

# Washington's Economy

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# WASHINGTON'S ECONOMY

## *Introduction*

The paper begins with a brief discussion of the recession and the problems that have plagued Washington's economy over the past two years.<sup>1</sup> The focus then shifts to critical long-term trends—pervasive technological change and globalization—that are increasing the skill requirements in the workplace. Our failure to keep up with the growing demand for skilled workers is documented and implications for income inequality, productivity and competitiveness are highlighted.

## *The Economic Downturn*

The U.S. economy appears to be climbing out of recession, but the recovery will probably be slow. Washington's labor market, which was hit especially hard by the economic downturn, remains weak.

## *The U.S. Economy*

The recession officially began, according to the National Bureau of Economic Research, in March of 2001. Business investment fell dramatically and caused economic activity to slow. Gross Domestic Product, which grew by almost 4 percent in 2000, declined during the first three quarters of 2001. The unemployment rate increased from about 4 percent at the end of 2000 to 5.7 percent by the 3<sup>rd</sup> quarter of 2002.

Many economists believe the recession is over, but many also think the recovery will be weak. "Consumer spending and housing activity remained strong through the recession so not much of a rebound is expected from the household sector. Business investment continues to suffer from excess capacity, the trade imbalance continues to grow, and state and local governments are already suffering from large operating deficits. The only source of unusual strength in the immediate future is federal defense spending."<sup>2</sup>

Forecasts suggest that employment will grow by only 0.4 percent during 2003; stronger employment growth (2.3 percent) is not expected until 2004. The national unemployment rate should peak at about 6.3 percent during the 2<sup>nd</sup> quarter of 2003, and then start to decline.<sup>3</sup>

## *Washington's Economy*

The economic downturn was especially strong in Washington because of the impacts of September 11<sup>th</sup> on the aerospace industry. The 'dot-com' collapse and correction in the construction sector were also exceptionally severe in our state.<sup>4</sup> Total nonagricultural employment fell by roughly 85,000 between December 2000 and October 2002, with most of the job losses occurring in 2001. The largest employment declines were in manufacturing (44,400),

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<sup>1</sup> The paper was originally drafted in January 2002. The discussion of the economic downturn was revised in April 2003 to take account of more recent data and forecasts.

<sup>2</sup> Washington State Office of the Forecast Council, *Washington Economic and Revenue Forecast*, November 2002.

<sup>3</sup> Washington State Office of the Forecast Council, *Preliminary Economic Forecast*, March 2003.

<sup>4</sup> Washington State Office of the Forecast Council, *Washington Economic and Revenue Forecast*, November 2002.

retail trade (27,000), and services (25,000).<sup>5</sup> The state's unemployment rate rose from 5 percent in 2000 to just over 7 percent in 2002. Unemployment increased in all regions of the State, but the increases were largest in the Puget Sound area.

The manufacturing sector, which had already experienced substantial job losses (led by layoffs in aerospace) in 1999 and 2000, faced serious problems during the past two years. Boeing, in the wake of the September 11<sup>th</sup> attacks, announced that it intended to cut 20,000 to 30,000 jobs, most to occur in Washington by mid-2002. High-tech manufacturing industries—electronics, industrial machinery, and computer equipment—were hurt by excess capacity and falling demand.<sup>1</sup> Aluminum smelters, already hurt by low prices, were particularly affected by the energy crisis in the summer of 2001.

Other sectors also faced difficulties. The four-year boom in construction ended. Construction employment had grown at an annual rate of almost 7 percent from late 1995 through the first quarter of 2000. Employment in the sector declined by 3 percent during both 2001 and 2002.<sup>6</sup> In the service sector, job losses were largest in business services, which include high-tech jobs as well as temporary help agencies.

Economic recovery in Washington is expected to be slow, given the weak national recovery and the continuing drag from aerospace.<sup>7</sup> Forecasts suggest that the state's unemployment rate will hover at close to 7 percent during 2003 and 6.5 percent in 2004. Employment growth is likely to be modest in 2003 (0.6 percent), but more rapid job growth is forecast for 2004 (2.2 percent).<sup>8</sup>

### ***Some Sectors Continue to Create Jobs***

There were areas of strength in the state's economy, such as health-care and software, where job were created even during the recession. While total employment in Washington declined by 85,000, employment in health services increased by over 11,000 from December 2000 to October 2002. Other segments of the service sector also showed strong employment growth during 2002. From January 2002 to January 2003, employment increased by 3,400 in financial activities, 4,500 in professional and business services, and 3,900 in leisure and hospitality.<sup>9</sup>

A national study by the Employment Policy Foundation finds that net job losses in the U.S. economy mask massive shifts in employment—from September 2000 through October 2001, 2.1 million new jobs were created in 13 different industry sectors at the same time that nearly 2.9 million jobs were lost in nine other industry sectors. Moreover, "...the employment impacts of the September 11 economic disruptions have magnified the importance of skills and education.

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<sup>5</sup> Washington State Employment Security Department, *2002 Washington State Labor Market and Economic Report*, December 2002.

<sup>6</sup> Washington State Office of the Forecast Council, *Preliminary Economic Forecast*, March 2003.

<sup>7</sup> Washington State Employment Security Department, *2002 Washington State Labor Market and Economic Report*, December 2002.

<sup>8</sup> Washington State Office of the Forecast Council, *Preliminary Economic Forecast*, March 2003.

<sup>9</sup> Washington State Employment Security Department, *New Release*, March 4, 2003.

Job growth for vocational and post-baccalaureate graduates continued strong in the aftermath. Job losses were concentrated among those with the least education.” More than one million new jobs went to applicants with postsecondary training; workers with postsecondary vocational training gained more than 570,000 of these jobs.<sup>2</sup>

### *Long Run Economic Trends*

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 our economic competitiveness and social cohesion.

### *Technological Change*

Massive investments in new technologies have increased the demand for highly skilled workers in all sectors of the economy. The Department of Labor examined the extent of skill upgrading in the U.S. economy from 1989 to 1997.<sup>3</sup> Average skill levels were found to have increased significantly, 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., the computer revolution has transformed secretaries into administrative assistants who perform word processing instead of typing).

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. Technological advances have also increased the technical skills required in agriculture.<sup>4</sup>

Employees must not only become familiar with new, highly sophisticated machines, they must 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 the products themselves. The adoption of ‘high-performance work organization’ practices has increased skill requirements. When surveyed in 2001, 23 percent of Washington employers indicated they had a formal continuous quality improvement program in place. Higher percentages of employers are using other high-performance practices such as cross training employees (89 percent), self-managed work teams (43 percent), and benchmarking their results against other firms (46 percent).<sup>5</sup>

### *Globalization*

Washington, more than any other state, relies on foreign trade, and our exporters have continued to do well despite the recession. Our businesses know the advantages offered by a global economy. We sell our apples to Russia, our forest products to Japan, and our airplanes and software to the world. But as opportunities to sell to other countries have increased, so have other countries’ opportunities to make the very things we sell. And it’s not simply a case of using low-wage, unskilled labor to mass-produce inexpensive standard products. Foreign countries are increasingly able to offer highly skilled alternatives to using American workers.

Russian lab technicians design and test products for Boeing in Moscow. In the Indian city of Bangalore, engineers provide on-line technical support for American programmers using Windows-based products. Microsoft is only one of several companies that contracts for software services in India.

The U.S. economy was very competitive during the 1990s. We outperformed other industrial economies in growth, productivity, and capital investment. The Council on Competitiveness, in a recent report, stressed that having a world-class workforce is vital for global competitiveness. Moreover, the bar for competitiveness is rising because technology and globalization have increased the premium on workforce skills, and many nations now surpass the United States in developing human capital. The report recommended that we strengthen the foundation of math and science education in K-12, bring underrepresented minorities into the science and engineering workforce, provide access to information technology to all students, and extend training opportunities to more workers.<sup>6</sup>

### *Industrial Restructuring*

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. Industrial restructuring, the long-term rise and fall of industries, coupled with technological changes within industries have created a serious dislocated worker problem in our state. And this problem has been aggravated, of course, by the weakening economy.

Overall job growth in Washington's manufacturing sector will be modest over the next 25 years. Internal efficiencies and technological change are expected to increase labor productivity and limit employment growth. Consider two important examples—aerospace and timber. Aerospace employment was expected to continue its long-term decline, even before the events of September 11<sup>th</sup>, due to future gains in productivity, shifts in production to other states, and growing foreign competition. Employment in lumber and wood is also expected to decline as mechanization increases, newer logging and milling technologies are adopted, and policies that limit logging continue. The high-tech end of the manufacturing sector, however, is expected to remain strong, with substantial long-term employment growth projected in machinery and instruments, electronics, and the semiconductor industry.<sup>7</sup>

Employment growth in wholesale and retail trade, though substantial, is projected to slow over the next two decades. The adoption of productivity-enhancing technologies, such as computerization and sophisticated inventory controls, the evolution of e-commerce, and economies of scale, generated by warehouse-type superstores, will constrain job growth.<sup>8</sup>

It is the service sector that will account for much of the total increase in employment over the coming decades. Recent forecasts suggest substantial employment growth between now and 2010 in business services—with 30,600 jobs being created in computer processing and 46,700 jobs in health services.<sup>10</sup>

### *Rising Inequality*

Starting in the mid-1970s income inequality in America worsened, and studies suggest that pervasive technological change is the culprit. The demand for highly skilled workers in all sectors of the economy has increased rapidly. Supply has not kept up with demand, and the earnings gap between more-educated and less-educated workers has widened dramatically.

For many Americans living standards and quality of life have deteriorated. Washington did not escape the national trend. Statewide, real average wages declined by 8.8 percent between 1979 and 1989. The trend reversed after 1989, but it was not until 1997 that real average wages fully recovered and rose above their 1979 level.<sup>9</sup>

During the period of declining average earnings, it was the less educated workers that suffered the greatest losses. From 1979 to 1989, real wages for Washington workers without a high school education fell 27 percent.<sup>10</sup> The real wages of workers with a high school degree, but no postsecondary education, dropped 12 percent. Having a two- or four-year college education moderated the decline, but real wages still fell by 4 and 5 percent, respectively. In contrast, those with a professional or doctoral degree found their real wages increasing 18 percent. Real earnings increased during the 1990s, and most workers have benefited. Even the poorest workers enjoyed wage gains, especially during 2000 when the labor market was especially tight and the minimum wage rose substantially. However, the wealthy gained more throughout the 1990s, and wage inequality increased.<sup>11</sup>

### *Rural Washington*

Nowhere is the decline of resource-based jobs more keenly felt than in rural Washington, where unemployment tends to be higher and incomes lower than in urban areas. For decades, rural Washington was dependent on natural resource industries such as logging, fishing, and mining. These industries are not the job creators they once were. Agriculture is a major source of rural employment, but many jobs are seasonal and the agricultural economy is vulnerable to economic downturns in food importing countries. Last year's drought and energy crisis added to the economic problems of rural areas and aggravated job dislocation in some areas.

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<sup>10</sup> Washington State Employment Security Department, *2002 Washington State Labor Market and Economic Report*, December 2002.

## *Productivity Growth*

Increases in labor productivity (e.g., output per worker) are necessary for long-term growth in wages and standards of living. Productivity grew by an average of 2.6 percent per year from 1950 to 1972, underlying steady improvement in living standards. But growth slowed to 1.1 percent from 1973 to 1995.<sup>12</sup> Productivity began to increase again during the second half of the 1990s, growing at an annual rate of 2.5 percent.

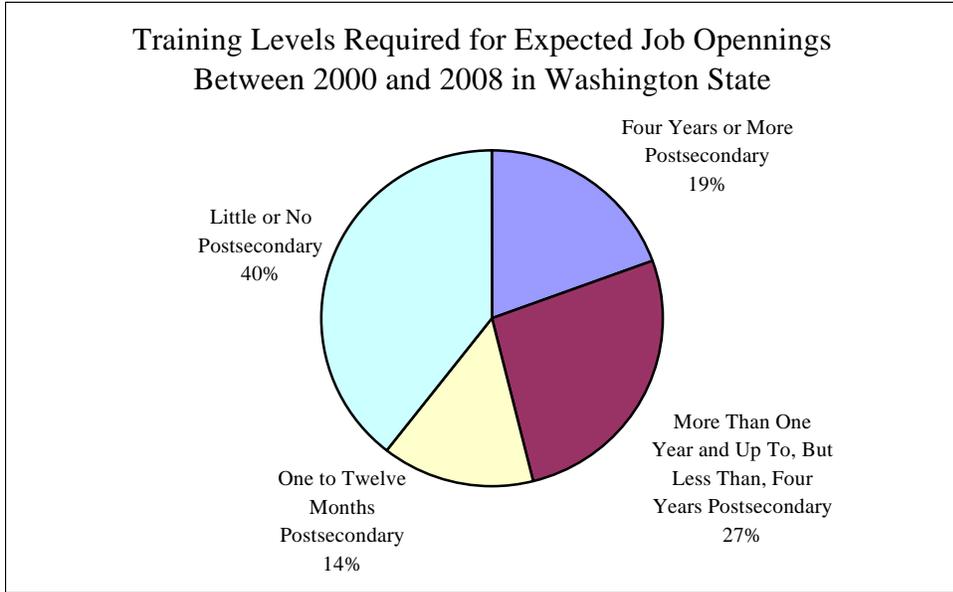
Can the recent turnaround in productivity growth be sustained? Proponents of the ‘New Economy’ hypothesis think it will. They argue that investments in computers, software, telecommunications, and other high-tech products will sustain rapid productivity growth. Others are less optimistic. A major issue is how widespread productivity growth has been throughout the economy. Robert Gordon, a prominent economist, argued that the turnaround is primarily due to the “explosion” of productivity growth in the small segment of the economy that produces computers.<sup>13</sup> In a recent study William Nordhaus, another well-known economist, rejects this hypothesis. He finds that productivity growth in ‘new economy’ sectors—machinery, electric equipment (including computers), telephone and telegraph, and software—did contribute directly to about a half of the total acceleration in labor-productivity growth. There was, however, also substantial productivity growth outside these sectors.<sup>14</sup>

Broad-based gains will depend upon the extent to which productivity improvements in new economy sectors migrate to the rest of the economy. But to achieve the full benefit of technological advances, we need a skilled and educated workforce. According to a study sponsored by the Census Bureau, a 10 percent increase in the educational attainment of a company’s workforce results in an 8.6 percent increase in productivity.<sup>15</sup> Investments in human capital must complement investments in new technologies.

### *Where will the jobs be?*

The economic future is not bright for workers entering jobs that typically require little or no training. There will be jobs, but not good ones. Consider occupations that require less than a high school education, a high school diploma, or up to but less than one month of postsecondary training. Although Washington’s economy is expected to have more than 53,000 annual job openings (i.e., new jobs due to growth and openings due to replacement) in these occupations through 2008,<sup>16</sup> these won’t be the kinds of jobs that helped loggers and production workers prosper. They will be low-wage jobs serving food, cleaning offices, and unloading trucks.

The greatest number of new family-wage job opportunities will be in occupations that require postsecondary education but *not a four-year degree*. Over the next decade, there will be approximately 35,600 annual job openings for technicians, paralegals, health care workers, salespeople, and other occupations that require more than one year and up to, but less than four years of postsecondary education. By comparison, there will be about 26,000 annual openings for teachers, engineers, lawyers, and other professionals who need a four-year degree. Occupations requiring 1 to 12 months of postsecondary education will have about 19,600 annual openings.<sup>17</sup>



The following table provides examples of occupations that typically require more than one year and up to, but less than four years of postsecondary training. The table also lists the expected number of job openings over the next decade for each of these occupations.

<b>Number of Annual Openings<sup>2</sup> in Top Occupations Requiring More Than One Year And Up To, But Less Than, Four Years of Postsecondary Education (1998-2008)</b>			
Carpenters	1,700	Service Supervisors, NEC <sup>1</sup>	750
Registered Nurses	1,650	Hairdressers & Hairstylists	750
Secretaries (excluding legal and medical)	1,600	Electricians	650
Computer Programmers	1,300	First Line Supervisors, Production	650
Clerical Supervisors	1,250	Food Service and Lodging Managers	500
Sales Supervisors/Managers	1,250	Licensed Practical Nurses	450
Paraprofessionals & Technicians, NEC <sup>1</sup>	1,100	First Line Supervisors, Construction	450
Cooks, Restaurant	1,050	First Line Supervisors, Mechanics/Repairers	450
Teacher Aides, Paraprofessionals	850	Personnel/Training/Labor Relations Specialists	400
Automotive Mechanics/Service Technicians	850	Cooks, Institutions/Cafeteria	400
Computer Support Specialists	850		

<sup>1</sup> Not Elsewhere Classified  
<sup>2</sup> Annual openings rounded to nearest 50.

Source: Washington State Employment Security Department, 2001.

## ***Employers Report a Shortage of Skilled Workers***

Do we have enough qualified workers to fill these jobs? No, and the shortage is most severe in the supply of workers with postsecondary vocational technical preparation. Preliminary results from a recent survey of 2,200 Washington employers conducted for the Workforce Board show that 59 percent of firms looking for workers during the last 12 months had difficulty finding qualified job applicants.<sup>18</sup> This represents an estimated 81,000 employers in the state.

The survey enumeration began in late September, and employers would have considered the recession when responding to our questions. A prior round of the survey was also conducted during the fall of 1999, when the labor market was extremely tight, and it is interesting to compare the findings. In the current survey, as expected, a smaller percentage of firms hired new employees during the past year.<sup>19</sup> However, *among those firms looking for workers*, the proportion reporting difficulty finding qualified applicants did not decline dramatically. Two years ago, 64 percent of firms reported having difficulty versus 59 percent currently.<sup>20</sup> The persistence of this reported difficulty in the face of a weakening labor market suggests that the problem is not a general scarcity of labor—it’s the shortage in skills.

This is consistent with a study conducted by the National Association of Manufacturers. The study was based on a survey of U.S. manufacturers taken in May 2001. The economy as a whole had been cooling for months, and contraction in the manufacturing sector had started much earlier. The study concluded that manufacturers face a persistent skills gap in the workforce, despite the economic downturn. “This gap derives from long-term forces—demographics, technology and globalization—whose impact will be felt for years to come.”<sup>21</sup>

The difficulty in finding qualified workers Washington State is not isolated to particular sectors, and both small and large firms face this problem. As in the 1999 survey, employers believe skill shortages are hurting the economy by lowering productivity, reducing product quality, and limiting output or sales.

<b>Percent of Firms Reporting Difficulty Finding Qualified Applicants</b>			
<b>By Industry</b>		<b>By Firm Size</b>	
Agriculture & Food	66	1-4 Employees	56
Manufacturing	61	5-19 Employees	61
Construction	46	20-99 Employees	62
Trade	57	100 or More Employees	75
Services	63		
High-tech <sup>22</sup>	46		
Other <sup>23</sup>	60		

The most serious problem is the scarcity of workers with postsecondary education and training. Among firms having difficulty finding qualified applicants, 36 percent of those needing workers with a high school diploma reported difficulty finding them; about 80 percent of those needing workers with a postsecondary vocational certificate, vocational associate degree, or baccalaureate degree had difficulty. Given the hiring patterns across firms and levels of reported difficulty, the scarcity of workers with postsecondary *vocational* training affects more firms than are affected by shortages of any other category of worker.

<b>Firms Having Difficulty Finding Qualified Applicants With Given Levels of Education</b>		
Educational Level	Percent <sup>1</sup>	Estimated Number of Firms
Neither a high school diploma or GED	25	8,200
High school diploma or GED	36	19,400
Some college course work	65	26,600
Vocational certificate	81	29,100
Vocational associate degree	82	20,900
Academic associate degree	78	17,700
Baccalaureate degree	82	20,400
Master's, doctoral or professional degree	91	12,900
<sup>1</sup> Firms that reported having difficulty were asked how hard it was to find applicants with given levels of education. Among firms that needed workers with a particular educational level, this is the percentage having difficulty in finding them.		

Among employers who reported difficulty, 90 percent had difficulty in finding applicants with occupation-specific skills. Firms also found it difficult to find applicants with problem solving or critical thinking skills (88 percent), communication skills (82 percent), and positive work habits and attitudes (82 percent).

Over the next decade, according to the long-term occupational forecasts for Washington State discussed above, there will be roughly 35,600 annual job openings for workers with more than one year and up to, but less than, four years of postsecondary training. After taking into account the fact that some people have more than one job, we expect that the economy will need about 32,000 additional workers with this level of training each year.<sup>24</sup> Yet, only about 23,800 people complete programs at two-year colleges, private career schools, and apprenticeships and are ready to go to work.<sup>25</sup> Unless we increase the number of students completing training roughly a quarter of the projected demand will be unmet, a gap of 8,200.

## Information Technology

The exploding Information Technology (IT) sector feels the unmet demand for workers with technical knowledge and skills acutely. IT employees design, program, and maintain computers and computerized systems. They work both within the IT industry and in non-IT industries, such as hospitals, government and financial services. Since computers are pervasive in our lives, so is the need for IT workers. Nationally, there were over 10.4 million IT workers, excluding those working in government and not-for-profit organizations, as of April 2001.<sup>26</sup>

In Washington State, the IT industry—including computer programming services, prepackaged software, computer systems design, data processing, computer maintenance and repair—employed 67,194 workers (excluding the self-employed) and contributed \$11.5 billion in wages to the state economy in 2000.<sup>27</sup> The software and Internet industries alone employed 61,000 workers in Washington, as of September 2000, with revenue totaling more than \$30 billion. According to the Washington Software Alliance, employment in software and Internet industries increased 39 percent between 1998 and 2000.<sup>28</sup> Beginning in late 2000, however, there were substantial job losses in our ‘dot-com’ firms. The prepackaged software industry, on the other hand, remained strong with 2,400 new jobs being added between the third quarters of 2000 and 2001.<sup>29</sup>

The IT industry has not been immune to the recession, but long-term prospects remain strong. The following table outlines recent Employment Security Department projections for employment in IT-related occupations in Washington State.<sup>30</sup> Projected annual openings include both new jobs due to growth and replacement due retirement. The long-term forecast, which runs through 2008, was prepared after the economy had begun to slow, but prior to the more serious contractions caused by the September 11<sup>th</sup> attacks. The short-term forecast, which runs only through 2002, was prepared after September 11<sup>th</sup>, and it projects fewer openings than in the long run. Still, substantial demand for IT workers is expected despite the poor economy, and there will be even greater demand as economic activity picks up in the future.

<u>IT Occupations</u>	Projected Employment in 2002	Projected Employment in 2008	Annual Openings in 2002	Average Annual Openings through 2008
Computer Engineers	10,524	13,128	356	465
Systems Analysts	20,927	24,906	376	683
Database Administrators	2,335	2,717	47	89
Computer Support Specialists	20,784	25,565	652	833
Computer Programmers	18,077	22,563	1,044	1,272
Computer Programmer Aides	1,787	2,162	84	112
Programmer, Process Control	289	327	0	12
Computer Scientists (NEC <sup>1</sup> )	2,859	3,313	63	88
Computer Science Teachers <sup>2</sup>	630	837	31	37
Total	78,212	95,518	2,653	3,591

<sup>1</sup> Not Elsewhere Classified  
<sup>2</sup> Postsecondary

IT jobs have grown faster than the supply of workers prepared to fill them. The Washington Software Alliance published a study in 1998 that highlighted the problem firms faced in finding qualified IT workers.<sup>31</sup> Universities and community and technical colleges in the state made considerable efforts to expand computer related programs over the past few years. Degree holders from state public university IT-related programs increased 40 percent and completers from community and technical colleges increased 50 percent, according to the Software Alliance's 2000-01 workforce study.<sup>32</sup> Still, a large gap between supply and demand persists, and many IT companies report that "too few applicants" (34.8 percent) or "skill deficiency" (32.6 percent) are the main problems in their hiring process. The industry suffered an estimated \$123.4 million loss between November 1999 and November 2000, due to the inability to recruit a sufficient and competent workforce. Companies reported schedule delays for releasing products, and costs of recruitment as high as \$25,000 per candidate in a hiring process typically taking three months.<sup>33</sup>

Faced with a severe skills gap, Washington's IT firms have been spending heavily on training new and incumbent workers. According to the Software Alliance's 2000-01 study, companies were spending \$1.3 million a year to train new employees and another \$1.2 million for on-going employee training. Sixty-seven percent of firms contracted out more than half of their training needs. In addition, 94 percent of the companies have implemented tuition reimbursement policies. Typical reimbursements range between \$500 and \$1000 per worker.

IT companies have also been forced to use a variety of other tactics to fill the gap, including recruiting from other states, subcontracting to firms in other states or countries, and bringing in foreign workers.

The National Research Council, in a study published recently by the National Academy of Sciences, concluded that the IT labor market in the U.S. is likely to remain tight for the immediate future.<sup>34</sup> Other conclusions include the following.

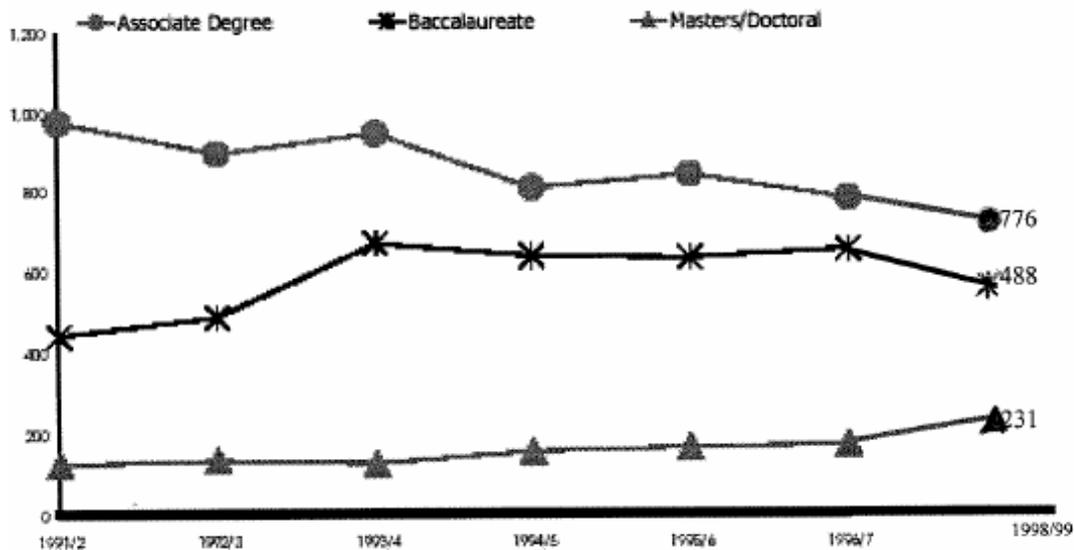
- High school mathematics education, which is not up to the challenge of increasing the supply of IT workers, needs to be improved.
- Although the number of postsecondary graduates in IT-related fields is increasing, there's concern that a lack of resources (e.g., faculty, laboratory space) will limit further expansion.
- Community colleges are generally able to respond more quickly to changes in local labor markets and to increase the capacity of IT courses more rapidly than four-year colleges.
- The training that most, especially smaller, employers make available to their employees is less than needed. Governments should provide incentives for employers to increase training.
- Employers prefer a combination of formal education and training with relevant work experience; classroom learning and workplace experience are both necessary in the education of an IT worker

## Health Care

Washington State's health care industry plays a significant dual role in our economy. The health care system keeps our workforce healthy and productive. It is also one of the largest employers in the state. Washington's health services have a workforce of nearly 217,000 and produce \$13.2 billion in annual revenues.<sup>35</sup> Hospitals alone contributed nearly \$3 billion in wages to the state economy in 2000, almost twice as much as the agriculture, forestry, and fishing industries combined.<sup>36</sup>

Despite employment gains of 8,400 (or 4.4 percent) between October 2000 and October 2001,<sup>37</sup> our hospitals are facing a severe shortage of qualified professionals such as nurses, pharmacists, physicians, and technicians. The shortage of nurses is especially severe, and to make matters worse the supply of registered nurses has been declining over the past decade.<sup>38</sup>

### The Decline in Registered Nurse Graduates in Washington State, 1991-1999



Sources: HRSA State Health Workforce Profiles: Washington, December 2000; The Health Care Workforce in Ten States: Education, Practice and Policy (Spring 2001): Washington, National Conference of State Legislatures.

Washington's hospitals had a 10 percent vacancy rate for registered nurses in 2001; 77 percent of hospitals reported difficulty in recruiting licensed practical nurses, according to a recent survey.<sup>39</sup> Hospitals have tried to cope with the nursing shortage in many ways. About 70 percent are recruiting nurses from other states, and a quarter are recruiting from other countries—Mexico, Australia, England, New Zealand Canada, and the Philippines.<sup>40</sup>

The shortage of health care practitioners in Washington is compounded by demographic trends. First, hospital caregivers are aging faster than the state workforce. The average age of a hospital health care worker is 45, about five years older than the average for all workers. More than 41 percent of the state's health services workers are over 45 years old.<sup>41</sup> Second, the state population is also aging rapidly, much faster than the U.S. average. Washington is second only to Florida and Texas in terms of growth in the proportion of population age 45 and older.<sup>42</sup> The population over 65 in Washington grew by 59 percent during the past two decades; nationally it

grew by only 36 percent.<sup>43</sup> Since this age group typically requires twice the health care resources as do people under age 65, service cannot be maintained given current staffing levels. According to Employment Security Department forecasts, there will be an estimated 6,600 annual job openings in health care over the next decade, including about 1,650 openings for registered nurses. Given the current level of graduates from associate degree and baccalaureate nursing programs,<sup>44</sup> along with observed labor force participation patterns among these graduates, the annual supply of RNs is roughly 450 less than demand. Existing shortages will become more severe, unless training programs are expanded.

### *Summary*

Washington's economic recovery is expected to be slow, given the weak national recovery and the continuing drag from aerospace. The unemployment rate has apparently peaked, but employment growth is likely to be modest in 2003. More rapid job growth is forecast for 2004.

In the midst of the general economic downturn, there are areas of strength in the state's economy, such as health-care and software, where job markets remain strong despite the general economic downturn. Nationally, job losses have been concentrated among those with the least education. Job growth for workers with postsecondary vocational technical education continued strong in the aftermath of September 11<sup>th</sup>.

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, and only higher-skilled jobs can pay a family wage and offer benefits. Unless we equip our workforce with the skills to succeed in high-wage jobs, our society will become increasingly polarized into skilled “haves” and unskilled “have-nots.” A world-class workforce is vital for global competitiveness, and the bar for competitiveness is rising. Many nations now surpass the United States in developing human capital.

Our new economy is knowledge-based, and many of the fastest growing, best paying jobs are technical. The majority of family-wage jobs created in Washington will require postsecondary education; they won't, however, necessarily require a four-year degree.

Employers, however, report a severe 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 that their skills stay up to date. Given the dramatic technological and structural changes buffeting our economy, we must do more to enable workers to make smooth employment transitions.

## Endnotes

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<sup>1</sup> Washington State Employment Security Department, *2001 Washington State Labor Market and Economic Report*, 2001.

<sup>2</sup> Employment Policy Foundation, 'Economic Slowdown Highlights Critical Importance of Skills,' *Employment Trends*, November 28, 2001.

<sup>3</sup> U.S. Department of Labor, "The Many Facets of Skills," Chapter 2 of the *Report on the American Workforce*, 1999.

<sup>4</sup> Paul Sommers and Deena Heg, *Matching Community and Technical College Professional/Technical Education Capacity to Employer Demand*, Final Report for Washington State Board for Community and Technical Colleges, Northwest Policy Center, University of Washington, January 2000.

<sup>5</sup> Workforce Training and Education Coordinating Board, *Employer Needs Assessment Survey*, 2001.

<sup>6</sup> Michael Porter and Debra van Opstal, *U.S. Competitiveness 2001: Strengths, Vulnerabilities and Long-Term Priorities*, Council on Competitiveness, January 2001.

<sup>7</sup> Washington State Office of Financial Management and Washington State Employment Security Department, *2001 Long-Term Economic and Labor Force Forecast for Washington*, April 2001.

<sup>8</sup> *Ibid.*

<sup>9</sup> "1999 Long-Term Economic and Labor Force Forecast for Washington," Washington State Office of Financial Management and Washington State Employment Security Department, 1999.

<sup>10</sup> "State Economic Trends," Washington State Office of Financial Management, 1998.

<sup>11</sup> Washington State Employment Security Department, *Washington Wage Report*, 1999; and *Wage Distribution Study Update*, 2001.

<sup>12</sup> Robert Gordon, "Has the 'New Economy' Rendered the Productivity Slowdown Obsolete?" paper presented at the CBO Panel of Economic Advisors, June 2, 1999.

<sup>13</sup> *Ibid.*

<sup>14</sup> William Nordhaus, 'Productivity Growth and the New Economy,' NBER Working Paper 8096, National Bureau of Economic Research, January 2001(©).

<sup>15</sup> Peter Applebome, "Study Ties Educational Gains to More Productivity Growth," *New York Times*, May 14, 1995.

<sup>16</sup> Employment Security Department, 2001.

<sup>17</sup> These long-term occupational forecasts were prepared by the Employment Security Department during the summer of 2001. Economic activity had already slowed, but the attacks of September 11<sup>th</sup> had not yet exacerbated the contraction. The Department did prepare a short-term forecast shortly after September 11<sup>th</sup>. This forecast suggests that annual openings over the next two years will lower than in the long run—47,064 rather than 53,105 for occupations requiring little or no postsecondary training; 15,405 rather than 19,590 for those requiring one to twelve months postsecondary education, 28,241 rather than 35,607 for those requiring more than one and up to, but less than, four years postsecondary; 21,135 rather than 26,064 for four or more years postsecondary education.

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<sup>18</sup> Workforce Training and Education Coordinating Board, *Employer Needs Assessment Survey*, 2001. The initial mailing of survey questionnaires was on September 21, 2001. We are still receiving responses. ‘Looking for workers’ refers to firms that hired new employees during the last twelve months or that did not hire because of difficulty in finding qualified applicants (i.e., did not hire but reported difficulty).

<sup>19</sup> The percentage of firms hiring workers declined from 78.3 percent to 64.5 percent.

<sup>20</sup> The population of firms surveyed changed between these two survey rounds. The previous round sampled firms with two or more employees that were included in the Employment Security Department’s Unemployment Insurance records. The current round sampled firms with one or more employees included in a commercial database of Washington firms. Rough comparisons by firm size groups are possible. Among firms with 100 or more workers, the percentage reporting difficulty declined from 80 percent in the 1999 survey to 75 percent in the 2001 round. Among mid-sized firms (25-99 employees in 1999, 20-99 in 2001), the percent reporting difficulty declined from 70 to 62. Among smaller firms (5-24 employees in 1999, 5-19 in 2001), the percent having difficulty declined from 65 to 61. Among the very small firms, there was little change over the two years.

<sup>21</sup> National Association of Manufacturers, *The Skills Gap 2001*, 2001.

<sup>22</sup> High-tech includes biotechnology; computers and computer equipment; computer programming, software, and maintenance; electronics; precision equipment and instruments; telephone communications; research and testing.

<sup>23</sup> Other, not elsewhere classified, includes transportation and public utilities, communication, gas, electric and sanitary services, finance, insurance, real estate, and public administration.

<sup>24</sup> The Bureau of Labor Statistics recommends a simple rule of thumb for converting job openings to employed persons—it multiplies openings by 0.9.

<sup>25</sup> The estimated supply includes the following: community and technical college and private career school students who obtain academic associates degrees, vocational associates degrees, and vocational certificates from programs lasting one year or longer; persons who completed apprenticeship programs; cosmetology school graduates; and, in order to derive a conservative estimate of the skill gap, community college students who left their programs without completing, but who had completed 45 credits. The number of community and technical college graduates was adjusted to exclude those who transfer to four-year schools and those who already had appropriate degrees. We adjusted the supply figures by labor force participation rates in order to take account of the fact that some graduates exit, or fail to enter, the labor market.

<sup>26</sup> Information Technology Association of America, *When Can You Start? Building Better Information Technology Skills and Careers*, April 2001.

<sup>27</sup> Washington State Employment Security Department, “2000 Covered Employment and Payrolls in Washington State by County and Industry.”

<sup>28</sup> Washington Software Alliance, *Findings of the 2000-01 Workforce Study*.

<sup>29</sup> Washington State Employment Security Department, *2001 Washington State Labor Market Economic Report*, 2001.

<sup>30</sup> Washington State Employment Security Department, “2001-2002 Short-term Occupational Employment Projection” (November 2001), and “2000-2008 Long-term Occupational Employment Projection” (June 2000).

<sup>31</sup> Paul Sommers, *Washington State Software Industry Challenges*, Washington Software Alliance, October, 1998.

<sup>32</sup> Washington Software Alliance, “Findings of the 2000-01 Workforce Study.” Data for degree holders include Bachelors, Master’s, and Doctoral degrees in computer science electrical engineering and applied mathematics. Data for community and technical colleges include completers with 2 to 70 credits in the related fields.

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<sup>33</sup> *Ibid.*

<sup>34</sup> National Research Council, *Building a Workforce for the Information Technology*, National Academy Press, 2001.

<sup>35</sup> Paul Sommers, *Cluster Strategies for Washington*, Report for the Office of Trade and Economic Development, December 2001.

<sup>36</sup> Washington State Employment Security Department, "2000 Covered Employment and Payrolls in Washington State by County and Industry."

<sup>37</sup> Washington State Employment Security Department, "The State of State's Labor Market," William Dillingham, December 2001.

<sup>38</sup> Nationally, enrollments in entry-level baccalaureate programs in nursing increased in fall 2001, ending a six-year decline, according to a recent national survey.

<sup>39</sup> Washington State Hospital Association and the Association of Washington Public Hospital Districts, "Who Will Care For You? Washington Hospitals Face a Personnel Crisis," 2001, pp. 24, 26.

<sup>40</sup> Washington State Hospital Association and the Association of Washington Public Hospital Districts, "Who Will Care For You? Washington Hospitals Face a Personnel Crisis," 2001, pp. 19-20.

<sup>41</sup> WTECB calculation based on Washington State Population Survey, 2000, Washington State Governor's Office of Financial Management.

<sup>42</sup> Fredrica D. Kramer and Demetra Smith Nightingale, "Aging Baby Boomers in a New Workforce Development System," The Urban Institute, Report Prepared for the US Department of Labor, Employment and Training Administration, January, 2001.

<sup>43</sup> HRSA State Health Workforce Profiles: Washington, December 2000, p. 1.

<sup>44</sup> Graduates with advanced degrees in nursing are less likely to practice nursing and more likely to enter other professions such as education and government service. They are also likely to have already had baccalaureate degrees in nursing prior to entering graduate programs.