

# Tomorrow's Economy<sup>40</sup>

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## High Wages for the Highly Skilled

Washington's economy, like that of the U.S. economy as a whole, is continuing its transition from one based mainly on the production of goods to one based more on knowledge and information. This emerging knowledge-based economy has increased demand for workers with more advanced skills and higher levels of education than in the past. The upside of these changes is that many of these jobs are not only the fastest growing, but also the best paying

Technological advances and globalization have fostered significant changes in workplace technology and how workplaces are organized. Employers have invested heavily in technology, especially information technology (IT) and have instituted high-performance workplace practices such as teaming and quality improvement. However, these changes flourish only where there are workers with the requisite skills.

Global competition is intensifying, and the offshore outsourcing of knowledge work overseas has raised concerns about our future. New challenges include increased energy costs, the declining dollar, declining home prices, and reduced credit available to households and businesses.

Even during the recession of 2001-2003, employers reported a shortage of job applicants with the skills required for the contemporary workplace. In the stronger labor market that followed, these skill shortages became more severe. Though the economy is slowing again, the state's workforce training and education system continues to face the challenge of preparing enough workers with the kinds of skills employers are looking for.

Education and training are key ingredients to economic growth and competitiveness. Our willingness to invest in educating and training our people will largely determine the long-term rate of growth for Washington's economy. These investments will also help to narrow the wide gap in earnings that have arisen among workers with different skill levels. Economists believe our economy will continue to generate good jobs, but to adapt to challenges and take advantage of new opportunities, Americans must achieve higher levels of education and training.

## The Economic Recovery Slows

In late 2002, the nation began to recover from the 2001 recession. Early on, the recovery was fueled by increases in productivity (i.e., output per worker) resulting in more goods and services. There was, however, little creation of new jobs. It was not until late 2004 that the recovery was coupled with large increases in jobs.

Adjusted for inflation, the nation's Gross Domestic Product grew by 3.6 percent in 2004, 3.1 percent in 2005, and 2.9 percent in 2006. The nation's Gross Domestic Product slowed to 2.2 percent in 2007 due to a combination of the credit crisis and an increase in price levels that became pronounced during the summer of 2007. Preliminary figures for the first quarter of 2008 show real GDP expanding

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<sup>40</sup> This chapter was written during the early summer of 2008 and does not capture the latest economic changes associated with the financial crisis.

at a rate of only 0.9 percent annually.<sup>41</sup> Growth in personal consumption expenditures slowed in the first quarter of 2008, and private domestic investment declined. The decline was most pronounced in residential fixed investments. After factoring in increased oil costs, the nation's economy is expected to grow at a rate of only 1.4 percent in 2008 and 1.3 percent in 2009.<sup>42</sup> Some economists believe a recession is likely to occur in 2009 and that it could be long-lasting, though probably shallow.<sup>43</sup>

Until January 2008, employment had been rising.<sup>44</sup> National non-farm payroll employment<sup>45</sup> rose 1.1 percent in 2004, 1.7 percent in 2005, 1.8 percent in 2006, and 1.1 percent in 2007, but is expected to rise by only 0.1 percent in 2008 and remain unchanged in 2009.<sup>46</sup> The unemployment rate for 2008 is expected to be 5.2 percent, increasing to 5.9 percent in 2009, up from 4.6 percent in 2006 and 2007.<sup>47</sup>

## Washington's Economy

Washington state's economy was hit especially hard by the last recession, but has outperformed the national economy since that time. Job growth began in earnest in 2004. Between 2004 and 2007, Washington's non-farm payroll employment increased by almost 231,000, at an average rate of 2.8 percent per year. In contrast to the employment stagnation predicted at the national level, employment in Washington state is forecast to increase by 1.3 percent in 2008 and 1.0 percent in 2009.<sup>48</sup>

Services, manufacturing, and construction were important contributors to employment growth between 2004 and 2007. Construction employment is expected to decline in 2008 and 2009. Manufacturing employment will also decline in 2009. Renewed growth is expected with the economic recovery projected for 2010.

Washington added 38,200 jobs during the 12 months ending in May 2008, an increase of 1.3 percent. Education and Health Services added 9,600 jobs, mostly in health care (9,000). Professional and Business Services added 8,000 jobs. The leisure and hospitality industries added 7,100 jobs, with 5,100 in accommodation and food services. Manufacturing employment increased by 5,900 jobs, with aerospace growth (6,500) offsetting a decline in wood product manufacturing. The retail and wholesale trade sectors added 1,900 jobs, more or less evenly split between retail (1,000) and wholesale trade (900). Information, a category that includes software and publishing, grew by 2,300 jobs.

Employment declined in three sectors, mainly as a result of the slump in the housing market. Construction employment declined by 2,100 jobs. The loss of 2,300 jobs in residential housing construction was offset somewhat by gains in other construction sectors. Some 2,600 jobs were lost in Financial Activities, including credit intermediation and related activities and real estate sales. Some 400 jobs were lost in Natural Resources and Mining, a sector that includes logging. Despite the drop

41 Survey of Current Business, "GDP and the Economy: Preliminary Estimates for the First Quarter of 2008," Bureau of Economic Analysis, June 2008 (pg. 1-10).

42 Economic and Revenue Forecast Council (ERFC), Preliminary June 2008 Economic Forecast, Revised June 10, 2008.

43 "The Long Hangover: America's Economy is in Recession. Don't Expect a Quick Recovery," *The Economist*, April 10, 2008.

44 "Current Employment Statistics Highlights, May 2008," Bureau of Labor Statistics, June 6, 2008.

45 Non-farm, also known as non-agriculture, employment includes private and government industries. Private industries include goods-producing and service-providing industries. The major sectors in goods-producing industries include natural resources and mining, construction, and manufacturing. The major sectors in service-providing industries include trade, transportation, utilities, information, financial activities, professional and business services, education and health services, leisure and hospitality, and other services.

46 ERFC, June 2008.

47 ERFC, June 2008.

48 ERFC, June 2008.

shown in Figure 1, construction employment remains considerably stronger in Washington than in the rest of the United States.

**Figure 1** Over-the-Year Non-Farm Wage and Salary Employment Gains by Industry Sector: May 2007 to May 2008

<b>Industry Sector</b>	<b>Seasonally Adjusted Gains in Thousands</b>
Total Non-Farm	38.2
Education and Health Services	9.6
Professional and Business Services	8.0
Leisure and Hospitality	7.1
Government	6.1
Manufacturing	5.9
Aerospace Products and Parts Manufacturing	6.5
Information	2.3
Transportation, Warehousing, and Utilities	2.3
Other Services	2.0
Retail Trade	1.0
Wholesale Trade	0.9
Natural Resources and Mining	-0.4
Construction	-2.1
Financial Activities	-2.6

*Source: Employment Security Department LMEA, "Washington State Employment Situation Report for May," June 17, 2008.*

Washington's unemployment rate rose over the past 12 months, from 4.5 percent in May 2007 to 5.3 percent in May 2008. The estimated number of unemployed workers, seasonally adjusted, rose from 154,100 in May 2007 to 184,700 in May 2008. Washington's economy added 53,500 workers to the labor force during this period.<sup>49</sup>

## Long-Run Trends Increase Skill Requirements

There are two major economic trends that have affected and will continue to affect our future workforce—technological advances and globalization. These trends will continue to increase the demand for more highly and differently skilled labor. Keeping up with this demand will pose stiff challenges for both our economic competitiveness and social cohesion.

## Technological Advances

Over the years, new technologies have generated new products and industries, and have changed the way firms are organized and how workers are utilized.<sup>50</sup> Future technological advances are expected to continue to impact the nature of work and the workplace. With new technologies come changing job skill requirements. Although some technologies have created demand for unskilled workers, more have boosted demand for higher skilled workers.

<sup>49</sup> "Washington State Employment Situation Report for May" Employment Security Department (ESD) LMEA, June 17, 2008.

<sup>50</sup> Lynn A. Karoly and Constantijn W.A. Panis, *The 21st Century at Work: Forces Shaping the Future Workforce and Workplace in the United States* (Santa Monica, CA: RAND Corporation, 2004). Paul Sommers, *Drivers For A Successful Technology-based Economy: Benchmarking Washington's Performance* (Seattle, WA: Technology Alliance, May 2003).

In 1999, the U.S. Department of Labor (DOL) examined the extent of skill upgrading in the U.S. economy.<sup>51</sup> Average skill levels were found to have increased significantly during the 1990s, and occupational upgrading within industries was the primary source of skill change. There were substantial skill shifts both among broad occupational groups (e.g., technical workers have replaced laborers) and shifts within broad occupational groups (e.g., secretaries have become administrative assistants who perform more complex word processing and database management instead of typing and filing).

Workers in nearly every field have had to learn new skills as they have incorporated computers into their jobs. Machine tool operators make parts using computer-controlled machines. Forklift operators in factories use computerized inventory locating devices. Cars, traffic lights, heating and cooling systems, hospitals, machine shops—all have become computerized. Not only have employees needed to learn to use new, highly sophisticated machines, they have also had to learn, and often design, whole new organizational processes associated with those machines. Many U.S. manufacturers have reduced the number of supervisors in their factories and given workers greater responsibility for ensuring quality, redesigning manufacturing processes and improving products. Companies are adopting participatory, “high-performance” work systems that place more authority and problem-solving responsibilities with front-line workers. Jobs are more broadly defined, employees work in collaborative teams where success demands effective communication, and outcomes are focused on timeliness, quality, and customer service.<sup>52</sup>

## Globalization

Washington, more than any other state, relies on foreign trade. Estimates indicate that in 2005, one in three jobs in Washington were directly or indirectly supported by international trade.<sup>53</sup> Washington's industry leaders in aerospace, forest products, software, financial and legal services, and agriculture derive a significant portion of their revenues through foreign exports. In 2004, Washington state exports equaled \$33.8 billion.<sup>54</sup> By 2007, Washington state exports were nearly double that number, totaling over \$66 billion.<sup>55</sup>

At least until recently, the consensus among economists was that globalization, at the aggregate level, had and would continue to have a favorable effect on income, prices, consumer choice, competition, and innovation in the U.S.<sup>56</sup> The effects of globalization, however, accrue unevenly across industries and individuals. Workers displaced by competition will generally be able to find jobs; loss in earnings, however, may be significant for some.

Some portion of this displacement comes from outsourcing of jobs offshore. No one knows for certain the extent to which firms currently send work offshore, and it's difficult to know how widespread it

51 U.S. DOL, “The Many Facets of Skills,” Chapter 2 of the Report on the American Workforce, 1999

52 Karoly & Panis, 2004, (p. xxv).

53 Washington State Department of Community, Trade, and Economic Development (CTED), Why Trade is Important, [http://www.cted.wa.gov/\\_portal/alias\\_cted/lang\\_en/tabID\\_159/DesktopDefault.aspx](http://www.cted.wa.gov/_portal/alias_cted/lang_en/tabID_159/DesktopDefault.aspx) (11/28/2005).

54 CTED, 2004 Top 50 Washington State Origination Export Totals by Commodity (HS Code), [http://qa.cted.wa.gov/\\_cted/documents/ID\\_276\\_Publications.pdf](http://qa.cted.wa.gov/_cted/documents/ID_276_Publications.pdf) (11/28/2005).

55 CTED, International Trade and Economic Development. <http://www.cted.wa.gov/site/1010/default.aspx> (6/18/2008).

56 Martin N. Baily and Diana Farrell, “Exploding Myths About Offshoring,” (McKinsey Global Institute, April 2004), [http://www.mckinsey.com/mgi/reports/pdf/exploding\\_myths/explodingoffshoringmyths.pdf](http://www.mckinsey.com/mgi/reports/pdf/exploding_myths/explodingoffshoringmyths.pdf) (November 28, 2005). L. Josh Bivens, “Truth and Consequences of Offshoring,” Economic Policy Institute Briefing Paper, <http://www.epi.org/content.cfm/bp155> (10/28/2005). Lael Brainard and Robert E. Litan, “Offshoring Service Jobs: Bane or Boon—and What to Do?,” The Brookings Institute Policy Brief #132, April 2004, <http://www.brook.edu/comm/policybriefs/pd132.pdf> (12/01/2005). Global Insight (USA), Inc., “Executive Summary: The Comprehensive Impact of Offshore Software and IT Services Outsourcing on the U.S. Economy and the IT Industry,” (Arlington, VA: Information Technology Association of America, October 2005), <http://www.globalinsight.com/publicDownload/genericContent/103105execsum.pdf> (11/09/2005). U.S. Government Accountability Office (GAO), “Offshoring of Services: An Overview of the Issues,” November 2005, <http://gao.gov/cpi-bin/getrpt?GAO-06-05> (12/01/2005).

will become. The government does not track offshoring, and firms are naturally reluctant to disclose information about it. Still, the practice appears to be on the rise. Forrester Research expects the number of U.S. jobs outsourced will grow from about 400,000 in 2004 to 3.3 million by 2015, or about 250,000 per year.<sup>57</sup> Estimates suggest that up to 14 million Americans now work in occupations—including financial analysts, medical technicians, paralegals, and computer and math professionals—that could reasonably be considered at risk.<sup>58</sup>

Recent increases in energy and commodity prices, combined with the increasing strength of Asian and European currencies may change this picture, but the long term effects of these changes will become apparent only over time. Increased energy prices and competition for shipping space will make international trade more expensive, but the declining dollar will reduce the cost of our goods to overseas customers.

Will there still be good jobs left in the United States? Most economists think so. First, many jobs are not at risk of being outsourced. The most vulnerable jobs and occupations are ones with the following attributes or features:<sup>59</sup>

- No face-to-face customer servicing requirements.
- Work process is telecommutable and Internet enabled.
- High wage differential with similar occupation in destination country.
- Low setup barriers.
- Low social networking requirement.

Cost differentials, the availability of highly educated graduates, the widespread acceptance of English as the language of business and communication, and other institutional and cultural compatibilities are factors that facilitate the offshoring of U.S. jobs to certain foreign countries. Nevertheless, the three major emerging market economies—China, India, and Russia—with their sizeable higher education sectors, have barriers that could constrain future growth.<sup>60</sup> India has not been able to provide basic school education on the wide-scale level that would ensure future growth in highly trained graduates; Russia is experiencing institutional underdevelopment, erratic reforms, and a gradual deterioration of its higher education system; and China still faces language, institutional, and cultural barriers.

Potential quality control problems and concerns over intellectual property theft also may limit outsourcing overseas. The total growth of high-tech jobs may outpace the increasing supply of knowledgeable workers in the emerging economy. As Robert Reich, a professor of public policy and former Labor Secretary, notes “Even as the supply of workers around the world capable of high-tech innovation increases, the demand for innovative people is increasing at an even faster pace”<sup>61</sup>

The most positive jobs scenario is one in which the U.S. keeps the “cream” of new development at home, while the more routine activities are outsourced.<sup>62</sup> Under this scenario, innovation would lead to a continuing stream of new service and manufacturing activities, and hence, new jobs and occupations. At the same time, the need for lower-cost supply would force more mature service operations overseas. Depending on their education and skills, individual workers might still find it

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57 Cited in Brainard and Litan, April 2004.

58 Ibid., (p. 6).

59 Ashok D. Bardhan and Cynthia Kroll, “The New Wave of Outsourcing,” (Berkeley, CA: Fisher Center for Real Estate and Urban Economics, University of California, Berkeley, Paper #1103, 2003), <http://repositories.cdlib.org/iber/fcreue/reports/1103> (12/05/2005).

60 Bardhan and Kroll, (p. 5).

61 Robert Reich, “High-Tech Jobs Are Going Abroad! But That’s Okay,” Washington Post Company, 2003.

62 Bardhan and Kroll, 2003, (p. 12).

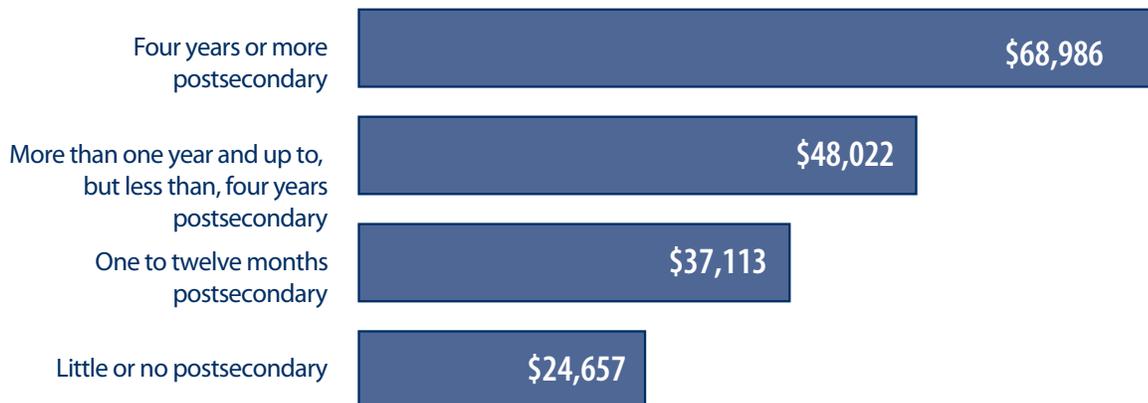
difficult to secure replacement employment at similar wages. Overall, the jobs lost to outsourcing would be replaced by higher-wage jobs in new subsectors brought about by innovation."<sup>63</sup> Reich has similarly argued that there will be plenty of good jobs in the future, but too few Americans are being prepared for them.

## Increasing Gap Between the Haves and the Have-Nots

Starting in the mid-1970s, income inequality in America has worsened, and studies suggest that pervasive technological change is the culprit. Globalization also has been linked to the decline in earnings particularly among less-skilled workers over the last few decades. The demand for highly skilled workers in all sectors of the economy has increased rapidly. Supply has not kept up with demand and the earning gap between more-educated and less-educated workers has widened<sup>64</sup>

Data from the Bureau of Labor Statistics show a positive relationship between training levels and 2006 annual average wage estimates of workers in Washington (Figure 2).<sup>65</sup> That is, jobs that require one to twelve months of postsecondary preparation paid 50 percent more than jobs that required little or no postsecondary training. Jobs that required more than one year but less than four years of postsecondary training paid 25 percent more than jobs that required one to twelve months of postsecondary preparation.

**Figure 2** Washington State 2006 Average Annual Wage Estimates by Training Level



Source: Employment Security Department, *Washington State Occupation Outlook 2004-2014*.

Between 1990 and 2002, hourly wages in Washington state increased in real terms.<sup>66</sup> Although real hourly wages have not increased since 2002, the average annual wage in Washington reached an all-time high in 2006 due to an increase in work hours. There is also evidence that the gap between the top and bottom wage earners has stopped growing and begun to recede. In 1990, the ratio of the average wage of the top 10 percent of jobs to the bottom 10 percent of jobs was 7.6. The ratio peaked at 12.4 in 2000, before decreasing to 9.5 in 2006.<sup>67</sup>

63 Ibid.

64 Karoly & Panis, 2004, (p. xxiii).

65 ESD, *Washington State Occupational Outlook 2002-2012*, [https://www.workforceexplorer.com/admin/uploadedPublications/5421\\_WashWEX.pdf](https://www.workforceexplorer.com/admin/uploadedPublications/5421_WashWEX.pdf) (11/28/2005).

66 Scott Bailey, *Washington Wage Report 1990-2006*, ESD, February 2008.

67 Bailey, 2008, (p. 3).

## Multiple Job Holding

Workers can increase their incomes by holding more than one job. According to the Bureau of Labor Statistics, 5.2 percent of workers age 16 and over held more than one job in 2006 and 2007. The most recent Bureau of Labor Statistics data for individual states shows Washington's rate of multiple job holding is 5.7 percent.<sup>68</sup> Multiple job-holders are those who report that they hold two or more jobs during the same week in response to the Current Population Survey.

The majority of multiple job holders (55 percent) hold one full-time and one part-time job. Less common patterns include two part-time jobs (23 percent), variable hours on one or both jobs (18 percent) and two full-time jobs (4 percent).<sup>69</sup> When asked in 2000, multiple job holders indicated they worked second jobs to meet household expenses (31 percent), for enjoyment (16 percent), to pay off debts (11 percent) and for a variety of other reasons, including savings, to buy a special something, to gain experience or build a business, and to help out a friend or relative.<sup>70</sup> These figures are for the United States as a whole. This breakdown is not available at the state level.

## Self-Employment in Washington

Not all employment requires an employer. According to the 2006 American Community Survey, 11.4 percent of Washington state's employed population age 16 and over was self-employed: 4.0 percent in an incorporated business they owned and 7.4 percent in non-incorporated businesses. The national rate of self-employment was 10.6 percent. See Figure 3.

**Figure 3** Percent of Workers Self-Employed, by Industry of Employment: 2006

Industry Sector	Percent of Workers Self-Employed
Other Services, except Public Administration	26.1%
Construction	22.5
Agriculture, Forestry, Fishing, Hunting and Mining	21.0
Professional and Business Services	20.7
Financial Activities	16.1
Wholesale Trade	10.2
Leisure and Hospitality	9.6
Retail Trade	9.4
Transportation, Warehousing, and Utilities	8.1
Education and Health Services	6.0
Information	5.1
Manufacturing	4.5
Public Administration	0.0
All Industries Combined	11.4

Source: 2006 American Community Survey, S2407 Industry by Class of Worker for Civilian Employed Population 16 Years and Over, U.S. Census Bureau

68 Jim Campbell, "Multiple Job Holding in States in 2006," Monthly Labor Review, Bureau of Labor Statistics, September 2007.

69 <ftp://ftp.bls.gov/pub/special.requests/lf/aat36.txt>, 2/11/2008.

70 "Reasons for Working Multiple Jobs," Monthly Labor Review, Bureau of Labor Statistics, October 2000.

Self-employed workers make up a substantial portion of economic activity in Washington state. These workers need to keep their skills up-to-date to stay competitive, and stay employed. Earnings from self-employment (excluding dividends, rent, interest, and transfer payments) made up almost 9 percent of U.S. personal income in 2007.<sup>71</sup> With Washington’s above average rates of self-employment, our economy would be measurably smaller without the contributions of self-employed workers.

### Increasing Number of Part-time Workers Desire Full-time Employment

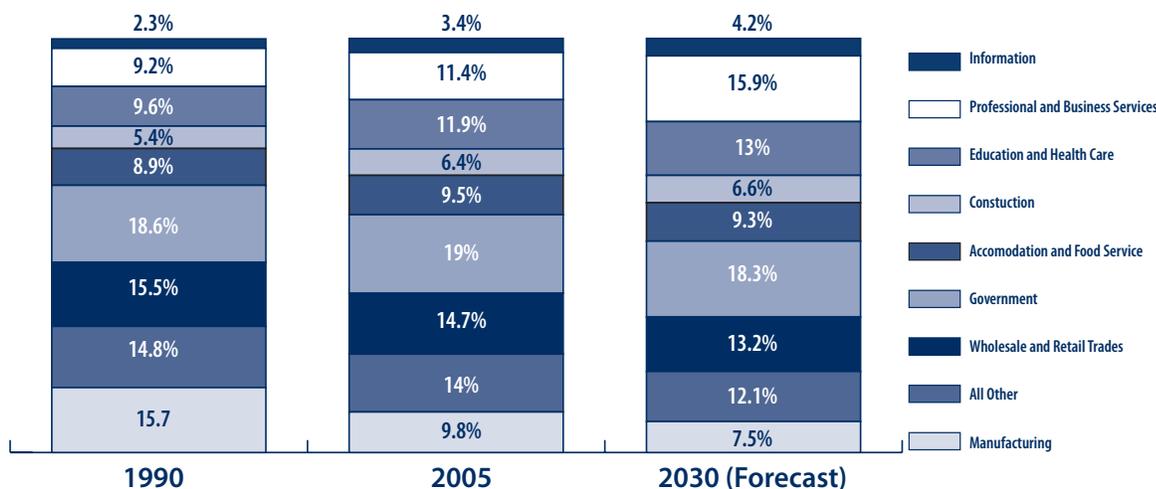
Most Washington residents work full time. According to a 2006 State Population Survey,<sup>72</sup> about 80 percent of working Washingtonians aged 20 to 64 reported holding full-time jobs. Nearly one in five reported working part-time—fewer than 35 hours per week. Most Washington residents who work part-time do so because they prefer part-time employment, however a substantial and growing portion of people who work part-time would prefer to work full-time. The Washington State Population Survey asks part-time workers whether they would rather work full-time. The percentage responding yes has increased steadily this decade from 24 percent in 2000 to 29 percent in 2008.

### Washington’s Industry Outlook

For years, Washington’s resource-based economy was able to provide high-paying jobs with benefits to workers with only a high school education. Our forests and factories provided a living wage to loggers and production workers. Now these traditional sources of high-wage work are either shrinking or have limited prospects for growth.<sup>73</sup> Some sectors that had been experiencing job losses early in this decade, such as aerospace manufacturing and computer related industries, have turned around. Others, such as wood products manufacturing, pulp and paper, and primary metals, continue to decline.

Projections to 2030 show changes by industry in the distribution of Washington state’s non-farm employment (see Figure 4).<sup>74</sup> Service industries are among the fastest growing, driven by increases in software publishing and professional and business services (e.g., accounting, engineering, computer systems and programming), education and health care.

**Figure 4** Distribution of Washington Employment by Industry, Past and Projected



Source: Washington State Office of Financial Management & Employment Security Department, 2008 Long-Term Economic and Labor Force Forecast, April 2008.

71 ERFC, Table A3.1 U.S. Personal Income by Components, June 10, 2008.

72 The state’s Office of Financial Management conducts a population survey every two years.

73 Dave Wallace, “Getting Paid to Make Paper,” Washington Labor Market Quarterly Review, Volume 29, Number 3, July-September 2005.

74 Washington State Office of Financial Management (OFM) and ESD, 2008 Long-Term Economic and Labor Force Forecast for Washington, April 2008.

Almost one third of the state's employment is expected to come from these three industries in 2030, up from 21 percent in 1990. Construction, accommodation and food services, and government are expected to hold onto their shares of employment through 2030. Government will continue to supply about 18 percent of employment. Trade and manufacturing industries will lose their employment share through 2030. Manufacturing employment is expected to increase slightly between 2005 and 2030, but is not expected to return to levels seen in the 1990s. Aerospace, wood, paper, and primary metal manufacturing provided almost 8 percent of Washington state employment in 1990; by 2030 they will provide less than 3 percent. The manufacturing industries' share of employment is expected to decrease to 7.5 percent of non-farm employment by 2030, less than half of its 15.7 percent share in 1990.

## What Jobs Will be Available?

Many of the new family-wage job opportunities will be in occupations that require postsecondary education but not necessarily a four-year degree. Figure 5 includes the top 15 occupations requiring more than one year and up to, but less than four years of postsecondary training that are expected to be in demand between 2004 and 2014.<sup>75</sup>

**Figure 5** Number of Annual Openings in Occupations Requiring More Than One Year and up to, but Less Than, Four Years of Postsecondary Education (2004-2014)

Occupation	Estimated Employment 2004	Average Annual Openings 2004-2014	Estimated Average Wage June 2006
Registered Nurses	48,077	2,006	\$62,217
Carpenters *	42,277	1,550	\$44,303
Nursing Aides, Orderlies, and Attendants	23,639	745	\$23,863
Supervisors/Managers of Construction Trades and Extraction Workers *	19,957	705	\$63,983
Electricians*	15,997	615	\$51,817
Computer Support Specialists	14,615	611	\$48,629
Medical Secretaries	13,740	575	\$31,783
Licensed Practical and Licensed Vocational Nurses	9,861	407	\$39,881
Gaming Dealers	5,274	332	\$19,974
Aircraft Structure, Surfaces, Rigging and Systems Assemblers	5,222	301	\$53,370
Cost Estimators	5,365	239	\$60,199
Aircraft Mechanics and Service Technicians	4,795	237	\$53,587
Computer Specialists, All Other	5,353	217	\$69,015
Preschool Teachers, Except Special Education	6,209	204	\$25,102
Travel Agents	3,532	191	\$35,102

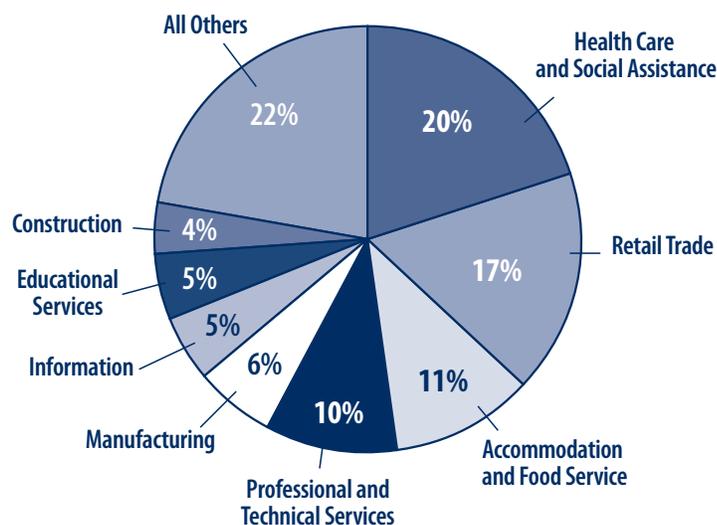
Source: Employment Security Department, Occupational Outlook 2004-2014. \* As of January 2007. Trends may have changed.

<sup>75</sup> Occupational Outlook 2004-2014, ESD/ LMEA, 1/25/2007. ESD determined the top 15 occupations using a ranking based on the average of three criteria: average annual growth rate, number of job openings due to growth, and total number of job openings due to growth and replacement.

Washington employers in a recent survey regarding their job vacancies in October 2007 reported an estimated 73,180 job openings.<sup>76</sup> Health care and social assistance industry employers reported the largest number of openings: 14,479 (See Figure 6). This industry's openings had the third highest percentage requiring certification or licensing (67 percent), and offered the fourth highest median wage (\$13.07). Sixty-three percent of these job offerings were full-time and 94 percent were permanent positions. Two thirds of these positions required education beyond a high school diploma or GED.

The construction industry offered the highest median wages (\$16), followed by finance, insurance, and educational services; (\$14.42 and \$14, respectively). Retail Trade and Accommodation and Food Services had the second and third highest number of vacancies; (12,230 and 7,605) but offered the lowest median wage (\$8). Only 40 percent of the openings in these two low-wage industries were for full-time work.

**Figure 6** Percent of Job Vacancies by Industry Group: October 2007



Source: Washington State Fall 2007 Job Vacancy Survey Report, Washington State Employment Security Department, January 2008

The Job Vacancy Survey confirms the link between educational preparation and earnings described earlier. The median hourly wage rate offered for jobs with no educational requirement was \$8, only slightly above the \$7.93 minimum wage in effect in 2007 and below this year's minimum wage of \$8.07 per hour. Only 43 percent of jobs offered without educational requirements were full-time and only 75 percent were permanent jobs.

Jobs requiring a high school diploma or equivalent offered a median wage of \$10 per hour. Seventy percent of these jobs were full-time and 87 percent permanent. Wages, work hours, and permanence continued to increase with further education. Jobs requiring some college, but no degree offered \$14.24 per hour (77 percent full-time, 82 percent permanent). Jobs requiring an associate's or vocational degree offered \$18.85 (76 percent full-time, 93 percent permanent). Jobs requiring a bachelor's degree or graduate degree offered \$24.05 and \$25 per hour respectively and were even more likely to involve full-time, permanent employment.

## Employers Report a Shortage of Skilled Workers

The transition to a more knowledge-based economy has called for some changes in the types of skills employers are requiring now, or will be requiring in the near future.<sup>77</sup> Advanced technologies clearly require

<sup>76</sup> ESD, Washington State Fall 2007 Job Vacancy Survey Report, January 2008.

<sup>77</sup> Karoly & Panis, 2004.

workers with the knowledge and skills to use them effectively, efficiently, and creatively. Rapid technological changes and increased global competition have led to a growing importance of strong non-routine cognitive skills, such as abstract reasoning, problem-solving, communication, and collaboration. Employers continue to report a shortage of workers with either basic workplace or job-specific skills, or both.

Roughly 2,100 firms responded to the Workforce Board's *Washington State Employers' Workforce Needs and Practices Survey*, conducted during the summer and fall of 2007.<sup>78</sup> More firms reported hiring new employees as compared to previous surveys: 80 percent in 2007 compared with 55 percent in 2003. Due to the improved economy since that time, skill shortages intensified. Among firms attempting to hire, 60 percent reported difficulty finding qualified job applicants, compared with 45 percent in 2003. The difficulty in finding qualified job applicants was most severe in the trade (75 percent), construction (69 percent) and manufacturing industries (67 percent). Extrapolating from the survey results, an estimated 104,100 Washington firms—about one-half—had difficulty finding qualified job applicants during the fall of 2007.

Employers had the most difficulty finding applicants with job-specific skills (82 percent). For example, they wanted to hire a registered nurse but had trouble finding one; however, large percentages also reported difficulty finding applicants with problem-solving or critical thinking skills (79 percent), positive work habits and attitudes (69 percent), communication skills (65 percent), and ability to adapt to changes in duties and responsibilities (64 percent).

Employers attempting to hire were asked about the level of difficulty they encountered in finding qualified applicants with specific education levels. They reported the greatest shortage of applicants for jobs requiring postsecondary education, especially for vocationally trained workers from our community colleges, apprenticeship programs, and private career schools. Among employers attempting to hire workers with a postsecondary vocational certificate, 70 percent reported difficulty finding qualified applicants. In contrast, among employers attempting to hire workers with only a high school diploma, 32 percent reported difficulty. (See Figure 7).

**Figure 7** Employer Difficulty Finding Applicants by Educational Level (Percentage and Estimated Number of Firms With Difficulty)

<b>Educational Level</b>	<b>Among Employers Attempting to Hire at That Level</b>	<b>Estimated Number of Firms</b>
Neither a high school diploma or GED	33%	15,000
High school diploma or GED	32%	25,600
Some college course work	67%	43,400
Vocational certificate	70%	36,000
Vocational associate's degree	64%	27,700
Academic associate's degree	48%	19,900
Baccalaureate degree	61%	24,900
Master's degree	54%	15,000
PhD or Professional degree	66%	10,700

Source: Workforce Board, 2008.

The problem will likely grow worse. Skills required in the workplace continue to increase, and, as a result, about one third of all firms reported that their need for workers with postsecondary training would increase over the next five years. (See Figure 8).

78 Workforce Board, *Washington State Employers' Workforce Training Needs and Practices*, 2007. Forthcoming.

**Figure 8** Educational Level (Among all Employers the Percentage Expecting a Change in Demand)

<b>Educational Level</b>	<b>Increase</b>	<b>Decrease</b>
Neither a high school diploma or GED	12%	4%
High school diploma or GED	18	2
Some college course work	27	1
Vocational certificate	22	1
Vocational associate's degree	17	1
Academic associate's degree	10	5
Baccalaureate degree	18	1
Master's degree	7	5

Source: Workforce Board, 2008.

## Gaps Between Supply and Demand

In many fields, the current supply of workers prepared by Washington's education and training programs is insufficient to meet employer demands. As evidenced by the Workforce Board's 2008 Employer Survey, the gap is largest at the mid-level of postsecondary education and training (at least one year of postsecondary education but not a bachelor's degree or beyond).

The Workforce Board regularly analyzes supply and demand at the mid-level using labor market data and student records. In 2006, the new supply of workers trained by our community and technical colleges, private career colleges, and apprenticeship programs was sufficient to fill only 91 percent of the job openings that employers are expected to have annually by 2012. The mid-level occupations that we expect will experience the biggest gaps between supply and demand can be found at <http://www.wtb.wa.gov/HighDemandFields.asp>. (This list of high employer demand programs of study at the mid-level is updated annually).

## Summary and Implications

Washington's economy was hit especially hard by the recession in 2002-2003. Since early 2003, however, our job growth has been better than the nation. Employment gains were strong throughout 2007 and recent gains were widespread across all industries. Construction, professional, and business services have experienced especially notable gains. As the economy begins to soften in 2008, Washington's economy continues to outperform the national economy.

Long-term economic trends—pervasive technological change and increasing globalization—will continue to skew labor demand toward the more highly skilled. Keeping up with this demand will pose stiff challenges for both social cohesion and economic competitiveness. The jobs being created demand higher skills. A world-class workforce is vital for global competitiveness, and the bar for competitiveness is rising.

Employers report a shortage of job applicants with the skills required for the contemporary workplace. The state's workforce training and education system must prepare more workers with the kinds of skills employers are looking for. The training system must also assist in the continual retraining and upgrading of incumbent workers so their skills stay current. Given the dramatic technological and structural changes buffeting our economy, we must do more to enable workers to make smooth employment transitions.