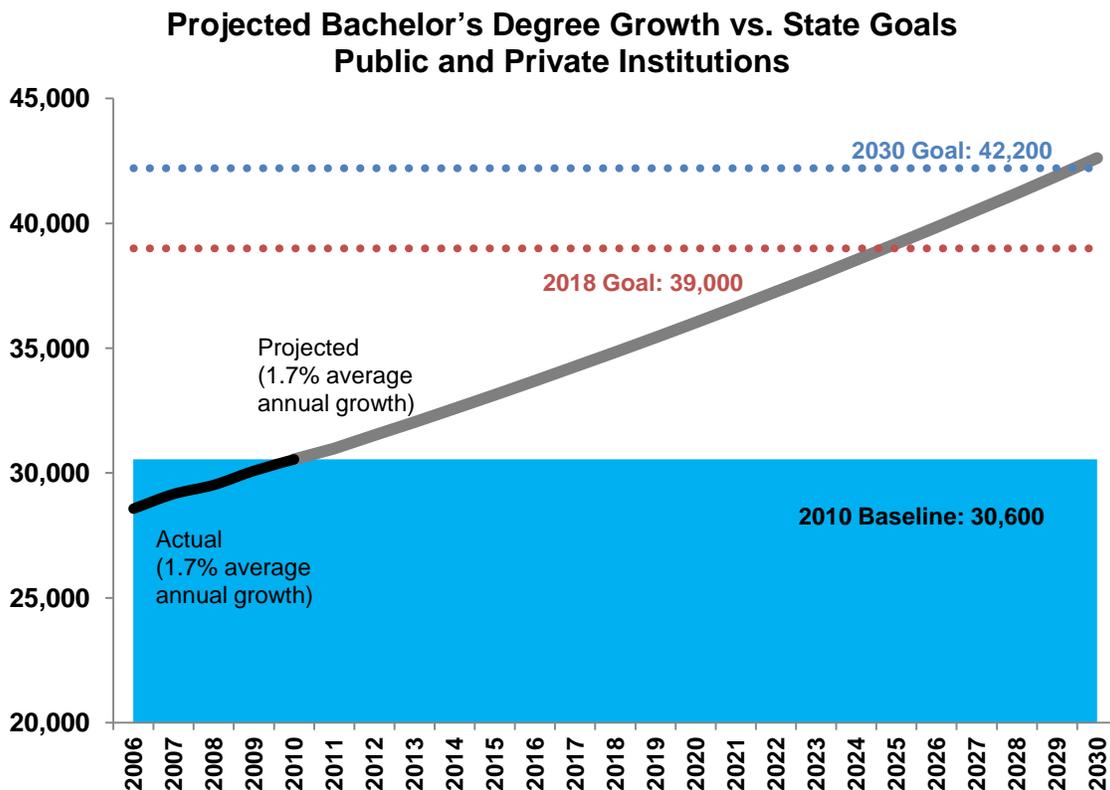
Source: HECB calculation based on data from Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics; State Population Forecast; HECB 2008 Strategic Master Plan.

### Colleges could reach bachelor's degree goals, but years later than planned

The degree-production goals in the *2008 Strategic Master Plan for Higher Education* were based upon extensive feedback from business and industry representatives who offered insights into the future employment needs of the state economy. The plan also recognized that many members of the baby boom generation would soon be retiring from the workforce.

Despite a recession that has led to severe cuts in public funding for higher education, public and private baccalaureate institutions in Washington have continued to increase the number of students earning bachelor's degrees. The baseline in the chart below represents the 30,600 bachelor's degrees produced in 2010.

Assuming bachelor's degree production continues to grow at the same 1.7 percent annual rate achieved between 2006 and 2010, public and private institutions could meet the state's bachelor's degree production goal by 2030, although the goal set for 2018 wouldn't be reached until about 2025. In addition, any assumptions about future degree growth could be negatively impacted by additional cuts in state funding, reductions in financial aid, or other factors.



Source: HECB calculation based on data from Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics; State Population Forecast; HECB 2008 Strategic Master Plan.

### Washington needs to boost advanced degrees to move economy to next level

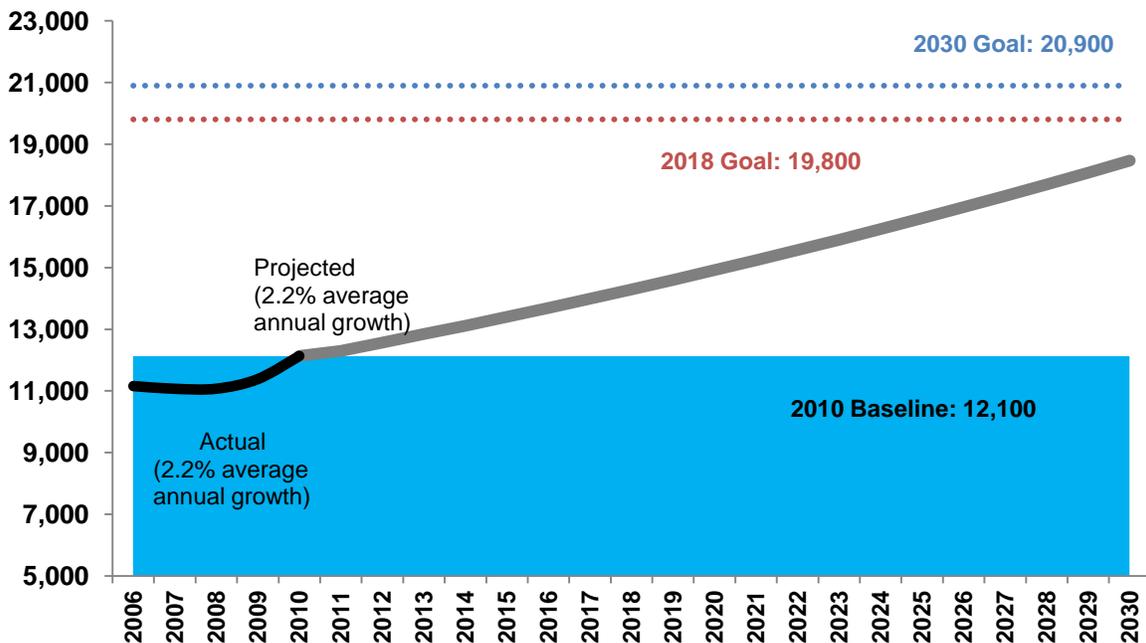
To maximize opportunities for all Washington residents to thrive in tomorrow's economy, it will not be enough to merely produce more workers with *some* education after high school. This is particularly true in knowledge-based sectors such as aerospace, technology, and medicine.

If Washington residents are to help fuel the state's economic growth in the years ahead, more residents must continue their educations beyond the two-year and bachelor's degree levels. Unfortunately, current trends show Washington falling well behind in meeting the projected need for workers with advanced degrees. In fact, degree production at the graduate level is the most deficient of the three degree levels illustrated in this and the preceding two pages.

The baseline in the chart below represents the 12,100 graduate degrees produced by public and private institutions in Washington in 2010. Assuming graduate-degree growth continues at the 2.2 percent average rate of the previous four years, the state will still be about 5,500 additional advanced degrees short of the estimated annual number needed in 2018 and more than 2,400 degrees short of achieving the estimated number that will be needed by 2030. As with the other degree levels, the shortage could worsen if additional budget cuts further reduce the ability of institutions to produce more graduates with advanced degrees.

One of the implications of a graduate-degree shortage is that businesses will increasingly turn to graduates from other states or countries to help create their new products and services.

**Projected Graduate Degree Growth vs. State Goals  
Public and Private Institutions**



Source: HECB calculation based on data from Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics; State Population Forecast; HECB 2008 Strategic Master Plan.

### Washington is importing college-educated workers to meet demand

As the number of jobs requiring higher levels of education has grown, Washington has seen an increasing gap between the number of degrees needed to fill emerging jobs and the number being supplied by the state's higher education institutions. The gap exists across all levels of postsecondary education. To a significant degree, employers have filled this gap by attracting educated workers from other states and countries.

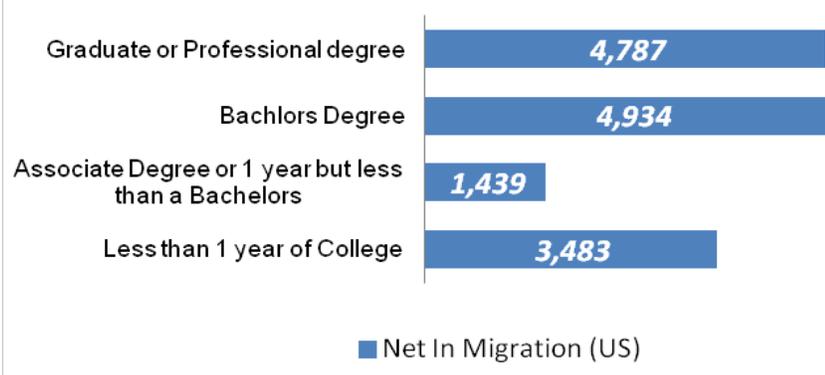
The chart below shows that between 2005 and 2009, Washington continued to rely on in-migration of talented workers to meet employment demand. At all postsecondary levels, more workers moved to Washington from other states than left. These five-year averages include net in-migration during recession years when employment openings were suppressed at all levels. Prior to the recession, net in-migration figures tended to be even more pronounced.

**Graduate Degree Production is Not Meeting Demand.** Washington's need for talented individuals with advanced degrees, in particular, far outpaces its current rate of degree production. The net in-migration of graduate and professional degree holders from 2005 to 2009, as shown in the chart below, was equal to 42 percent of the total number of graduate degrees produced during that period.

Washington also attracts large numbers of workers from other nations. Although data on workers leaving Washington for other countries over the five-year period are not available, the state drew nearly 3,500 foreign workers at the graduate level, more than 4,300 at the bachelor's level, and nearly 3,000 with some college but less than a bachelor's degree.

Washington's reliance on out-of-state workers may be partly due to fewer opportunities for Washingtonians to earn degrees in the state within key employment disciplines.<sup>1</sup>

**Annual Net In-Migration by Education Level. 2005-2009**



Source: HECB staff analysis of data from American Community Survey, 2005-2009.

Note: Analysis represents average annual net in-migration of employed adults (age 25-64) based on state-to-state mobility. Additional in-migration from international sources is not reflected.

<sup>1</sup> Spaulding, Randy. "The Impact of Interstate Migration on Human Capital Development in Washington," 2010. Available at <http://www.hecb.wa.gov/sites/default/files/2010migrationReport-final.pdf>.

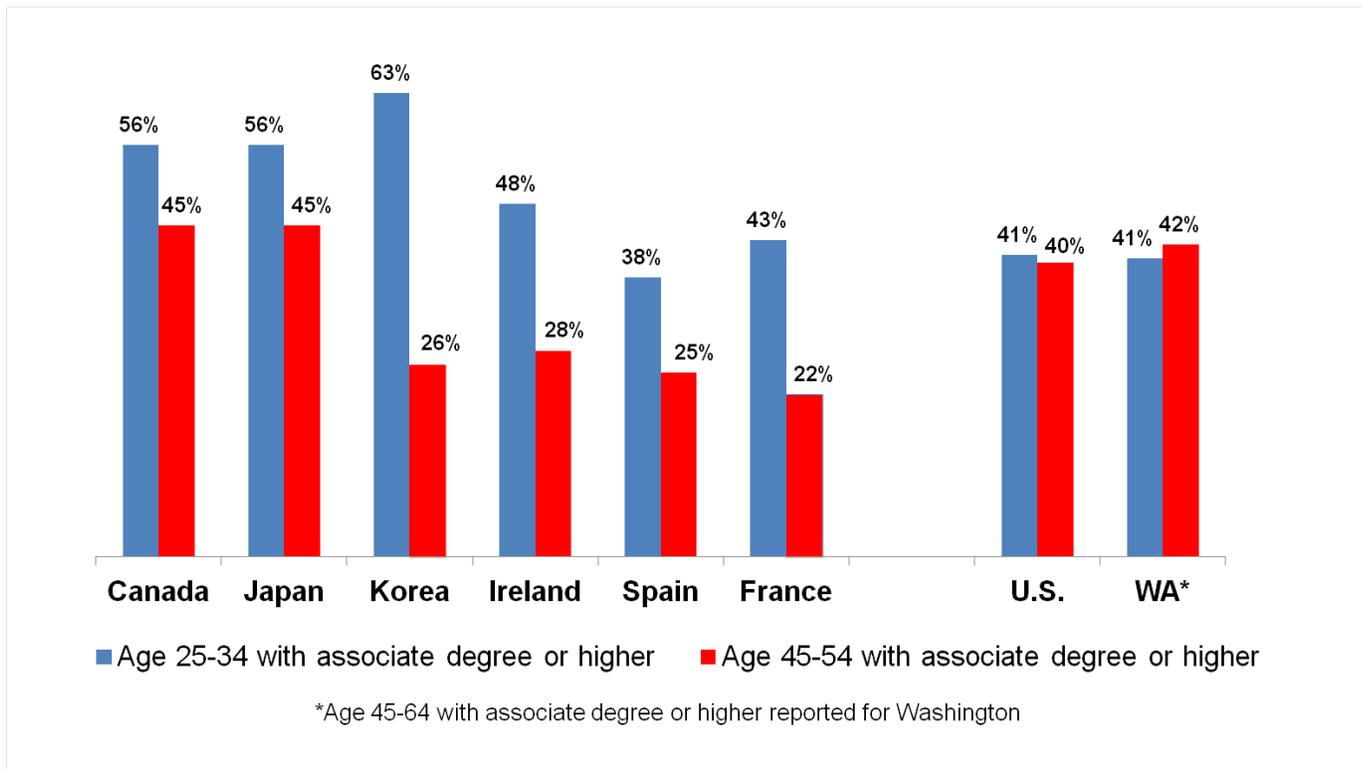
### Many younger Washington residents have lower education levels than their parents

Higher education investments in the second half of the 20<sup>th</sup> Century helped make Washington's baby boom generation the most educated in state history. That expansion of the higher education system helped baby boomers transform Washington's economy and achieve a high level of financial well being.

But many baby boomers are now reaching retirement age at a time when their children and grandchildren are not achieving the same levels of educational attainment. That means a smaller proportion have the knowledge and skills necessary to fill today's education-intensive jobs in an economically challenging and increasingly competitive world.

The bar chart below shows that younger adults in other countries have substantially improved degree attainment compared to their parents' generation. In general, progress has been much slower in the United States. In Washington, the picture is even grimmer—the percentage of younger adults who have attained higher levels of education shows a decline compared with their parents' generation.

### Percentage of Population by Age with Associate Degree or Higher For Selected Countries, U.S., Washington



Sources: Organization for Economic Co-operation and Development (OECD), Education at a Glance 2011, Table A1.3a; American Community Survey, Educational Attainment by Degree-Level & Age Group Three-Year Average, 2008-2010.

### New K-12 assessment tools show need for continued math and science improvement

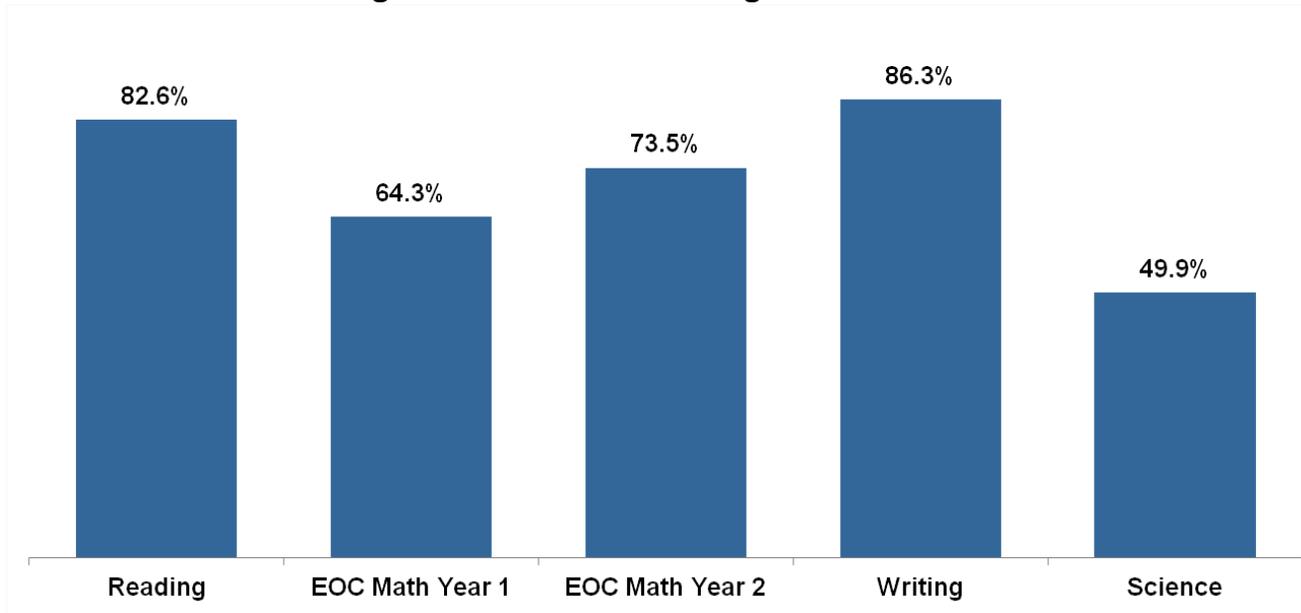
Students who fail to make sufficient academic progress in high school often face serious challenges completing college-level work. Statewide test results have long shown many college-bound students lack adequate preparation for college coursework, especially in science and mathematics. These disciplines constitute the educational cornerstones of many of Washington’s higher-paying career fields.

In 2009-10, Washington began implementing a new set of academic proficiency exams for K-12 students. The High School Proficiency Exam (HSPE) is now used to assess 10<sup>th</sup> graders on critical learning objectives in reading, writing and science. Two new exams, administered for the first time in Spring 2011, assess 6th through 12th grade students who have just completed classes in mathematics. The End of Course (EOC) 1 exam is for students who have just completed Algebra 1, and EOC 2 is for students who have completed Geometry.

The state is now in the process of implementing a requirement that students pass the new proficiency exams to graduate from high school.

While the new HSPE and EOC assessment results reported in the chart below offer some hopeful signs compared to earlier test results, they show that additional progress is needed to make more high school students college ready.

**2010-11 Washington Public School HSPE and EOC Scores  
Percentage of Test Takers Meeting Statewide Standards**



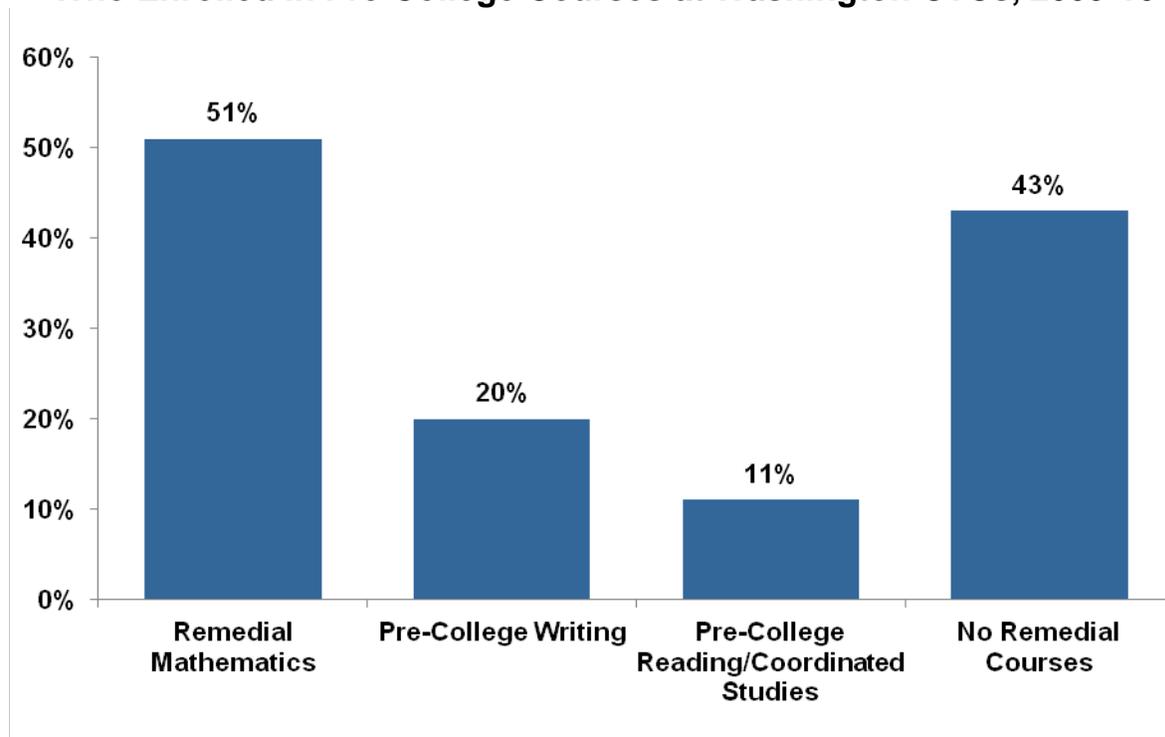
Source: Office of Superintendent of Public Instruction, 2011 Washington State Report Card data.

### More than half of high school graduates enrolling at CTCs require remedial math

Students enter college with differing skill levels in subjects that are essential to successful completion of degree programs. For example, older students, who may have significant time gaps in their educational experience, often require pre-college coursework to refresh basic knowledge, particularly in math.

Significant numbers of recent high school graduates also require pre-college courses (also called remedial courses) after they enroll in college. Of 20,336 Class of 2009 public high school graduates who enrolled in Washington's community and technical colleges in 2009-10, 10,354 (51 percent) took remedial math classes. Pre-college writing classes were taken by 4,049 students (20 percent) and 2,196 took reading classes (11 percent). Less than half the incoming high school graduates took no remedial classes at CTCs in 2009-10.

**Percentage of Class of 2009 Public High School Graduates Who Enrolled in Pre-College Courses at Washington CTCs, 2009-10**



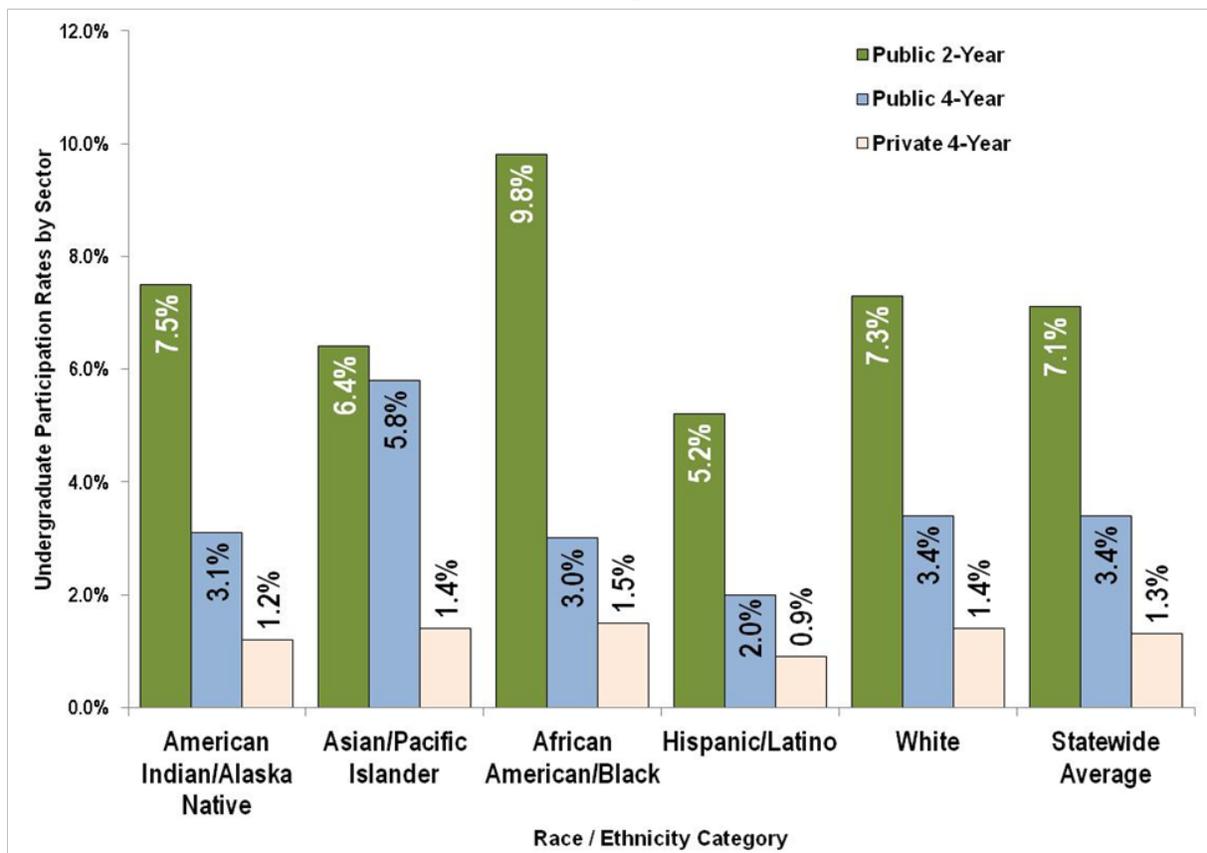
Source: State Board for Community & Technical Colleges, Role of Pre-College (Developmental & Remedial) Education, Research Report 11-3 System Summary for New, First-Time Students Enrolled in 2009-10, November 2011.

**Some racial and ethnic groups have higher college participation rates than others**

Racial and ethnic groups differ in their rates of college participation. Variations in family income may account for some of the differences. In addition, a lack of family history of college participation may influence the degree to which subsequent generations are encouraged to pursue postsecondary education as well as their ability to find guidance in navigating the higher education system to completion.

Among racial and ethnic groups, college participation also varies by the type of institution. For example, participation by 18-44 year-old African Americans is higher than the state average at community and technical colleges, but slightly lower than the state average at public four-year institutions. Hispanics, the state’s fastest-growing racial and ethnic group, have lower than state-average participation rates at both community and technical colleges, and public and private baccalaureate institutions.

**Undergraduate Headcount Participation Rates by Race/Ethnicity and Sector, Fall 2010**  
Population Ages 18-44



Notes: To align with the Office of Financial Management population data, IPEDS enrollment data for Asian and Native Hawaiian or Other Pacific Islander were combined. Students with unknown status or multiracial status were not included.

Sources: HECB staff analysis of data from Integrated Postsecondary Education Data System, National Center for Education Statistics, fall 2010; Census Bureau.

### Racial/ethnic groups vary in levels of degree attainment relative to share of population

As the percentage of Washington citizens from diverse ethnic and racial groups has grown, so has the overall percentage of students from these groups who earn bachelor's degrees at Washington's public and private colleges and universities. In fact, the percentage of minorities who earn bachelor's degrees has grown at a faster pace than their overall share of the population.

However, a closer look shows that minority groups vary in their levels of degree attainment. For example, the percentage of all students earning bachelor's degrees who are Hispanic/Latino is lower than their percentage of the overall population.

As the state's minority population expands, achieving the goal of increased degree production will require continued emphasis on improving degree attainment rates among groups that have had traditionally lower levels of college participation and success.

### Proportionate Representation of Race/Ethnicity Groups In 2008 Washington Population and 2008-09 Degrees Awarded

Race/Ethnicity	2009 Population	Associate's Degree	Bachelor's Degree	Advanced Degrees
American Indian/ Alaska Native	1.6%	1.4%	1.3%	1.1%
Asian/Pacific Islander	8.6%	7.6%	11.7%	6.9%
African American/Black	4.1%	3.3%	2.8%	2.6%
Hispanic/Latino	11.9%	6.2%	5.0%	3.3%
White	71.1%	66.2%	67.6%	61.7%
Two+ Races	<1%	<1%	<1%	<1%

Sources: HECB staff analysis of data from Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics; U.S Census Bureau.

### Washington has a pool of students who started college but never finished

Thousands of Washingtonians have completed at least some college but, for many reasons, have not earned college degrees or certificates. By focusing on the more than 450,000 Washington residents age 18-44 who, in 2010, had earned “some college but no degree” and were not currently enrolled in college, the state could take a significant step forward in degree production.

Encouraging more to return to the higher education system to finish degree or certificate programs is one strategy for helping the state fill the growing demand for college-credentialed workers.

### Washington's Residents Age 18-44 Whose Highest Educational Attainment is "Some College, No Degree"

By Race/Ethnicity	Total with "Some College, No Degree"	% Not Enrolled in College	# Not Enrolled in College
American Indian/ Alaskan Native	9,329	74%	6,919
Asian/Pacific Islander	51,087	56%	28,657
African American/Black	27,840	63%	17,493
White	502,418	67%	335,761
Multi-racial/Other	32,581	59%	19,207
Hispanic	66,974	65%	43,391
<b>TOTAL</b>	<b>690,229</b>	<b>65%</b>	<b>451,428</b>

Source: HECB staff analysis of data from American Community Survey, 2010; U.S. Bureau of the Census.

### We need to increase opportunities for college access

To reach the state’s goals of increasing educational attainment 40 percent, we need to pursue multiple ways of encouraging residents to go to college—and finish with a degree. Not just high school graduates should be encouraged to pursue a college education. Adults who stopped out of school earlier in their lives but now want to better their lives should also have a second chance.

Community college students in technical programs should be provided with pathways to bachelor’s degrees to advance in their careers. And the state’s large population of adults who have gone to college for awhile, but never completed a degree, should be encouraged to return and get their diplomas.

The table below shows the categories of Washingtonians at various life stages who might be interested in pursuing a college degree. The last column shows how many in each category typically do continue to further higher education. Of particular note is the large category of adults, age 18-44, who have “some college.” These are people who already have tried college—often with success. There are many reasons students don’t persist in college—jobs, families, health and other personal reasons. If we were to encourage just 2 percent more in each category to continue to earn their degrees, we’d go a long way to achieving the state’s goal of a 40 percent increase in bachelor’s degree completion.

### Educational Pathways Include Large Numbers of Students Who Should Be Encouraged to Consider Getting a Bachelor’s Degree

Educational Level Achieved	Completers /Residents	Percentage Who Actually Continue Education
High School Graduates <sup>2</sup> , Class of 2009	65,700	64%
GED Completers <sup>3</sup> , 2008	13,000	39%
CTC Technical Two-Year Degrees <sup>4</sup> , 2010	9,875	13%
CTC Transfer Associate Degrees <sup>5</sup> , 2010	15,400	71%
Adults 18-44 with “a high school diploma or less <sup>6</sup> ”	925,000	12%
Adult Re-entry age 18-44 with “some college/no degree <sup>6</sup> ”	690,000	35%

<sup>2</sup> Office of the Superintendent of Public Instruction, Graduation and Dropout Statistics for Washington in 2009-10, Table 14, p. 34. Retrieved 12/07/11 from <http://www.k12.wa.us/DataAdmin/pubdocs/GradDropout/09-10/GraduationDropoutWashington2009-10.pdf>. (NOTE: Data includes late graduates.)

<sup>3</sup> Retrieved 12/10/10 from [http://www.acenet.edu/Content/NavigationMenu/ged/pubs/GED\\_ASR\\_2008.pdf](http://www.acenet.edu/Content/NavigationMenu/ged/pubs/GED_ASR_2008.pdf).

<sup>4</sup> Washington State Board for Community and Technical Colleges. Tina Bloomer, personal communication, 12/12/11.

<sup>6</sup> HECB staff analysis of data from American Community Survey, 2010.

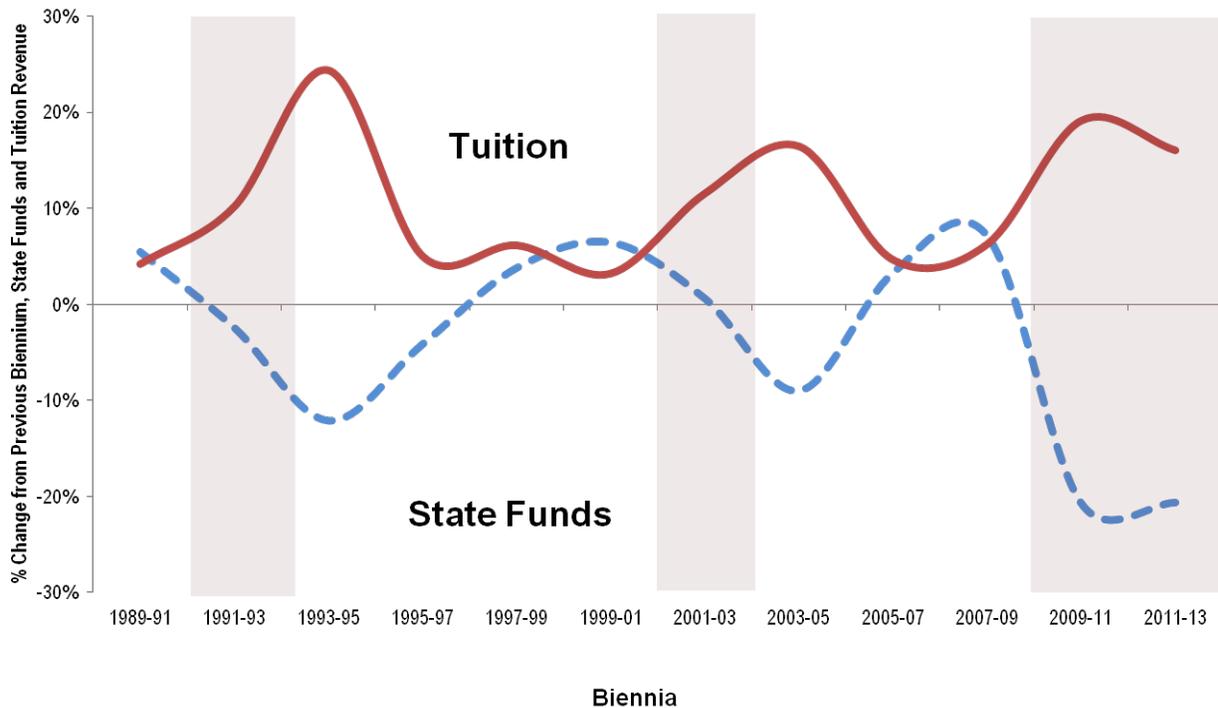
**We need to adopt a stable funding model for higher education**

Washington has a history of state support for higher education going back to the mid-19th Century. But, unlike basic education, higher education constitutes the largest source of discretionary funding in the state budget. State government is not required to provide a particular level of higher education for its citizens.

As the chart below illustrates, times of declining state revenue often cause leaders to reduce state support for higher education and increase student tuition. These shifts create enormous uncertainty for students and threaten the quality of educational programs.

A more stable and predictable funding approach is needed that includes reasonable support for public colleges, tuition-setting flexibility so that our institutions can maintain high-quality programs, and increasing levels of financial aid.

**Washington Public Higher Education Institution Expenditures**  
**% Change in State Operating Funds vs. % Change in Tuition Revenue**  
 1989-2013\*, Recessions Are Shaded



\*2011-13 funding levels reflect appropriation levels from First Phase 2012 Supplemental 2011-13 operating budget as passed Legislature.

Note: State Funds include Near General Fund-State, Opportunity Pathways, and Opportunity Express Accounts. Tuition funding is tuition revenue from state supported enrollments (149-6), budgeted student FTE.

Sources: HECB staff analysis of Legislative Evaluation and Accountability (LEAP) Program Committee higher education finance data.

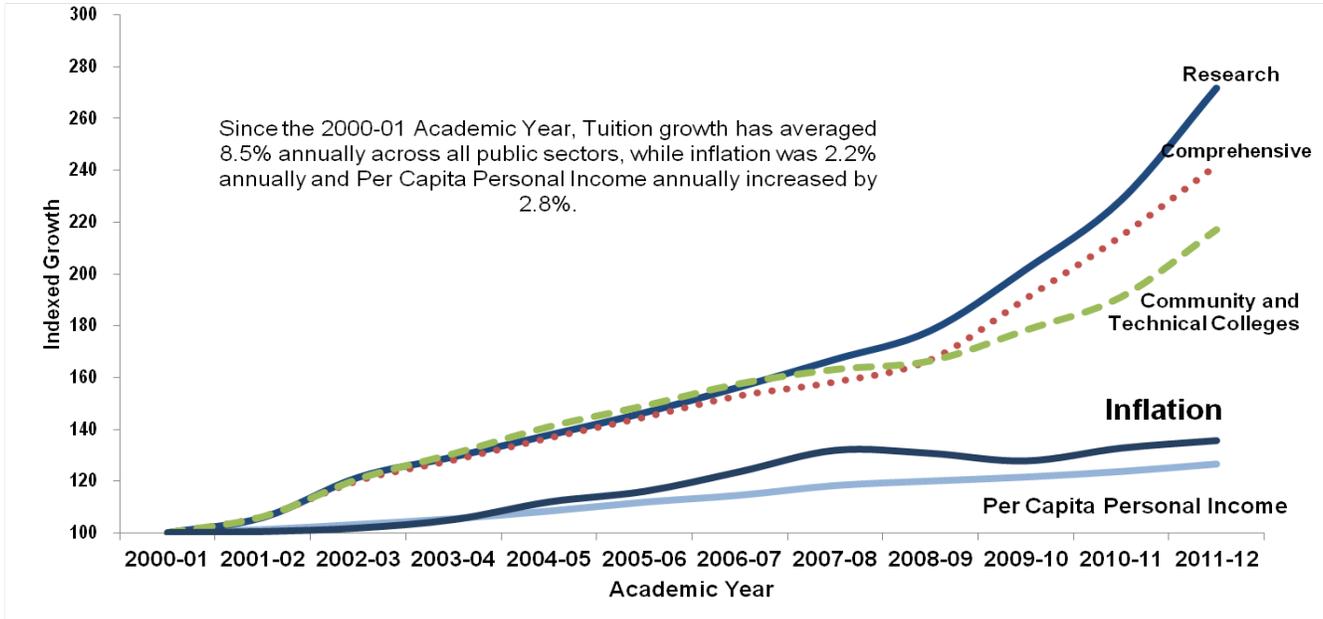
### We need to ensure affordable access for more low- and middle-income students

The full cost of attending college is beyond the reach of many Washington students and their families. As the chart below shows, tuition costs have risen at a far more rapid pace than personal income or inflation in each of the three public higher education sectors. The gap has widened in recent years as institutions have turned to tuition increases as a way to partially offset reductions in state support.

Middle-income families and individuals—those who do not qualify for most student financial aid programs—find it harder to save for college, and the dollars they do save buy less education than in the past. The state’s fastest-growing demographic groups include many low-income families for whom college may seem an unrealistic dream.

Washington has a history of providing financial aid to help cover college costs that families are unable to provide themselves. Without a continued commitment to these resources, Washington’s ambitious goal of providing the trained and educated workers needed to meet the demands of its knowledge-based economy will be even more difficult to achieve.

**2001-10 Tuition Increases at Washington Public Higher Education Institutions by Sector, Compared to Economic Indicators**



Sources: Public Tuition and Fee Information: HECB National Tuition Survey. Inflation and Per Capita Personal Income: Legislative Evaluation and Program (LEAP) Committee. Median Household Income: Office of Financial Management.

### Demand for financial aid has outstripped supply

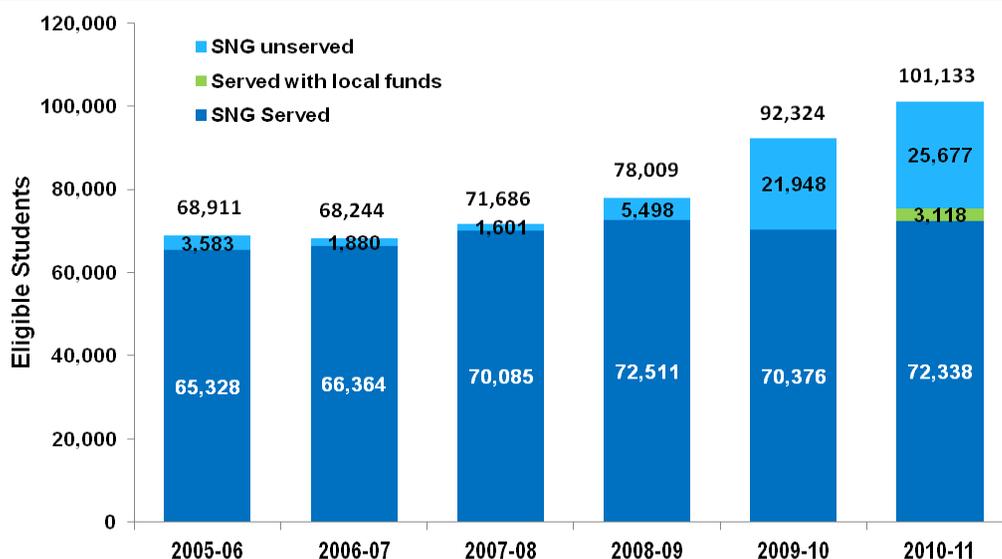
The state's economic downturn has prompted thousands of Washington residents to turn to higher education for new career training or to improve their job skills. However, many students lack the personal financial resources to pay the full cost of tuition and other college expenses. These circumstances have combined to create additional pressure on state and federal financial assistance programs at a time when the state budget situation has led to suspension of some student financial aid programs.

Eligibility for the State Need Grant (SNG), the largest state-funded financial aid program, continued to increase for the 2010-11 academic year, reaching the highest demand ever in the program's history. More than 101,000 students were eligible for SNG in 2010-11, which is 10 percent higher than 2009-10 when 92,324 students were eligible — and 30 percent higher than 2008-09, when 78,009 students were eligible for SNG.

The number of students served in the 2010-11 academic year increased by 2,377 students over the prior year due to a shift in eligible students to the Community and Technical (CTC) sector. The awards are lower in the CTC sector, which enabled more students to be served. In 2010-11, nearly 26,000 Washington students who applied for and were deemed eligible to receive SNG did not, due to insufficient funds. A \$25 million reduction in SNG funding in 2011 would have worsened the situation if the Legislature had not required institutions to provide financial aid from local resources to the more than 3,000 students affected.

Over the last five years, the percentage of all SNG-eligible students attending community and technical colleges has risen from 58 percent to 64 percent. Approximately 69 percent of all unserved students in 2010-11 were attending community and technical colleges.

**State Need Grant-Eligible Students: Served Versus Unserved**



Source: HECB Student Financial Assistance Division, "Annual Report on State Financial Aid Programs, January 2012. Available at <http://www.hecb.wa.gov/sites/default/files/SFAAnnualReport2012.pdf>

