Washington State Employment Security Department

Labor Market and Economic Analysis

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INDICATORS

UNEMPLOYMENT RATE

Washington	
(Seasonally Adjusted)	
October 2007	4.8%
November 2007	4.7%
December 2007 (prel)	4.8%
United States	
(Seasonally Adjusted)	
October 2007	4.8%
November 2007	4.7%
December 2007 (prel)	5.0%

NONAGRICULTURAL EMPLOYMENT

Washington (Seasonally Adjusted)

(in thousands)	
October 2007	2,932.1
November 2007	2,938.6
December 2007 (prel)	2,949.3
Percent Change (over the year)	
October 2006-2007	1.8%
November 2006-2007	1.8%
December 2006-2007 (prel)	2.0%

IN THIS ISSUE

Industry Origin of Productivity in Washington State

By Alex Roubinchtein, Ph.D., Economist

The idea for this article came from Dale Jorgensen's (Samuel Morris University Professor, Harvard University) presentation *Industry Origin of the U.S. Productivity Resurgence* at the Conference on Regional Determinants of Productivity Growth (October 5, 2007) conducted by University of Washington's Economic Policy Research.

http://depts.washington.edu/eprc/education/Regional.htm

Jorgensen investigated the impact of information technology industries on U.S. productivity growth.

Some of Jorgensen's ideas were used to produce a simplified version of productivity analyses for Washington state. Productivity is one of the most important factors of intensive economic expansion and it is important for states as well as for the nation. State level data are more limited than data available at the national level. Our analysis was also based on the North American Industry Classification System (NAICS) and thus the time frame of available data were limited; the used time frame was 1997 to 2005. We used Bureau of Economic Analysis (BEA) Gross Domestic Product (GDP) and employment data for the state and the nation with additional employment data from our department (Washington State Employment Security Department's Labor Market and Economic Analysis branch). The results for the state are compared with the nation. Our industry grouping was defined by available details for GDP accounts. We used aggregated annual national input-output tables created by BEA. Then, using a technique suggested by BEA, national data were adjusted to state numbers to identify some of the basic inter-industries relationships. Fortunately, the industry scheme in these input-output tables is close to the one used for GDP accounts.

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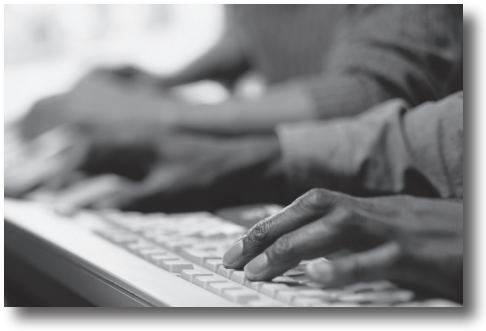
In cooperation with the U.S. Department of Labor

Summary

This article will show:

- The ratio of real GDP to employment is a reasonable measure of productivity at the state level.
- Productivity and employment changes tend to have an inverse relationship at the detailed industry level for both the state and the nation.
- Larger total current expenses on information-communications-technology-producing (ICT) purchases per dollar of final output is generally associated with higher productivity growth at the detailed industry level for both the state and the nation, but are not necessarily associated with a drop in employment.
- Changes in prices have a significant impact on all estimations of GDP and consequently productivity; the industry with the largest productivity growth – computer and electronic products – had the largest price drop.
- The booming construction industry (in terms of employment) had declining productivity and significant growth in prices.
- Generally, price increases are associated with lower productivity growth, but the association between price growth and employment changes is less obvious.
- The top four industries to contribute toward Washington state GDP growth between 1997 and 2005 were: retail trade; real estate; miscellaneous professional, scientific, and technical services; and computer and electronic products manufacturing. These were the same for the nation, but in a different order.
- The real estate industry is specific in GDP accounts. It includes an imputation for the rental value of owner-occupied housing. This could create confusion in comparable analyses of productivity, and in order to avoid biases it is reasonable to exclude this industry for aggregated analyses.
- Productivity growth was significantly faster for ICT-using industries than for non-ICT industries for both the state and the nation. Employment growth had an inverse relationship with these two groups, as was the case for the detailed industries.
- For ICT industries, the nation had an impressive annual average growth in productivity (12.2 percent) while employment growth was the lowest among the three groups at just 0.4 percent. For Washington state, productivity growth was largest among the three groups, but not as impressive as for the nation (4.5 percent). At the same time, large employment growth of 2.8 percent coexisted with large productivity growth for ICT industries.
- In spite of significant productivity growth for ICT industries in Washington state, the relationship between state and national GDP per job for this industry group switched to opposite due to extreme growth rates of productivity for the nation. Productivity for the state moved from 1.55 times larger than the nation to below average (87.5 percent of the nation). A primary reason for this is the difference between ICT composition of detailed industries between the state and nation.
- Unlike detailed industries, differences in the price indexes for the aggregated ICT industry group are very large due to differences in regional detailed industry structure for the ICT industry group.
- Changes in prices have a significant impact on all productivity calculations and comparisons. In current prices for 2005, GDP per job for Washington state would be larger than for the nation by 30 percent; GDP per job was 12.5 percent smaller in 1997 prices.
- While non-ICT industries in Washington state contribute a smaller share toward productivity growth, than for the nation, ICT-using and ICT industries have larger shares of contributions toward productivity growth.
- The results of calculations for contributions and productivity vary significantly depending on levels and approaches used for aggregation.



Industry Grouping

Following Jorgensen's idea we grouped all industries into three categories[1]:

- Information-communications-technology (ICT) producing
- ICT-using
- Non-ICT

Information-communications-technology (ICT) producing industries were defined according to BEA classification. This group includes four industries:

- computer and electronic product manufacturing
- publishing industries (includes software)
- information and data processing services within information
- computer systems design and related services within professional, scientific, and technical services

The two other industry groups were identified based on their estimated technological dependence from ICT industries. We used total purchases per dollar of final output to identify dependency. To estimate the purchases, we used adjusted national aggregated input-output tables for 1998 to 2005. Adjustment of national tables to the state inter-industry flow tables was based on methodology[2] used by BEA.

http://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf

Government in input-output tables is separated for two categories: government enterprises and public administration. Government enterprises are included in the inter-industry flow table, while public administration is a product of final demand. Consequently, the government industry used for our grouping is based only on government enterprises.

After adjustment we calculate the state total requirements tables for each year as a Leontief inverse from the direct requirements tables[3]. The total requirements of ICT industries per dollar of final demand for each industry column represent totals of four ICT industry rows. For each industry we calculate average total requirement for all eight years of available input-output tables. Than we calculate the average (among industry averages) across all industries except ICT. This average equates to about four cents of total expenditures per ICT industries products per dollar of final output of other industries. Industries which have average expenditures larger than the average across all industries we call ICT-using; all others are non-ICT. A grouping of the industries is presented in *Table 1* along with some other characteristics for the detailed industries. We excluded oil and gas extraction from the table, since this industry doesn't exist in Washington state.

The largest expenses for ICT purchases per dollar of final output are estimated to be in other transportation equipment followed by electrical equipment, appliances, and components; motor vehicles, bodies and trailers, and parts; pipeline transportation and machinery. We can also estimate purchases by each ICT industry from the remaining 3 ICT industries. All ICT industries would pass the threshold to be ICT-using with computer and electronic products leading the list.

If we produce the same calculations for unadjusted national industry by industry input-output tables, the average amount of total purchases from all ICT industries would be slightly higher than for the state (about 4.2 cents per dollar of all industries except ICT). That seems to be logical, because the nation is more of a closed economy

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[1] There are significant differences between Jorgensen's grouping and ours due to use of the NAICS coding and the different criteria used for grouping. Jorgensen used the share of the capital expenditures for information technology. Such data are not available at the state level. We used estimated levels of technological dependencies for such grouping, which seems to be reasonable criteria.

[2] The basic idea of adjustment follows: After subtracting industry imports from industry totals in the "use table" the national adjusted "industry-by-industry table" is created by multiplying "make table" by "use table." Then direct requirements coefficients for national adjusted input-output table are calculated and supplemented by household column from national table (based on national shares of personal consumption expenditures) and estimated household row. The regional industry-by-industry direct requirements table is derived from the adjusted national industry-by-industry direct requirements table by using location quotients (LQ). For row industries where LQ is greater or equal to one, all row entries for the industries in the regional direct requirements table are set equal to the corresponding entries in the adjusted national direct requirements table. Conversely, if the LQ is less than one, all row entries for the industry in the regional direct requirements table are set equal to the product of the corresponding entries in the adjusted national direct requirements table and the LQ for the industry. Unlike BEA we used LQs calculated based on GDP.

[3] The Leontief inverse is defined as $(I-A)^{-1}$, where I is an identity (with one on main diagonal) matrix, A is the regional industry-by-industry direct requirements matrix, and -1 indicates a matrix inversion.

Productivity Estimations

than the state. Consequently, we should expect higher total purchases. The majority of industries (50 of 61), based on national estimations would be the same as if they were based on the state; these industries account for 95.4 percent of total real GDP in 2005. Three industries (textile, printing, and plastics and rubber products) would be classified as ICT-using industries for the nation, while they were non-ICT industries for the state; but they only accounted for 0.6 percent of total real GDP in 2005. In contrast, eight industries at the state level classified as ICT-using would be Non-ICT with direct national estimations: wood products; primary metals; furniture; air and water transportation; securities, commodity contracts, and investments; educational services; and social assistance. Altogether they account for about four percent of total real GDP in 2005.

We used results for the state industries to group and compare the state and the nation; however, the results would not be significantly different with use of the national estimations as a base for grouping.

Generally, productivity is defined as the amount of output per unit of input. Using terminology from Seppo Saari's article (http://www.mido.fi/index_tiedostot/Productivity_EPC2006_Saari.pdf) we can say that in this study we will be measuring partial productivity. According to Seppo Sari: "Measurement of partial productivity refers to the measurement solutions which do not meet the requirements of total productivity measurement, yet, being practicable as indicators of total productivity." We will be measuring single factor productivity – labor productivity[4]. Sari also noted that "Sometimes it is practical to employ the value added as output. Productivity measured in this way is called value-added productivity." We used this concept and estimated productivity by dividing real GDP (in chained 2000 dollars) by employment[5]. In order to make employment estimations comparable with GDP we used BEA employment numbers. However, in a few cases, BEA estimations were suppressed or aggregated (professional and technical services, for example). In such cases we used our current employment statistic (CES) estimations to fill the blanks or disaggregate BEA numbers. Average annual changes in GDP per job (productivity) as well as employment changes from 1997 to 2005 for the state and nation for detailed industries are presented in *Table 1*.

In the majority of cases, productivity and employment changes point in different directions at this level of detail. The larger expenses on the products of ICT industries generally are associated with larger productivity growth (*see box on page six*).

The last column of *Table 1* represents the ratio between real GDP per job for the state and the nation in 2005. The state GDP per job was larger than the national indicator (for 27 industries); it was less for 34. The largest advantage the state has in productivity for 2005 is petroleum and coal products, but this is a very small industry in Washington; the ratio has a large variance between the different years (from 0.7 in 2001 to 1.79 in 2005). The second largest ratio for the state is publishing industries (includes software); this is actually the smallest value of the ratio among all observed years. The industry has a high level of importance for the state economy. Despite a slight decrease in real GDP per job in the state, combined with a large increase in the nation, the state's productivity indicator remains 62 percent larger than the national average.

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[4] Labor inputs are defined as number of jobs, rather than hours which are not available at the state level.

[5] The main reason for such an approach was lack of data. At the national level, productivity is normally estimated based on total output. Output data are not available for the states. The output data could be estimated based on the regional input-output table, but these secondary estimations would add significant biases to productivity measures. Another important argument in favor of using GDP, rather than total output at the regional level is that total outputs would create double counting due to large interregional transactions. The total of the regional total outputs would be significantly larger than national total output. The total value-added based GDP for all areas are eventually equal to national totals. Gary Kamimura used GDP for productivity estimations in Washington state in his study published in October 1999 (http://www.workforceexplorer.com/admin/uploadedPublications/2964_worker.pdf).

However, using GDP for productivity estimations has some significant pitfalls. For example, cashed stock options in the software publishing industry would increase labor income and GDP, but not directly related to output. The real estate industry, in GDP accounting, includes an imputation for the rental value of owner-occupied housing and could create a significant confusion for any inter-industry productivity comparisons.

Table 1. Major Indicators for Detailed Industries

Industries	ICT Characteristic	Total Purchases from ICT Industries per Dollar of Final Output (in cents)	Annual Average Productivity Growth for WA (1997-2005)	Annual Average Employment Growth for WA (1997-2005)	Annual Average Productivity Growth for U.S. (1997-2005)	Annual Average Employment Growth for U.S. (1997-2005)	Ratio of State GDP Per Job to U.S.
Agriculture, Forestry, Fishing, and Hunting	Non-ICT	2.1	4.3%	-1.0%	3.9%	-0.9%	1.61
Mining, except Oil and Gas	Non-ICT	2.4	0.6%	-3.0%	2.7%	-2.1%	0.53
Support Activities For Mining	Non-ICT	3.2	-16.9%	4.1%	-8.5%	5.1%	0.29
Utilities	Non-ICT	1.2	0.7%	-0.6%	3.9%	-1.5%	1.20
Construction	Non-ICT	3.2	-2.9%	4.4%	-2.1%	3.9%	0.98
Food and Beverage and Tobacco Products	Non-ICT	3.5	-1.1%	-1.4%	0.2%	-0.5%	0.66
Textile Mills and Textile Product Mills	Non-ICT	3.8	3.7%	-6.4%	5.3%	-7.3%	0.72
Apparel and Leather and Allied Products	Non-ICT	1.4	5.8%	-6.4%	5.4%	-11.0%	0.65
Wood Products	ICT-Using	4.0	4.8%	-1.2%	1.8%	-0.5%	1.27
Paper Products	Non-ICT	3.9	0.6%	-3.3%	2.2%	-3.8%	1.15
Printing and Related Support Activities	Non-ICT	3.8	4.7%	-5.3%	2.7%	-3.2%	0.84
Petroleum and Coal Products	Non-ICT	1.4	8.9%	0.9%	1.3%	-1.3%	1.79
Chemical Products	ICT-Using	3.9	2.7%	-0.6%	3.7%	-1.6%	0.54
Plastics and Rubber Products	Non-ICT	3.3	5.3%	0.3%	2.9%	-1.7%	0.87
Nonmetallic Mineral Products	Non-ICT	3.4	1.8%	2.2%	1.9%	-0.4%	0.98
Primary Metals	ICT-Using	4.2	4.4%	-9.2%	4.8%	-3.8%	0.91
Fabricated Metal Products	ICT-Using	4.0	5.0%	-0.1%	2.1%	-1.1%	1.04
Machinery	ICT-Using	6.5	5.9%	0.2%	3.8%	-2.7%	0.85
Computer and Electronic Products	ICT	131.8	30.3%	-4.9%	26.1%	-3.9%	0.68
Electrical Equipment, Appliances, and Components	ICT-Using	7.5	7.5%	3.3%	4.0%	-3.6%	1.13
Motor Vehicles, Bodies and Trailers, and Parts	ICT-Using	7.4	13.8%	-0.7%	3.7%	-1.9%	1.37
Other Transportation Equipment	ICT-Using	12.0	9.2%	-3.9%	1.3%	-1.2%	1.32
Furniture and Related Products	ICT-Using	4.6	5.6%	1.1%	3.7%	-1.6%	0.85
Miscellaneous Manufacturing	ICT-Using	6.0	2.4%	0.3%	5.7%	-1.0%	0.60
Wholesale Trade	Non-ICT	3.0	2.8%	1.1%	2.8%	1.0%	1.09
Retail Trade	Non-ICT	3.0	4.0%	1.2%	3.7%	0.9%	1.13
Air Transportation	ICT-Using	4.4	8.8%	-2.4%	6.8%	-1.3%	1.09
Rail Transportation	ICT-Using	5.5	2.3%	-1.6%	2.7%	-1.1%	0.90
Water Transportation	ICT-Using	4.1	-1.9%	0.0%	-2.7%	2.0%	1.13
Truck Transportation	Non-ICT	3.9	0.2%	2.6%	0.1%	2.0%	1.07
Transit and Ground Passenger Transportation	Non-ICT	3.6	-1.9%	3.2%	-1.3%	2.2%	1.01
Pipeline Transportation	ICT-Using	7.0	6.7%	-4.1%	10.4%	-3.5%	0.80
Other Transportation and Support Activities	Non-ICT	3.5	0.1%	1.3%	1.3%	1.6%	1.22
Warehousing and Storage	Non-ICT	2.1	4.0%	3.0%	1.8%	4.3%	0.99
Publishing Industries (includes Software)	ICT	113.7	-0.2%	6.1%	7.1%	0.3%	1.62
Motion Picture and Sound Recording Industries	ICT-Using	4.6	2.5%	1.1%	3.5%	-0.1%	0.36
Broadcasting and Telecommunications	ICT-Using	4.8	8.8%	0.5%	7.8%	-0.1%	1.09
Information and Data Processing Services	ICT	110.8	1.9%	6.3%	8.3%	1.8%	0.78
Federal Reserve Banks, Credit Intermediation, and Rel. Activities	Non-ICT	2.8	-0.7%	4.4%	1.0%	2.7%	0.98
Securities, Commodity Contracts, and Investments	ICT-Using	4.2	14.7%	0.1%	14.0%	0.8%	0.56
Insurance Carriers and Related Activities	Non-ICT	2.9	-0.2%	1.1%	0.1%	1.0%	0.92
Funds, Trusts, and Other Financial Vehicles	Non-ICT	2.5	-13.1%	-4.4%	-9.4%	2.3%	0.91
Real Estate	Non-ICT	1.1	-1.8%	5.3%	-1.7%	6.2%	1.07
Rental and Leasing Services and Lessors of Intangible Assets	Non-ICT	3.5	1.4%	0.9%	0.1%	0.6%	0.82
Legal Services	Non-ICT	3.0	1.0%	1.6%	-0.8%	2.0%	0.86
Miscellaneous Professional, Scientific and Technical Services	ICT-Using	5.1	3.9%	3.4%	3.2%	2.9%	0.88
Computer Systems Design and Related Services	ICT	105.9	3.1%	3.9%	2.8%	5.4%	0.98
Management of Companies and Enterprises	ICT-Using	5.7	-1.8%	2.4%	-0.5%	1.4%	0.88
Administrative and Support Services	Non-ICT	3.8	-0.8%	3.7%	-1.1%	3.3%	1.10
Waste Management and Remediation Services	Non-ICT	3.3	0.7%	1.2%	1.3%	1.9%	1.36
Educational Services	ICT-Using	4.5	-3.8%	6.2%	-2.0%	5.0%	0.75
Ambulatory Health Care Services	Non-ICT	3.4	3.6%	3.2%	1.1%	3.3%	0.99
Hospitals and Nursing and Residential Care Facilities	Non-ICT	3.2	-0.2%	1.6%	-0.1%	1.6%	1.11
Social Assistance	ICT-Using	4.1	-0.1%	4.9%	1.1%	4.6%	1.05
Performing Arts, Spectator Sports, Museums, and Rel. Activities	Non-ICT	2.8	-2.2%	3.4%	-1.5%	3.5%	0.73
Amusements, Gambling, and Recreation Industries	Non-ICT	3.1	-0.3%	6.0%	-1.4%	3.5%	0.90
Accommodation	Non-ICT	2.8	-1.0%	1.2%	0.1%	1.0%	1.02
Food Services and Drinking Places	Non-ICT	2.9	2.2%	2.0%	1.0%	2.7%	1.10
Other Services, except Government	ICT-Using	4.6	-2.0%	2.8%	-2.3%	2.7%	1.09
Federal Government	Non-ICT	2.6	-1.8%	0.4%	-0.4%	-0.2%	0.93
State and Local Government	ICT-Using	4.2	-0.8%	1.8%	0.1%	1.6%	1.01

For the state, an increase in productivity coexisted with a decrease in employment or an increase in employment coexisted with a decrease in productivity in 35 of 61 industries. This is even more common for the nation, where directions of the changes in employment and productivity were opposite in more than 2/3 of the industries (41 of 61). The hypothesis that productivity and employment changes have negative correlation (inverse relations) has low levels of rejections (less than 0.01 percent) for rank correlations (Spearman coefficient) for both state and nation and for Pearson correlation for the nation. For Pearson correlation for the state the level of rejection is slightly higher, but still just 0.35 percent.

Between 1997 and 2005 productivity increased for 40 of 61 state industries and for 46 national industries. Employment was growing in 41 state industries, but just in 33 national industries, while 28 national industries experienced decline in employment.

We can also observe significant correlation between productivity growth and purchases from ICT industries. The hypothesis that larger total current expenses on ICT purchases per dollar of final output associated with the higher productivity growth for both Spearman and Pearson correlations have a rejection level of less than one percent. However the opposite hypothesis that larger total current expenses per dollar of final output associated with employment decline didn't find statistical support.

This ratio was very high in 1997, when the state's real GDP per job by industry was 2.84 times larger than for the nation. It jumped to 4.20 in 1999, then dropped back to 2.75 in 2000 and has since continued to decline. The change in trend can be explained by cashed stock options in the software publishing industry during these years. They contributed toward a significant increase in industry personal income and consequently GDP.

Agriculture, forestry, fishing, and hunting is the next largest industry where the ratio of state productivity to the nation is large and stable.

The industries with the largest positive change in this ratio between 1997 and 2005 are motor vehicles, bodies and trailers, and parts (2.10 times). Other transportation equipment (including aerospace) was significantly lower than national GDP per job in 1997 (0.73), but significantly larger in 2005 (1.32).

The Impact of Price Changes

Changes in prices have a significant impact on all estimations of GDP and consequently productivity. In *Table 2* we calculated the indexes of industry price changes (GDP deflators) by dividing GDP estimations in current dollars by estimations in chained dollars for 2000. To obtain the indexes for 1997 through 2005 we divided indexes for 2005 by indexes for 1997[6].

National commodity prices are used to convert current GDP estimations to chained dollars for each state. However, due to structural differences in sub industries between national and state industries the price indexes could differ. As seen from *Table 2*, the differences between Washington state and U.S. prices are very small at this level of industry detail. The mean absolute percent difference for 61 industries is just 0.22 percent. Only three industries have differences larger than 1 percent: support activities for mining; pipeline transportation; and agriculture, forestry, fishing, and hunting. The first two are insignificant for Washington state.

Price changes have a significant impact on all productivity estimations. The industry with the largest productivity growth, computer and electronic products, also had the largest drop in prices (more than five times in eight years). As a result, GDP per job in current prices had a significantly low annual growth rate

[6] This is equivalent to changing the chain base year to 1997.This base will be used for further analyses and aggregation.

Table 2. Price Indexes for Washington State and U.S. (2005 to 1997)

Industries	State	U.S.
Agriculture, Forestry, Fishing, and Hunting	0.894	0.870
Mining, Except Oil and Gas	1.170	1.166
Support Activities for Mining	5.262	5.044
Utilities	1.145	1.146
Construction	1.664	1.664
Food and Beverage and Tobacco Products	1.329	1.330
Textile Mills and Textile Product Mills	0.991	0.990
Apparel and Leather and Allied Products	0.984	0.979
Wood Products	1.257	1.257
Paper Products	1.179	1.179
Printing and Related Support Activities	1.083	1.083
Petroleum and Coal Products	2.373	2.373
Chemical Products	1.167	1.168
Plastics and Rubber Products	1.008	1.009
Nonmetallic Mineral Products	1.183	1.184
Primary Metals	1.183	1.183
Fabricated Metal Products	1.150	1.151
Machinery	1.065	1.066
Computer and Electronic Products	0.188	0.188
Electrical Equip., Appliances, and Components	1.026	1.026
Motor Vehicles, Bodies and Trailers, and Parts	0.777	0.779
Other Transportation Equipment	1.338	1.338
Furniture and Related Products	1.154	1.153
Miscellaneous Manufacturing	1.073	1.073
Wholesale Trade	1.078	1.078
Retail Trade	1.009	1.009
Air Transportation	0.521	0.521
Rail Transportation	1.273	1.273
Water Transportation	1.526	1.527
Truck Transportation	1.276	1.276

Industries	State	U.S.
Transit and Ground Passenger Transportation	1.265	1.269
Pipeline Transportation	0.640	0.658
Other Transportation and Support Activities	1.322	1.323
Warehousing and Storage	1.104	1.105
Publishing Industries (includes Software)	0.984	0.984
Motion Picture and Sound Recording Industries	1.292	1.297
Broadcasting and Telecommunications	0.803	0.803
Information and Data Processing Services	1.051	1.050
Fed. Rsrv. Banks, Credit Intermed., and Rel.	1.392	1.392
Securities, Commodity Contracts, and Invests.	0.481	0.481
Insurance Carriers and Related Activities	1.341	1.341
Funds, Trusts, and Other Financial Vehicles	3.703	3.708
Real Estate	1.266	1.266
Rentl, Leasng. Svcs. & Lessors of Intang. Assets	1.130	1.131
Legal Services	1.438	1.438
Misc. Professional, Scientific and Tech. Svcs.	1.076	1.076
Computer Systems Design and Related Services	1.003	1.003
Management of Companies and Enterprises	1.476	1.476
Administrative and Support Services	1.381	1.381
Waste Management and Remediation Services	1.203	1.203
Educational Services	1.553	1.552
Ambulatory Health Care Services	1.207	1.207
Hospitals, Nursing and Residential Care Facilities	1.506	1.506
Social Assistance	1.228	1.228
Perform. Arts, Spect. Sports, Museums, Rel. Activ.	1.445	1.443
Amusements, Gambling, and Recreation Industries	1.263	1.265
Accommodation	1.299	1.300
Food Services and Drinking Places	1.226	1.226
Other Services, Except Government	1.431	1.430
Federal Government	1.404	1.404
State and Local Government	1.340	1.340

of 5.5 percent and the absolute current priced GDP increased insignificantly (by three percent over eight years). However, real GDP for this industry increased by about 5.5 times.

On the contrary, the industry with the largest decline in productivity (support activities for mining) also had the largest increase in prices (more than five times). As a result, GDP in current prices increased by about 1.9 times.

Construction is a large state industry where high employment growth coexisted with declining GDP per job in fixed prices. However, this industry had a large (fourth) increase in prices (1.66 times). As a result, in current prices it had an increase in GDP per job with an average rate of 2.3 percent.

Securities, commodity contracts, and investments and air transportation are among the industries with significant drops in prices (about two times). Both industries had high annual average growth rates of productivity (14.7 percent for securities, commodity contracts, and investments and 8.8 percent for air transportation). However, in current prices the increase in GDP per job would be significantly lower (4.2 percent for securities, commodity contracts, and investments and 0.9 percent for air transportation).

The coexistence of declining productivity and large employment expansion does not contradict the concept of rational behavior and profit maximization. With declining marginal value added for a new job in fixed prices, the industry might remain as an attractive target

for business expansion due to growing demand, and provide larger than average marginal returns per dollar. Moreover, while productivity is measured in fixed prices the comparable marginal return would be estimated in current prices. Price increases and growing demand could be factors of productivity reduction, at least in the short run. However, in a competitive economy, a price increase would attract more investments and technological innovations, which could potentially lead to an increase in productivity in the long run. Various restrictions on free capital flow (like monopolies, business localization, large fixed start-up investments, and unfriendly business environments) would limit this opportunity. The relation of productivity and employment growth is a widely discussed topic with significant variance in approaches and conclusions[7].

The higher price increase was associated with lower productivity growth. The association of price growth with employment growth is less obvious *(see box)*.

The hypothesis that productivity and price changes for detailed industries have negative correlation (inverse relationship) has low levels of rejections (less than 0.01 percent) for rank correlations (Spearman coefficient) and Pearson correlation for both the state and nation. The results of testing the correlation between price growth and employment growth are more complex. For the nation this hypothesis has a low level of rejection (about one percent) for both correlations (rank and Pearson). However, for the state, the correlations of ranks are somewhat supported; the level of rejection is about one percent. Still, the hypothesis of correlation for numbers did not find statistical support.

Relative Contributions to GDP Growth

Industry contributions to GDP growth between 1997 and 2005 for Washington state and the nation are presented in *Table 3*[8]. The top four industries for the state and nation are the same: retail trade; real estate; miscellaneous professional, scientific, and technical services; and computer and electronic products. They are listed in order of largest contributions for Washington state. However, there is a significant difference in the rank order of these four industries between the state and nation. For Washington state, the largest contribution to GDP growth was provided by retail trade; for the nation this industry ranked third while the largest contribution came from computer and electronic products. For Washington state computer and electronic products is ranked fourth. Real estate[9] is ranked second for both the state and nation. Miscellaneous professional, scientific, and technical services is ranked third for the state and fourth for the nation with very close percentages of contribution to GDP growth for both areas.

The largest difference in absolute percentage points of contribution to GDP was in computer and electronic products where the contribution at the national level was more than 1.7 percentage points larger than at the state level. The second largest difference is for publishing industries (includes software), where the contribution to state GDP growth of 2.18 percent (rank 6) is 1.45 percentage

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7 One of the recent examples dated December 11, 2007 can be found online at *Economist's View* "Productivity vs. Employment Growth: A Zero-Sum Game?" (http://economistsview.typepad.com/economistsview/2007/12/productivity-vs.html)

8 To calculate industry contributions for eight years we used the same approach as BEA for contributions to annual percent changes (http://www.bea.gov/newsreleases/national/gdp/2007/pdf/gdp307a.pdf). We estimated comparable industry quantities (volumes) in prices of 1997 and consequently all base prices are equal to one. Then we used price indexes from *Table 2* as prices for 2005. Contributions to GDP changes were then calculated based on the Fisher index, which represents a geometrical average between the Laspeyres index in base prices and Paasche index in current prices. Detailed formulas for the calculation of contribution to percentage changes can be found at: http://www.statcan.ca/english/concepts/chainfisher/formules.htm.

Note that industry totals are additive to the Fisher volume index, but not to GDP growth in chain dollars.

9 The real estate industry is specific in GDP accounts. It includes an imputation for the rental value of owner-occupied housing. The BEA treats homeowners as businesses, which pay rent to themselves. Therefore, homeowners contribute to the real estate industry's GDP even if not employed by the industry. In addition, like businesses, homeowners' property taxes paid to state and local governments are included as part of taxes on production and imports (TOPI) for the real estate industry. In future analyses we will exclude this industry in order to avoid biases for aggregated industries.

points larger than the contribution of this industry at the national level. The next (third) largest difference was in other transportation equipment, which ranked ninth at the state level with a positive contribution of 1.11 percent; at the national level, the industry contribution was slightly negative (ranked 54). This industry (other transportation equipment) is ranked number one, for the largest difference between the ranks of contribution for the state than for the nation. It is followed by petroleum and coal products; electrical equipment, appliances, and components; and wood products. In contrast, the top four industries where the rankings of industry contributions for the nation were larger than for the state were: utilities, chemical products, construction, and accommodation.

With the exclusion of real estate, the top three industries would contribute about one-third of total GDP growth for both the state and nation.

Table 3. Industry Contributions to GDP Growth Between 1997 and 2005

Industries	WA	U.S.	Rank WA	Rank U.S.
Agriculture, Forestry, Fishing, and Hunting	0.61%	0.33%	14	20
Mining, Except Oil and Gas	-0.03%	0.01%	54	48
Support Activities For Mining	-0.01%	-0.16%	51	61
Utilities	-0.03%	0.44%	55	14
Construction	0.08%	0.44%	38	15
Food and Beverage and Tobacco Prods.	-0.27%	-0.04%	60	56
Textile Mills and Textile Product Mills	-0.02%	-0.03%	52	55
Apparel and Leather and Allied Products	-0.01%	-0.11%	50	58
Wood Products	0.18%	0.04%	26	45
Paper Products	-0.17%	-0.06%	57	57
Printing and Related Support Activities	-0.01%	-0.02%	49	53
Petroleum and Coal Products	0.42%	-0.01%	17	51
Chemical Products	0.03%	0.34%	44	18
Plastics and Rubber Products	0.13%	0.07%	31	35
Nonmetallic Mineral Products	0.11%	0.05%	33	41
Primary Metals	-0.18%	0.04%	58	44
Fabricated Metal Products	0.23%	0.06%	22	38
Machinery	0.19%	0.07%	25	36
Computer and Electronic Products	2.25%	3.99%	4	1
Electrical Equip., Appliances, and Compon.	0.16%	0.01%	27	47
Motor Vehic., Bodies and Trlrs., and Parts	0.24%	0.20%	21	24
Other Transportation Equipment	1.11%	-0.02%	9	54
Furniture and Related Products	0.09%	0.06%	37	39
Miscellaneous Manufacturing	0.06%	0.23%	41	23
Wholesale Trade	2.07%	1.96%	7	5
Retail Trade	3.31%	2.74%	1	3
Air Transportation	0.33%	0.26%	18	22
Rail Transportation	0.01%	0.03%	46	46
Water Transportation	-0.05%	-0.01%	56	52
Truck Transportation	0.15%	0.14%	29	29
Transit and Ground Passenger Transport.	0.01%	0.01%	47	49
Pipeline Transportation	0.01%	0.05%	48	42
Other Transport. and Support Activities	0.10%	0.16%	36	27
Warehousing and Storage	0.10%	0.12%	35	30
Publishing Industries (includes Software)	2.18%	0.73%	6	11
Motion Picture, Sound Recording Industries	0.02%	0.09%	45	32
Broadcasting and Telecommunications	2.19%	1.74%	5	7
Information and Data Processing Services	0.15%	0.35%	28	17
Fed. Rsrv. Banks, Credit Intermed., & Rel.	0.94%	1.08%	10	10
Securities, Commodity Contracts, & Invest.	0.84%	1.96%	12	6
Insurance Carriers and Related Activities	0.10%	0.19%	34	25
Funds, Trusts, & Other Financial Vehicles	-0.21%	-0.12%	59	60
Real Estate	2.64%	3.23%	2	2
Rent., Leas. Svcs. & Lessrs of Intangbls.	0.14%	0.04%	30	43
Legal Services	0.26%	0.15%	19	28
Misc. Professional, Scientific & Tech. Svcs.	2.32%	2.09%	3	4
Computer Systems Design and Rel. Svcs.	0.48%	0.70%	15	12
Mgmt. of Companies and Enterprises	0.05%	0.10%	42	31
Administrative and Support Services	0.47%	0.43%	16	16
Waste Mgmt. and Remediation Services	0.12%	0.07%	32	37
Educational Services	0.07%	0.18%	40	26
Ambulatory Health Care Services	1.90%	1.22%	8	8
Hospitals, Nursing, Resident. Care Facil.	0.23%	0.33%	23	19
Social Assistance	0.25%	0.27%	20	21
Perform. Arts, Spect. Sports, Museums, Rel.	0.03%	0.06%	43	40
Amusements, Gambling, & Rec. Industries	0.20%	0.08%	24	33
Accommodation	-0.03%	0.07%	53	34
Food Services and Drinking Places	0.63%	0.54%	13	13
Other Services, except Government	0.08%	0.00%	39	50
Federal Government	-0.30%	-0.11%	61	59
State and Local Government	0.86%	1.18%	11	9

Aggregation Based on ICT Dependence

We aggregated all industries into three groups (ICT producing, ICT-using, and non-ICT) according to definitions provided above. Fisher indexes were used to aggregate and estimate relative contributions. The index represents the geometric average between indexes in base prices and current prices[10]. As was noticed real estate includes significant imputation; this industry was excluded from the analysis at the aggregate level.

Table 4 illustrates results for aggregated industries. Productivity growth (see also *Graph 1*) was significantly faster for ICT-using industries than for non-ICT industries for both the state and nation. Employment growth had an inverse relationship for these two groups as was the case for detailed industries. However, for ICT industries, the situation is more complex. For the nation, this inverse relationship was still in place. Productivity in ICT industries had an annual average growth of 12.2 percent; employment growth was the lowest among the three groups (just 0.4 percent). For Washington state, productivity growth for ICT industries was the largest among the three groups, but not as impressive as for the nation (4.5 percent). At the same time, the largest employment growth of 2.8 percent in the state coexisted with the largest growth in productivity for ICT industries. In Washington state GDP per job in 1997 for ICT industries was more than 2.4 times greater than for non-ICT industries and about 2.6 times more than for ICT-using industries. GDP per job was slightly larger in non-ICT industries than in ICT-using industries. For ICT industries, state GDP per job was 1.55 times larger than it was for the nation.

In 2005, the difference between real GDP[11] per job for ICT and non-ICT industries in Washington increased from 2.4 to 3.3 times; the difference between ICT and ICT-using industries increased from 2.6 to 3.2 times. Unlike 1997, in 2005 the real GDP per job for ICT-using industries surpassed this indicator for non-ICT industries.

In 1997 productivity for the state in ICT industries was 1.55 times larger than in the nation. By 2005 the state productivity in this sector moved below the national average and was 87.5 percent of the national. One of the reasons was the difference between the ICT composition of detailed industries between the state and nation, which will be explained below. The relationship between the state and national productivity for the two other groups did not change significantly.

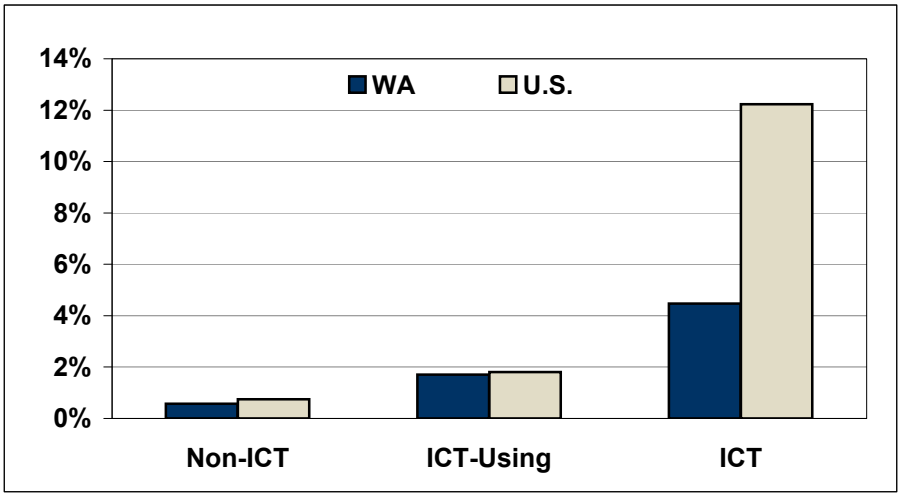
Table 4. Main Results for Aggregated Industries

Indicator	Non-ICT	ICT-Using	ICT
Annual Average Productivity Growth for WA (1997-2005)	0.6%	1.7%	4.5%
Annual Average Employment Growth for WA (1997-2005)	1.9%	1.7%	2.8%
Annual Average Productivity Growth for U.S. (1997-2005)	0.8%	1.8%	12.2%
Annual Average Employment Growth for U.S. (1997-2005)	1.4%	1.3%	0.4%
GDP Per Job in 1997, WA	$47,411	$44,980	$115,289
GDP Per Job in 1997, Ratio WA/U.S.	1.017	0.901	1.552
Real GDP Per Job in 2005, WA	$49,606	$51,510	$163,537
Real GDP Per Job in 2005, Ratio WA/U.S.	1.002	0.895	0.875
Price Indexes 2005/1997, WA	1.25	1.20	0.85
Price Indexes 2005/1997, U.S.	1.26	1.12	0.54
GDP/Job in 2005 in Current Prices, WA	$61,655	$61,081	$131,171
GDP/Job in 2005 in Current Prices, Ratio WA/U.S.	0.987	0.943	1.302
GDP Shares in Current Prices in 1997, WA	57.5%	34.0%	8.4%
GDP Shares in Current Prices in 2005, WA	57.3%	34.8%	7.9%
GDP Shares in Current Prices in 1997, U.S.	58.6%	36.5%	4.8%
GDP Shares in Current Prices in 2005, U.S.	59.7%	35.7%	4.6%
GDP Shares in Fixed (1997) Prices in 2005, WA	54.1%	34.4%	11.5%
GDP Shares in Fixed (1997) Prices in 2005, U.S.	54.0%	36.3%	9.7%
Shares of Contribution to GDP Growth, WA	44.5%	36.5%	19.1%
Shares of Contribution to GDP Growth, U.S.	42.2%	37.1%	20.7%
Contribution to GDP Growth/Average 97 and 2005 Share, U.S.	0.777	1.058	2.291
Contribution to GDP Growth/Average 97 and 2005 Share, WA	0.714	1.027	4.388
Shares of Contribution to Prod. Growth, WA	22.5%	40.3%	37.2%
Shares of Contribution to Prod. Growth, U.S.	30.6%	37.4%	32.0%
Contribution to Prod. Growth/Average 97 and 2005 Share, U.S.	0.394	1.168	4.469
Contribution to Prod. Growth/Average 97 and 2005 Share, WA	0.517	1.036	6.781

[10] The technical details of using the index can be found in publications linked in footnote 7.

[11] Real GDP (in chained 1997 dollars) for aggregated industries was estimated based on the Fisher volume index.

Graph 1. Annual Average Productivity Growth



Price Impact on Aggregated Industries

As noted above, national commodity prices are used to convert current GDP estimations to chained dollars for each state. The price indexes can only differ due to structural differences in sub industry structures between national and state industries. This difference, generally, was not significant for detailed industries. The Fisher price index[12] was used to estimate the price indexes for aggregated industry groups. Unlike detailed industries, where the largest relative difference was about four percent, the price indexes difference for aggregated ICT industry group is very large. For both areas, the prices for this industry group were dropping, but a drastic drop in prices for the nation (1.85 times) was 1.57 times greater than a modest decrease for the state of about 18 percent. The main reason for the difference is the regional detailed industry structure for the ICT industry group. The price indexes for four detailed industries (*Table 2*) are nearly the same for the state and nation, but the volume structure is drastically different. The average weight for computer and electronic products in the ICT group in real 1997 dollars for the base and estimated years for the nation is 36.1 percent, while for the state is just 10.4 percent. Both areas had remarkable productivity growth for the industry; 30.3 percent annual average growth for the state and 26.1 percent for the nation (*Table 1*), but the industry experienced a drastic price drop of more than 5.3 times (*Table 2*). Price indexes for the other three industries from the ICT group are close to one, which means no significant price changes. Since the share of computer and electronic products dropped in price for the nation (about 3.5 times larger than for the state), the combined price index for this industry group experienced a significantly larger drop for the nation than for the state. That was also the main contributing factor to the significantly larger productivity growth of ICT industries for the nation than for the state.

The price indexes for the non-ICT industries for the state and the nation were almost the same, but the price index for ICT-using industries for the state was almost 1.07 times larger than for the nation. One important contributor to this is the larger share of other transportation equipment in this group for Washington state, which has a large price increase and a smaller share for motor vehicles, bodies and trailers, and parts which had a significant price reduction.

Changes in prices have a significant impact on all productivity calculations and comparisons. In current prices, GDP per job in 2005 for Washington state would be larger than the nation by 30 percent (it was smaller in 1997). In current prices, shares of ICT industries in total GDP between 1997 and 2005 decreased for both the state and the nation. State to national ratios of ICT shares in total GDP remained nearly unchanged. The state's ratio was larger than the nation by 1.7 times.

However, in real 1997 dollars the share of ICT industries in national GDP more than doubled; for the state this increase was just 1.36 times. In 2005, the state still had an ICT share larger than the nation, but the proportion of the shares (1997 through 2005) decreased from 1.75 to 1.18.

[12] Geometric average of indexes weighted on base year volumes and current volumes.

Contributions to GDP and Productivity Growth

To estimate relative contributions for the three industry groups to real GDP growth we used the same approach as for the detailed industry, which was based on the Fisher volume index. However, we expressed the contributions in percentages in *Table 4*. As you can see from *Table 4*, the shares of absolute contributions to real GDP growth for three industry groups are similar between the state and nation. However, if we consider the contributions as a relative measure to average (between 1997 and 2007) shares in real GDP the picture is significantly different. For both the state and nation, contributions to real GDP growth of ICT industries were significantly larger than the industry size (shares in GDP). For the nation, the proportion is significantly larger than for the state (by 1.9 times).

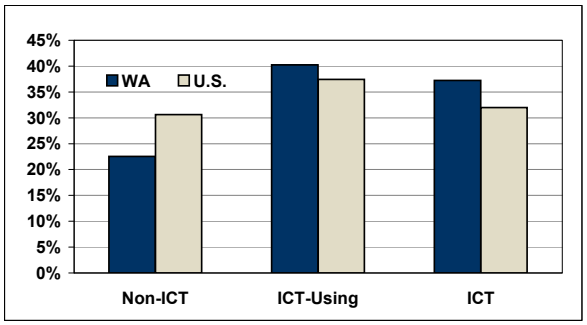
To calculate contributions to productivity growth we used a simple formula, where GDP growth index equals productivity growth multiplied by employment growth. Consequently, the absolute contribution to productivity growth would equal the absolute contribution to GDP growth divided by the absolute contribution to employment growth. Absolute contributions of the industry groups to GDP growth was based on the Fisher volume index as explained previously. The index of absolute contributions for each industry group to total employment growth can be defined by dividing employment growth by total employment (among all groups) in the base year. These indexes as well as Fisher volume indexes will be additive. Then to define the index of productivity contribution we can divide the index of volume contribution by index of employment contribution for each industry group.

The shares of contribution of each industry group to productivity growth between 1997 and 2005 are presented in *Graph 2* and *Table 4 (see box).*

Non-ICT industries in Washington state contribute a smaller share to productivity growth than for the nation, while ICT-using and ICT industries contribute a higher share toward productivity growth. If we consider relative (to average between 1997 and 2005 shares in GDP) contributions to productivity growth for both areas, ICT-using industries would contribute a significantly larger share compared to non-ICT industries; still, ICT industries would have a larger relative share than ICT-using industries. The relative share of contribution for national ICT industries is 1.5 larger than for the state.

The results of calculations for contributions and productivity vary significantly depending on levels and approach used to aggregation. They could create some confusion. For example, publishing industries (includes software) has a slight drop in productivity, but one of the largest contributors to GDP and productivity growth (ranked number 6 in both cases). The main reason for this is high absolute GDP increase in the industry. It is also possible that all industries in aggregate have declining productivity, but aggregated industry has increasing productivity. Let's illustrate this by a simple example. Assume we have two industries, measured in comparable fixed prices. Employment in the first industry is unchanged and equal to 10, but output (or GDP) is dropped from 10 in the base period to 5 in the current (estimated). Consequently, the productivity drop for this industry is 50 percent (or 2 times). The second industry has a base period employment of 5, which increased to 10 by the current period, and output (or GDP) increased from 50 in the base period to 85 in the estimated. The second industry has a productivity drop of 15 percent [(85/10) / (50/5) = 0.85]. Consequently, both industries had a decrease in productivity. However the combined industry would have a productivity growth of 12.5 percent [(85+5)/(10+10)]/[(50+10)/(10+5)]=4.5/4=1.125.

Graph 2. Shares of Contribution to Productivity Growth

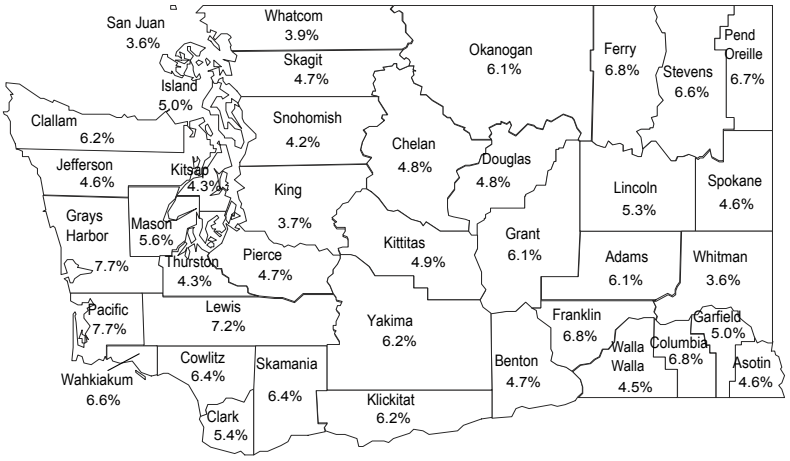


Fourth Quarter Stats-At-A-Glance

Monthly Resident Civilian Labor Force and Employment in Washington State and U.S.

(In Thousands)	Oct. 2007 (Updated)	Nov. 2007 (Updated)	Dec. 2007 (Prel)
Seasonally Adjusted Unemployment Rate:			
Washington State	4.8%	4.7%	4.8%
United States	4.8%	4.7%	5.0%
Washington State			
Not Seasonally Adjusted:			
Resident Civilian Labor Force	3,457.4	3,477.0	3,465.5
Employment	3,311.5	3,316.6	3,299.8
Unemployment	145.9	160.5	165.7

Average Unemployment Rates by County
October, November, and December 2007
Washington State = 4.5%
United States = 4.6%
Not Seasonally Adjusted



Washington State
Employment Security Department
Labor Market and Economic Analysis

Civilian Labor Force Estimates for Washington State Counties and MSAs 1/

Date: 1/30/08
Benchmark: March 2006

	October 2007 Updated				November 2007 Updated				December 2007 Preliminary			
Not Seasonally Adjusted	Labor Force	Employ-ment	Unemploy-ment	Unemploy-ment Rate	Labor Force	Employ-ment	Unemploy-ment	Unemploy-ment Rate	Labor Force	Employ-ment	Unemploy-ment	Unemploy-ment Rate
Washington State Total	3,457,400	3,311,500	145,900	4.7	3,477,000	3,316,600	160,500	4.4	3,465,500	3,299,800	165,700	4.3
Bellingham MSA	108,900	104,800	4,100	4.6	110,900	106,400	4,500	4.0	110,600	106,000	4,600	3.9
Bremerton MSA	125,500	120,300	5,200	4.9	127,700	122,100	5,600	4.3	127,100	121,600	5,500	4.3
Kennewick-Pasco-Richland MSA	120,500	115,400	5,100	5.5	119,100	112,500	6,600	4.7	116,600	109,500	7,100	4.5
Benton County 2/	89,879	86,177	3,702	5.3	88,365	83,998	4,367	4.6	86,320	81,750	4,570	4.3
Franklin County 2/	30,661	29,242	1,419	6.3	30,770	28,503	2,267	5.2	30,310	27,740	2,570	4.8
Longview MSA (Cowlitz)	44,933	42,269	2,664	6.6	45,235	42,358	2,877	6.0	45,110	42,050	3,100	6.3
Mt. Vernon-Anacortes MSA (Skagit)	58,286	55,836	2,450	5.0	58,797	55,905	2,892	4.4	58,350	55,430	3,000	4.2
Olympia MSA	129,434	124,135	5,299	4.8	131,806	126,035	5,771	4.3	131,790	126,030	5,900	4.2
Seattle-Bellevue-Everett MD*	1,441,700	1,385,100	56,700	3.8	1,460,900	1,405,100	55,800	3.5	1,461,900	1,407,000	54,900	4.0
King County 2/	1,074,292	1,033,065	41,227	3.7	1,088,257	1,048,013	40,244	3.5	1,088,780	1,049,440	39,340	3.9
Snohomish County 2/	367,455	352,015	15,440	4.0	372,650	357,108	15,542	3.7	373,110	357,590	15,520	4.2
Spokane MSA	238,927	228,956	9,971	5.1	243,146	231,713	11,433	4.5	242,930	230,630	12,600	4.3
Tacoma Metropolitan Division	387,377	369,897	17,480	5.3	396,629	377,401	19,228	4.7	396,550	377,720	19,300	4.6
Wenatchee MSA	64,900	62,600	2,400	3.9	58,800	55,800	3,000	4.5	58,100	54,600	3,500	3.5
Chelan County 2/	43,015	41,463	1,552	3.9	38,991	36,967	2,024	4.5	38,460	36,190	2,270	3.5
Douglas County 2/	21,885	21,087	798	3.9	19,794	18,800	994	4.4	19,590	18,410	1,190	3.6
Yakima MSA	129,168	123,638	5,530	5.6	119,565	111,395	8,170	5.6	117,880	108,710	9,160	4.4
Aberdeen MSA (Grays Harbor)	31,631	29,632	1,999	6.8	32,143	29,815	2,328	6.4	32,890	29,680	3,210	6.2
Centralia MSA (Lewis)	30,963	29,099	1,864	7.0	31,738	29,509	2,229	6.2	32,120	29,330	2,790	6.3
Ellensburg MSA (Kittitas)	21,394	20,542	852	5.2	21,005	19,941	1,064	4.3	19,900	18,750	1,150	4.1
Moses Lake MSA (Grant)	44,176	42,400	1,776	5.2	39,453	36,838	2,615	4.5	37,340	34,320	3,030	4.1
Oak Harbor MSA (Island County)	33,296	31,799	1,497	5.4	33,823	32,025	1,798	4.7	33,460	31,740	1,720	4.6
Port Angeles MSA (Clallam)	30,378	28,758	1,620	6.1	30,957	28,999	1,958	5.6	30,900	28,740	2,160	5.3
PulMSAn MSA (Whitman)	21,570	20,823	747	5.4	21,478	20,645	833	3.7	20,790	20,040	750	3.6
Shelton MSA (Mason)	26,401	25,042	1,359	6.0	27,022	25,515	1,507	5.5	25,920	24,300	1,610	5.3
Walla Walla MSA (Walla Walla)	30,634	29,463	1,171	5.1	29,673	28,297	1,376	4.4	28,770	27,300	1,470	4.3
Adams	9,068	8,758	310	5.0	8,169	7,609	560	4.0	8,020	7,330	690	3.8
Asotin 2/	10,337	9,947	390	4.7	10,693	10,218	475	4.6	10,640	10,140	500	3.9
Clark 2/	211,875	201,517	10,358	6.1	216,403	204,828	11,575	6.5	215,380	204,730	10,650	5.2
Columbia	1,514	1,424	90	6.5	1,484	1,377	107	5.5	1,540	1,430	120	5.6
Ferry	2,983	2,813	170	7.4	3,076	2,855	221	6.7	3,030	2,790	240	5.9
Garfield	1,032	986	46	4.4	1,005	955	50	3.9	970	920	50	4.6
Jefferson	13,688	13,090	598	4.9	13,886	13,241	645	4.6	13,800	13,140	650	4.5
Klickitat	9,956	9,454	502	6.1	9,516	8,931	585	5.6	9,460	8,740	720	5.1
Lincoln	4,780	4,550	230	5.3	4,808	4,542	266	4.6	4,670	4,410	250	4.7
Okanogan	23,455	22,495	960	4.7	18,956	17,690	1,266	5.0	18,630	17,110	1,520	4.1
Pacific	9,396	8,836	560	6.2	9,500	8,829	671	5.6	9,750	8,740	1,010	5.7
Pend Oreille	5,328	5,021	307	6.5	5,431	5,074	357	5.9	5,410	5,000	420	5.4
San Juan	8,434	8,156	278	3.2	8,104	7,791	313	2.9	7,980	7,680	300	3.1
Skamania 2/	5,193	4,937	256	6.0	5,357	5,018	339	6.4	5,370	5,020	350	5.0
Stevens	18,610	17,567	1,043	6.8	19,052	17,787	1,265	5.9	19,220	17,740	1,490	5.6
Wahkiakum	1,629	1,542	87	6.6	1,695	1,585	110	5.7	1,700	1,570	130	5.1

1/ Official U.S. Department of Labor, Bureau of Labor Statistics data/Haver Analytics
2/ Estimates are determined by using the Population/Claims Share disaggregation methodology.
Note: Detail may not add due to rounding.
*Metropolitan Division

Nonagricultural Wage and Salary Employment in Washington State, Place of Work 1/

Seasonally Adjusted

Quarterly Benchmark: June 2007 *In Thousands* **Industry**	**Dec. 2007 (Prel)**	**Nov. 2007 (Rev)**	**Oct. 2007 (Rev)**	**Sept. 2007 (Rev)**	**August 2007 (Rev)**	**July 2007 (Rev)**
Total Nonfarm	**2,963,700**	**2,956,600**	**2,953,500**	**2,946,600**	**2,949,700**	**2,942,700**
Natural Resources and Mining	8,300	8,300	8,300	8,300	8,400	8,400
Logging	5,200	5,200	5,300	5,200	5,300	5,300
Construction	**213,700**	**213,500**	**213,200**	**212,400**	**211,000**	**211,000**
Construction of Buildings	56,200	56,000	55,900	55,500	55,000	55,100
Heavy and Civil Engineering	24,500	24,500	24,700	25,000	24,800	24,700
Speciality Trade Contractors	133,000	133,000	132,600	131,900	131,200	131,200
Manufacturing	**296,000**	**295,000**	**294,500**	**293,400**	**293,300**	**292,800**
Durable Goods	215,100	214,100	213,400	212,600	212,300	211,900
Wood Product Manufacturing	18,800	18,900	18,900	18,900	19,000	19,100
Fabricated Metal Product Manufacturing	20,600	20,500	20,400	20,300	20,100	20,200
Computer and Electronic Product Manufacturing	22,900	22,800	22,900	22,800	22,700	22,700
Transportation Equipment Manufacturing	96,000	95,300	94,400	93,900	93,700	93,100
Aerospace Product and Parts Manufacturing	82,300	81,700	81,000	80,700	80,400	80,000
Non Durable Goods	80,900	80,900	81,100	80,800	81,000	80,900
Food Manufacturing	33,100	33,500	33,700	33,700	33,200	33,400
Wholesale Trade	**132,200**	**132,300**	**132,000**	**131,200**	**131,100**	**130,600**
Retail Trade	**327,800**	**329,500**	**329,600**	**328,800**	**328,900**	**328,700**
Motor Vehicle and Parts Dealers	43,200	43,000	43,000	42,900	42,900	42,800
Food and Beverage Stores	61,200	61,200	61,100	60,800	60,500	60,600
Clothing and Clothing Accessories Stores	29,700	30,600	30,400	30,200	30,200	30,300
General Merchandise Stores	58,800	59,000	59,600	59,900	60,100	59,900
Transportation, Warehousing and Utilities	**98,300**	**97,000**	**95,300**	**96,100**	**96,100**	**96,100**
Utilities	4,500	4,500	4,500	4,400	4,500	4,600
Transportation and Warehousing	93,800	92,500	90,800	91,700	91,600	91,500
Air Transportation	11,200	11,100	11,000	10,800	10,800	10,800
Water Transportation	3,500	3,400	3,400	3,400	3,500	3,500
Truck Transportation	25,600	25,600	25,600	25,500	25,300	25,200
Support Activities for Transportation	18,700	18,600	18,500	18,600	18,700	18,800
Support Activities for Water Transportation	5,800	6,100	6,100	6,000	6,200	6,000
Warehousing and Storage	11,000	11,000	10,500	10,400	10,600	10,700
Information	**104,200**	**103,800**	**104,300**	**104,200**	**104,000**	**104,000**
Software Publishers	48,700	48,400	48,100	48,100	48,100	47,800
Telecommunications	24,500	24,500	24,700	24,900	25,100	25,400
Financial Activities	**157,000**	**157,600**	**157,300**	**157,200**	**156,900**	**157,100**
Finance and Insurance	104,600	104,900	104,900	104,900	104,700	104,800
Credit Intermediation and Related Activities	54,300	54,600	54,400	54,300	54,100	54,500
Insurance Carriers and Related Activities	39,000	39,200	39,400	39,400	39,300	39,200
Real Estate and Rental Leasing	52,400	52,700	52,400	52,300	52,200	52,300
Professional and Business Services	**348,400**	**345,300**	**346,400**	**345,600**	**345,000**	**344,800**
Professional, Scientific and Technical Services	157,400	158,000	157,400	157,000	156,300	155,800
Legal Services	20,400	20,500	20,400	20,500	20,600	20,500
Architectural and Engineering Services	36,700	36,700	36,600	36,400	36,300	36,200
Computer Systems Design and Related Services	29,000	28,800	28,800	28,800	28,800	28,300
Management of Companies and Enterprises	33,000	33,300	33,300	33,500	33,700	33,900
Admin and Support and Waste Management and Remediation	158,000	154,000	155,700	155,100	155,000	155,100
Employment Services	62,600	59,900	59,600	59,300	59,400	59,400
Education and Health Services	**351,800**	**351,100**	**350,300**	**349,700**	**348,100**	**347,100**
Education Services	46,400	46,100	46,500	46,600	46,200	45,600
Hospitals	68,100	68,100	67,800	67,800	67,700	67,400
Nursing and Residential Care Facilities	55,600	55,700	55,200	55,200	55,000	55,200
Social Assistance	57,300	57,300	57,300	57,300	57,100	56,900
Leisure and Hospitality	**284,200**	**282,600**	**282,200**	**280,000**	**281,100**	**279,700**
Arts, Entertainment and Recreation	46,800	46,400	46,100	45,100	45,600	45,600
Accommodation	31,600	31,400	31,500	31,100	31,100	31,100
Food Services and Drinking Places	205,800	204,800	204,600	203,800	204,400	203,000
Government	**536,000**	**535,300**	**534,500**	**534,200**	**540,400**	**537,100**
Federal Government	67,200	67,400	67,900	68,300	68,700	68,600
Total State Government	150,100	149,900	148,900	152,200	148,100	147,500
State Government Educational Services	81,600	81,700	81,700	82,800	79,600	78,900
Total Local Government	318,700	318,000	317,700	313,700	323,600	321,000
Local Government Educational Services	151,000	151,200	151,200	152,100	156,200	157,400
Workers in Labor-Management Disputes	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

1/ Excludes proprietors, self-employed, members of armed forces, and private household employees. Includes all full- and part-time wage and salary workers receiving pay during the pay period including the 12th of the month.

2/ Workers excluded because of involvement in labor-management dispute.

Prepared by the Labor Market and Economic Analysis Branch using a Quarterly Benchmark process.

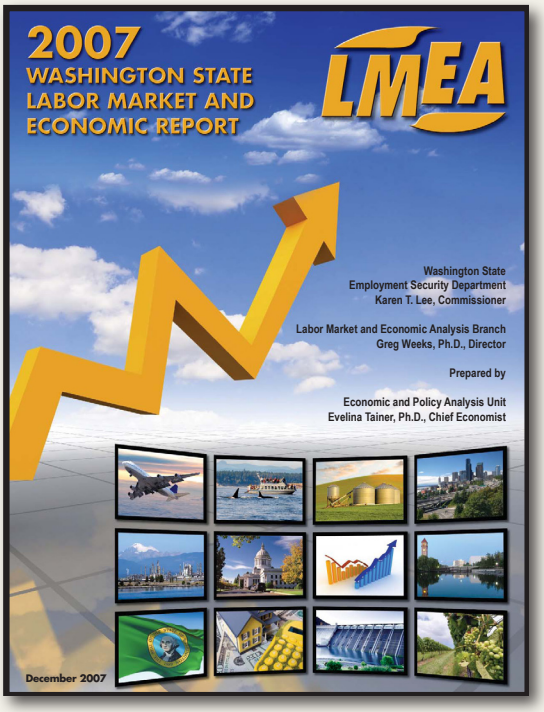
This process uses the most recent quarter from the Unemployment Insurance Tax Reports (currently second quarter 2007) and estimates employment from that point to present.

What's New?

2007 Washington State Labor Market and Economic Report

Our annual report includes the national and state year in review, seasonality in employment time series, unemployment and its dimensions, Washington's aging workforce, employment projections, wages and income, and data comparisons with other states.

Look for the full report on our website at www.workforceexplorer.com.



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Washington State Employment Security Department

Labor Market and Economic Analysis