

The background of the cover is a photograph of the Washington State Capitol building. The building is a large, classical-style structure with a prominent central dome and a portico supported by several columns. The scene is framed by the branches of cherry blossom trees in full bloom, with white and light pink flowers scattered across the image. The sky is a clear, bright blue.

Washington State Economic and Revenue Forecast

September 2016
Volume XXXIX, No. 3



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Washington State Economic and Revenue Forecast

Prepared by the
Economic and Revenue Forecast Council

September 2016
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Preface

ERFC forecasting structure and schedule

The Economic and Revenue Forecast Council is required by Chapter 231, Section 34, Laws of 1992 (RCW 82.33.020) to prepare a quarterly state economic and revenue forecast and submit it to the Forecast Council. This report presents the state's economic and General Fund-State revenue forecast. It is issued four times a year. The Washington State GF-S revenue forecast is prepared quarterly in conjunction with the state economic forecast for the Economic and Revenue Forecast Council. The Council consists of six members, two appointed by the Governor and four appointed by the Legislature – one from each caucus of the Senate and House of Representatives. Current members of the Economic and Revenue Forecast Council are listed inside the front cover of this publication. The GF-S revenue forecast is updated four times per year: March (February in even-numbered years), June, September, and November. The staff of the Economic and Revenue Forecast Council is responsible for the preparation of the state's economic forecast and the forecast of the Department of Revenue's GF-S revenue sources as well as GF-S revenue from fines and forfeitures collected by the Administrative Office of the Courts. The staff is also responsible for review and coordination of the revenue forecasts of other agencies that collect relatively large amounts of GF-S revenue. These are the Department of Licensing, the Office of the Insurance Commissioner, the Lottery Commission, the State Treasurer, the Liquor Control Board and the Office of Financial Management. The Office of Financial Management is responsible for summarizing the forecasts of all other state agencies that collect relatively smaller amounts of GF-S revenue.

Forecast Procedure

For each quarterly update, the staff of the Economic and Revenue Forecast Council, under the direction of the Executive Director, reviews (and if warranted, modifies) a national economic forecast prepared by Global Insight, Inc. A state economic forecast is then prepared using an econometric model that links Washington's economy to the national economy. After review by forecast workgroups; the Governor's Council of Economic Advisors; and the Economic and Revenue Forecast Council in public; this state economic forecast (updated for newly released data) is used to prepare a baseline revenue forecast for GF-S and the related funds. The forecasts are based on current law and administrative practices and do not reflect pending legal challenges to GF-S receipts until they are resolved. Additionally, at least two alternative forecasts are prepared for all GF-S and related fund sources and presented to the Forecast Council for approval. Once the Council approves the forecast, it becomes the official forecast of GF-S and related fund revenues.

Data in this publication are accurate through October 1, 2016.

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Executive Summary

- **Although the national economy continued its weak pace of growth in the first half of the year, we believe the economic recovery will continue at a moderate pace.**
- **Employment growth has been inconsistent the past few months, but on average has been weaker than last year. Unemployment remains low, but wage growth has slowed.**
- **The Federal Reserve is gradually tightening monetary policy, but recent weakness in the economy has caused them to delay raising interest rates.**
- **The Blue Chip Consensus GDP forecast calls for real GDP growth of 1.5% in 2016, down from 1.8% in the previous forecast. After increasing to 2.2% in 2017, we expect growth to moderate as the recovery matures.**
- **The forecasts for Washington employment and income are higher than in the June forecast.**
- **Washington exports continue to decline and manufacturing continues to struggle.**
- **Seattle home prices are rising rapidly but new home construction has slowed.**
- **Revenue collections since the June 2016 forecast have come in \$225 million over the forecasted amount.**
- **Over half of the surplus collections were due to large one-time payments of past-due taxes**
- **Real estate excise tax collections were \$41 million higher than forecasted and are expected to remain strong in the near future.**
- **The forecast of General Fund-State (GF-S) revenue for the 2015-17 biennium was increased by \$334 million, the forecast for the 2017-19 biennium was increased by \$125 million, and the forecast for the 2019-21 biennium was increased by \$55 million.**
- **Forecast increases were almost entirely in retail sales and real estate excise taxes.**
- **The substantial changes in the Washington state recreational cannabis market since July 2014 mean that we have yet to observe “typical” market conditions.**
- **After adjusting for number of retail stores, sales in border counties are significantly higher than in non-border counties.**
- **Legalization of recreational cannabis in Oregon appears to have reduced sales in counties on the Oregon border.**

U.S. Economic Forecast

The national economy has continued its weak pace

The national economy continued its weak pace of growth in the second quarter of 2016. Even with the slowdown, however, we believe the recovery will continue at a moderate pace. Job gains have slowed this year, although the unemployment rate is now at pre-recession levels. The housing market continues to improve at a slow pace. Oil prices have remained low, freeing up resources for consumers. Federal fiscal policy is stable in the near term although the uncertainty surrounding monetary policy remains. Global economic growth remains weak, and geopolitical events have added to risks abroad. As the current recovery approaches the seven-year mark, the duration alone has caused doubts as to whether the recovery will continue.

GDP growth is slightly lower than anticipated in June

The economic outlook is slightly weaker since the June forecast. U.S. real GDP rose 1.4% (SAAR) in the second quarter of 2016 after growing 0.8% (SAAR) in the first quarter. The Blue Chip Consensus GDP forecast, our starting point each forecast cycle, calls for real GDP growth of 1.5% in 2016, down from 1.8% in the June forecast. Real GDP growth is expected to be 2.2% in 2017, down slightly from the 2.3% growth expected in the previous forecast. We expect growth to moderate as the recovery matures. The forecast calls for growth to remain in the 2.1% to 2.2% range for 2018 through 2021, unchanged from the June forecast.

The outlook for employment is only minimally changed

The forecast for employment is only minimally changed since the June forecast. Growth in payrolls is expected to be 1.8% this year after growing 2.1% in 2015. The forecast then calls for job growth to average 0.7% through 2021 as the economy nears full employment. As a result of the steady job growth, we expect the unemployment rate to average 4.8% in 2016, down from 5.3% the year before. We expect the unemployment rate to average 4.7% for the rest of the forecast.

The Fed has delayed raising rates

The Federal Reserve is gradually tightening monetary policy after years of measures aimed at supporting the economy. Recent weakness in the economy has caused the Federal Reserve to keep this process slow. We are now assuming the Federal Reserve will raise the Federal funds rate only once this year, in December. Recent data point to a possible weakness in the labor market that is giving policymakers pause. The Fed's preferred measure of inflation remains below its target rate of 2% but has been slowly trending upward. While the forecast assumes inflation will be low, it is still anticipated that the Fed will be comfortable raising rates. We expect rates to rise gradually before leveling off in the fourth quarter of 2019.

Washington Economic Forecast

The Washington economy is expanding at a solid pace

The Washington economy is expanding at a solid pace. In recent months, Washington employment has grown faster than expected in the June forecast and historical estimates were revised higher. Washington exports continue to decline and manufacturing activity is struggling. Home prices are rising rapidly in the Seattle area but home construction has weakened in recent months. Seattle area consumer price inflation is well above the national average due to shelter cost inflation.

The forecasts for Washington employment and income are higher than in the June forecast

Overall, our forecast for Washington State is stronger than we expected in June mainly as a result of higher employment and income. Washington employment growth in 2015 was 2.8% which was the highest rate since 2006. Washington employment is expected to grow 2.8% this year as well, better than the 2.4% growth rate in the June forecast. We expect employment growth to average 1.3% per year in 2017 through 2021, which is the same rate assumed in June. Our forecast for nominal personal income growth this year is 4.8%, up sharply from 4.1% in the June forecast. Our new forecast for nominal personal income growth in 2017 through 2021 averages 4.9% per year, down slightly from the June forecast of 5.0%. We expect total housing units authorized by building permits to rise 1.5% this year to 41,000 units which is close to the 40,600 units in the June forecast. We expect permits to average 43,800 during the remainder of the forecast, which is also very close to the 43,900 expected in June. The forecast for Seattle area inflation is also very similar to the June forecast. We expect the all-items Seattle CPI to rise 2.3% this year compared to 2.2% in the June forecast. As in June, we expect Seattle area inflation to average 2.3% per year in 2017 through 2021.

Revenue Forecast

Small increases in forecasted personal income and stronger-than-expected real estate activity were the main drivers of the increase in forecasted revenue

While revenue collections since the June 2016 forecast have been higher than expected, much of the extra revenue came from large one-time payments of past-due taxes rather than taxes collected on current economic activity. Excluding these payments, collections were much closer to their forecasted amounts, with the exception of real estate excise taxes, which came in much higher. The strengthening real estate market has prompted another increase in forecasted real estate excise taxes. Forecasted retail sales tax collections have also been increased, due to both stronger-than-expected collections and a slight increase in forecasted state personal income. Changes in forecasted revenue from other sources were slight, reflecting the small changes in the September economic forecast relative to the June forecast.

GF-S forecast changes

Since the June forecast, revenue sources that are tracked monthly came in \$224.7 million higher than forecasted. There

were no non-economic changes in expected revenue. Changes to the economic forecast resulted in an \$109.7 million increase to projected collections for the rest of the biennium. The total of these components was a \$334.4 million increase in projected revenue for the current 2015-17 biennium. The forecast for the 2017-19 biennium has been increased by \$125.4 million, and the forecast for the 2019-21 biennium has been increased by \$55.1 million. GF-S revenue is now forecasted to total \$37,765.1 million in the 2015-17 biennium, \$40,377.1 million in the 2017-19 biennium, and \$43,630.0 million in the 2019-21 biennium.

Preliminary Analysis of the Washington Recreational Cannabis Market

A preliminary analysis of recreational cannabis at the county level

Recreational cannabis has now been legal in Washington State for just over two years. This chapter will provide a preliminary analysis of this new market through June 2016. The analysis will focus on county level impacts on the sale of recreational cannabis. The end date for the analysis was selected because, starting in July 2016, the medical and recreational cannabis markets were merged. With very little data available since that merger, it seemed wise to focus solely on the recreational market now and follow up on the merged system in the future.

Initiative 502 passed in November 2012

Following passage of Initiative 502 in November 2012, the newly renamed Washington State Liquor and Cannabis Board entered into a rulemaking process to implement the initiative and create a legal recreational cannabis market in the state. This included licensing cannabis producers (growers), processors and retail outlets.

Prior to July 2016, a total of 334 retail licenses were available

The initial rules placed no limits on the number of producer or processor licenses, but the total amount of space for cannabis production was set at two million square feet. An entity could hold both a producer and a processor license, but no entity with either a producer or processor license was eligible for a retail license. A total of 334 retail store licenses were available, distributed across the state based on population but with a maximum number of stores per county. Some cities and counties banned or placed moratoria on cannabis businesses, so that some areas eligible for retail licenses do not have operating retail outlets.

The Washington cannabis market has changed enormously

The last two years have witnessed an enormous change in the market for cannabis in Washington. In July 2014, the first month of legal recreational sales, statewide sales were \$1.8 million at 18 licensed retail outlets. By June 2016, statewide sales exceeded \$54 million at 267 licensed retail outlets. In that time period, recreational cannabis prices dropped by over 160%, a wide variety of new cannabis products have been licensed for sale, and Oregon legalized recreational cannabis sales.



Chapter 1: U.S. Economy – Current Conditions and Forecast

- **Although the national economy continued its weak pace of growth in the first half of the year, we believe the economic recovery will continue at a moderate pace.**
- **Employment growth has been inconsistent the past few months, but on average has been weaker than last year. Unemployment remains low, but wage growth has slowed.**
- **Construction remains weak, but continues to improve slowly.**
- **The manufacturing sector has returned to growth, although measures are mixed.**
- **Consumer and business confidence indices continue to express uncertainty.**
- **Weak foreign GDP growth and an appreciating U.S. dollar have hurt U.S. exports.**
- **Oil prices have increased since the June forecast but remain low.**
- **The Federal Reserve is gradually tightening monetary policy, but recent weakness in the economy has caused them to delay raising interest rates.**
- **The Blue Chip Consensus GDP forecast calls for real GDP growth of 1.5% in 2016, down from 1.8% in the previous forecast. After increasing to 2.2% in 2017, we expect growth to moderate as the recovery matures.**
- **A more robust recovery in housing remains the most significant upside risk. A slowdown in global growth is the major downside risk.**

Current Conditions

The national economy has slowed but we expect the recovery to continue

The national economy continued its weak pace of growth in the second quarter of 2016. Even with the slowdown, however, we believe the recovery will continue at a moderate pace. Job gains have slowed this year, although the unemployment rate is now at pre-recession levels. The housing market continues to improve at a slow pace. Oil prices have remained low, freeing up resources for consumers. Federal fiscal policy is stable in the near term although the uncertainty surrounding monetary policy remains. Global economic growth remains weak, and geopolitical events have added to risks abroad. As the current recovery approaches the seven-year mark, the duration alone has caused doubts as to whether the recovery will continue.

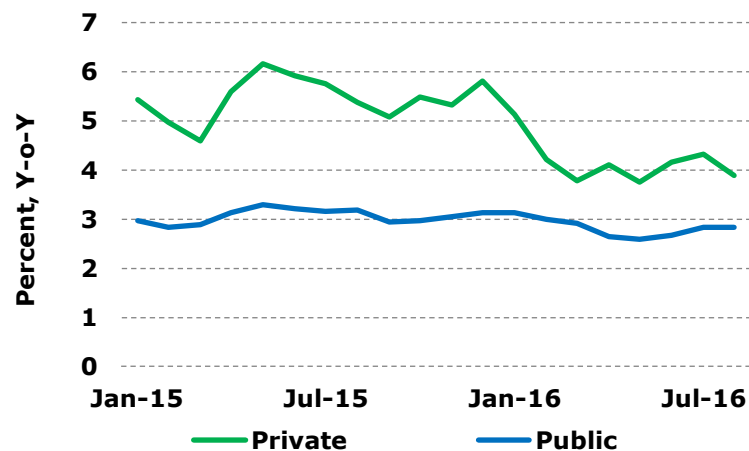
U.S. real GDP rose 1.4% (SAAR) in the second quarter

U.S. real GDP rose 1.4% (SAAR) in the second quarter of 2016 after growing 0.8% (SAAR) in the first quarter. Residential investment was particularly weak in the second quarter, declining 7.7% (SAAR) and subtracting 0.31 percentage points from overall growth. Inventory growth declined for the fifth consecutive quarter and brought growth down by 0.23 percentage points. Government spending declined 1.7% (SAAR) with decreases in national defense spending and spending by state and local governments. The reduction in government spending subtracted 0.30 percentage points from GDP growth. Business investment was positive, growing 1.0% (SAAR) and adding 0.12 points to growth due to a strong quarter of spending on intellectual property. Softening of the U.S. dollar recently has helped U.S. exports. Export growth turned positive in the second quarter, growing 1.8% (SAAR) and outpacing import growth of 0.2% (SAAR). Net exports added 0.18 points to overall growth. Consumer spending accounted for the largest positive contribution to growth in the quarter, increasing 4.3% (SAAR) and contributing 2.88 percentage points to overall GDP growth. Spending was stronger on the goods side, increasing 7.1% (SAAR) compared to 3.0% (SAAR) growth for services.

Wage growth slowed in August

Rising personal income is essential for consumer spending to continue improving. Personal income growth slowed to 3.0% (SAAR) in August after growing 5.1% (SAAR) the month before. Personal income is now up 3.9% from a year ago. Much of the slowdown in personal income was due to a sharp slowdown in wages and salary growth. Wages and salaries grew only 1.6% (SAAR) in August after growth above 6% (SAAR) in each of the previous two months. Wages in the private sector slowed to just 1.0% (SAAR) while public sector wages grew 3.1% (SAAR). Over the past few years, private sector wages have increased faster

Figure 1.1: Private and Public Sector Wage and Salary Growth



Source: Bureau of Economic Analysis; data through August 2016

than wages in the public sector. However, while government wage growth has hovered around 3% on an annual basis, private sector wage growth has slowed (see Figure 1.1). In 2015, private wage and salary growth averaged 5.5% on an annual basis, compared to 3.1% for the public sector. So far this year, private sector wage and salary growth has averaged 4.2% year-over-year compared to 2.8% for government workers.

Personal income growth was led by rental income and income from assets

Personal income growth in August was led by growth in rental income and income from assets. Rental income grew 8.8% (SAAR) in August after growing 6.5% (SAAR) the month before. Rising home prices have enabled landlords to increase rent, boosting their income. Income from assets grew 5.9% as dividend income grew 9.9% (SAAR) and interest income grew 3.1% (SAAR). Proprietors' income grew just 0.4% (SAAR) as farm income declined sharply and nonfarm proprietors' income growth was weak. Transfer payment growth was also strong, increasing 4.6% (SAAR), with the largest increase coming from Medicaid benefits, up 8.8% (SAAR). Unemployment insurance benefits reversed a two-month decline growing 8.3% (SAAR). Real disposable income grew just 0.1% (SAAR) in August and is now up 1.6% over the year.

Employment growth is weaker than last year

Employment growth has been inconsistent the past few months, but on average has been weaker than last year. Nonfarm payrolls increased by 151,000 in August after gains of over 270,000 in each of the prior two months. In May, job gains totaled only 24,000, although this was partially due to a strike that reduced employment by 34,000. Monthly employment gains averaged 182,000 per month so far this year, the weakest growth since 2012. The August employment situation showed gains in private services and government employment while goods producing employment fell. The goods-producing sector declined 24,000 jobs. Mining employment fell 4,000, construction was down 6,000, and manufacturing declined 14,000. The service sector showed strong gains in education and health, up 36,100, and leisure and hospitality, up 29,000. Professional and business services gained 22,000 even as temporary help declined 3,100. Retail trade was up 15,100 jobs with half the gains coming from building and garden supply stores. Government employment increased 25,000 in August, mostly due to a 24,000 job increase in local government, split evenly between education and non-education.

The labor market recovery is slowing

The labor market recovery is beginning to slow as the economy moves closer to full employment. The unemployment rate has held steady in recent months at 4.9%. This is down from 5.1% last year and 6.0% in 2014. The current unemployment rate is now equal to the average rate of the decade preceding the 2007-09 recession. Joblessness continues to fall but at a much slower pace than earlier in the recovery. The number of unemployed people has dropped 169,000 since last year. The number of

people no longer in the labor force continues to increase, but this rate has slowed as well. Over the past year the labor force has declined by 356,000 people. The labor force participation rate has slowly started to increase over the past year after steadily falling since the onset of the 2007-09 recession. Labor force participation for August was 62.8%, up from 62.6% a year ago. The most comprehensive measure of underemployment, which includes those marginally attached to the labor force plus workers employed part time for economic reasons, has declined from 10.3% to 9.7% since last year.

*Improvement
in consumer
attitudes has
been
sporadic*

Improvement in consumer attitudes has been sporadic over the past few years and reflects continued uncertainty over the economy. The University of Michigan Consumer Sentiment Index increased 1.4 points to 91.2 in September, the first increase since May. Consumers were increasingly pessimistic regarding their current conditions, but expressed more optimism on future economic expectations. The index is 1.7 points below the average for all of 2015. The Conference Board Consumer Confidence measure increased 2.3 points in August, the highest reading in 9 years. Income and business expectations fell but were more than offset by increased labor market optimism.

*Small
business
confidence
has slowly
improved*

Small business confidence has slowly improved the past few months, but remains lower than a year ago. After reaching a post-recession high of 100.3 in December 2014, the National Federation of Independent Business (NFIB) Index of Small Business Optimism declined to 92.6 in March 2016. In August the index declined 0.2 points, but at 94.4 points remains higher than the trough reached in the spring. The level of the index is consistent with a slowly expanding economy. Of the ten index components, five improved, four declined, and one was unchanged. Expected business conditions accounted for the entire gain in the index, gaining five points. Firms cut their hiring plans in August. According to the NFIB, 15% of respondents said finding qualified workers was their biggest problem and 30% said they had job openings that they couldn't fill. Taxes and government regulation remain the largest concern for small businesses while financing is the least cited concern.

*Oil prices
have risen
but remain
low*

Oil prices have risen since reaching a trough in January. West Texas Intermediate (WTI) crude was \$45 per barrel in August and Brent oil was \$46. In January, prices were \$32 per barrel for WTI and \$31 per barrel for Brent. With weak global demand and strong supply, prices are still below year-ago levels. U.S. crude production has fallen as prices have remained low. In June, U.S. field production of crude oil was 8.701 million barrels per day, down from 9.320 million barrels per day in June of last year. Internationally, OPEC appears to have given up the fight against U.S. production. Previously, OPEC had hoped that some of the more expensive drilling techniques being deployed in the U.S. would no longer be profitable and shut down. However, U.S.

shale has become more economical to produce, with costs coming down to below \$40 per barrel in some cases. In September, OPEC agreed to modest output curbs for the first time since 2008. Member countries are under financial strain due to low global oil prices. However, the limit in output probably won't significantly raise prices. OPEC controls less of the supply than they did decades ago. Any upward movement in prices would result in an increase in U.S. and Canadian shale production. The increase in North American oil production would likely offset the OPEC decline, mitigating any price increase.

*Inflation
remains low*

Headline inflation has been very low the past two years as energy prices have fallen and remained low. In August the Consumer Price Index (CPI) increased 0.2% over the month, resulting in an increase of 1.1% since last year. Energy prices were flat and remain 9.2% lower than a year ago. Gasoline prices declined 0.9% in August and are 17.8% lower than last year. Food price inflation is nonexistent with prices not moving this month and remaining the same as last year. Shelter costs have been the primary driver of higher overall prices. Shelter costs increased 0.3% in August and are now up 3.4% year over year. Medical care has also increased, up 0.9% in August and up 5.1% for the year. Core inflation, which excludes food and energy, increased 0.3% in August. On an annual basis, core inflation remains moderate at 2.3%.

*New home
construction
continues to
limp along*

New home construction has continued to limp along at about the same pace for the past year. Housing starts declined in August to 1.142 million units (SAAR) from 1.212 million units (SAAR) in July. Starts are now up 0.9% since last August, but down 1.2% over the average of the previous twelve months. Both the single-family and the multi-family segments declined in August. Single family starts were down 6.0% while multi-family starts were down 5.4%. Housing permits show a similar trend as starts. Total permits were up 0.7% in August although they are down 1.2% from a year ago. Single-family permits are up 3.7% while multi-family permits are down 8.8% since last year. Despite the tepid pace of residential construction, homebuilder confidence has improved in recent months (see Figure 1.2). The National Association of Homebuilders (NAHB) Housing Market Index, which measures confidence of homebuilders, increased 6 points to 60 in September (readings above 50 indicate a positive view of conditions). Homebuilder confidence is now equal to the highest reading in over a decade.

Figure 1.2: NAHB Housing Market Index



Source: National Association of Home Builders; data through September 2016

Home values remain on an upward trend

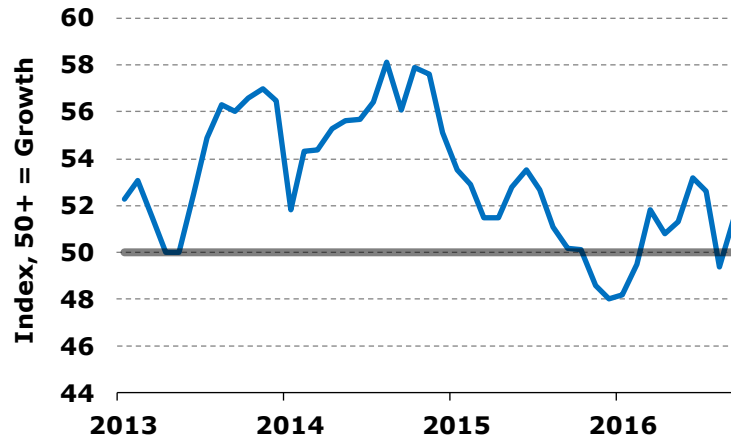
Home prices have dipped in recent months but remain on an upward trend. The seasonally adjusted Case-Shiller 20-city Home Price Index decreased just barely at 0.01% over the month in July. This was the fourth consecutive month of decline, however, we believe this is at least in part due to a seasonal adjustment issue. Home prices are now 5.1% higher than a year ago. Home prices appear to be settling into a consistent growth pattern, averaging 5.1% annual growth over the past two years. Prices have increased 33.3% since the trough of the recession, and are now only 9.2% below their previous peak. Rising prices encourage new construction and are contributing to the increase in homebuilder confidence. Home price appreciation also enables previously underwater homeowners to sell their homes and trade up for more expensive houses. Mortgage rates have remained low and credit standards are beginning to ease leading to increased mortgage demand. Continued positive wage growth should also help going forward.

The manufacturing sector is once again improving

The manufacturing sector is once again expanding, although measures of strength are mixed. The Institute of Supply Management (ISM) Report on Business indicated that activity in the manufacturing sector improved in September to 51.5 from 49.4 (index levels above 50 indicate expansion). Manufacturing activity has been weak for the past year, with the ISM averaging 50.4 and hovering around the 50 point break even mark (see Figure 1.3). Both the new orders and production components increased and are no longer indicating contraction. The employment component increased as well but remains below 50 at 49.7. The latest G-17 report from the Federal Reserve, which measures manufacturing output, indicated a decline in August of 0.4%, reversing the previous month's 0.4% gain. The decline in output was led by a 2.1% drop in textile and product mills and a 1.9% drop in machinery. Manufacturing output is now 0.4%

lower than last year. New orders for core capital goods (nondefense capital goods excluding aircraft) increased 0.6% in August after increasing 0.8% the month before. Even with the increase, new orders are now 4.0% below year-ago levels.

Figure 1.3: The Institute of Supply Management (ISM) Report on Business



Source: The Institute of Supply Management (ISM) Report on Business; data through September 2016

U.S. exports have been adversely affected by weak global growth and a strong dollar

Weak global economic growth, combined with a strong U.S. dollar, has caused U.S. exports to fall. Measured against major U.S. trading partners, the value of the U.S. dollar has come down since peaking in January, but remains elevated compared to the past decade. The appreciation of the dollar is due to the U.S. economy leading other major economies in growth and a flight to safety due to ongoing global uncertainty. Global growth remains sluggish and many of our largest trading partners are hovering near recessionary territory. U.S. exports have declined in each of the past six quarters on an annual basis. In the second quarter of 2016, exports were down 6.1% year over year. The total value of U.S. exports is the lowest since 2010 on a seasonally adjusted basis. Declines were present in almost all sectors, although transportation equipment export growth was slightly positive at 0.4% on an annual basis.

Forecast

Our forecast is based on the September Blue Chip Consensus forecast

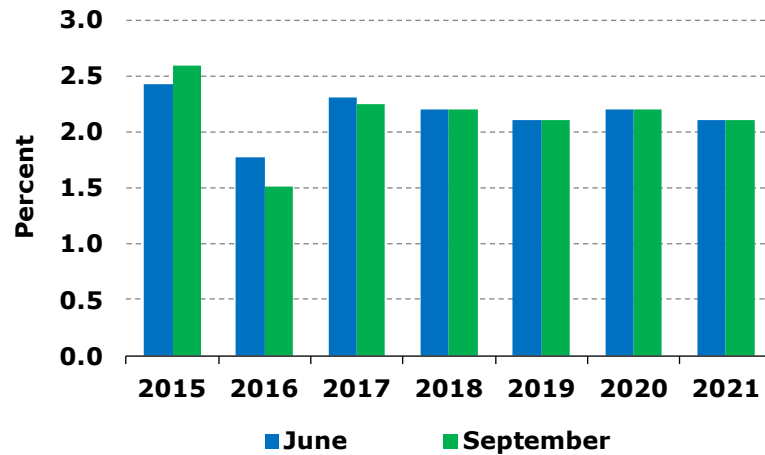
The economic forecast was based on a modified version of Global Insight's September 2016 Control forecast for the U.S. economy. Consistent with our standard practice, the U.S. real GDP forecast was adjusted to match the September Blue Chip Consensus GDP forecasts for 2016 and 2017. We also incorporated the latest long-term Blue Chip GDP forecast for 2018 through 2021. Our oil

price forecast was adjusted to incorporate futures prices for both Brent crude oil and for West Texas Intermediate crude.

Real GDP growth is lower

The economic outlook is slightly weaker since the June forecast. The Blue Chip Consensus GDP forecast, our starting point each forecast cycle, calls for real GDP growth of 1.5% in 2016, down from 1.8% in the June forecast. Real GDP growth is expected to be 2.2% in 2017, down slightly from the 2.3% growth expected in the previous forecast. We expect growth to moderate as the recovery matures. The forecast calls for growth to remain in the 2.1% to 2.2% range for 2018 through 2021, unchanged from the June forecast (see Figure 1.4).

Figure 1.4: Real GDP Growth



Source: BEA, September 2016 forecast; historical data through 2015

This recovery will be the longest on record

The positive GDP growth throughout the forecast will make the recovery from the 2007-09 recession the longest on record. From the second quarter of 2009 through the end of our forecast in 2021, the recovery is forecasted to be at least 150 months. Prior to this, the longest recovery was from the 1990-91 recession and lasted 120 months. The primary reason for the exceptional length of the current recovery was the depth of the recession. Despite positive GDP growth, the labor market remained weak for an extended period. It took 58 months of recovery just to reach the previous peak in employment. When comparing the duration of recoveries from the point at which the previous employment peak was reached, this expansion appears more in line with other long post-war expansionary periods. The two longest post-war expansions had 96 and 95 months of additional employment growth after reaching the previous peak. We expect growth to continue through the end of the forecast in 2021, which would result in 92 months of employment gains after reaching the previous peak.

Oil prices will remain low

The forecast for oil prices has been minimally lowered compared to the June forecast. The refiner acquisition price of crude oil increased to \$42 per barrel in the second quarter of this year from a trough of \$31 in the first quarter. The forecast expects the increase in oil prices to continue. We expect prices to reach \$46 per barrel by the first quarter of next year. In June, we had expected prices to initially rise more rapidly and reach \$50 at the beginning of 2017. By the end of 2021, oil prices are expected to reach \$55 per barrel. In June we expected prices to reach \$56 by the end of the forecast. While oil prices are expected to continue to rise, they will remain well below the levels seen earlier in the recovery. Low oil prices continue to affect U.S. oil production. Oil production was down another 193,000 barrels per day in June from the month before and down 619,000 barrels per day from a year ago. There are indications that the decline in output may be nearing an end. The Baker Hughes rig count hit a modern low of 404 at the end of May and has since climbed by 14. A year ago the rig count was at 641. Weak economic growth in China and Europe has lowered the demand for oil. The strong dollar has also kept downward pressure on oil prices recently. With oil prices declining, inflation (as measured by the implicit price deflator) was just 0.4% in 2015. While energy prices are low, they are no longer declining and pulling inflation down. We expect low to moderate inflation throughout the forecast. Inflation is expected to be 1.1% this year and then range from 1.6% to 2.0% per year from 2017 through 2021.

Spending growth will outperform overall GDP growth in the near term

Real consumer spending was stronger than expected in the second quarter of 2016, growing 4.4% (SAAR) compared to 2.6% (SAAR) expected in the previous forecast. We now expect real consumer spending to grow 2.7% this year compared to 2.5% in the June forecast. Low energy prices will continue to help consumers' purchasing power, although the impact so far has been low. Consumers remain more optimistic than earlier in the recovery. There are indications that wage growth is increasing. Unemployment continues to fall and more part-time workers are finding full-time jobs. We expect real spending growth to continue to slightly outpace overall real GDP growth next year. The forecast calls for real consumption growth of 2.6% in 2017 compared to 2.5% growth expected in June. Consumer spending growth is then expected to slow to 2.3% in 2018 and 2.2% in 2019 through 2021, unchanged since the June forecast. We expect consumer spending to contribute 1.8 percentage points to real GDP growth on average for each year of the forecast through 2021.

Personal income growth is expected to slow

Real disposable personal income growth is expected to slow in 2016 to 2.5% after growing 3.5% in each of the previous two years. The boost to real incomes from falling energy prices has ended. We expect growth to dip further to 2.2% in 2017. Growth is expected to remain moderate through 2019, averaging 2.6% per year. We then expect growth to slow in 2020 and 2021 to 2.3% per year. Nominal disposable income is expected to grow

3.7% this year, led by strong growth in fringe benefits of 4.3% and government transfer payments of 3.9%. Private sector wages and salaries are expected to grow 3.8%. Wage growth in the public sector will again lag, with growth of 2.8% in 2016. Total wages and salaries are expected to grow 3.6% this year after increasing 5.1% in 2015. The forecast then calls for growth in wages and salaries to average 4.0% in 2017 through 2021. Growth in government transfer payments is expected to increase throughout the forecast. We expect growth of 4.8% next year, and then average 5.2% in 2018 through 2021 as demographics shift to an older population and Medicare and Social Security payments increase. Income will also be boosted in the latter part of the forecast by rising interest income, as interest rates return to pre-recession levels, as well as by dividend income.

The outlook for employment is only minimally changed

The forecast for employment is only minimally changed since the June forecast. Growth in payrolls is expected to be 1.8% this year after growing 2.1% in 2015. The June forecast had expected 1.7% growth for 2016. We expect employment growth to slow to 1.2% in 2017, down from the 1.3% growth forecasted in June. The forecast then calls for job growth to average 0.7% through 2021 as the economy nears full employment. As a result of the steady job growth, we expect the unemployment rate to average 4.8% in 2016, down from 5.3% the year before. We expect the unemployment rate to average 4.7% for the rest of the forecast. The continued strengthening of the labor market and corresponding fall in the unemployment rate will create an incentive for more and more marginally attached workers to begin looking for a job. We expect the decline in the labor force participation rate to end, with a trough of 61.2% in 2015. The labor force participation rate will grow as the economy reaches full employment, reaching a peak of 61.7% in 2018 through 2020. Going forward, the participation rate will resume its long term secular decline, and trend down for the remainder of the forecast.

Private sector hiring will continue to outpace public sector hiring

Employment growth in nonfarm payrolls has been led by private sector hiring throughout the recovery as the public sector has been weighed down by budget concerns. While state and local governments have largely worked through their budgetary issues and have started hiring again, the pace of hiring has been slow. We expect the drag from weak government job growth to continue through 2017. Private sector employment is estimated to have reached 116.0 million in the first quarter of last year, making up all of the jobs lost during the recession. We do not expect the job losses in the public sector to be made up until the second quarter of 2020. Federal government employment will continue to trend downward throughout the forecast. This will be more than offset by modest gains in state and local government employment, keeping total government employment growth positive. The forecast calls for total government employment to increase another 0.6% this year after growing 0.6% in 2015. Growth in government payrolls is expected to be uneven through

2021, averaging just 0.5%. We expect private sector job growth of 2.0% this year, after growing 2.4% in 2015. The forecast calls for private sector job growth of 1.4% in 2017 and then an average growth of 0.8% through 2021.

Business investment will be slower this year

Real nonresidential fixed investment is expected to fall 0.1% this year, the first decline since the recovery began. The drop in oil prices, which is good for overall growth, lowers the incentive for additional investment by energy companies. The strong U.S. dollar has resulted in a drop in exports and brought the capital-intensive manufacturing sector to a standstill. The weak economic outlook abroad has also given businesses pause. On the plus side, service sector businesses are expanding and filling up office buildings. Vacancy rates for office buildings fell to 16.0% in the second quarter, down from 16.5% last year. While vacancy rates are declining, it hasn't been enough to spur on new construction. We expect real nonresidential construction to contract this year by 3.6%, after falling 4.4% in 2015. The slowdown is due to a decline in mining and petroleum structures caused by still low oil prices. The forecast calls for growth to be positive in 2017 at 5.8% as the drag of low oil prices diminishes. The forecast then calls for growth to average 2.4% per year through 2021. Real equipment investment is expected to decline 1.8% this year. Starting in 2017, we expect positive growth throughout the forecast as businesses expand and improve productivity. Although we do not expect to see the double-digit growth experienced early in the recovery, we do expect capital equipment to remain an important driver of GDP growth after this year. Real investment in equipment and software is expected to grow 1.9% next year. The forecast then calls for growth to average 4.6% through 2021. We expect overall real nonresidential fixed investment to grow 1.9% next year and accelerate to 4.6% in 2018 and 5.6% in 2019. We then expect growth to average 4.1% through 2021.

The housing recovery will continue

The forecast calls for growth in housing starts of 6.3% this year, reaching 1.178 million units. This would make 2016 the best full year of the recovery. Most of the barriers facing the housing sector have receded. Continued improvement in the housing market remains dependent on job growth and access to financing. There is still a considerable amount of pent-up demand for new housing. Household formation had been delayed by the depth of the recession and initial slow recovery. The forecast expects the robust growth in housing starts to continue in 2017 at 14.3%. Growth in single-family starts is expected to be 9.2% this year, down from 10.2% in 2015. Growth will accelerate to 19.8% in 2017 before moderating through the remainder of the forecast. The forecast calls for growth of just 0.9% in the multi-family housing segment this year after growing at double-digit rates in each of the past five years. We then expect multi-family housing unit growth to average 6.1% through 2021. The forecast calls for total housing starts to

continue to grow throughout the forecast and reach 1.656 million in 2021, still 20% below the peak in 2005.

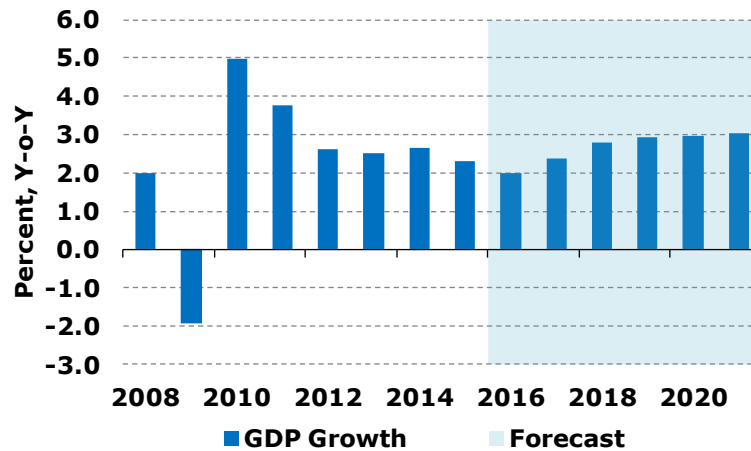
Weak foreign demand has weighed down export growth

Economic growth of major foreign economies remains weak. The Canadian economy shrank 1.6% on an annual basis in the second quarter. Canadian GDP is likely to remain constrained due to low oil and other commodity prices. The latest Blue Chip forecast expects growth of just 1.3% this year in Canada followed by 2.0% growth in 2017. The Mexican economy has been hurt by low oil prices which have taken an enormous toll on government revenues. The country has also been restrained by tight fiscal and monetary policy. GDP growth is expected to slow to 2.2% this year from 2.5% in 2015. The recovery in the Eurozone is again faltering with real GDP increasing 0.3% in the second quarter compared to the previous quarter. The latest Blue Chip forecast calls for 1.5% growth this year for the Eurozone followed by 1.3% growth in 2017. China, which is the largest U.S. export market outside of North America, continues to slow. Export demand for Chinese goods has weakened and the Chinese have had difficulty transitioning to a more domestic consumer driven economy. Chinese GDP growth in 2015 was 6.9%, well below the 2005-11 average of 11%. The most recent Blue Chip forecast calls for Chinese growth to slow further, with growth of 6.5% this year and 6.2% in 2017. Japan continues to struggle to grow, expanding 0.7% (SAAR) in the second quarter. The most recent Blue Chip forecast expects slow growth in the near term of 0.5% this year followed by 0.8% in 2017.

Foreign trade is not likely to provide a boost to the U.S. economy

Due to the modest economic growth of U.S. trading partners and strong dollar, foreign trade is not likely to provide a substantial boost to the U.S. economy. Since the June forecast, the outlook for foreign economic growth has deteriorated. GDP growth in U.S. trading partners is the weakest since the recession (see Figure 1.5). After growing 2.2% in 2015, the forecast calls for GDP growth in U.S. trading partners to grow 2.0% this year. The forecast then calls for GDP growth in U.S. trading partners to grow 2.4% in 2017 before averaging 2.9% growth through 2021. We expect real U.S. exports to decline 0.3% this year due both to weak economic growth abroad and a strong U.S. dollar. The forecast calls for real export growth to improve and average 1.3% through 2021. Export growth is more than offset by increased imports in the forecast. Net exports are expected to reduce GDP growth by 0.3 percentage points on average through 2021.

Figure 1.5: Real GDP Growth of Important U.S. Trading Partners



Source: NBER, ERFC September 2015 forecast; historical data through August 2015

Fiscal policy uncertainty remains low in the near term

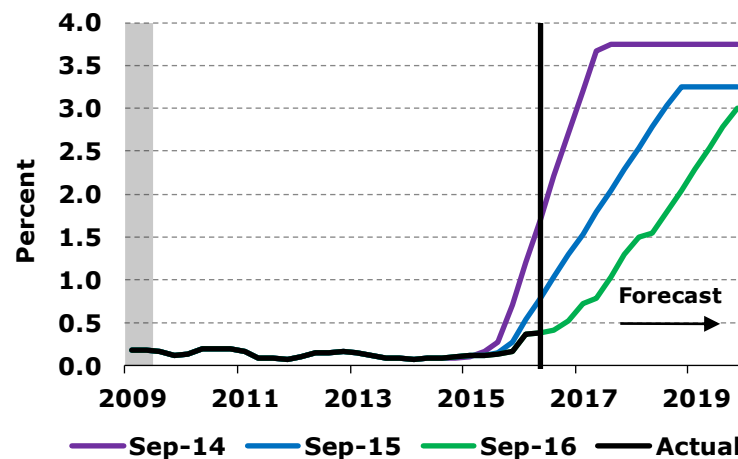
Near term uncertainty surrounding fiscal policy remains low without any real push for dramatic deficit reduction or significant spending increases. Congress must pass a continuing resolution next month to continue uninterrupted government operations. This will likely occur and the risk of another government shutdown is low. Neither party wants to be the cause of a shutdown right before the November elections. The federal budget deficit has shrunk each year after peaking at \$1,329 billion in 2010. The forecast calls for 2015 to be the trough in the deficit at \$570 billion. We believe the cuts in real defense spending that started in 2011 will continue throughout the forecast. The forecast calls for real defense spending to decline 0.5% this year and then average a 0.3% decline through 2021. Real nondefense purchases are expected to grow the next two years before declining slowly through 2021. Combined federal government spending will peak in 2017 then decline slowly throughout the forecast. State and local governments, having worked through the majority of their budget difficulties, will more than offset the decline in spending at the federal level. The forecast assumes 2014 was the trough in total real government purchases. We expect total real government spending to grow 1.1% this year and 0.9% 2017. We then expect growth to average 0.1% per year from 2018 through 2021.

The Fed has delayed raising rates

The Federal Reserve is gradually tightening monetary policy after years of measures aimed at supporting the economy. Recent weakness in the economy has caused the Federal Reserve to keep this process slow. We are now assuming the Federal Reserve will raise the Federal funds rate only once this year, in December. The forecast of the Federal Funds rate has been revised over the past couple of years consistently showing a

delay in the timing and speed of rate increases (see Figure 1.6). Recent data point to a possible weakness in the labor market that is giving policymakers pause. The Fed’s preferred measure of inflation remains below its target rate of 2% but has been slowly trending upward. Federal Reserve policymakers remain data driven, and there are a number of risks that could delay the rise in rates. They have avoided committing to any particular timing or pace of rate increases in order to maintain as much flexibility as possible. At their most recent meeting, Federal Reserve Chair Janet Yellen said the case to raise interest rates is getting stronger. While the forecast assumes inflation will be low, it is still anticipated that the Fed will be comfortable raising rates. We expect rates to rise gradually before leveling off in the fourth quarter of 2019.

Figure 1.6: Federal Funds Rate



Source: Federal Reserve, ERFC September 2016 forecast; historical data through 2016Q2

Table 1.1 provides a fiscal year summary of the U.S. economic indicators. For calendar year tables, see the appendix.

Risks to the Forecast

Downside risks outweigh upside risks

Our view of the risks to the forecast is unchanged since the June forecast. The recovery is forecasted to be the longest on record, creating some concern. The outlook for Chinese economic growth continues to be revised down and other U.S. trading partners continue to have weak or negative growth. The level of uncertainty in the baseline remains elevated, and downside risks once again outweigh upside risks.

Downside Risks

- Chinese economy experiences a “hard landing” (annual growth under 5%); growth is weaker in emerging market economies
- Weaker than expected employment growth
- Real wage growth stagnates, leading to slower consumer spending
- Slower household formation
- Breakdown in Greek debt, budget negotiations leads to default and exit from Eurozone
- Slowdown in economic growth and negative effects to financial markets due to Brexit
- Increasing geopolitical tensions negatively impact consumer confidence
- U.S. dollar appreciates further against other currencies, limiting exports
- Weak global growth persists, further impacting exports

Upside Risks

- The housing sector improves faster than anticipated
- Oil prices decline further than expected
- Labor productivity returns to the higher levels seen in 1995-2005
- Employment growth expands faster than in the baseline
- China successfully transitions to a more consumption based economy
- European and emerging market economies grow faster than expected
- Decline in U.S. dollar continues, making U.S. exports cheaper abroad

Table 1.1
U.S. Economic Forecast Summary
 Forecast 2017 to 2021

Fiscal Years

	2014	2015	2016	2017	2018	2019	2020	2021
Real National Income Accounts (Billions of Chained 2009 Dollars)								
Real Gross Domestic Product	15,770.8	16,231.1	16,510.2	16,836.8	17,207.4	17,571.5	17,954.4	18,340.5
% Ch	2.1	2.9	1.7	2.0	2.2	2.1	2.2	2.2
Real Consumption	10,690.4	11,058.2	11,357.0	11,674.3	11,945.2	12,215.4	12,480.8	12,757.0
% Ch	2.0	3.4	2.7	2.8	2.3	2.3	2.2	2.2
Real Nonresidential Fixed Investment	2,090.3	2,188.0	2,192.7	2,235.3	2,305.2	2,400.9	2,511.0	2,609.9
% Ch	4.9	4.7	0.2	1.9	3.1	4.2	4.6	3.9
Real Residential Fixed Investment	495.1	531.0	588.2	601.8	650.2	672.5	691.8	706.7
% Ch	6.3	7.2	10.8	2.3	8.0	3.4	2.9	2.1
Real Personal Income	13,282.5	13,862.8	14,287.0	14,589.6	14,964.9	15,378.2	15,805.1	16,211.8
% Ch	1.2	4.4	3.1	2.1	2.6	2.8	2.8	2.6
Real Per Capita Income (\$/Person)	41,728	43,226	44,198	44,776	45,560	46,447	47,361	48,202
% Ch	0.4	3.6	2.2	1.3	1.8	1.9	2.0	1.8
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.084	1.093	1.100	1.117	1.136	1.156	1.177	1.200
% Ch	1.4	0.9	0.7	1.6	1.6	1.7	1.9	2.0
U.S. Consumer Price Index (1982-84=1.0)	2.350	2.367	2.383	2.432	2.484	2.535	2.591	2.651
% Ch	1.6	0.7	0.7	2.1	2.1	2.1	2.2	2.3
Employment Cost Index (Dec. 2005=1.0)	1.193	1.221	1.248	1.282	1.321	1.362	1.406	1.452
% Ch	1.9	2.3	2.2	2.8	3.0	3.1	3.2	3.3
Current Dollar National Income (Billions of Dollars)								
Gross Domestic Product	17,015.0	17,760.9	18,270.7	18,991.9	19,804.6	20,618.3	21,492.9	22,397.3
% Ch	3.8	4.4	2.9	3.9	4.3	4.1	4.2	4.2
Personal Income	14,394.7	15,155.4	15,721.6	16,303.9	16,998.1	17,770.3	18,603.5	19,455.0
% Ch	2.6	5.3	3.7	3.7	4.3	4.5	4.7	4.6
Employment (Millions)								
U.S. Civilian Labor Force	155.5	156.6	158.0	160.2	162.2	163.9	165.5	166.8
Total U.S. Employment	145.0	147.7	150.1	152.6	154.5	156.2	157.7	158.7
Unemployment Rate (%)	6.77	5.70	4.99	4.73	4.65	4.63	4.67	4.74
Nonfarm Payroll Employment	137.56	140.43	143.13	145.42	146.70	147.82	148.95	149.94
% Ch	1.7	2.1	1.9	1.6	0.9	0.8	0.8	0.7
Manufacturing	12.09	12.28	12.31	12.32	12.35	12.45	12.61	12.73
% Ch	0.9	1.6	0.3	0.1	0.3	0.8	1.3	0.9
Durable Manufacturing	7.60	7.74	7.73	7.70	7.74	7.82	7.97	8.10
% Ch	1.1	1.9	-0.2	-0.3	0.5	1.0	2.0	1.6
Nondurable Manufacturing	4.49	4.54	4.58	4.62	4.61	4.63	4.64	4.63
% Ch	0.5	1.0	1.1	0.7	-0.2	0.4	0.3	-0.2
Construction	5.99	6.31	6.57	6.74	6.97	7.19	7.38	7.55
% Ch	4.4	5.4	4.1	2.7	3.4	3.2	2.6	2.3
Service-Providing	118.61	120.97	123.51	125.68	126.66	127.44	128.21	128.90
% Ch	1.7	2.0	2.1	1.8	0.8	0.6	0.6	0.5
Miscellaneous Indicators								
Oil-WTI (\$ per barrel)	101.3	69.3	41.7	47.3	51.1	52.8	54.0	55.0
Personal Saving/Disposable Income (%)	5.3	5.6	5.9	5.5	5.5	5.9	6.2	6.2
Auto Sales (Millions)	7.6	7.7	7.2	7.1	7.1	7.1	7.2	7.2
% Ch	2.3	0.8	-5.6	-2.3	0.2	0.7	1.3	0.4
Housing Starts (Millions)	0.955	1.055	1.150	1.248	1.433	1.530	1.618	1.652
% Ch	8.9	10.5	8.9	8.5	14.8	6.8	5.7	2.2
Federal Budget Surplus (Billions)	-612.0	-592.4	-625.3	-676.4	-717.6	-808.0	-808.0	-797.4
Net Exports (Billions)	-489.5	-513.7	-511.8	-492.4	-498.7	-502.0	-504.1	-496.3
3-Month Treasury Bill Rate (%)	0.04	0.02	0.18	0.53	1.22	2.04	2.76	2.81
10-Year Treasury Note Yield (%)	2.71	2.23	2.02	1.91	2.61	3.18	3.69	3.70
Bond Index of 20 G.O. Munis. (%)	4.55	3.83	3.51	3.15	4.11	4.82	5.21	5.21
30-Year Fixed Mortgage Rate (%)	4.33	3.92	3.80	3.73	4.52	5.18	5.76	5.78

Table 1.2
Forecast Analysis
 Comparison of Forecasts for 2015-17

U.S.	Average Annual Rate of Growth (Percent) 2015:2-2017:2		Average Rate (Percent) 2015:3 to 2017:2	
	Real GDP	Implicit Price Deflator	3 Month T-Bill Rate	Mortgage Rate
2012				
September	2.9	1.9	2.17	5.92
November	2.9	1.6	2.56	6.08
2013				
March	2.9	1.6	1.71	5.68
June	2.8	1.5	1.98	5.63
September	2.9	1.5	2.13	5.66
November	2.7	1.5	2.12	5.67
2014				
February	2.7	1.3	2.13	5.75
June	2.8	1.4	2.13	5.78
September	2.8	1.5	1.96	5.59
November	2.8	1.6	1.72	5.48
2015				
February	2.8	1.7	1.69	5.19
June	2.8	1.7	1.29	4.73
September	2.7	1.5	0.84	4.38
November	2.5	1.6	0.82	4.35
2016				
February	2.2	1.1	0.56	4.09
June	2.0	1.5	0.43	3.91
September	1.8	1.4	0.36	3.76

Table 1.3

Forecast Analysis

Comparison of Forecasts for 2017-19

U.S.	Average Annual Rate of Growth (Percent) 2017:2-2019:2		Average Rate (Percent) 2017:3 to 2019:2	
	Real GDP	Implicit Price Deflator	3 Month T-Bill Rate	Mortgage Rate
2014				
February	2.6	1.3	3.72	6.57
June	2.6	1.5	3.73	6.63
September	2.6	1.6	3.51	6.15
November	2.5	1.9	3.53	6.14
2015				
February	2.5	1.8	3.53	5.71
June	2.5	1.8	3.48	5.75
September	2.5	1.8	2.66	5.16
November	2.3	1.8	2.67	5.23
2016				
February	2.3	1.8	2.28	5.02
June	2.1	1.9	2.09	4.97
September	2.1	1.7	1.63	4.85

Table 1.4

Fiscal Years

Forecast Comparison

Forecast 2016 to 2021

	2015	2016	2017	2018	2019	2020	2021
U.S.							
Real GDP							
September Baseline	16231.1	16510.2	16836.8	17207.4	17571.5	17954.4	18340.5
% Ch	2.9	1.7	2.0	2.2	2.1	2.2	2.2
June Baseline	16182.8	16494.4	16832.2	17209.5	17575.9	17956.6	18343.7
% Ch	2.7	1.9	2.0	2.2	2.1	2.2	2.2
Implicit Price Deflator							
September Baseline	1.093	1.100	1.117	1.136	1.156	1.177	1.200
% Ch	0.9	0.7	1.6	1.6	1.7	1.9	2.0
June Baseline	1.092	1.100	1.118	1.139	1.160	1.183	1.205
% Ch	0.8	0.7	1.7	1.8	1.9	1.9	1.9
Unemployment Rate							
September Baseline	5.70	4.99	4.73	4.65	4.63	4.67	4.74
June Baseline	5.70	4.96	4.63	4.52	4.52	4.59	4.66
Mortgage Rate							
September Baseline	3.92	3.80	3.73	4.52	5.18	5.76	5.78
June Baseline	3.92	3.80	4.02	4.49	5.45	5.69	5.65
3 Month T-Bill Rate							
September Baseline	0.02	0.18	0.53	1.22	2.04	2.76	2.81
June Baseline	0.02	0.19	0.67	1.62	2.55	2.81	2.81

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Chapter 2: Washington Economy – Current Conditions and Forecast

- **The forecasts for Washington employment and income are higher than in the June forecast.**
- **Recent Washington employment and income growth have also been stronger than expected in June and historical estimates for both were revised higher.**
- **Washington exports continue to decline and manufacturing continues to struggle.**
- **Seattle home prices are rising rapidly but new home construction has slowed.**
- **Seattle area consumer price inflation is above the national average due to higher shelter cost inflation.**
- **As in June, we expect the Washington economy to continue to outperform the U.S. economy.**

Current Conditions

The Washington economy is expanding at a solid pace

The Washington economy is expanding at a solid pace. In recent months, Washington employment has grown faster than expected in the June forecast and historical estimates were revised higher. Washington exports continue to decline and manufacturing activity is struggling. Home prices are rising rapidly in the Seattle area but home construction has weakened in recent months. Seattle area consumer price inflation is well above the national average due to shelter cost inflation.

Employment growth has been stronger than expected

We have three months of new Washington employment data since the June forecast was released. Total nonfarm payroll employment rose 15,300 (seasonally adjusted) in June, July, and August which was 7,800 more than the 7,500 expected in the June forecast. The manufacturing sector accounted for much of the variance in job growth with a reduction of only 1,400 jobs in the three-month period; the June forecast expected a reduction of 3,900 jobs. The reason was mostly the aerospace industry, which was expected to lose 3,900 jobs but instead lost only 1,500 jobs. Construction employment increased 1,300 and

government payrolls expanded by 3,200 jobs. As is usually the case, the bulk of the job growth was in private, service-providing sectors which added 12,200 jobs in the last three months.

Historical employment estimates were revised higher

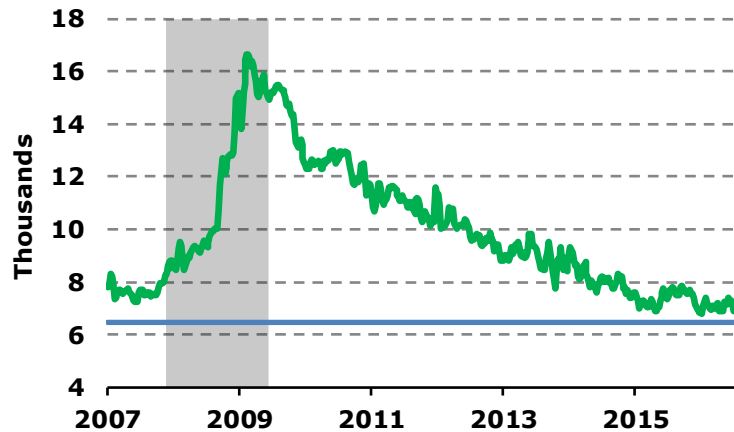
We have also incorporated another quarter of benchmark employment data from the Quarterly Census of Employment and Wages (QCEW). The new QCEW data and other revisions raised the estimated level of total employment in May 2016 by 14,900 jobs. As a result of the upward revision to history and stronger-than-expected growth, the total effect is 22,600 (0.7%) more jobs in August 2016 than expected in the June forecast.

Washington UI claims reached a new post-recession low

Washington initial claims for unemployment insurance reached a new post-recession low in the most recent four-week period. The four-week moving average of seasonally adjusted claims decreased to 6,500 in the week ending October 1st from 7,000 in the previous week. The current level of claims is not only a new post-recession low, but is also below the minimum level reached during the last expansion (see Figure 2.1). Claims have fallen 61% since the peak in early 2009.

The current level of claims is below the minimum level reached during the last expansion

Figure 2.1: Initial Claims for Unemployment Insurance



Source: Washington State Employment Security Department; data through October 1, 2016

Average hourly earnings growth has slowed

Recent average weekly earnings growth for Washington private sector employees has declined due to slower average hourly earnings growth. Private sector average weekly hours in the twelve months ending in August 2016 were up 0.5% over the twelve-month period ending in August 2015. In the previous twelve-month period, average weekly hours were unchanged over the year. However, average hourly earnings were up 3.2% in the most recent twelve-month period. One year ago average hourly earnings increased 4.0%. As a result of the decline in average hourly earnings growth, and despite the improvement in average weekly hours growth, average weekly earnings growth declined to 3.7% from 3.9% a year ago.

Exports are down on a strong dollar and weak global growth

Second quarter 2016 Washington exports were down 8.3% from the second quarter of 2015. Transportation equipment exports (mostly Boeing planes) declined 9.5% over the year. Exports of agricultural products increased 3.8% over the year but exports of all other commodities declined 9.1% over the year. The drop likely reflects the negative influence of a stronger dollar and weak economic growth abroad.

Washington housing permits were strong in the second quarter but the third quarter looks weak so far

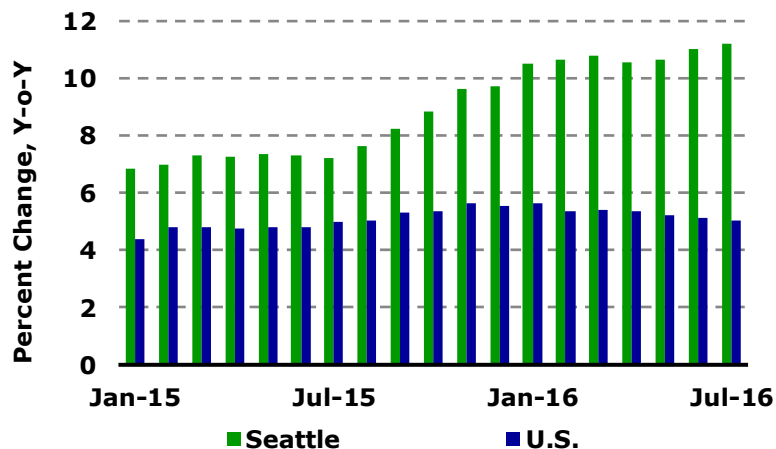
Washington housing construction was stronger than expected in the second quarter. Washington housing units authorized by building permits averaged 45,300 units (SAAR) in the second quarter of 2016, up from 37,600 in the first quarter. The June forecast expected an average rate of 42,600 units in the second quarter. Multi-family permits averaged 22,700 units in the second quarter, up from 15,300 units in the first quarter and higher than the 20,100 expected in the June forecast. Single-family permits averaged 22,600 units in second quarter, up from 22,300 units in the first quarter and slightly higher than the 22,500 units forecasted for the second quarter. The third quarter of 2016 got off to a weak start with an average of 34,400 units (SAAR) permitted in July and August of which 21,000 were single family and 13,500 were multi-family.

Seattle area home prices are up 11.2% over the year

Seattle home prices continue to rise rapidly. According to the S&P/Case-Shiller Home Price Indices, seasonally adjusted Seattle area home prices rose 0.3% in July following increases of 0.4%, 0.2%, and 0.5% in April, May, and June. While the last four months have exhibited weaker growth than in earlier months, we believe this is due to problems with the seasonal adjustment process. A more reliable measure is the over-the-year growth which shows an 11.2% increase in prices since the previous July which is more the double the 5.1% increase in the Composite-20 index (see Figure 2.2). Seattle home prices are up 50.5% since

Figure 2.2: Home Price Appreciation

Seattle area home prices are soaring



Source: S&P/Case-Shiller; data through July 2016

the November 2011 trough and prices now exceed the May 2007 peak by 4.6%.

Manufacturing is struggling

The Institute of Supply Management - Western Washington Index (ISM-WW) edged back into positive territory in September after a negative reading in August. The index, which measures conditions in the manufacturing sector, increased from 47.7 in August to 51.4 in September (index values above 50 indicate positive growth while values below 50 indicate contraction). The production, orders, employment, and deliveries components all increased in September while the inventory component declined. Manufacturing has fluctuated around the 50 mark since mid-2015.

Washington car and truck sales rebounded in September

Washington car and truck sales rebounded in September but remain below the post-recession peak. Seasonally adjusted new vehicle registrations rose 3.9% in September following declines of 0.9% in July and 0.3% in August. Car and truck sales are down 7.6% since the post-recession peak in January but are up 3.5% over the year.

Washington personal income growth was severely understated in second quarter of 2016

In September, the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) released state personal income estimates for the second quarter of 2016. According to these estimates, Washington personal income rose to \$388.0 billion (SAAR) in the second quarter of 2016 from \$383.9 billion in the first quarter. The reported 4.4% growth rate (SAAR) in Washington personal income was the 19th largest among the states and District of Columbia and only slightly exceeded the 4.1% growth rate for the U.S. as a whole. However, the reported second quarter earnings growth was severely distorted by a change in the way Microsoft stock awards vest during the year. The result of the change is higher reported earnings growth in each fourth and first quarter and lower reported earnings growth in each second and third quarter. Excluding earnings from the information sector, Washington personal income grew at a 6.0% rate in the second quarter which puts it 1st among the states and District of Columbia and well above the national average rate of 4.0%.

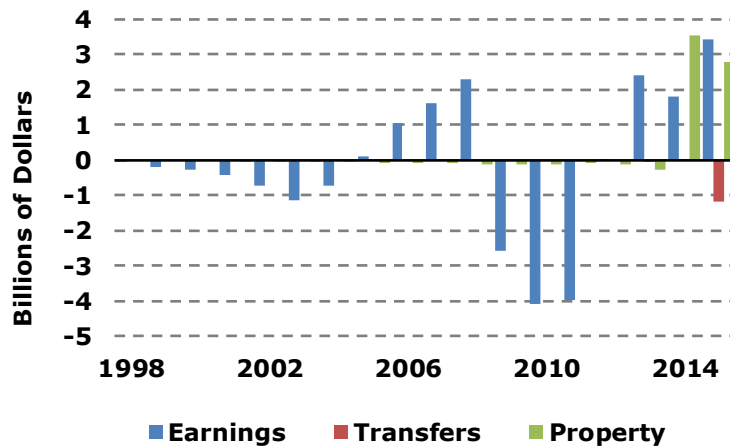
Historical Washington personal income was revised higher

The September personal income release also incorporated the impact of the annual revision to the national income and product accounts. The revisions covered the period from 1998 through the first quarter of 2016. The estimate for 2015 personal income was revised up \$5.029 billion (1.4%) compared to the June BEA release. Increases of \$3.416 billion and \$2.777 billion in the estimates for earnings by place of residence and property income (dividends, interest, and rent) were partially offset by a \$1.164 billion reduction in the estimate for transfer payments (see Figure 2.3). The upward revision to earnings is nearly entirely due to new estimates for proprietors' income while the downward

revision to transfer payments is more than accounted for by a lower estimate for Medicaid payments.

The September personal income release incorporated the impact of the annual revision to the national income and product accounts

Figure 2.3: Washington Personal Income Revision



Source: Bureau of Economic Analysis; data through 2015

Seattle area consumer price inflation is well above the national average

Seattle area consumer price inflation is well above the national average. Over the last year, from August 2015 to August 2016, consumer prices in the Seattle area rose 2.1% compared to 1.1% for the U.S. city average. Lower energy costs this year are helping to keep the headline rate down both nationally and in the Seattle area. Core prices, which exclude food and energy, were up 3.3% in Seattle compared to 2.3% for the nation. The higher Seattle inflation is due to more rapid growth in shelter costs. During the year, shelter costs in Seattle rose 6.1% compared to 3.4% for the nation. With shelter excluded, Seattle inflation was the same as the U.S. city average at 0.0% over the year.

Washington State Forecast

The new national forecast is very similar to the forecast adopted in June

The September Washington State forecast is based on a new national forecast that is very similar to the forecast adopted in June. The new national forecast reflects the impact of the annual revision to the national income and product accounts (NIPA) which raised the level of real GDP in 2015 by 0.3%. However, the forecast for this year's growth was revised down from 1.8% to 1.5% with the result that the level of GDP in 2016 is virtually unchanged. Similarly, the NIPA revision also raised the level of real personal income in 2015 by 0.6% but the forecast for growth in 2016 was revised down from 2.7% to 2.2%, almost exactly offsetting the historical revision. Real personal income does grow slightly faster from 2017 through 2021 than expected in June due to a slightly lower inflation forecast. The new forecast for GDP growth in 2017 through 2021 is also virtually unchanged since June. Real personal income ends up 0.3% higher in 2021 than expected in the June forecast but the implicit price deflator for

personal consumption expenditures is 0.4% lower. As a result, nominal personal income ends up just 0.1% lower in 2021. The employment forecast is also essentially unchanged since the June forecast. These relatively minor revisions in the national forecast feed through to the state economic forecast.

The forecasts for Washington employment and income are higher than in the June forecast

Overall, our forecast for Washington State is stronger than we expected in June mainly as a result of higher employment and income. Washington employment growth in 2015 was 2.8% which was the highest rate since 2006. Washington employment is expected to grow 2.8% this year as well, better than the 2.4% growth rate in the June forecast. We expect employment growth to average 1.3% per year in 2017 through 2021, which is the same rate assumed in June. Our forecast for nominal personal income growth this year is 4.8%, up sharply from 4.1% in the June forecast. Our new forecast for nominal personal income growth in 2017 through 2021 averages 4.9% per year, down slightly from the June forecast of 5.0%. We expect total housing units authorized by building permits to rise 1.5% this year to 41,000 units which is close to the 40,600 units in the June forecast. We expect permits to average 43,800 during the remainder of the forecast, which is also very close to the 43,900 expected in June. The forecast for Seattle area inflation is also very similar to the June forecast. We expect the all-items Seattle CPI to rise 2.3% this year compared to 2.2% in the June forecast. As in June, we expect Seattle area inflation to average 2.3% per year in 2017 through 2021.

Washington Payroll Employment

Washington employment growth will slow

Washington employment growth in 2015 was 2.8% which was the highest rate since 2006. Washington employment is expected to grow 2.8% this year as well, better than the 2.4% growth rate in the June forecast. The higher projected growth this year is based on revisions to historical growth and stronger actual employment growth through August 2016. We expect the employment growth rate to slow in the coming years as the economy approaches full employment. Employment growth will also be constrained by baby boomers leaving the work force, further reducing labor force growth. We expect 1.6% employment growth in 2017, 1.4% growth in 2018, 1.3% in 2019, 1.2% growth in 2020, and 1.0% growth in 2021. We expect employment growth to average 1.3% per year in 2017 through 2021 which is the same rate assumed in June.

Boeing announced employment reductions for mid-2016

Aerospace employment has been gradually declining since a cyclical peak in 2013. In June we incorporated Boeing's stated intention to reduce its commercial airplane division employment by 4,000 by the middle of the year which we assumed would be by July. The actual decline, as of August, was still much smaller than this announcement implied. In the September forecast we have retained the overall decline implied by the announcement

but have spread it over the remaining four months of 2016. In 2017 through 2019 we expect a more gradual decline in aerospace employment similar to the assumption made in June. We project no change in aerospace employment in the final two years of the forecast. On an annual average basis we expect aerospace employment to decline 4.1% in 2016, 6.3% in 2017, 2.2% in 2018, 2.0% in 2019, and 0.8% in 2020 with no change in 2021.

The software employment forecast is higher

Software employment grew only 0.7% in 2015 after absorbing a series of Microsoft layoffs during the latter part of 2014. We expect growth to rebound to 5.7% in 2016 on data revisions and strong monthly hiring through August 2016. We expect more moderate growth through the remainder of the forecast. Software employment is expected to grow 2.4% in 2017, 0.8% in 2018, 1.0% in 2019 and 2020, and 1.1% in 2021.

Nonresidential construction is expected to slow

Construction employment growth surged in the first quarter of 2016 but has slowed down in recent months. Our forecast for growth in 2016 is now 5.7%, up slightly from the 5.6% rate expected in the June forecast. We expect much slower growth next year, particularly in nonresidential construction. Construction employment is expected to slow to 1.6% in 2017 before picking up to 4.3% in 2018, 2.7% in 2019, 1.5% in 2020, and 1.1% in 2021. Even after ten years of growth, construction employment will still be 4,700 below its previous peak at the end of 2021.

Retail trade employment is benefitting from strong growth in electronic shopping

Washington retail trade employment growth has been much stronger than the national average during the last four years thanks largely to our outsized and rapidly growing electronic shopping sector. Retail trade employment grew at an average rate of 3.2% per year between 2011 and 2015 compared to 1.6% for the U.S. as a whole. Without the electronic shopping sector, which added an estimated 17,600 jobs in the four-year period, Washington retail trade employment would have grown at a 2.0% average annual rate. Even in Washington, retail employment growth is expected to slow due to technology and slower overall economic growth. Retail trade employment growth is expected to slow to 3.2% this year, 1.9% in 2017, 0.5% per year in 2018 and 2019, and 0.1% per year in 2020 and 2021.

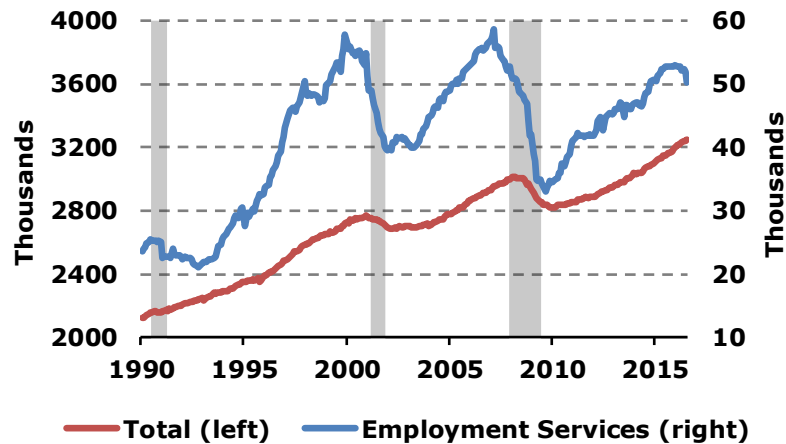
Employment services is a leading indicator

Early in recoveries, employment services, which is mainly temporary help services, tends to grow rapidly. As businesses gauge whether the increase in demand will continue, they typically hire temporary staff before they hire permanent employees. The converse is true late in expansions. It is less expensive to reduce temporary help than permanent employees and employers may be reluctant to cut back until they are sure the decline in demand is permanent. Employment services employment may have peaked for this cycle. Employment services employment reached 52,900 in January 2016 but

declined 2,600 by August (see Figure 2.4). It should be noted that most of the decline is in recent months and is subject to revision, but this is an indicator to watch.

Figure 2.4: Employment Services Employment

Employment services employment may have peaked



Source: Washington State Employment Security, ERFC; data through August 2016

Washington Personal Income

Washington personal income is currently higher than believed in June

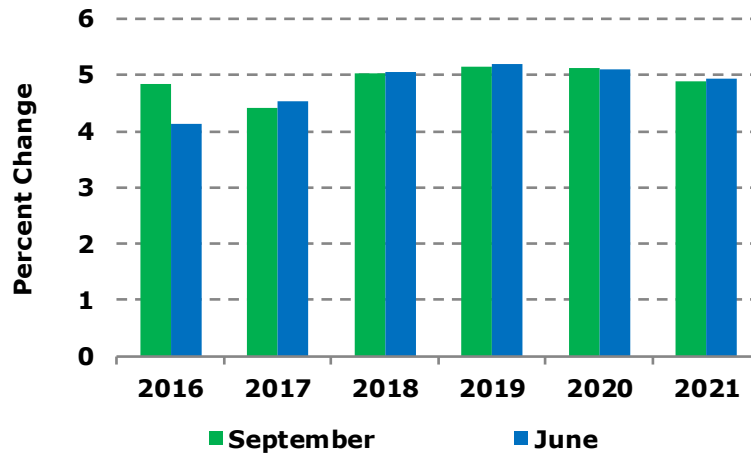
In June, the Bureau of Economic Analysis released estimates for state personal income through the first quarter of 2016. We have incorporated the new BEA estimates as well as additional Washington Quarterly Census of Employment and Wages (QCEW) and other wage data also through the first quarter. Our current estimate of Washington personal income in the first quarter of 2016 is \$380.6 billion, which is \$3.5 billion (0.9%) higher than assumed in the June forecast. Wages and salaries were \$4.5 billion higher than believed in June but other sources of personal income were \$1.0 billion lower.

Our forecast for nominal personal income growth in 2016 is up sharply

Our forecast for nominal personal income growth this year is 4.8%, up sharply from 4.1% in the June forecast (see Figure 2.5). The higher growth this year is mainly due to the QCEW data for the first quarter which indicates that wages are higher than previously believed. Our new forecast for nominal personal income growth in 2017 through 2021 averages 4.9% per year, down slightly from the June forecast of 5.0%. On an annual basis, we expect personal income to grow 4.4% in 2017, 5.0% in 2018, 5.2% in 2019, 5.1% in 2020, and 4.9% in 2021.

After 2016, income growth is slightly lower than expected in June

Figure 2.5: Washington Personal Income Forecast



Source: Bureau of Economic Analysis; historical data through 2015

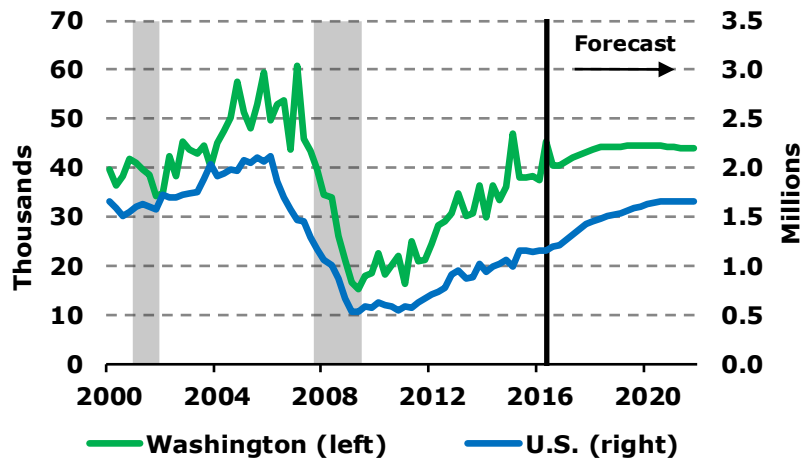
Washington Building Permits

We expect single-family construction to continue to strengthen

Multi-family housing recovered from a low of only 4,000 units in 2009 to 20,600 in 2015. We believe 2015 was the peak in multi-family construction in this cycle and that permits will decline to 15,500 by 2021. The recovery in single-family construction has been less robust, from 13,000 units in 2009 to 19,800 in 2015. We expect single-family construction to continue to strengthen with the number of units rising to 22,600 this year and 28,500 by 2021. Unlike the national housing construction, overall Washington housing construction has largely recovered since the recession (see Figure 2.6). We expect total housing units authorized by building permits to rise 1.5% this year to 41,000 units, 3.1% to 42,300 units in 2017, 4.4% to 44,100 units in

Washington housing construction has largely recovered since the recession

Figure 2.6: Housing Construction Comparison



Source: Census Bureau, ERFC; historical data through 2016Q2

2018, and 0.7% to 44,400 units in 2019. We expect no change in total permits in 2020 and a 0.9% decline to 44,000 in 2021.

Seattle Consumer Price Index

The outlook for Seattle area inflation is essentially the same as in June

The outlook for Seattle area inflation is essentially the same as in June. While energy costs have risen since earlier this year, they are still down compared to last year. While the over-the-year decline in energy costs will reduce inflation in 2016, rising energy costs will add to inflation in 2017 through 2021. We expect the Seattle CPI to rise 2.3% this year, 2.5% in 2017, 2.1% in 2018, 2.2% in 2019, 2.3% in 2020, and 2.4% in 2021.

Rents are driving Seattle core inflation higher

Core inflation (excluding food and energy) in Seattle was 2.6% in 2015 while national core inflation was 1.8%. The reason for the difference was shelter costs which were rising much faster in Seattle. Recent data show that shelter costs continue to rise much faster in Seattle than in the U.S. city average. Inflation data so far this year indicate core inflation will rise this year to 2.2% nationally and 3.0% in the Seattle area. We expect core inflation in Seattle will moderate as shelter costs stabilize. Our forecast for core Seattle inflation is 2.4% in 2017, 2.0% in 2018, 2.1% in 2019, 2.2% in 2020, and 2.3% in 2021.

Table 2.1 provides a fiscal year summary of the state economic indicators. For calendar year tables, see the appendix.

Alternative Scenarios

Alternative forecasts are prepared in accordance with state law

In accordance with state law, the Washington State Economic and Revenue Forecast Council adopted a forecast based on optimistic assumptions and a forecast based on pessimistic assumptions.

Optimistic

The optimistic scenario features a pickup in productivity growth, an increase in household formation, and stronger global growth

In the optimistic scenario, real GDP grows faster than the baseline throughout the forecast period as an explosion of new technologies encourages more investment, leading to stronger productivity growth. With higher business investment increasing productivity, wage gains accelerate. A tightening labor market gives wages an extra boost, however, causing inflation to pick up. With a stronger outlook, both consumer and business confidence improve, and the stock market sees strong gains. Thanks to healthy income gains and increased household formation, consumer spending and housing continue to fuel growth. Housing starts climb rapidly and real consumer spending growth accelerates. Meanwhile, economic conditions in the rest of the world begin to improve with the help of structural reforms implemented by some struggling economies and the European Central Bank's quantitative easing.

The optimistic scenario also assumes a much stronger Washington economy

In addition to reflecting the impact of the stronger U.S. forecast on the state economy, the optimistic Washington forecast assumes that aerospace employment flattens in the fourth quarter of 2016 and first half of 2017 then gradually rises in through 2021 rather than continuing to fall as in the baseline. Software employment growth is also much stronger than in the baseline forecast. In the optimistic scenario, the stronger regional economy drives Seattle consumer price inflation above the baseline. Washington average wage growth is also higher in the optimistic scenario than in the baseline. Washington population growth is higher in the optimistic scenario as migrants from other states are attracted by the strong local economy. The recovery in construction employment is much stronger than in the baseline forecast with employment in the sector exceeding the previous peak in the fourth quarter of 2018. By the end of 2021, Washington nonfarm payroll employment is higher by 156,600 jobs than in the baseline forecast and Washington personal income is \$57.3 billion higher.

Pessimistic

In the pessimistic scenario, the U.S. economy suffers a two-quarter recession in the second half of 2017

In the pessimistic scenario, the U.S. economy suffers a two-quarter recession in the second half of 2017, caused by domestic and global political risks that trigger uncertainty and challenge business confidence, faltering productivity, and a US stock market crash that shatters consumer confidence. In this scenario, the United Kingdom's pullout from the European Union leads to uncertainty that causes economic conditions in the rest of the world to worsen. In addition, problems in emerging markets become more pervasive. The dollar soars further, diminishing the competitiveness of U.S. exports and worsening the trade deficit. Meanwhile, productivity continues to decline. With the supply side of the economy growing very slowly, modest but stronger demand-side growth exerts upward pressure on both wage and price inflation prompting the central bank to raise interest rates more aggressively. Both consumer and business confidence deteriorate, and the stock market plummets. The U.S. economy contracts at annual rates of 1.6% and 2.1% in the third and fourth quarters of 2017. Unemployment climbs through 2018, reaching an eventual peak of 6.4%.

This scenario also assumes a weaker local economy

In addition to reflecting the impact of the weaker U.S. forecast on the state economy, aerospace employment declines much more rapidly than assumed in the baseline forecast. Software employment also declines rather than growing moderately as in the baseline forecast. Population growth is also weaker than in the baseline forecast as migration into Washington drops. Construction employment drifts lower in 2016 through 2019 then flattens out in 2020 and 2021 rather than rising as in the baseline. The relatively weak local economy puts downward pressure on Washington wages and the Seattle CPI; offsetting this is the higher national inflation assumed in the pessimistic

U.S. forecast. The net effect is that nominal Washington wages are about the same in the pessimistic alternative as they are in the baseline forecast and the Seattle CPI is actually a little higher. By the end of 2021, Washington nonfarm payroll employment is 182,500 lower than in the baseline forecast and Washington personal income is \$21.1 billion lower.

Table 2.2 compares the optimistic and pessimistic forecasts with the baseline forecast.

Governor’s Council of Economic Advisors (GCEA)

In the GCEA scenario, the U.S. and state forecasts were adjusted to match the average view of the Council members.

The Governor’s Council of Economic Advisors’ national forecast is slightly weaker than the baseline

At the national level, the GCEA outlook for real GDP growth is slightly lower than the baseline in each year. The GCEA forecast of real consumer spending growth is also slightly lower in each year. The GCEA inflation forecast is a little higher than the baseline forecast but not by enough to offset the lower real growth. Consistent with their weaker real growth forecast, the Council members’ mortgage rate forecast is lower than the baseline forecast in each year. The GCEA oil price forecast is also slightly lower than the baseline in each year.

The GCEA members also expect slightly weaker Washington growth

The GCEA scenario for Washington is also weaker than the baseline forecast. Their real personal income growth forecast averages 2.9% per year in 2016 through 2021 compared to the baseline forecast of 3.2%. Because their inflation forecast is only slightly higher than ours, their nominal personal income forecast is also lower at 4.8% per year versus 4.9% in the baseline forecast. At an average rate of 1.5% per year, the Council members’ forecast for total employment growth over the six-year period is also slightly lower than the baseline forecast of 1.6% per year. The GCEA forecasts for manufacturing employment growth and construction employment growth are both weaker than in the baseline forecast. The Council members’ housing permit forecast is slightly lower, averaging 43,100 units per year through 2021 compared to 43,300 in the baseline forecast. At the end of 2021, the GCEA forecast for Washington nonfarm payroll employment is 13,500 lower than in the baseline forecast and Washington personal income is \$4.5 billion lower.

Table 2.3 compares the GCEA forecast with the baseline forecast.

Table 2.1
Washington Economic Forecast Summary
 Forecast 2017 to 2021

Fiscal Years

	2014	2015	2016	2017	2018	2019	2020	2021
Real Income (Billions of Chained 2009 Dollars)								
Real Personal Income	313.492	328.507	341.964	351.709	362.454	374.447	386.414	398.047
% Ch	1.6	4.8	4.1	2.8	3.1	3.3	3.2	3.0
Real Wage and Salary Disb.	162.339	171.072	179.988	185.855	191.111	196.151	200.691	205.515
% Ch	3.7	5.4	5.2	3.3	2.8	2.6	2.3	2.4
Real Nonwage Income	151.153	157.435	161.976	165.854	171.343	178.295	185.723	192.532
% Ch	-0.6	4.2	2.9	2.4	3.3	4.1	4.2	3.7
Real Per Capita Income (\$/Person)	44,665	46,173	47,329	48,006	48,819	49,790	50,743	51,645
% Ch	0.4	3.4	2.5	1.4	1.7	2.0	1.9	1.8
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.084	1.093	1.100	1.117	1.136	1.156	1.177	1.200
% Ch	1.4	0.9	0.7	1.6	1.6	1.7	1.9	2.0
Seattle Cons. Price Index (1982-84=1.0)	2.437	2.473	2.521	2.584	2.642	2.698	2.760	2.825
% Ch	1.4	1.5	1.9	2.5	2.2	2.1	2.3	2.4
Average Nonfarm Annual Wage	55,945	58,064	59,802	61,479	63,361	65,287	67,247	69,487
% Ch	3.1	3.8	3.0	2.8	3.1	3.0	3.0	3.3
Avg. Hourly Earnings-Mfg. (\$/Hour)	24.75	25.28	25.99	27.06	27.78	28.55	29.38	30.25
% Ch	2.3	2.1	2.8	4.1	2.7	2.8	2.9	3.0
Current Dollar Income (Billions of Dollars)								
Personal Income	339.735	359.127	376.299	393.041	411.706	432.701	454.843	477.690
% Ch	3.0	5.7	4.8	4.4	4.7	5.1	5.1	5.0
Disposable Personal Income	299.068	314.768	329.710	344.751	360.315	378.269	396.408	415.095
% Ch	2.4	5.2	4.7	4.6	4.5	5.0	4.8	4.7
Per Capita Income (\$/Person)	48,403	50,476	52,081	53,646	55,452	57,535	59,728	61,977
% Ch	1.8	4.3	3.2	3.0	3.4	3.8	3.8	3.8
Employment (Thousands)								
Washington Civilian Labor Force	3,468.1	3,517.0	3,584.2	3,655.8	3,722.3	3,785.0	3,843.2	3,895.0
Total Washington Employment	3,243.3	3,312.8	3,378.6	3,450.1	3,523.0	3,589.2	3,646.9	3,696.7
Unemployment Rate (%)	6.48	5.81	5.74	5.63	5.35	5.17	5.11	5.09
Nonfarm Payroll Employment	3,021.2	3,102.8	3,194.1	3,261.8	3,309.3	3,354.6	3,395.0	3,431.2
% Ch	2.4	2.7	2.9	2.1	1.5	1.4	1.2	1.1
Manufacturing	287.5	290.1	290.7	285.3	284.9	286.5	288.8	291.8
% Ch	0.9	0.9	0.2	-1.8	-0.2	0.6	0.8	1.0
Durable Manufacturing	209.4	210.8	210.2	204.1	203.3	204.0	205.5	208.0
% Ch	0.4	0.6	-0.3	-2.9	-0.4	0.4	0.7	1.2
Aerospace	94.7	94.2	92.9	86.4	83.4	81.7	80.4	80.3
% Ch	-1.7	-0.5	-1.4	-6.9	-3.5	-2.0	-1.6	-0.1
Nondurable Manufacturing	78.1	79.3	80.5	81.3	81.6	82.5	83.3	83.7
% Ch	2.3	1.6	1.5	1.0	0.4	1.1	1.0	0.5
Construction	153.7	168.0	178.2	184.1	190.3	197.1	201.1	203.6
% Ch	6.8	9.3	6.1	3.3	3.4	3.6	2.0	1.3
Service-Providing	2,573.8	2,638.4	2,718.9	2,786.0	2,827.7	2,864.5	2,898.5	2,929.1
% Ch	2.3	2.5	3.1	2.5	1.5	1.3	1.2	1.1
Software Publishers	55.0	55.5	57.5	60.3	60.8	61.4	62.0	62.6
% Ch	3.9	1.0	3.6	4.8	0.8	1.0	0.9	1.1
Nonfarm Payroll Employment, EOP*	3,041.3	3,136.1	3,230.7	3,279.8	3,327.5	3,370.7	3,413.6	3,444.9
% Ch*	2.2	3.1	3.0	1.5	1.5	1.3	1.3	0.9
Housing Indicators (Thousands)								
Housing Units Authorized by Bldg. Permit	33.305	38.642	39.799	41.095	43.440	44.238	44.449	44.194
% Ch	7.0	16.0	3.0	3.3	5.7	1.8	0.5	-0.6
Single-Family	17.408	18.691	21.539	23.496	26.737	28.099	28.426	28.434
% Ch	-6.3	7.4	15.2	9.1	13.8	5.1	1.2	0.0
Multi-Family	15.897	19.951	18.260	17.599	16.703	16.140	16.024	15.760
% Ch	26.7	25.5	-8.5	-3.6	-5.1	-3.4	-0.7	-1.6
30-Year Fixed Mortgage Rate (%)	4.33	3.92	3.80	3.73	4.52	5.18	5.76	5.78

*End of Period, for use in the Budget Stabilization Account calculation

Table 2.2
Comparison of Alternative Forecasts

Fiscal Years

	2016	2017	2018	2019	2020	2021
U.S.						
Real GDP, Percent Change						
Optimistic	1.7	2.3	2.9	3.0	2.8	2.7
Baseline	1.7	2.0	2.2	2.1	2.2	2.2
Pessimistic	1.7	1.0	-0.3	1.9	2.9	2.4
Implicit Price Deflator, Percent Change						
Optimistic	0.7	1.7	1.7	1.8	2.2	2.1
Baseline	0.7	1.6	1.6	1.7	1.9	2.0
Pessimistic	0.7	2.2	2.9	2.7	2.7	2.4
Mortgage Rate, Percent						
Optimistic	3.80	3.86	4.79	5.53	6.19	6.09
Baseline	3.80	3.73	4.52	5.18	5.76	5.78
Pessimistic	3.80	3.77	3.86	3.50	3.87	4.59
3 Month T-Bill Rate, Percent						
Optimistic	0.18	0.74	1.56	2.33	3.06	3.03
Baseline	0.18	0.53	1.22	2.04	2.76	2.81
Pessimistic	0.18	0.79	0.89	0.43	0.66	1.47
Washington						
Real Personal Income, Percent Change						
Optimistic	4.1	4.8	5.1	5.4	4.9	4.5
Baseline	4.1	2.8	3.1	3.3	3.2	3.0
Pessimistic	4.1	0.9	0.3	1.1	2.7	2.4
Personal Income, Percent Change						
Optimistic	4.8	6.6	6.8	7.3	7.2	6.7
Baseline	4.8	4.4	4.7	5.1	5.1	5.0
Pessimistic	4.8	3.1	3.2	3.8	5.4	4.8
Employment, Percent Change						
Optimistic	2.9	2.5	2.2	2.3	2.1	1.9
Baseline	2.9	2.1	1.5	1.4	1.2	1.1
Pessimistic	2.9	1.3	-0.3	0.0	0.6	0.6
Housing Permits, Thousands of Authorized Units						
Optimistic	39.8	41.7	45.7	48.7	50.3	51.5
Baseline	39.8	41.1	43.4	44.2	44.4	44.2
Pessimistic	39.8	39.7	37.6	36.9	36.3	35.9

Table 2.3
Governor's Council of Economic Advisor's Forecast

Calendar Years

	2016	2017	2018	2019	2020	2021
U.S.						
Real GDP						
<i>Growth</i>						
ERFC	1.5	2.2	2.2	2.1	2.2	2.1
GCEA Average	1.6	2.1	1.9	1.9	2.0	2.0
Real Consumption						
<i>Growth</i>						
ERFC	2.7	2.6	2.3	2.2	2.2	2.2
GCEA Average	2.6	2.2	2.0	1.9	2.0	2.1
Implicit Price Deflator, PCE						
<i>Growth</i>						
ERFC	1.1	1.7	1.6	1.8	1.9	2.0
GCEA Average	1.2	1.8	1.9	1.9	1.9	1.9
Mortgage Rate						
<i>Percent</i>						
ERFC	3.6	4.1	4.9	5.5	5.8	5.8
GCEA Average	3.6	3.9	4.2	4.5	4.7	4.9
Oil Price (Brent)						
<i>Dollars per barrel</i>						
ERFC	43.4	50.9	53.6	55.7	57.4	58.9
GCEA Average	45.7	50.1	53.1	54.9	56.9	57.8
Washington State						
Real Personal Income						
<i>Growth</i>						
ERFC	3.7	2.6	3.3	3.3	3.1	2.8
GCEA Average	3.2	2.9	3.1	3.0	2.8	2.7
Wage and Salary Employment						
<i>Growth</i>						
ERFC	2.8	1.6	1.4	1.3	1.2	1.0
GCEA Average	2.7	1.6	1.2	1.1	1.1	1.1
Manufacturing Employment						
<i>Growth</i>						
ERFC	-0.8	-1.3	0.2	0.9	0.9	0.9
GCEA Average	-0.6	-1.2	-0.1	0.1	0.1	0.0
Construction Employment						
<i>Growth</i>						
ERFC	5.7	1.6	4.3	2.7	1.5	1.1
GCEA Average	5.7	2.7	1.8	1.9	1.3	1.2
Housing Permits						
<i>Thousands of authorized units</i>						
ERFC	41.0	42.3	44.1	44.4	44.4	44.0
GCEA Average	40.5	42.5	43.5	44.0	44.0	44.1
Washington Average Annual Wage						
<i>Growth</i>						
ERFC	3.5	2.7	3.1	3.1	3.1	3.4
GCEA Average	3.0	2.8	3.1	3.1	3.1	3.1

Table 2.4

Forecast Analysis

Comparison of Forecasts for 2015-17

Washington	Average Annual Rate of Growth (Percent) 2015:2-2017:2			Average Annual Rate (Thousands) 2015:3 to 2017:2
	Employment	Personal Income	Real Personal Income	Housing Units Authorized
2012				
September	1.7	5.1	3.1	38.5
November	1.7	4.9	3.2	38.4
2013				
March	1.7	5.1	3.5	41.6
June	1.7	5.0	3.5	42.2
September	1.6	5.1	3.5	40.6
November	1.7	5.1	3.6	40.6
2014				
February	1.8	5.2	3.9	40.8
June	1.7	5.7	4.3	40.5
September	1.7	5.9	4.3	40.4
November	1.8	6.1	4.4	38.8
2015				
February	2.0	6.1	4.2	38.8
June	1.8	5.5	3.7	40.2
September	1.8	5.2	3.6	39.1
November	1.6	4.8	3.2	39.2
2016				
February	1.6	4.3	3.1	38.6
June	2.0	4.2	2.7	40.3
September	2.3	4.4	3.0	40.4

Table 2.5

Forecast Analysis

Comparison of Forecasts for 2017-19

Washington	Average Annual Rate of Growth (Percent) 2017:2-2019:2			Average Annual Rate (Thousands) 2017:3 to 2019:2
	Employment	Personal Income	Real Personal Income	Housing Units Authorized
2014				
February	1.3	4.9	3.5	42.5
June	1.2	5.3	3.8	43.0
September	1.3	5.4	3.8	43.1
November	1.1	5.5	3.6	43.2
2015				
March	1.3	5.4	3.6	43.1
June	1.4	5.6	3.8	44.2
September	1.3	5.4	3.6	43.9
November	1.4	5.4	3.5	44.0
2016				
February	1.2	5.0	3.2	43.3
June	1.2	5.1	3.2	43.7
September	1.4	5.1	3.3	43.8

Table 2.6
Forecast Comparison
 Forecast 2016 to 2021

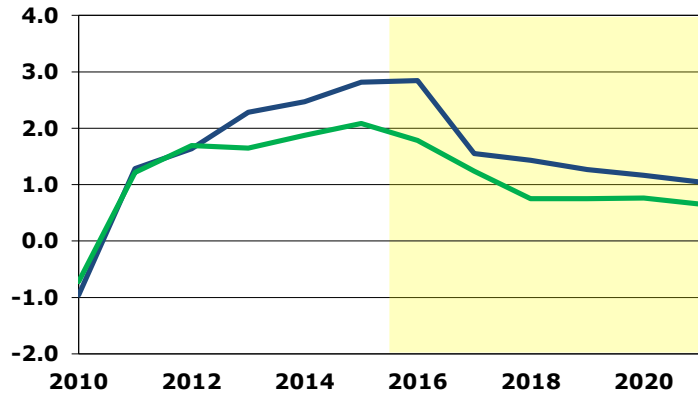
Fiscal Years

	2015	2016	2017	2018	2019	2020	2021
Washington							
Real Personal Income							
September Baseline	328.507	341.964	351.709	362.454	374.447	386.414	398.047
% Ch	4.8	4.1	2.8	3.1	3.3	3.2	3.0
June Baseline	328.844	340.720	349.164	359.536	370.939	382.726	394.536
% Ch	4.9	3.6	2.5	3.0	3.2	3.2	3.1
Personal Income							
September Baseline	359.127	376.299	393.041	411.706	432.701	454.843	477.690
% Ch	5.7	4.8	4.4	4.7	5.1	5.1	5.0
June Baseline	359.205	374.830	390.484	409.381	430.440	452.658	475.483
% Ch	5.7	4.3	4.2	4.8	5.1	5.2	5.0
Employment							
September Baseline	3102.8	3194.1	3261.8	3309.3	3354.6	3395.0	3431.2
% Ch	2.7	2.9	2.1	1.5	1.4	1.2	1.1
June Baseline	3102.9	3185.7	3245.1	3290.3	3331.8	3371.7	3407.7
% Ch	2.7	2.7	1.9	1.4	1.3	1.2	1.1
Housing Permits							
September Baseline	38.642	39.799	41.095	43.440	44.238	44.449	44.194
% Ch	16.0	3.0	3.3	5.7	1.8	0.5	-0.6
June Baseline	38.642	39.139	41.560	43.425	44.030	44.272	44.367
% Ch	16.0	1.3	6.2	4.5	1.4	0.6	0.2

Figure 2.7: Comparison of Washington and U.S. Economic Forecasts
(Percent change)

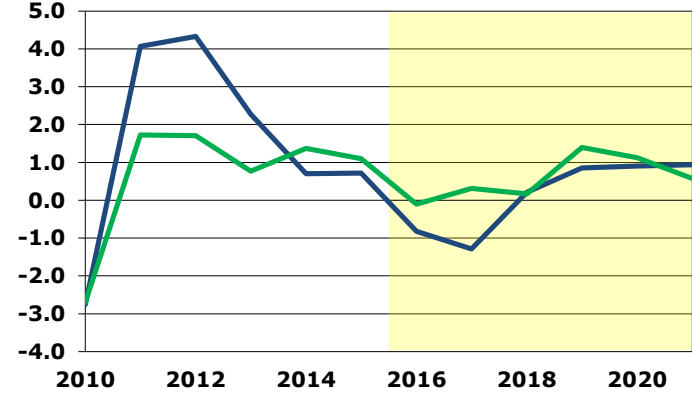
Forecast

Total nonfarm payroll employment



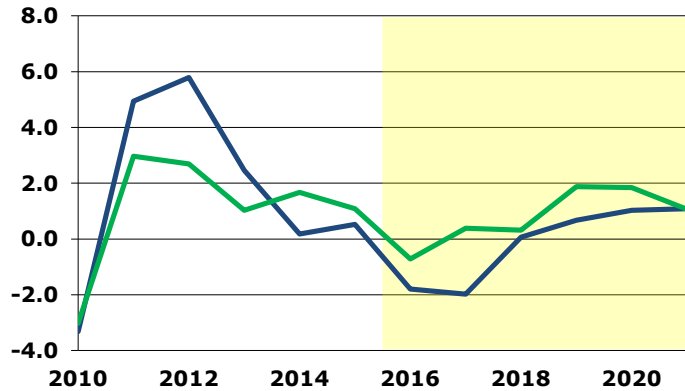
Source: WA State Employment Security Dept. 2015, ERFC 2021

Manufacturing employment



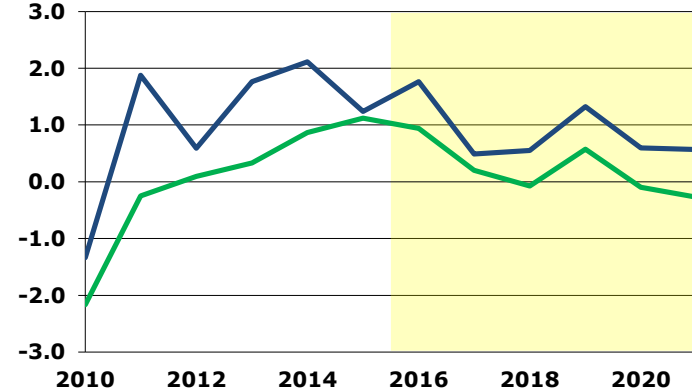
Source: WA State Employment Security Dept. 2015, ERFC 2021

Durable manufacturing employment



Source: WA State Employment Security Dept. 2015, ERFC 2021

Nondurable manufacturing employment



Source: WA State Employment Security Dept. 2015, ERFC 2021

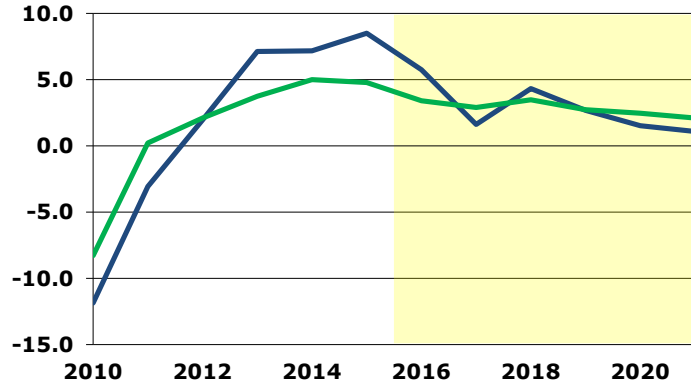
Washington

U.S.

Figure 2.7: Comparison of Washington and U.S. Economic Forecasts (continued)
(Percent change)

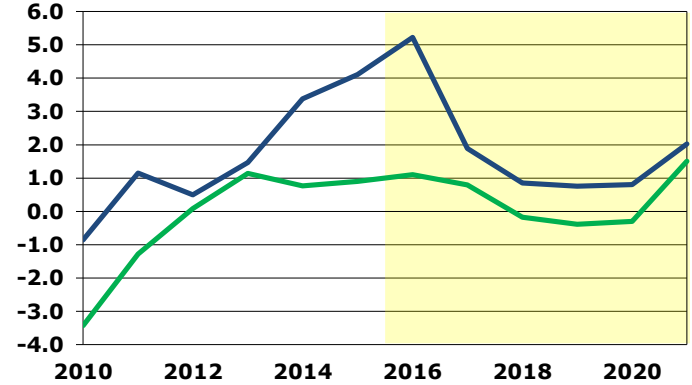
Forecast

Construction employment



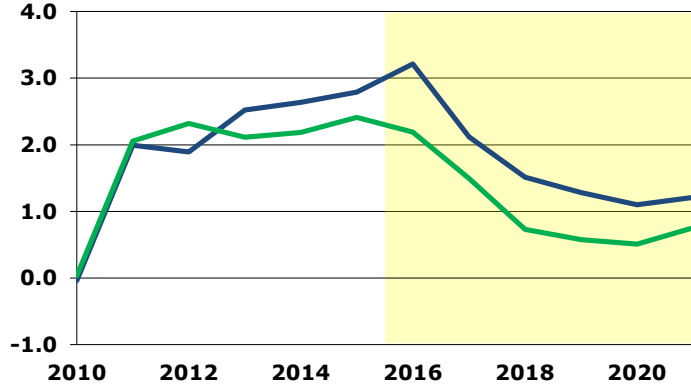
Source: WA State Employment Security Dept. 2015, ERFC 2021

Information employment



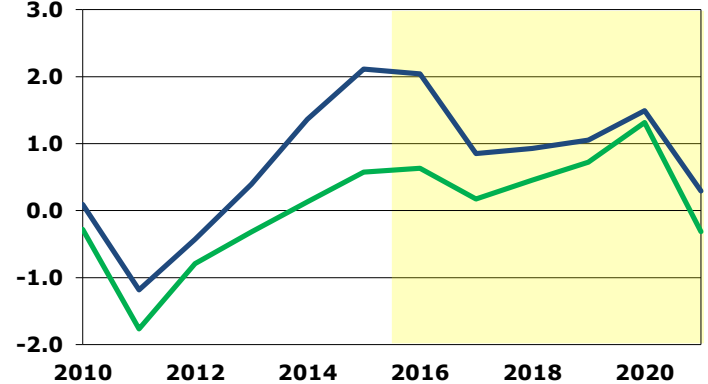
Source: WA State Employment Security Dept. 2015, ERFC 2021

Other private employment



Source: WA State Employment Security Dept. 2015, ERFC 2021

Government employment



Source: WA State Employment Security Dept. 2015, ERFC 2021

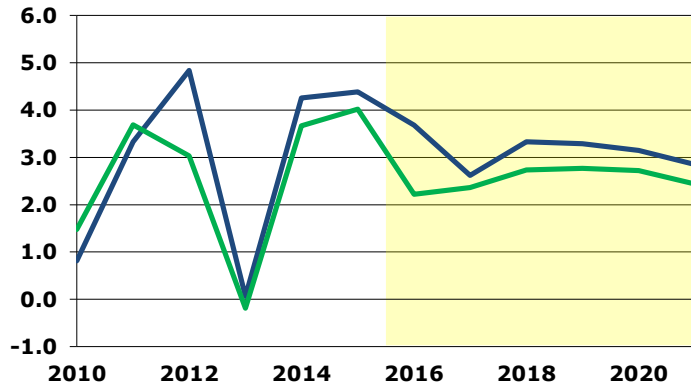
Washington

U.S.

Figure 2.7: Comparison of Washington and U.S. Economic Forecasts (continued)
 (Percent change)

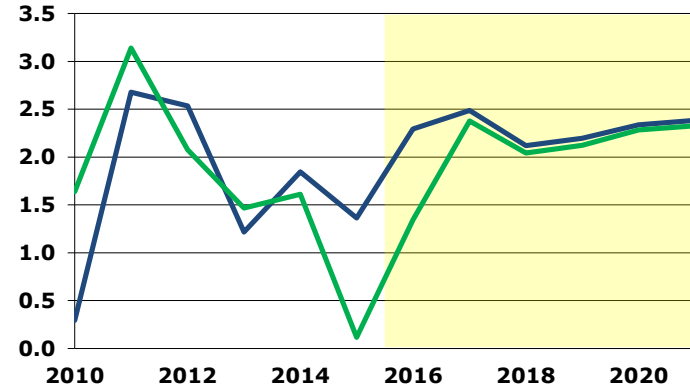
Forecast

Real personal income



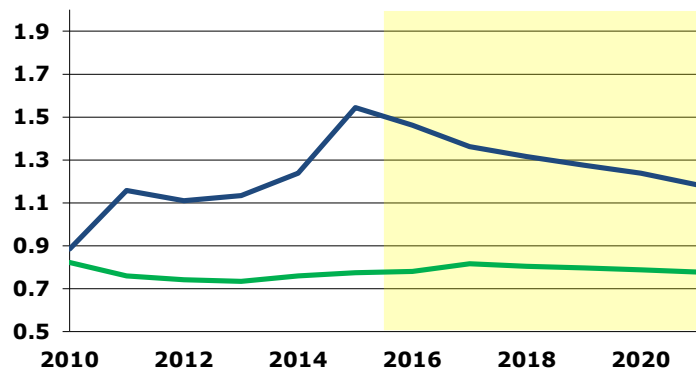
Source: Bureau of Economic Analysis 2014, ERFC 2021

Consumer price indices



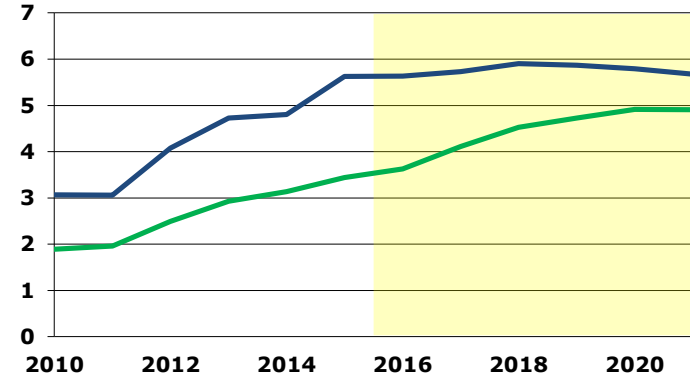
Source: Bureau of Labor Statistics 2015, ERFC 2021

Population



Source: Office of Financial Management/Census Bureau 2015, ERFC 2021

New Housing Units Per 1,000 population (level)



Source: Census Bureau 2015, ERFC 2021

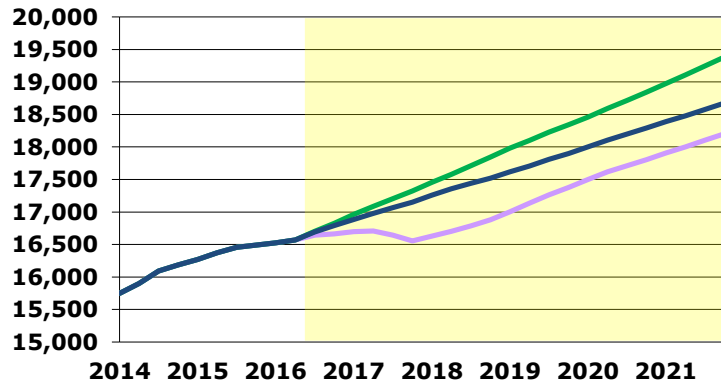
Washington

U.S.

Figure 2.8: Comparison of Alternative U.S. Economic Forecasts

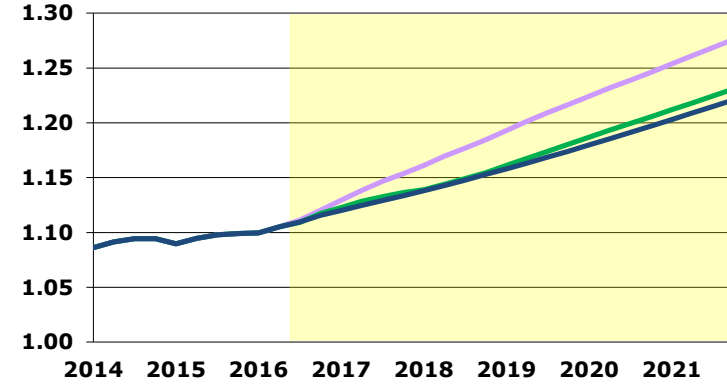
Forecast

Real GDP, billions of chained 2009 dollars



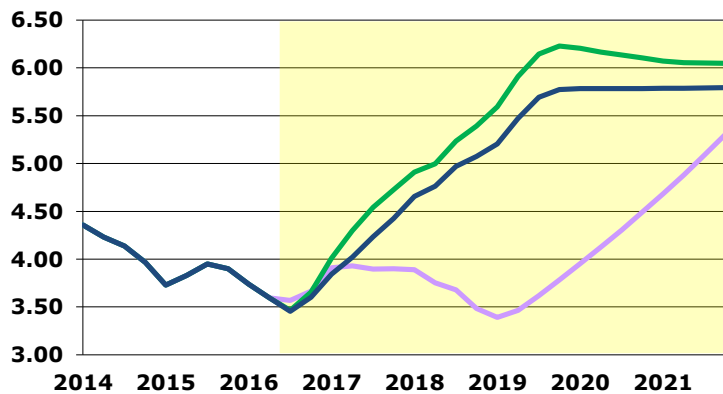
Source: Bureau of Economic Analysis 2016 Q2, ERFC 2021

Implicit price deflator, index 2009 = 1.0



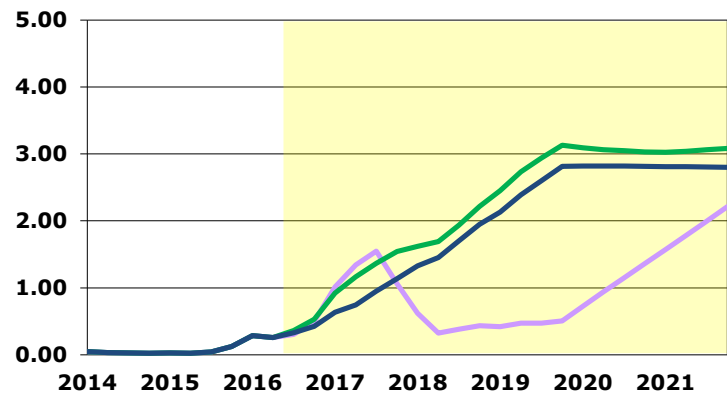
Source: Bureau of Economic Analysis 2016 Q2, ERFC 2021

Mortgage rate, percent



Source: Freddie Mac 2016 Q2, ERFC 2021

Three month T-bill rate, percent



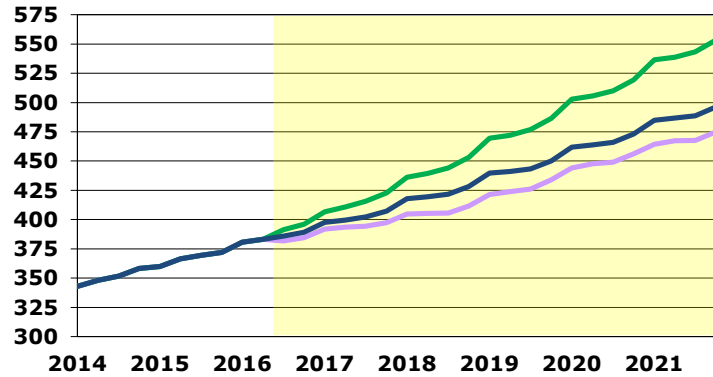
Source: Federal Reserve Board 2016 Q2, ERFC 2021

■ Baseline ■ Optimistic ■ Pessimistic

Figure 2.9: Comparison of Alternative Washington Economic Forecasts

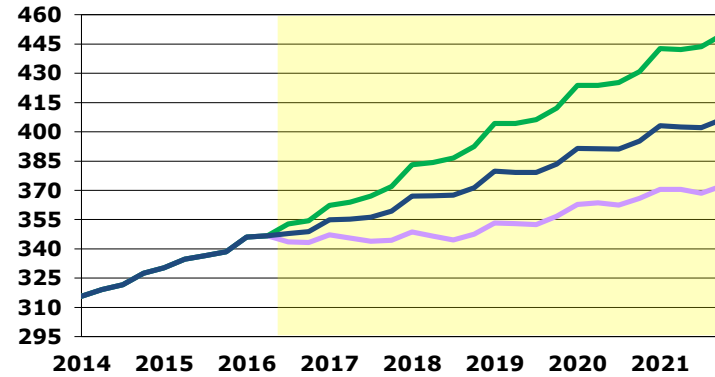
Forecast

Personal income, billions of dollars



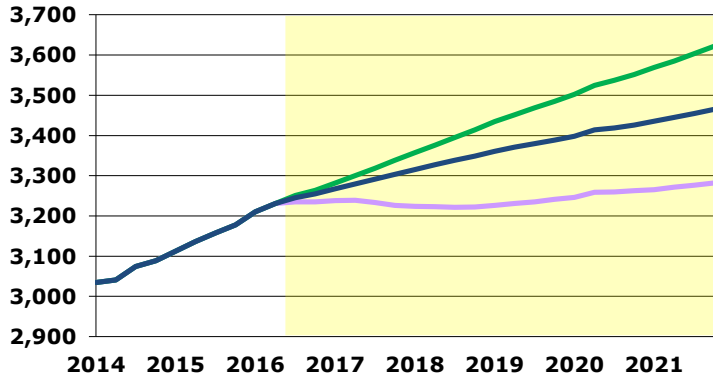
Source: Bureau of Economic Analysis 2014 Q4, ERFC 2021

Real personal income, billions of chained 2009 dollars



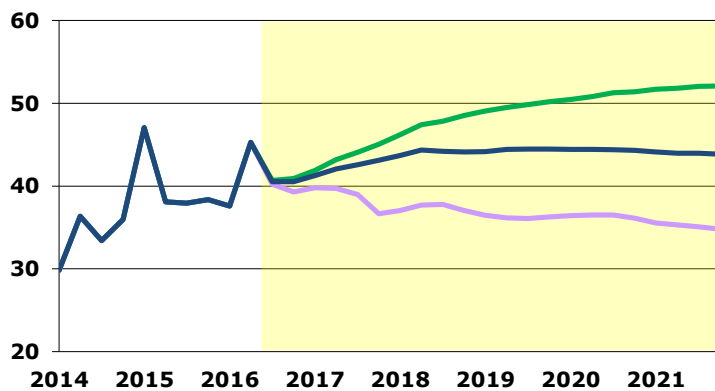
Source: Bureau of Economic Analysis 2014 Q4, ERFC 2021

Total nonfarm payroll employment, thousands



Source: WA State Employment Security 2016 Q2, ERFC 2021

Housing permits, thousands



Source: Census Bureau 2016 Q2, ERFC 2021

■ Baseline ■ Optimistic ■ Pessimistic

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Chapter 3: Washington State Revenue Forecast Summary

- **Revenue collections since the June 2016 forecast have come in \$225 million over the forecasted amount.**
- **Over half of the surplus in collections was due to large one-time payments of past-due taxes.**
- **Real estate excise tax collections were \$41 million higher than forecasted and are expected to remain strong in the near future.**
- **The forecast of General Fund-State (GF-S) revenue for the 2015-17 biennium was increased by \$334 million, the forecast for the 2017-19 biennium was increased by \$125 million, and the forecast for the 2019-21 biennium was increased by \$55 million.**
- **Forecast increases were almost entirely in retail sales and real estate excise taxes.**

Overview

Small increases in forecasted personal income and stronger-than-expected real estate activity were the main drivers of the increase in forecasted revenue

While revenue collections since the June 2016 forecast have been higher than expected, much of the extra revenue came from large one-time payments of past-due taxes rather than taxes collected on current economic activity. Excluding these payments, collections were much closer to their forecasted amounts, with the exception of real estate excise taxes, which came in much higher. The strengthening real estate market has prompted another increase in forecasted real estate excise taxes. Forecasted retail sales tax collections have also been increased, due to both stronger-than-expected collections and a slight increase in forecasted state personal income. Changes in forecasted revenue from other sources were slight, reflecting the small changes in the September economic forecast relative to the June forecast.

GF-S forecast change by biennium (millions):

15-17: +\$334
17-19: +\$125
19-21: +\$55

Table 3.1 summarizes the changes to the forecasts of GF-S revenue for the 2015-17 through 2019-21 biennia. Since the June forecast, revenue sources that are tracked monthly came in \$224.7 million higher than forecasted. There were no non-economic changes in expected revenue. Changes to the

economic forecast resulted in a \$109.7 million increase to projected collections for the rest of the biennium. The total of these components was a \$334.4 million increase in projected revenue for the current 2015-17 biennium. The forecast for the 2017-19 biennium has been increased by \$125.4 million, and the forecast for the 2019-21 biennium has been increased by \$55.1 million. GF-S revenue is now forecasted to total \$37,765.1 million in the 2015-17 biennium, \$40,377.1 million in the 2017-19 biennium, and \$43,630.0 million in the 2019-21 biennium.

GF-S forecast (\$millions):

2015-17:
\$37,765

2017-19:
\$40,377

2019-21:
\$43,630

Table 3.1: Revisions to the General Fund-State Forecast (cash basis, millions of dollars)

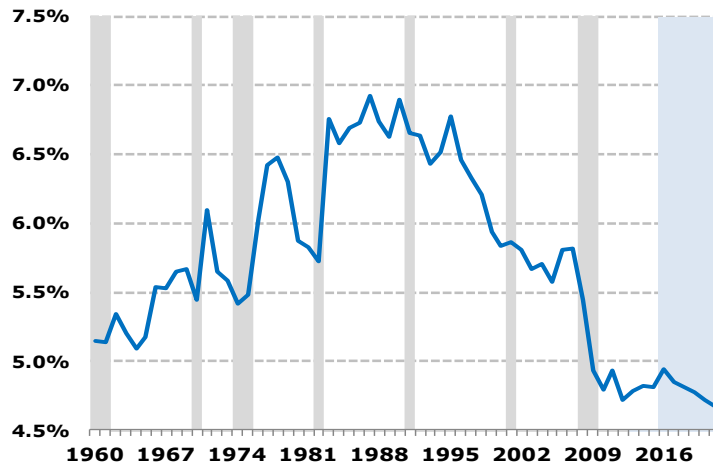
	2015-17 Biennium	2017-19 Biennium	2019-21 Biennium
Collection Experience	\$224.7	NA	NA
Non-Economic Change	\$0.0	\$0.0	\$0.0
Forecast Change	\$109.7	\$125.4	\$55.1
Total Change	\$334.4	\$125.4	\$55.1

The ratio of collections to income is at a historical low

As can be seen in Figure 3.1, the amount of GF-S revenue that is collected relative to state personal income is forecasted to reach its lowest levels in ERFC records. The ratio of revenue to income has been on a downward trend since 1995, broken only by the housing boom that raised the ratio from 2005 to mid-2008, and by temporary taxes and transfers of funds from non-GF-S sources into the GF-S that again boosted the ratio in fiscal years 2011 and 2013. The ratio increased slightly in FY 2014 due to

Figure 3.1: GF-S Revenue (Current Definition) as a Percentage of State Personal Income (Fiscal Years)

GF-S revenue relative to state personal income has been on a declining trend since 1995



Source: ERFC, data through fiscal year 2015

low income growth and then decreased slightly in FY 2015. The ratio then spiked in FY 2016 due to revenue increases stemming from legislative changes. The ratio, however, is expected to resume its downward trend from FY 2017 through the end of the forecast period in FY 2021. This forecast is shown in the blue shaded area in the figure. In fiscal year 2021, GF-S revenues are projected to be 4.65% of personal income.

Forecast details are at the end of the chapter

The history of nominal and real GF-S revenue by biennium can be found in Table 3.3. GF-S forecast changes by agency and major revenue classification for the 2015-17 biennium can be found in Table 3.5 (cash) and Table 3.6 (GAAP). Forecast changes for the 2017-19 biennium can be found in Table 3.7 (cash) and Table 3.8 (GAAP). The GF-S forecast by fiscal year and major source category through FY 2019 can be found in Table 3.9.

Recent Collection Experience

Collections were \$225 million (5.3%) more than the June 2016 forecast

Revenue collections from the Department of Revenue (DOR), Department of Licensing, and Administrative Office of the Courts are tracked monthly. In the period since the June forecast, total revenue from the above sources came in \$224.7 million (5.3%) higher than expected (see Table 3.2). Revenue Act collections reported by the DOR were \$193.5 million (5.4%) above the forecast. Revenue from other DOR tax sources was \$31.5 million (4.9%) above the forecast.

About half of the collections variance stemmed from large one-time remittances of past-due taxes

Most of the positive variance in Revenue Act collections was due to several large payments of past-due taxes due to audits and voluntary compliance that were not included in the June forecast. These payments, net of some large unexpected refunds, added \$127.0 million to collections. Real estate excise taxes (REET) were the second largest contributor to the variance, coming in \$41.4 million (17.4%) higher than forecasted. Property tax receipts came in \$3.8 million (2.1%) lower than forecasted. Cigarette tax receipts came in \$0.2 million (0.1%) lower than forecasted and liquor sales and liter tax receipts came in \$11,000 (0.0%) higher than forecasted. Refunds of unclaimed property from the GF-S were \$12.7 million higher than forecasted. All other DOR revenue sources came in \$6.7 million (11.8%) higher than forecasted. Revenue from the Department of Licensing was \$0.2 million (1.7%) lower than forecasted and revenue from the Administrative Office of the Courts was \$0.1 million (0.4%) lower than forecasted.

Table 3.2: Pre-Forecast Collection Variance of Major General Fund-State Taxes by Agency (relative to the June 2016 forecast, cash basis, millions of dollars)

<u>Agency/Source</u>	<u>Collection Variance</u>	<u>Percent of Estimate</u>
Department of Revenue		
Revenue Act	\$193.5	5.4%
Non Revenue Act	\$31.5	4.9%
Subtotal	\$224.9	5.3%
Department of Licensing		
Administrative Office of the Courts	(\$0.2)	-1.7%
	(\$0.1)	-0.4%
Total*	\$224.7	5.3%

* Detail may not add to total due to rounding.

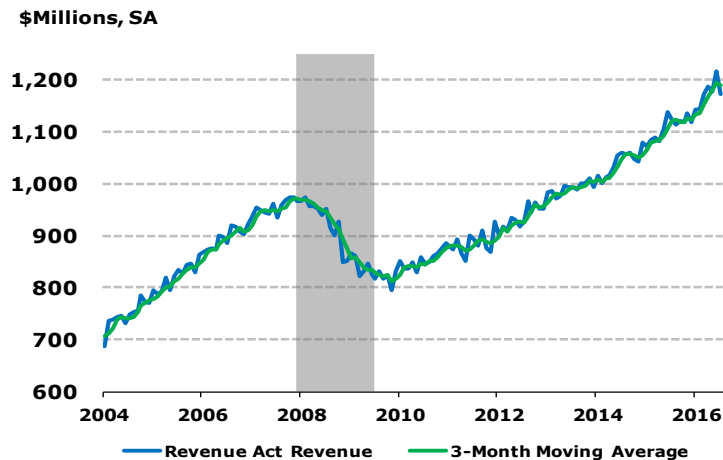
Source: ERFC; Period: June 11 - September 10, 2016

Adjusted Revenue Act collections were up 3.3% year over year in the most recent collection period and up 7.1% in the previous period

Figure 3.2 shows seasonally adjusted Revenue Act receipts excluding payments received under the tax amnesty program in early 2011 and other large payments. It is also adjusted for some changes in payment patterns. As shown in the figure, collections have been on an upward trend since November 2009. Growth was aided by a temporary increase in the business and occupation tax rate paid by service industries that took effect in May 2010. This temporary increase expired on July 1, 2013. As can be seen in the figure, collections have been very strong for the last two collection periods. Adjusted for large one-time audit payments and refunds, year-over-year growth was 3.3% in the August 11 – September 10, 2016 collection period and 7.1% in the previous period. Adjusted year-over-year growth in collections representing second quarter 2016 activity (May 11 –

Figure 3.2: Revenue Act Collections*

Adjusted Revenue Act collections declined in the August 11 – September 10 collection period



Source: ERFC; Data through September 10, 2016 preliminary allocation
*Adjusted for large payments/refunds and payment pattern change

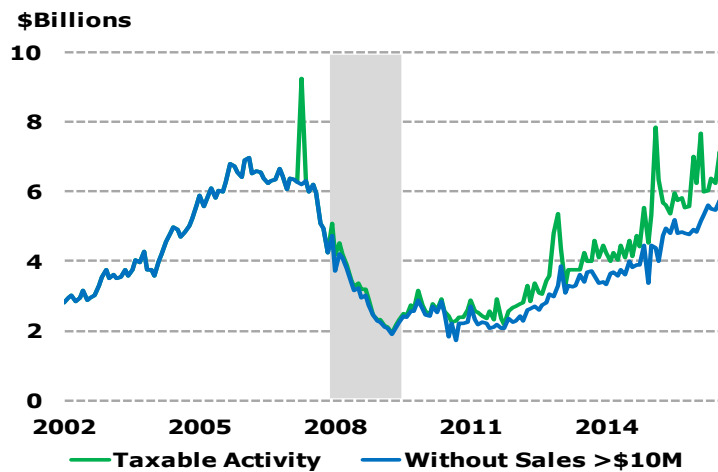
August 10) was 7.6%, the same growth rate as collections for first quarter activity (February 11 – May 10 collections). Collections growth for adjusted fourth quarter 2015 activity (November 11, 2015 – February 10, 2016 collections) was 6.7%.

Sales of large commercial properties spiked after the June forecast

Much of the large positive variance in REET collections was due to stronger-than-expected sales of large commercial property. Sales of property worth \$10 million or more totaled \$3.3 billion in the three months since the last forecast. Large commercial sales have been responsible for much of the increase in taxable activity since November 2012, creating many spikes in activity, many representing transfers of controlling interest during corporate mergers (see Figure 3.3). Residential sales and smaller commercial sales also been stronger than expected since the June forecast. The increases in taxable activity have stemmed mostly from increased sale prices rather than an increased number of sales.

Figure 3.3: Taxable Real Estate Excise Activity, SA

Large commercial sales have caused spikes in activity since November 2012



Source: ERFC; data through August 2016

Revenue Forecasts by Source

Department of Revenue

Taxes collected by DOR are most of GF-S taxes

The Department of Revenue (DOR) collects and administers the majority of Washington’s GF-S revenue, accounting for 95% of total GF-S revenue in FY 2016. The largest tax sources administered by the DOR are the retail sales tax, business and occupation tax, property tax, use tax, cigarette tax and real

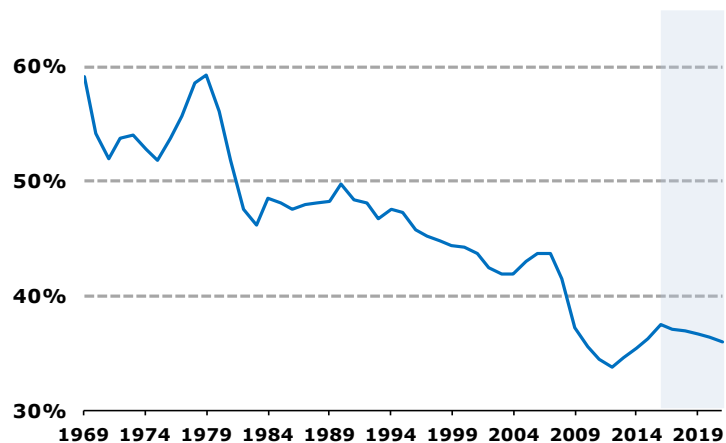
estate excise tax. The revenue forecasts discussed below can be found in Tables 3.5-3.8.

Retail sales taxes are the largest source of GF-S revenue

The retail sales tax is the largest source of GF-S revenue, accounting for 48.1% of GF-S revenue in FY 2016. The state's share of the tax is 6.5% of the sales price. While construction labor, repair services, and some other services are taxed, the tax does not apply to most services. Taxable sales as a share of personal income have been declining. Their share fell sharply during the recession and continued to fall through FY 2012. In that year, 33.8% of personal income was spent on taxable items and services, the lowest percentage on record. Increased spending on construction and autos caused the share to grow through FY 2015, reaching 36.3% of personal income. Continued spending on autos and construction, combined with legislative changes that applied the tax to some online sales and eliminated several exemptions, increased taxable sales' share of personal income to an estimated 37.6% in FY 2016. From FY 2016 on, however, the share is expected to continue to decline through FY 2021, reaching 36.0% in that year. The historical and forecasted relationship between taxable sales and income is illustrated in Figure 3.4.

Figure 3.4: Percent of State Personal Income Spent on Taxable Sales*

The ratio of taxable sales to state personal income is on a declining trend



*Past tax base adjusted to represent current base. Shaded area indicates forecast
Source: ERFC; Data through FY 2016, forecast through FY 2021

Retail sales tax receipt growth forecast:

FY17: 4.6%
FY18: 3.7%
FY19: 4.5%
FY20: 4.1%
FY21: 4.0%

The growth rate of taxable retail activity improved from 4.1% in FY 2012 to 6.7% in FY 2013, due mainly to increasing construction activity. Continued growth in construction, along with the newly-revoked sales tax exemption on wired home phone lines, brought growth in taxable activity of 6.4% in FY 2014. Construction and auto sales brought growth to 8.1% in FY 2015. The abovementioned legislative changes coupled with continued but slower growth in construction and auto sales boosted estimated growth in FY 2016 taxable activity to 8.4%.

Growth is forecasted to dip to 3.2% in FY 2017 due to the relatively elevated level of FY 2016 activity. Growth is then expected to return to 4.4% in FY 2018 and 4.5% in FY 2019 before slowing through the end of the forecast period, reaching 3.9% growth in FY 2021 (see Table 3.4). Due to the lag between taxable activity and collections and the presence of tax deferrals, credits, refunds, and payments of past due taxes, the growth in actual collections differs from the growth in taxable activity. Growth in collections for FY 2016 was 8.8%. Growth is forecasted at 4.6% in FY 2017, 3.7% in FY 2018, 4.5% in FY 2019, 4.1% in FY 2020 and 4.0% in FY 2021.

Business and Occupation taxes are the second largest source of GF-S revenue

The business and occupation (B&O) tax is the second largest source of GF-S revenue, accounting for 19.5% of GF-S revenue in FY 2016. It is a tax on the gross receipts of all businesses operating in Washington. The state portion of the tax applies ten different rates according to various classifications of business activities. In FY 2016, the largest contributor to total state B&O tax was the services sector, which had a gross tax rate of 1.5% and represented an estimated 45% of B&O taxes due. The next largest sector was retailing, which is taxed at 0.471% and represented an estimated 25% of taxes due, followed by the wholesaling sector, which is taxed at 0.484% and represented an estimated 20% of taxes due.

B&O tax growth forecast:

*FY17: 3.8%
FY18: 4.9%
FY19: 5.3%
FY20: 5.1%
FY21: 5.0%*

In FY 2013, B&O tax receipts grew by 5.8%. The expiration of a temporary increase in the B&O service tax rate on July 1, 2013, in addition to several large refunds, caused receipts to shrink by 1.8% in FY 2014. Growth in FY 2015, also affected by large refunds, was 4.1%. Growth in FY 2016 was 7.3%, due largely to legislative changes from the 2015 session. Growth is forecasted to decrease to 3.8% in FY 2017, 4.9% in FY 2018, 5.3% in FY 2019, 5.1% in FY 2020 and 5.0% in FY 2021.

State property taxes are the third largest source of GF-S revenue

The state property tax levy is the third largest source of GF-S revenue, accounting for 11.0% of total revenue in FY 2016. Although the tax goes into the GF-S, it is dedicated to the funding of basic education. By law, the total state tax levy on existing property can only increase by the lesser of 1% per year or the rate of inflation as measured by the year-over-year change in the U.S. Implicit Price Deflator in the second quarter of the year preceding the levy, unless a greater increase is approved by the voters. The year-to-year growth in the total amount levied, however, can exceed the aforementioned limits due to the value of new construction, property improvements, and other additions to real property assessed by the state. Collections can also grow faster or slower than the rate of assessment growth due to the payment of past due taxes or nonpayment of current taxes.

Property tax growth forecast:

FY17: 2.2%
FY18: 2.7%
FY19: 2.6%
FY20: 2.6%
FY21: 2.5%

Property tax collections grew by 2.3% in FY 2015. Second quarter 2015 year-over-year inflation of less than 1% restrained the growth rate of the calendar year 2016 levy, keeping collections growth to 2.1% in FY 2016. Forecasted inflation of over 1% in the second quarter of 2016 plus forecasted increases in the level of new construction boosts growth to 2.2% in FY 2017 and 2.7% in FY 2018. Growth is expected to slow to 2.6% in FY 2019 and FY 2020 with growth of 2.5% in FY 2021.

REET was the fourth largest GF-S source in FY 2016

The real estate excise tax (REET) was the fourth largest DOR source of GF-S revenue in FY 2016, accounting for 4.8% of total revenue. The state portion of REET is 1.28% of the sales price. The tax is divided between the GF-S (92.3%), a fund for local public works (2.0%), a fund for assistance of cities and counties (1.6%) and, from July 1, 2013 – June 30, 2019, the Education Legacy Trust Account (4.1%). The tax is applied to both residential and commercial real estate, including purchases of vacant land.

REET growth forecast:

FY17: -5.5%
FY18: -4.8%
FY19: 2.8%
FY20: 3.3%
FY21: 3.2%

Due to a high number of large sales of commercial property, REET receipts grew by 34.0% in FY 2013 and 15.2% in FY 2014. Even higher commercial sales coupled with strengthening residential sales boosted FY 2015 collections growth to 20.4% and FY 2016 growth to 19.4%. Commercial sales are expected to decline through FY 2018, resulting in a 5.5% decrease in forecasted collections in FY 2017 and a 4.8% decrease in FY 2018 despite continued residential sales growth. Growth in total collections is then forecasted to resume at 2.8% in FY 2019, 3.3% in FY 2020 and 3.2% in FY 2021.

Use tax was the fifth largest GF-S source in FY 2016

The state use tax was the fifth largest GF-S revenue source in FY 2016 at 3.4% of total receipts. The state portion of the tax is 6.5% of the purchase price for items used in the state that were not subject to the state retail sales tax. Examples of items subject to the state use tax are goods purchased out-of-state; online and mail-order purchases, where sales tax was not collected; or purchases of used vehicles from private individuals.

Use tax growth forecast:

FY17: -2.0%
FY18: 4.3%
FY19: 5.0%
FY20: 4.5%
FY21: 3.9%

Use tax receipts grew by 7.8% in FY 2014, boosted by strong sales of used vehicles and a temporary increase in payments from the manufacturing sector in the 4th quarter of 2013. Despite a reduction in collections from the manufacturing sector, increases in construction and used vehicle sales brought growth to 6.4% in FY 2015. A large audit payment plus the legislated elimination of certain tax exemptions boosted growth to 7.1% in FY 2016. Coming off of FY 2016's high level, collections are forecasted to decrease by 2.0% in FY 2017. Growth is then expected to occur at more normal rates of 4.3% in FY 2018, 5.0% in FY 2019, 4.5% in FY 2020 and 3.9% in FY 2021.

Public utility taxes were the sixth largest GF-S source in FY 2016

Public utility taxes were the sixth largest DOR source of GF-S revenue in FY 2016, bringing in 2.2% of total receipts. The tax applies to the gross income of sales to consumers by public and privately owned utilities and is in lieu of the B&O tax. The largest source of public utility taxes is the 3.873% tax on the distribution and generation of electrical power, followed by the 3.852% tax on the distribution of natural gas.

Growth forecast:

*FY17: 3.0%
FY18: 6.3%
FY19: 4.2%
FY20: 3.5%
FY21: 4.4%*

Public utility tax receipts decreased by 3.2% in FY 2015 due to low and declining natural gas and electricity prices and moderate weather. Increases in electricity prices in some markets brought growth of 4.5% in FY 2016. FY 2017 growth is forecasted to slow to 3.0% due to FY 2016's elevated level. Other increases in projected utility prices bring expected growth of 6.3% in FY 2018, slowing to 4.2% in FY 2019 and 3.5% in FY 2020 and then increasing to 4.4% in FY 2021.

The cigarette tax was the seventh largest GF-S source in FY 2016

The state tax on cigarettes was the seventh largest DOR GF-S revenue source in FY 2016 at 2.1% of total receipts. Prior to FY 2010, the tax made up a much smaller portion of GF-S revenue because much of the tax was dedicated to non-GF-S accounts. In FY 2010, all of the tax except the portion dedicated to the Education Legacy Trust account was redirected to the GF-S, and in FY 2011 all of the cigarette tax was redirected to the GF-S. The current tax rate, which took effect May 1, 2010, is \$3.025 per pack of 20 cigarettes.

Cigarette tax growth forecast:

*FY17: -2.4%
FY18: -3.5%
FY19: -2.7%
FY20: -2.9%
FY21: -2.3%*

The total number of taxed cigarettes has been on a downward trend due to a continuing decline in the number of smokers. Recently, the rate of decline has increased further due to increased consumption of e-cigarettes, which are not subject to the cigarette tax but are subject to retail sales taxes. FY 2014 receipts decreased by 3.6%. The decline in collections paused in FY 2015, bringing revenues to a level 1.7% above that of FY 2014. Despite an increase in tax enforcement established in the 2015 legislative session, collections decreased by 1.8% in FY 2016. Collections are forecasted to decrease by 2.4% in FY 2017, 3.5% in FY 2018, 2.7% in FY 2019, 2.9% in FY 2020 and 2.3% in FY 2021.

Forecasted Revenue from Cannabis-Related Sales

Sales of cannabis products in state-licensed stores began in July 2014

Initiative 502, approved by voters in the November 2012 election, legalized the sale and use of recreational cannabis and cannabis products in Washington. The first legal sales of cannabis products in state-licensed stores occurred in July 2014. During the 2015 regular and special sessions, legislation was passed that substantially altered the market rules set up by the initiative. 2SSB 5052, passed during the regular session, brought previously unregulated medical marijuana dispensaries into the same regulatory regime as licensed recreational cannabis outlets.

This legislation was outlined in our June 2015 forecast publication. Subsequent to the June 2015 forecast, 2E2SHB 2136, passed in the second special session, changed the cannabis excise tax from a 25 percent tax collected from growers, processors and retailers to a 37 percent tax on retail sales only. The law also made changes to the distribution of tax and fee revenue. Cannabis taxes and license fees are still collected by the Liquor and Cannabis Board and are placed into a dedicated fund and appropriated annually.

Change in GF-S forecast of total cannabis-related revenue by biennium (millions):
15-17: \$10.1
17-19: \$13.4
19-21: \$8.1

Distributions of cannabis excise taxes to the GF-S totaled \$15.3 million in the 2013-15 biennium. Forecasted GF-S distributions and fees for the 2015-17 biennium are now expected to total \$146.3 million, \$10.1 million more than forecasted in June. GF-S distributions are forecasted at \$237.8 million in the 2017-19 biennium, an increase of \$13.4 million from the June forecast, and \$271.7 million in the 2019-21 biennium, an increase of \$8.1 million. Details of the forecasted distributions from the account can be found in Table 3.18.

Department of Licensing

Forecast change by biennium (millions):

15-17: \$1.1
17-19: -\$0.1
19-21: -\$0.1

The majority of GF-S revenue collected by the Department of Licensing is from firearm and event licenses, watercraft excise tax, and boat registration fees. The department's forecast of revenue for the 2015-17 biennium has been increased \$1.1 million to \$37.4 million. The department's forecast for the 2017-19 biennium has been decreased \$0.1 million to \$36.9 million and the forecast for the 2019-21 biennium has been decreased \$0.1 million to \$36.8 million.

The Office of Financial Management (Other Agencies)

Forecast change by biennium (millions):

15-17: -\$7.4
17-19: \$2.2
19-21: \$4.9

The Office of Financial Management (OFM) is responsible for preparing General Fund-State revenue and transfer forecasts for all agencies excluding the Department of Revenue, the Department of Licensing, the Liquor and Cannabis Board, the Insurance Commissioner, the Washington State Lottery, and the State Treasurer. The office's forecast for the 2015-17 biennium was decreased \$7.4 million to \$213.9 million due to expected increases in distributions of Public Utilities District taxes and decreased collections of other revenues. The forecast for the 2017-19 biennium was increased \$2.2 million to \$211.2 million and the forecast for the 2019-21 biennium was increased \$4.9 million to \$203.2 million. The bulk of the forecast increases came from increased license, permit and fee revenue from the Department of Financial Institutions.

State Treasurer

*Forecast
change by
biennium
(millions):*

15-17: \$3.2
17-19: -\$2.1
19-21: \$2.8

The Office of the State Treasurer generates GF-S revenue by investing state short-term cash reserves. The office's forecast for the 2015-17 biennium has been increased \$3.2 million to \$16.1 million due to a forecasted increase in average fund balances. The forecast for the 2017-19 biennium has been decreased \$2.1 million to \$28.6 million due to lower forecasted interest rates. The forecast for the 2019-21 biennium was increased \$2.8 million to \$64.8 million due to a forecasted increase in average fund balances.

Insurance Commissioner

*Forecast
change by
biennium
(millions):*

15-17: -\$3.5
17-19: -\$23.9
19-21: -\$47.9

The Office of the Insurance Commissioner collects premium taxes on most classes of insurance sold in Washington State. These taxes are distributed to the GF-S and various accounts in support of fire services. The office's forecast of revenue for the 2015-17 biennium has been decreased \$3.5 million to \$1,050.7 million. The forecast for the 2017-19 biennium has been decreased \$23.9 million to \$1,130.9 million and the forecast for the 2019-21 biennium has been decreased \$47.9 million to \$1,208.5 million. The forecast decreases for these two biennia were due to increased use of tax credits to offset increases in required payments from insurers to the Washington Insurance Guaranty Association.

Liquor and Cannabis Board

*Forecast
change by
biennium
(millions):*

15-17: \$16.4
17-19: \$20.1
19-21: \$17.5

The Liquor and Cannabis Board (LCB) collects fees from distributors and retailers on sales of spirits and surtaxes on sales of beer and wine (sales and liter taxes on sprits are collected by the DOR). The LCB is also responsible for the collection of excise taxes and fees associated with the legalized sale and use of recreational and medicinal cannabis discussed previously. The forecast of LCB GF-S revenue for the 2015-17 biennium has been increased \$16.4 million to \$370.0 million. The forecast of revenue for the 2017-19 biennium has been increased \$20.1 million to \$483.1 million and the forecast for the 2019-21 biennium has been increased \$17.5 million to \$534.8 million.

Lottery Commission

While most of the proceeds from sales of lottery games go to the Washington Opportunity Pathways Account (OPA), distributions are also made to programs such as Problem Gambling, Economic Development and the Stadium/Exhibition Center. Details of the forecast of the distribution of Lottery earnings can be found in

GF-S forecast change by biennium (millions):

15-17: *-\$1.9*
17-19: *\$0.5*
19-21: *-\$0.3*

Table 3.15 on a cash basis and Table 3.16 on a GAAP basis. When total profits from all Washington-only games plus the Powerball game exceed \$102 million per year, the amount above \$102 million gets transferred to the GF-S. The forecast of transfers into the GF-S for the 2015-17 biennium has been decreased \$1.9 million to \$27.0 million. Forecasted transfers for the 2017-19 biennium have been increased \$0.5 million to \$34.6 million and forecasted transfers to the GF-S for the 2019-21 biennium have been reduced \$0.3 million to \$43.8 million.

OPA forecast change by biennium (millions):

15-17: *-\$0.7*
17-19: *-\$0.3*
19-21: *\$1.5*

The OPA receives all profits (excluding statutory transfers) from Washington-only lottery games plus all profits from the Mega Millions game. The forecast of OPA revenue for the 2015-17 biennium has been decreased \$0.7 million to \$264.1 million. The forecast for the 2017-19 biennium has been decreased \$0.3 million to \$253.6 million and the forecast for the 2019-21 biennium has been increased \$1.5 million to \$253.4 million.

Administrative Office of the Courts

Forecast change by biennium (millions):

15-17: *-\$0.4*
17-19: *-\$6.5*
19-21: *-\$8.1*

The Administrative Office of the Courts collects surcharges on certain filing fees, fines, and infraction penalties and transfers this revenue to the GF-S on a monthly basis. The forecast of transfers to the GF-S for the 2015-17 biennium has been decreased \$0.4 million to \$158.2 million and the forecast for the 2017-19 biennium has been decreased \$6.5 million to \$154.7 million. The forecast of transfers for the 2019-21 biennium has been decreased \$8.1 million to \$160.2 million.

Track Record for the 2015-17 Biennium

The September 2016 forecast is \$814 million (2.2%) higher than it was when the initial biennial budget in 2015 was adopted

Table 3.10 summarizes the historical changes to the GF-S revenue forecast for the 2015-17 biennium. The September 2012 forecast was the initial forecast for the biennium. The September 2016 forecast for the biennium is \$2.25 billion (6.3%) higher than the initial forecast. Non-economic changes have increased the forecast by \$499 million (1.4%). Excluding non-economic changes, the current forecast is \$1.75 billion (4.9%) higher than the initial forecast. The June 2015 forecast, coupled with the \$193 million in legislative and budget-driven revenue changes passed in the 2015 special legislative sessions, was the basis for the initial budget for the 2015-17 biennium. The September 2016 forecast is \$814 million (2.2%) higher than that sum.

Track Record for the 2017-19 Biennium

The September 2016 forecast is \$1.7 billion (4.3%) higher than the initial February 2014 forecast

Table 3.11 summarizes the historical changes to the GF-S revenue forecast for the 2017-19 biennium. The February 2014 forecast was the initial forecast for the biennium. The September 2016 forecast is \$1.67 billion (4.3%) higher than the initial forecast. Non-economic changes have increased the forecast by \$399 million (1.0%). Excluding non-economic changes, the current forecast is \$1.27 billion (3.3%) higher than the initial forecast.

The Relationship between the Cash and GAAP General Fund-State Revenue Forecasts

GAAP forecasts are based on the period in which the revenue is earned rather than received

Legislation enacted in 1987 requires that the state's biennial budget be in conformance with Generally Accepted Accounting Principles (GAAP). It also requires a GF-S revenue forecast on both a cash and GAAP basis. The GAAP forecasts of GF-S revenue for the 2015-17 and 2017-19 biennia are presented in Tables 3.6 and 3.8 and the GAAP forecast of Lottery revenue transfers for both biennia is in Table 3.15. The primary difference between the cash and GAAP forecasts is the timing of the receipt of revenue. On a GAAP basis, revenue is credited to the biennium in which it is earned even though it may not have been received. The cash forecast, on the other hand, reflects expected cash receipts during a fiscal period. The forecast on a GAAP, or accrual, basis is primarily used for financial reporting. The cash forecast is used for cash flow management and revenue tracking. The cash forecast is also the forecast used in the state's budgetary balance sheet, which is the principal tool for assessing the General Fund's current surplus or deficit position. References to the GF-S forecast in the text of this chapter refer to the cash forecast unless otherwise noted. Likewise, figures from revenue tables other than Tables 3.6, 3.8 and 3.16 are projected on a cash basis.

Budgetary Balance Sheet for the 2015-17 Biennium

The forecast implies GF-S reserves of \$1.79 billion at the end of the 2015-17 biennium and \$1.82 billion in reserves for GF-S, ELTA and OPA

Table 3.12 shows the budgetary balance sheet for the 2015-17 biennium as prepared by the Office of Financial Management and the House and Senate fiscal committees. The balance sheet shows not only projected GF-S spending and resources but also total projected spending and resources for the GF-S plus the other main non-transportation state-funded accounts: the Education Legacy Trust Account (ELTA) and the Washington Opportunity Pathways Account (OPA). As shown in the table, the GF-S beginning fund balance for the 2015-17 biennium is \$990.9 million and the total estimated beginning balance for GF-S, ELTA and OPA is \$1,011.2 million. Based on the September 2016 revenue forecast and currently enacted budgets, unrestricted GF-

S reserves are projected to be \$874.3 million at the end of the 2015-17 biennium and GF-S, ELTA and OPA reserves are projected to be \$912.5 million. In addition, the Budget Stabilization Account is projected to have a balance of \$911.2 million, bringing total projected GF-S reserves to \$1,785.4 million. Projected combined reserves for the ELTA and OPA are \$38.2 million, for total projected reserves of \$1,823.7 million for GF-S, ELTA and OPA at the end of the 2015-17 biennium.

Alternative Forecasts for the 2015-17 and 2017-19 Biennia

Optimistic scenario (billions):

15-17: +\$1.0
17-19: +\$3.2

Pessimistic scenario:

15-17: -\$1.0
17-19: -\$3.1

Chapter 2 outlines optimistic and pessimistic economic scenarios relative to the baseline economic forecast. The forecast assigns a probability of 60% to the baseline forecast, 15% to a scenario based on the upside risks and 25% to a scenario based on the downside risks. The revenue implications of these alternative scenarios for the 2015-17 biennium are shown in Table 3.13 and those of the 2017-19 biennium are shown in Table 3.14. For the 2015-17 biennium, the optimistic forecast generates \$38,797.0 million in GF-S revenue, \$1,031.9 million (2.7%) more than the baseline scenario, while the pessimistic forecast produces \$36,801.2 million in revenue, \$963.9 million (2.6%) less than the baseline. For the 2017-19 biennium, the optimistic forecast generates \$43,605.9 million in GF-S revenue, \$3,228.9 million (8.0%) more than the baseline scenario, while the pessimistic forecast produces \$37,253.3 million in revenue, \$3,123.8 million (7.7%) less than the baseline.

Near General Fund Forecasts for the 2015-17–2019-21 Biennia

Near General Fund Forecast (millions):

2015-17:
\$38,218.1

2017-19:
\$40,898.6

2019-21:
\$43,990.3

“Near General Fund” accounts are those included in the GF-S plus the Education Legacy Trust Account (ELTA). The ELTA is primarily funded by a tax on estates of over \$2 million. Legislation from the 2013 special session, however, added revenue from public utility and real estate excise taxes which had previously gone into non-GF-S accounts. Subsequent legislation also added revenue from solid waste taxes beginning in FY 2016. All of these added revenue sources will cease to be transferred into the ELTA beginning in FY 2020. The Near General Fund forecast for the 2015-17 biennium is \$38,218.1 million, \$337.2 million more than the June 2016 forecast. The forecast of Near General Fund revenue for the 2017-19 biennium is \$40,898.6 million, \$134.2 million more than the June forecast, and the forecast for the 2019-21 biennium is \$43,990.3 million, \$62.6 million more than the June forecast. The Near General Fund forecast and recent history by fiscal year are presented in Table 3.17. The table also includes projected revenue for the OPA and the sum of Near General Fund plus OPA revenues by fiscal year.

Table 3.3
General Fund-State collections*
(millions of dollars, cash basis)

Biennium	Current Dollars	Percent Change	2009	
			Chained Dollars	Percent Change
1961-63	\$817.1		\$4,300.0	
1963-65	866.2	6.0%	4,439.3	3.2%
1965-67	1,128.6	30.3%	5,565.5	25.4%
1967-69	1,440.5	27.6%	6,658.6	19.6%
1969-71	1,732.7	20.3%	7,767.2	16.6%
1971-73	1,922.1	10.9%	7,971.8	2.6%
1973-75	2,372.4	23.4%	8,500.2	6.6%
1975-77	3,395.0	43.1%	10,580.8	24.5%
1977-79	4,490.0	32.3%	12,284.4	16.1%
1979-81	5,356.4	19.3%	12,197.3	-0.7%
1981-83	6,801.4	27.0%	13,492.7	10.6%
1983-85	8,202.4	20.6%	15,008.4	11.2%
1985-87	9,574.6	16.7%	16,528.2	10.1%
1987-89	10,934.1	14.2%	17,618.6	6.6%
1989-91	13,309.0	21.7%	19,772.8	12.2%
1991-93	14,862.2	11.7%	20,789.0	5.1%
1993-95	16,564.6	11.5%	22,140.3	6.5%
1995-97	17,637.7	6.5%	22,629.9	2.2%
1997-99	19,620.1	11.2%	24,520.3	8.4%
1999-01	21,262.1	8.4%	25,587.4	4.4%
2001-03	21,140.7	-0.6%	24,595.4	-3.9%
2003-05	23,388.5	10.6%	26,077.7	6.0%
2005-07	27,772.0	18.7%	29,316.2	12.4%
2007-09	27,703.0	-0.2%	27,888.3	-4.9%
2009-11	28,218.1	1.9%	27,704.7	-0.7%
2011-13	30,657.0	8.6%	28,906.9	4.3%
2013-15	33,666.0	9.8%	30,930.9	7.0%
2015-17 ^F	37,765.1	12.2%	34,055.7	10.1%
2017-19 ^F	40,377.1	6.9%	35,243.5	3.5%
2019-21 ^F	43,630.0	8.1%	36,709.9	4.2%

^F September 2016 Forecast.

*Total General Fund-State revenue and transfers. Cash basis; includes rate base and administrative changes. Modified cash basis: 1985-87 and prior; pure cash basis: 1987-89 and after. May not be comparable because the collection totals include the impact of rate, base and administrative changes.

Source: Department of Revenue, the Office of Financial Management and the Economic and Revenue Forecast Council 's September 2016 forecast.

Table 3.4
Taxable retail sales*
(millions of dollars)

Fiscal Year	Amount	Percent Change
1979	22,309	5.6%
1980	24,057	7.8%
1981	25,197	4.7%
1982	26,097	3.6%
1983	29,368	12.5%
1984	29,156	-0.7%
1985	30,687	5.3%
1986	32,158	4.8%
1987	34,647	7.7%
1988	37,452	8.1%
1989	41,429	10.6%
1990	47,183	13.9%
1991	49,812	5.6%
1992	53,189	6.8%
1993	55,319	4.0%
1994	59,009	6.7%
1995	61,927	4.9%
1996	62,817	1.4%
1997	66,748	6.3%
1998	72,059	8.0%
1999	77,197	7.1%
2000	83,335	8.0%
2001	85,633	2.8%
2002	84,418	-1.4%
2003	86,165	2.1%
2004	90,139	4.6%
2005	97,253	7.9%
2006	107,071	10.1%
2007	115,527	7.9%
2008	118,676	2.7%
2009	106,379	-10.4%
2010	99,983	-6.0%
2011	101,825	1.8%
2012	106,036	4.1%
2013	113,173	6.7%
2014	120,453	6.4%
2015	130,168	8.1%
2016 ^F	141,095	8.4%
2017 ^F	145,575	3.2%
2018 ^F	151,967	4.4%
2019 ^F	158,739	4.5%
2020 ^F	165,178	4.1%
2021 ^F	171,663	3.9%

^F September 2016 forecast

Source: ERFC

* Actual Base. Includes statutory and administrative changes to the tax base. Historical fiscal year data are from quarterly taxable sales reported by taxpayers on the state's Combined Excise tax return. Reported totals affected by enacted legislation. Major base changes include: exemption of off-premises food, beginning 1978:3 (fiscal 1979); extension of the sales tax base to off premises food (1982:2 to 1983:2); food again exempt 1983:3 (fiscal 1984); extension of the sales tax base to candy, gum and bottled water (June 1 - December 2, 2010); elimination of sales tax exemption for residential phone service (July 1, 2013).

Table 3.5

Comparison of the General Fund-State forecast by agency

2015-17 biennium; cash basis

(millions of dollars)

Forecast by Agency	June 2016 Forecast¹	Non- Economic Changes	Forecast Revision	Sept. 2016 Forecast²	Total Change
Department of Revenue					
Retail Sales	\$18,061.3	0.0	\$203.4	\$18,264.8	\$203.4
Business & Occupation Use	7,377.3	0.0	18.2	7,395.5	18.2
Public Utility	1,282.0	0.0	(23.5)	1,258.5	(23.5)
Liquor Sales/Liter	819.2	0.0	(6.1)	813.1	(6.1)
Cigarette	509.7	0.0	2.1	511.8	2.1
Property (State Levy)	774.0	0.0	(0.3)	773.7	(0.3)
Real Estate Excise	4,143.2	0.0	(4.5)	4,138.7	(4.5)
Timber Excise	1,632.8	0.0	88.8	1,721.6	88.8
Other	5.1	0.0	(0.3)	4.7	(0.3)
Subtotal	960.4	0.0	48.9	1,009.3	48.9
	35,565.0	0.0	326.8	35,891.8	326.8
Department of Licensing					
Boat excise, licenses, fees & other	36.3	0.0	1.1	37.4	1.1
Insurance Commissioner					
Insurance Premiums	1,054.2	0.0	(3.5)	1,050.7	(3.5)
Liquor Control Board					
Fees, Cannabis Excise Tax	297.5	0.0	15.1	312.6	15.1
Beer & Wine Surtax	56.1	0.0	1.3	57.4	1.3
Lottery Commission					
Lottery Revenue	28.9	0.0	(1.9)	27.0	(1.9)
State Treasurer					
Interest Earnings	12.8	0.0	3.2	16.1	3.2
Office of Financial Management					
Other Agencies	221.3	0.0	(7.4)	213.9	(7.4)
Administrative Office of the Courts					
Fines and Forfeitures	158.6	0.0	(0.4)	158.2	(0.4)
Total General Fund-State *	\$37,430.8	\$0.0	\$334.4	\$37,765.1	\$334.4

¹ Forecast for the 2015-17 biennium adopted by the Economic and Revenue Forecast Council June 15, 2016² Forecast for the 2015-17 biennium, adopted September 21, 2016

*Detail may not add to totals because of rounding.

Source: ERFC, Department of Licensing, Insurance Commissioner, Lottery Commission, Office of the State Treasurer, Liquor Control Board, Office of Financial Management

Table 3.6

Comparison of the General Fund-State forecast by agency

2015-17 biennium; GAAP basis

(millions of dollars)

Forecast by Agency	June 2016 Forecast¹	Non- Economic Changes	Forecast Revision	Sept. 2016 Forecast²	Total Change
Department of Revenue					
Retail Sales	\$18,061.3	\$0.0	\$248.9	\$18,310.3	\$248.9
Business & Occupation Use	7,377.3	0.0	39.4	7,416.7	39.4
Public Utility	1,282.0	0.0	(30.8)	1,251.1	(30.8)
Liquor Sales/Liter	819.2	0.0	(9.3)	809.9	(9.3)
Cigarette	509.7	0.0	3.8	513.5	3.8
Property (State Levy)	774.0	0.0	(0.1)	773.9	(0.1)
Real Estate Excise	4,143.2	0.0	(3.6)	4,139.6	(3.6)
Timber Excise	1,632.8	0.0	90.7	1,723.4	90.7
Other	5.1	0.0	(0.4)	4.7	(0.4)
Subtotal	964.4	0.0	48.7	1,013.1	48.7
	35,569.1	0.0	387.2	35,956.3	387.2
Department of Licensing					
Boat excise, licenses, fees & other	36.3	0.0	1.1	37.4	1.1
Insurance Commissioner					
Insurance Premiums	1,054.2	0.0	(3.5)	1,050.7	(3.5)
Liquor Control Board					
Fees, Cannabis Excise Tax	297.5	0.5	14.7	312.6	15.1
Beer & Wine Surtax	56.1	0.0	1.3	57.4	1.3
Lottery Commission					
Lottery Revenue	42.3	0.0	3.3	45.6	3.3
State Treasurer					
Interest Earnings	12.9	0.0	2.9	15.8	2.9
Office of Financial Management					
Other	221.3	0.0	(7.4)	213.9	(7.4)
Administrative Office of the Courts					
Fines and Forfeitures	158.6	0.0	(0.4)	158.2	(0.4)
Total General Fund-State *	\$37,448.4	\$0.5	\$399.0	\$37,847.9	\$399.5

¹ Forecast for the 2015-17 biennium adopted by the Economic and Revenue Forecast Council June 15, 2016² Forecast for the 2015-17 biennium, adopted September 21, 2016

*Detail may not add to totals because of rounding.

Source: ERFC, Department of Licensing, Insurance Commissioner, Lottery Commission, Office of the State Treasurer, Liquor Control Board, Office of Financial Management

Table 3.7

Comparison of the General Fund-State forecast by agency

2017-19 biennium; cash basis

(millions of dollars)

Forecast by Agency	June 2016 Forecast¹	Non- Economic Changes	Forecast Revision	Sept. 2016 Forecast²	Total Change
Department of Revenue					
Retail Sales	\$19,670.2	0.0	\$130.6	\$19,800.8	\$130.6
Business & Occupation Use	8,118.8	0.0	(5.1)	8,113.8	(5.1)
Public Utility	1,367.2	0.0	(35.2)	1,332.0	(35.2)
Liquor Sales/Liter	899.1	0.0	(3.4)	895.6	(3.4)
Cigarette	529.7	0.0	2.5	532.2	2.5
Property (State Levy)	729.5	0.0	(1.6)	727.9	(1.6)
Real Estate Excise	4,351.6	0.0	(1.5)	4,350.1	(1.5)
Timber Excise	1,564.9	0.0	50.2	1,615.1	50.2
Other	4.9	0.0	(0.4)	4.5	(0.4)
Subtotal	925.9	0.0	(0.9)	925.0	(0.9)
	38,161.7	0.0	135.2	38,296.9	135.2
Department of Licensing					
Boat excise, licenses, fees & other	37.0	0.0	(0.1)	36.9	(0.1)
Insurance Commissioner					
Insurance Premiums	1,154.8	0.0	(23.9)	1,130.9	(23.9)
Liquor Control Board					
Fees, Cannabis Excise Tax	407.2	0.0	18.6	425.8	18.6
Beer & Wine Surtax	55.8	0.0	1.5	57.3	1.5
Lottery Commission					
Lottery Revenue	34.1	0.0	0.5	34.6	0.5
State Treasurer					
Interest Earnings	30.8	0.0	(2.1)	28.6	(2.1)
Office of Financial Management					
Other	209.0	0.0	2.2	211.2	2.2
Administrative Office of the Courts					
Fines and Forfeitures	161.2	0.0	(6.5)	154.7	(6.5)
Total General Fund-State *	\$40,251.6	\$0.0	\$125.4	\$40,377.1	\$125.4

¹ Forecast for the 2017-19 biennium adopted by the Economic and Revenue Forecast Council June 15, 2016² Forecast for the 2017-19 biennium, adopted September 21, 2016

*Detail may not add to totals because of rounding.

Source: ERFC, Department of Licensing, Insurance Commissioner, Lottery Commission, Office of the State Treasurer, Liquor Control Board, Office of Financial Management

Table 3.8

Comparison of the General Fund-State forecast by agency

2017-19 biennium; GAAP basis

(millions of dollars)

Forecast by Agency	June 2016 Forecast¹	Non- Economic Changes	Forecast Revision	Sept. 2016 Forecast²	Total Change
Department of Revenue					
Retail Sales	\$19,670.2	\$0.0	\$130.6	\$19,800.8	\$130.6
Business & Occupation Use	8,118.8	0.0	(5.1)	8,113.8	(5.1)
Public Utility	1,367.2	0.0	(35.2)	1,332.0	(35.2)
Liquor Sales/Liter	899.1	0.0	(3.4)	895.6	(3.4)
Cigarette	529.7	0.0	2.5	532.2	2.5
Property (State Levy)	729.5	0.0	(1.6)	727.9	(1.6)
Real Estate Excise	4,351.6	0.0	(1.5)	4,350.1	(1.5)
Timber Excise	1,564.9	0.0	50.2	1,615.1	50.2
Other	5.0	0.0	(0.4)	4.5	(0.4)
Subtotal	925.9	0.0	(0.9)	925.0	(0.9)
	38,161.8	0.0	135.2	38,297.0	135.2
Department of Licensing					
Boat excise, licenses, fees & other	37.0	0.0	(0.1)	36.9	(0.1)
Insurance Commissioner					
Insurance Premiums	1,154.8	0.0	(23.9)	1,130.9	(23.9)
Liquor Control Board					
Fees, Cannabis Excise Tax	407.2	0.0	18.6	425.8	18.6
Beer & Wine Surtax	55.8	0.0	1.5	57.3	1.5
Lottery Commission					
Lottery Revenue	36.7	0.0	(0.8)	35.8	(0.8)
State Treasurer					
Interest Earnings	32.3	0.0	(2.5)	29.8	(2.5)
Office of Financial Management					
Other	209.0	0.0	2.2	211.2	2.2
Administrative Office of the Courts					
Fines and Forfeitures	161.2	0.0	(6.5)	154.7	(6.5)
Total General Fund-State *	\$40,255.8	\$0.0	\$123.6	\$40,379.4	\$123.6

¹ Forecast for the 2017-19 biennium adopted by the Economic and Revenue Forecast Council June 15, 2016² Forecast for the 2017-19 biennium, adopted September 21, 2016

*Detail may not add to totals because of rounding.

Source: ERFC, Department of Licensing, Insurance Commissioner, Lottery Commission, Office of the State Treasurer, Liquor Control Board, Office of Financial Management

Table 3.9

September 2016 General Fund-State history and forecast**2015-17 to 2019-21 biennia; cash basis**

(Millions of Dollars)

Forecast by Source	Fiscal 2016	Fiscal 2017	2015-17 Biennium	Fiscal 2018	Fiscal 2019	2017-19 Biennium	Fiscal 2020	Fiscal 2021	2019-21 Biennium
State Taxes									
Retail sales**	\$8,927.3	\$9,337.4	\$18,264.8	\$9,681.5	\$10,119.3	\$19,800.8	\$10,539.2	\$10,961.6	\$21,500.7
Business & occupation	3,628.4	3,767.1	7,395.5	3,951.9	4,161.9	8,113.8	4,374.6	4,591.5	8,966.2
Use**	635.8	622.8	1,258.5	649.7	682.3	1,332.0	713.1	741.1	1,454.1
Public Utility	400.5	412.6	813.1	438.6	457.1	895.6	473.1	494.1	967.3
Liquor sales/liter	252.9	259.0	511.8	263.6	268.6	532.2	274.4	280.4	554.8
Beer & wine surtax	29.1	28.3	57.4	28.5	28.8	57.3	29.0	29.1	58.1
Cigarette	400.6	390.9	791.5	377.5	367.5	745.0	357.0	349.0	706.0
Tobacco products	51.6	49.1	100.7	49.4	49.8	99.2	50.3	50.7	100.9
Cannabis Excise Taxes	48.1	92.8	141.0	110.6	122.3	232.9	130.3	136.5	266.9
Property (state school levy)	2,047.1	2,091.7	4,138.7	2,147.6	2,202.5	4,350.1	2,260.1	2,317.5	4,577.6
Leasehold Excise Tax	32.9	31.1	64.0	31.1	31.4	62.5	31.7	32.1	63.7
Public utility district	51.2	51.7	102.8	52.3	53.0	105.3	53.9	54.9	108.9
Brokered Natural Gas	21.4	19.8	41.2	19.9	20.1	40.0	20.4	20.7	41.1
Real estate excise***	885.1	836.5	1,721.6	796.6	818.5	1,615.1	845.4	872.0	1,717.4
Timber excise	2.8	1.9	4.7	2.2	2.3	4.5	2.4	2.4	4.8
Estate/inheritance	0.3	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Boat excise	13.8	13.2	27.0	13.2	13.2	26.4	13.2	13.2	26.4
Insurance premiums	510.1	540.5	1,050.7	555.8	575.1	1,130.9	592.0	616.5	1,208.5
Penalties and interest on past due taxes	178.9	190.2	369.1	151.4	157.2	308.6	163.3	169.6	332.9
Other	56.6	56.7	113.3	57.5	36.5	94.1	37.2	37.8	75.0
Total Taxes	18,174.7	18,793.4	36,968.0	19,378.8	20,167.4	39,546.2	20,960.5	21,770.7	42,731.3
State Non-Tax Sources									
Licenses, permits, fees	141.9	144.4	286.3	146.5	149.3	295.7	151.2	153.7	304.9
Liquor & Cannabis fees	81.7	90.0	171.7	94.4	98.5	192.9	102.7	107.1	209.8
Earnings on investments	7.3	8.8	16.1	8.6	20.1	28.6	30.9	34.0	64.8
Administrative Office of the Courts	80.8	77.3	158.2	76.9	77.8	154.7	79.3	80.9	160.2
Transfers of unclaimed property	70.7	60.0	130.7	62.0	63.4	125.4	64.6	65.8	130.3
Other revenue & transfers	21.7	12.5	34.2	13.7	19.9	33.6	14.7	14.0	28.7
Total Non-Tax	404.0	393.1	797.1	402.1	428.9	830.9	443.3	455.4	898.8
Total General Fund-State *	\$18,578.7	\$19,186.4	\$37,765.1	\$19,780.8	\$20,596.2	\$40,377.1	\$21,403.8	\$22,226.2	\$43,630.0

* Detail may not add to totals due to rounding

**GFS portion after Initiative 900 transfer

***Includes penalties and interest

Table 3.10

Track Record for the 2015-17 General Fund-State Cash Forecast

September 2012 through September 2016

Cash Basis - Millions of Dollars

<u>Date of Forecast</u>	<u>Department of Revenue*</u>	<u>Other Agencies</u>	<u>Subtotal*</u>	<u>Non-Economic Changes**</u>	<u>Total Change</u>	<u>Total General Fund-State Cash Basis</u>
September 2012[#]	\$34,102	\$1,416				\$35,518
Changes to Forecast						
November 2012	(196)	33	(163)	0	(163)	35,355
March 2013	(92)	44	(49)	0	(49)	35,306
June 2013	56	2	58	(7) ^{#1}	51	35,357
September 2013	95	(2)	93	249 ^{#2}	342	35,699
November 2013	(47)	3	(44)	(41) ^{#3}	(85)	35,615
February 2014	5	26	31	51 ^{#4}	82	35,697
June 2014	194	40	233	5 ^{#5}	238	35,935
September 2014	168	(25)	143	0	143	36,078
November 2014	239	3	241	0	241	36,319
February 2015	108	22	129	0	129	36,449
June 2015	201	70	270	39 ^{#6}	309	36,758
September 2015	80	60	139	193 ^{#7}	333	37,091
November 2015	107	(8)	99	15 ^{#8}	113	37,204
February 2016	(101)	33	(67)	0	(67)	37,137
June 2016	330	(32)	298	(5) ^{#9}	294	37,431
September 2016	327	8	334	0	334	37,765
Total change***:						
From September 2012	1,472	275	1,747	499	2,247	
Percent change	4.3	19.4	4.9	1.4	6.3	

* Excludes legislative, judicial, statutorily required or other major non-economic changes.

** Includes legislative, judicial, statutorily required or other major non-economic changes.

*** Detail may not add to total due to rounding.

[#] First official forecast for the 2015-17 biennium.^{#1} Transfer of GF-S funds to Child and Family Reinvestment Account^{#2} Legislative and budget-driven revenue changes from 2013 second special session^{#3} Re-classification of prior period adjustments as non-revenue resources^{#4} Cannabis excise taxes and fees plus retail sales and B&O taxes on cannabis production and sales resulting from Initiative 502^{#5} Sum of legislative and budget-driven revenue changes from the 2014 regular legislative session^{#6} Legislative revenue changes from 2015 regular legislative session^{#7} Legislative and budget driven revenue changes from 2015 special legislative sessions^{#8} Sum of large expected audit payments^{#9} Legislative and budget-driven revenue changes from the 2016 regular and first special legislative sessions plus \$3.3 million AG settlement

Table 3.11

Track Record for the 2017-19 General Fund-State Cash Forecast

February 2014 through September 2016

Cash Basis - Millions of Dollars

<u>Date of Forecast</u>	<u>Department of Revenue*</u>	<u>Other Agencies</u>	<u>Subtotal*</u>	<u>Non-Economic Changes**</u>	<u>Total Change</u>	<u>Total General Fund-State Cash Basis#</u>
February 2014 ##	\$36,887	\$1,823				\$38,710
Changes to Forecast						
June 2014	265	50	315	(1) #1	313	39,023
September 2014	227	(63)	164	0	164	39,188
November 2014	388	26	415	0	415	39,602
February 2015	126	28	154	0	154	39,757
June 2015	257	64	321	122 #2	443	40,200
September 2015	4	47	52	286 #3	338	40,538
November 2015	35	(5)	30	0	30	40,567
February 2016	(449)	7	(442)	0	(442)	40,125
June 2016	187	(53)	134	(8) #4	126	40,252
September 2016	135	(10)	125	0	125	40,377
Total change***:						
From February 2014	1,177	91	1,268	399	1,667	
Percent change	3.2	5.0	3.3	1.0	4.3	

* Excludes legislative, judicial, statutorily required or other major non-economic changes.

** Includes legislative, judicial, statutorily required or other major non-economic changes.

*** Detail may not add to total due to rounding.

First official forecast for the 2017-19 biennium.

#1 Sum of legislative and budget-driven revenue changes from the 2014 regular legislative session

#2 Legislative revenue changes from 2015 regular legislative session

#3 Legislative and budget driven revenue changes from 2015 special legislative sessions

#4 Legislative revenue changes from the 2016 regular and first special legislative sessions

Table 3.12

2015-17 Enacted Budget Balance Sheet
General Fund-State (GFS), Education Legacy Trust Account (ELTA),
Opportunity Pathways Account (OPA) and Budget Stabilization Account
Dollars in Millions

	2015-17		
	GFS	ELTA and OPA	TOTAL
RESOURCES			
Beginning Fund Balance	990.9	20.3	1,011.2
June 2016 Revenue Forecast	37,430.8	714.9	38,145.7
September 2016 Revenue Forecast Change	334.4	2.1	336.4
Current Revenue Totals	37,765.1	717.0	38,482.1
Transfer to Budget Stabilization Account (1% of GSR)	(375.2)		(375.2)
Transfer to Budget Stabilization Account (EORG)	(282.5)		(282.5)
Transfer from BSA (EORG)	75.0		75.0
Other Enacted Fund Transfers	207.4		207.4
Prior Period Adjustments	40.8		40.8
Total Resources (including beginning fund balance)	38,421.5	737.3	39,158.8
EXPENDITURES			
2015-17 Biennium			
Enacted Budget	37,507.3	711.9	38,219.2
2016 Enacted Supplemental Budget	203.7	(12.8)	190.9
Assumed Reversions	(207.2)		(207.2)
Impact of Governor's Veto	43.5		43.5
Total Expenditures	37,547.2	699.1	38,246.3
RESERVES			
Projected Ending Balance (GFS + ELTA + OPA)	874.3	38.2	912.5
Budget Stabilization Account			
Budget Stabilization Account Beginning Balance	513.1		513.1
Plus Transfers from General Fund and Interest Earnings	662.6		662.6
Less Appropriation From BSA: Fires	(189.5)		(189.5)
Less Transfers Out to GFS (Extraordinary Revenue)	(75.0)		(75.0)
Projected Budget Stabilization Account Ending Balance	911.2		911.2
Total Reserves (Near General Fund plus Budget Stabilization)	1,785.4	38.2	1,823.7

Table 3.13

**Alternative forecasts compared to the baseline forecast
2015-17 biennium**

(cash basis, millions of dollars)

Forecast by Source	Optimistic Forecast	Baseline Forecast	Pessimistic Forecast
Department of Revenue			
Retail Sales	\$18,831.3	\$18,264.8	\$17,645.7
Business & Occupation Use	7,696.5	7,395.5	7,228.8
Public Utility	1,305.0	1,258.5	1,214.1
Property (school levy)	841.2	813.1	789.6
Real Estate Excise	4,143.8	4,138.7	4,132.6
Other	1,735.1	1,721.6	1,673.4
Subtotal	2,328.9	2,299.6	2,284.0
	36,881.9	35,891.8	34,968.2
Department of Licensing			
	37.8	37.4	37.0
Insurance Commissioner¹			
	1,064.2	1,050.7	1,037.2
Lottery Commission			
	28.4	27.0	25.7
State Treasurer - Interest earnings			
	23.6	16.1	8.7
Liquor and Cannabis Surtaxes & Fees²			
	383.2	370.0	357.6
Office of Financial Management			
Other agencies	218.2	213.9	209.6
Administrative Office of the Courts			
Fines and Forfeitures	159.8	158.2	157.2
Total General Fund - State*	\$38,797.0	\$37,765.1	\$36,801.2
Difference from September 2016 Baseline	\$1,031.9		(\$963.9)

1 Insurance premiums, General Fund-State portion.

2 Includes beer and wine surtax, cannabis excise tax, distributor fees, retailer fees, licensing fees.

* Detail may not add to total due to rounding.

Source: ERFC, Department of Licensing, Insurance Commissioner, Lottery Commission, Office of the State Treasurer, Liquor Control Board, Office of Financial Management

Table 3.14

**Alternative forecasts compared to the baseline forecast
2017-19 biennium**

(cash basis, millions of dollars)

Forecast by Source	Optimistic Forecast	Baseline Forecast	Pessimistic Forecast
Department of Revenue			
Retail Sales	\$21,709.2	\$19,800.8	\$18,026.8
Business & Occupation Use	8,829.3	8,113.8	7,438.0
Public Utility	1,449.0	1,332.0	1,209.2
Property (school levy)	965.5	895.6	851.8
Real Estate Excise	4,370.5	4,350.1	4,325.9
Other	1,866.3	1,615.1	1,283.8
Subtotal	2,241.1	2,189.6	2,123.0
	41,430.9	38,296.9	35,258.5
Department of Licensing			
	37.7	36.9	36.2
Insurance Commissioner¹			
	1,159.1	1,130.9	1,102.6
Lottery Commission			
	36.3	34.6	32.9
State Treasurer - Interest earnings			
	51.7	28.6	7.9
Liquor and Cannabis Surtaxes & Fees²			
	507.8	483.1	462.9
Office of Financial Management			
Other agencies	219.7	211.2	202.8
Administrative Office of the Courts			
Fines and Forfeitures	162.7	154.7	149.5
Total General Fund - State*	\$43,605.9	\$40,377.1	\$37,253.3
Difference from September 2016 Baseline	\$3,228.9		(\$3,123.8)

1 Insurance premiums, General Fund-State portion.

2 Includes beer and wine surtax, cannabis excise tax, distributor fees, retailer fees, licensing fees.

* Detail may not add to total due to rounding.

Source: ERFC, Department of Licensing, Insurance Commissioner, Lottery Commission, Office of the State Treasurer, Liquor Control Board, Office of Financial Management

Table 3.15
Lottery transfers by fund
 September 2016 Forecast
 (cash basis, millions of dollars)

	Lottery: Total Transfers:*	General Fund	Mariners Stadium	Exhibition Center & Stadium	Student Achievement Account	School Construction Account	Problem Gambling Account	Economic Development Account	Opportunity Pathways Account	Veteran's VIP Account	Education Legacy Trust Account
2010	126.4	12.9	5.1	9.2	0.0	95.6	0.3	3.3	0.0	0.0	0.0
2011	137.2	8.6	5.3	9.6	0.0	9.4	0.3	4.5	99.5	0.0	0.0
2009-11 Biennium	263.6	21.5	10.4	18.8	0.0	105.0	0.5	7.9	99.5	0.0	0.0
2012	135.1	0.0	2.7	10.0	0.0	0.0	0.3	3.3	118.5	0.2	0.0
2013	139.7	0.0	0.0	10.4	0.0	0.0	0.3	3.5	125.5	0.0	0.0
2011-13 Biennium	274.8	0.0	2.7	20.4	0.0	0.0	0.6	6.9	244.0	0.2	0.0
2014	147.9	9.3	0.0	10.8	0.0	0.0	0.3	3.7	113.7	0.0	10.1
2015	143.1	0.6	0.0	11.2	0.0	0.0	0.3	4.7	120.2	0.0	6.1
2013-15 Biennium	291.0	9.9	0.0	22.0	0.0	0.0	0.6	8.4	233.9	0.0	16.1
2016	171.6	17.1	0.0	11.7	0.0	0.0	0.3	3.3	139.1	0.0	0.0
2017	151.4	9.9	0.0	12.2	0.0	0.0	0.3	3.6	124.9	0.0	0.0
2015-17 Biennium	323.0	27.0	0.0	23.8	0.0	0.0	0.7	6.9	264.1	0.0	0.0
2018	159.6	15.5	0.0	12.6	0.0	0.0	0.3	3.6	127.0	0.0	0.0
2019	163.4	19.1	0.0	13.1	0.0	0.0	0.3	3.6	126.6	0.0	0.0
2017-19 Biennium	323.0	34.6	0.0	25.8	0.0	0.0	0.7	7.3	253.6	0.0	0.0
2020	165.9	21.0	0.0	13.7	0.0	0.0	0.3	3.6	126.7	0.0	0.0
2021	167.7	22.8	0.0	14.2	0.0	0.0	0.3	3.6	126.7	0.0	0.0
2019-21 Biennium	333.5	43.8	0.0	27.9	0.0	0.0	0.7	7.3	253.4	0.0	0.0

Table 3.16
Lottery transfers by fund
 September 2016 Forecast
 (GAAP basis, millions of dollars)

	Lottery: Total Transfers:*	General Fund	Mariners Stadium	Exhibition Center & Stadium	Student Achievement Account	School Construction Account	Problem Gambling Account	Economic Development Account	Opportunity Pathways Account	Veteran's VIP Account	Education Legacy Trust Account
2010	129.4	12.9	5.1	9.2	0.0	97.4	0.3	4.6	0.0	0.0	0.0
2011	138.2	7.0	5.3	9.6	0.0	0.0	0.3	3.7	112.3	0.0	0.0
2009-11 Biennium	267.6	19.9	10.4	18.8	0.0	97.4	0.5	8.3	112.3	0.0	0.0
2012	138.0	0.0	2.7	10.0	0.0	0.0	0.3	3.0	121.8	0.2	0.0
2013	139.2	9.3	0.0	10.4	0.0	0.0	0.3	3.6	115.5	0.0	0.0
2011-13 Biennium	277.2	9.3	2.7	20.4	0.0	0.0	0.6	6.6	237.4	0.2	0.0
2014	147.7	0.6	0.0	10.8	0.0	0.0	0.3	4.0	121.9	0.0	10.1
2015	141.3	0.0	0.0	11.2	0.0	0.0	0.3	4.7	119.0	0.0	6.1
2013-15 Biennium	288.9	0.6	0.0	22.0	0.0	0.0	0.6	8.7	240.9	0.0	16.1
2016	175.5	31.9	0.0	11.7	0.0	0.0	0.3	2.8	128.7	0.0	0.0
2017	156.1	13.7	0.0	12.2	0.0	0.0	0.3	3.6	125.9	0.0	0.0
2015-17 Biennium	331.7	45.6	0.0	23.8	0.0	0.0	0.7	6.5	254.6	0.0	0.0
2018	159.2	16.7	0.0	12.6	0.0	0.0	0.3	3.6	125.4	0.0	0.0
2019	162.2	19.1	0.0	13.1	0.0	0.0	0.3	3.6	125.5	0.0	0.0
2017-19 Biennium	321.4	35.8	0.0	25.8	0.0	0.0	0.7	7.3	250.9	0.0	0.0
2020	164.7	21.0	0.0	13.7	0.0	0.0	0.3	3.6	125.5	0.0	0.0
2021	167.2	22.8	0.0	14.2	0.0	0.0	0.3	3.6	125.7	0.0	0.0
2019-21 Biennium	331.9	43.8	0.0	27.9	0.0	0.0	0.7	7.3	251.2	0.0	0.0

* Total Transfers are equal to total sales less total expenses (prizes, cost of sales, administration etc.)
 Source: Lottery Commission, ERFC

Table 3.17

General Fund-State, Education Legacy Trust Account and Opportunity Pathways Account

History and Forecast by Fiscal Year (Cash basis)

September 2016 - Millions of Dollars

	General Fund-State (GF-S) (current definition)		Education Legacy Trust Fund* (ELTA)		Total GF-S plus ELTA		WA Opportunity Pathways Account (OPA)		Total GF-S plus ELTA and OPA	
	Level	% Chg.	Level	% Chg.	Level	% Chg.	Level	% Chg.	Level	% Chg.
History:										
FY 1997	\$9,449	5.8%			\$9,449	5.8%			\$9,449	5.8%
FY 1998	\$10,057	6.4%			\$10,057	6.4%			\$10,057	6.4%
FY 1999	\$10,414	3.6%			\$10,414	3.6%			\$10,414	3.6%
FY 2000	\$11,068	6.3%			\$11,068	6.3%			\$11,068	6.3%
FY 2001	\$11,560	4.4%			\$11,560	4.4%			\$11,560	4.4%
FY 2002	\$11,632	0.6%			\$11,632	0.6%			\$11,632	0.6%
FY 2003	\$11,721	0.8%			\$11,721	0.8%			\$11,721	0.8%
FY 2004	\$12,358	5.4%			\$12,358	5.4%			\$12,358	5.4%
FY 2005	\$13,036	5.5%			\$13,036	5.5%			\$13,036	5.5%
FY 2006	\$14,318	9.8%	\$115		\$14,432	10.7%			\$14,432	10.7%
FY 2007	\$15,467	8.0%	\$266	132.2%	\$15,734	9.0%			\$15,734	9.0%
FY 2008	\$15,659	1.2%	\$213	-20.1%	\$15,872	0.9%			\$15,872	0.9%
FY 2009	\$14,158	-9.6%	\$224	5.4%	\$14,382	-9.4%			\$14,382	-9.4%
FY 2010	\$13,571	-4.1%	\$157	-29.9%	\$13,728	-4.6%			\$13,728	-4.6%
FY 2011	\$14,648	7.9%	\$112	-29.0%	\$14,759	7.5%	\$99		\$14,859	8.2%
FY 2012	\$14,874	1.5%	\$114	2.3%	\$14,988	1.6%	\$118	19.1%	\$15,107	1.7%
FY 2013	\$15,783	6.1%	\$101	-11.5%	\$15,884	6.0%	\$126	5.9%	\$16,009	6.0%
FY 2014	\$16,383	3.8%	\$197	95.3%	\$16,580	4.4%	\$114	-9.4%	\$16,694	4.3%
FY 2015	\$17,283	5.5%	\$207	5.0%	\$17,491	5.5%	\$120	5.7%	\$17,611	5.5%
Forecast:										
FY 2016	\$18,579	7.5%	\$215	3.6%	\$18,793	7.4%	\$139	15.7%	\$18,933	7.5%
FY 2017	\$19,186	3.3%	\$238	10.9%	\$19,425	3.4%	\$125	-10.2%	\$19,550	3.3%
FY 2018	\$19,781	3.1%	\$249	4.4%	\$20,029	3.1%	\$127	1.7%	\$20,156	3.1%
FY 2019	\$20,596	4.1%	\$273	9.8%	\$20,869	4.2%	\$127	-0.3%	\$20,996	4.2%
FY 2020	\$21,404	3.9%	\$178	-34.8%	\$21,582	3.4%	\$127	0.0%	\$21,708	3.4%
FY 2021	\$22,226	3.8%	\$182	2.5%	\$22,409	3.8%	\$127	0.0%	\$22,535	3.8%
Biennial Totals										
05-07 Biennium	\$29,785	17.3%	\$381	NA	\$30,166	18.8%	\$0	NA	\$30,166	18.8%
07-09 Biennium	\$29,817	0.1%	\$437	14.8%	\$30,254	0.3%	\$0	NA	\$30,254	0.3%
09-11 Biennium	\$28,218	-5.4%	\$269	-38.5%	\$28,487	-5.8%	\$99	NA	\$28,586	-5.5%
11-13 Biennium	\$30,657	8.6%	\$215	-19.9%	\$30,872	8.4%	\$244	145.2%	\$31,116	8.8%
13-15 Biennium	\$33,666	9.8%	\$405	88.0%	\$34,071	10.4%	\$234	-4.1%	\$34,305	10.2%
15-17 Biennium	\$37,765	12.2%	\$453	11.9%	\$38,218	12.2%	\$264	12.9%	\$38,482	12.2%
17-19 Biennium	\$40,377	6.9%	\$522	15.1%	\$40,899	7.0%	\$254	-3.9%	\$41,152	6.9%
19-21 Biennium	\$43,630	8.1%	\$360	-30.9%	\$43,990	7.6%	\$253	-0.1%	\$44,244	7.5%

*Education legacy trust fund excluding FY 14 and FY 15 lottery fund transfers. Includes pension stabilization fund interest in FY 08 and FY 09.

Table 3.18
Forecasted distribution of excise tax and license fees from cannabis sales
 September 2016
 Thousands of dollars

Fiscal year	Total of cannabis excise taxes plus license fees	Administrative expenses and pre-distribution allotments	Total to distribute	Distribution of remaining funds							General Fund-State
				DSHS substance abuse program	Dept. of Health cannabis education program	UW/WSU research	Basic Health Plan Trust Account	Health Care Authority community health centers	OSPI dropout prevention		
2015	\$67,486	\$22,074	\$45,412	\$5,166	\$0	\$0	\$22,706	\$2,271	\$0	\$15,269	
2016	\$168,051	\$8,551	\$159,500	\$12,814	\$7,500	\$345	\$79,750	\$7,791	\$251	\$51,049	
2017	\$297,963	\$9,201	\$288,762	\$27,786	\$7,500	\$345	\$144,381	\$12,979	\$511	\$95,260	
2018	\$348,679	\$9,201	\$339,478	\$27,786	\$9,750	\$1,702	\$169,739	\$16,974	\$511	\$113,016	
2019	\$374,724	\$9,201	\$365,523	\$27,786	\$9,750	\$1,702	\$182,761	\$18,276	\$511	\$124,736	
2020	\$392,493	\$9,201	\$383,292	\$27,786	\$9,750	\$1,702	\$191,646	\$19,165	\$511	\$132,732	
2021	\$406,292	\$9,201	\$397,091	\$27,786	\$9,750	\$1,702	\$198,545	\$19,855	\$511	\$138,942	
Biennial totals											
2013-15	\$67,486	\$22,074	\$45,412	\$5,166	\$0	\$0	\$22,706	\$2,271	\$0	\$15,269	
2015-17	\$466,014	\$17,752	\$448,262	\$40,600	\$15,000	\$690	\$224,131	\$20,770	\$762	\$146,309	
2017-19	\$723,403	\$18,402	\$705,001	\$55,572	\$19,500	\$3,404	\$352,501	\$35,250	\$1,022	\$237,752	
2019-21	\$798,785	\$18,402	\$780,383	\$55,572	\$19,500	\$3,404	\$390,191	\$39,019	\$1,022	\$271,674	

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Chapter 4: Preliminary Analysis of the Washington Recreational Cannabis Market

- **Recreational cannabis has now been legal in Washington State for just over two years. The analysis covers the period from the start of legalization through June 2016**
- **The substantial changes in the recreational cannabis market since July 2014 mean that we have yet to observe “typical” market conditions**
- **After adjusting for number of retail stores, sales in border counties are significantly higher than in non-border counties**
- **Legalization of recreational cannabis in Oregon appears to have reduced sales in counties on the Oregon border**

Introduction

A preliminary analysis of recreational cannabis at the county level

Recreational cannabis has now been legal in Washington State for just over two years. This chapter will provide a preliminary analysis of this new market through June 2016. The analysis will focus on county level impacts on the sale of recreational cannabis. The end date for the analysis was selected because, starting in July 2016, the medical and recreational cannabis markets were merged. With very little data available since that merger, it seemed wise to focus solely on the recreational market now and follow up on the merged system in the future.

Initiative 502 passed in November 2012

Following passage of Initiative 502 in November 2012, the newly renamed Washington State Liquor and Cannabis Board entered into a rulemaking process to implement the initiative and create a legal recreational cannabis market in the state. This included licensing cannabis producers (growers), processors and retail outlets.

Prior to July 2016, a total of 334 retail licenses were available

The initial rules placed no limits on the number of producer or processor licenses, but the total amount of space for cannabis production was set at two million square feet. An entity could hold both a producer and a

processor license, but no entity with either a producer or processor license was eligible for a retail license. A total of 334 retail store licenses were available, distributed across the state based on population but with a maximum number of stores per county. Some cities and counties banned or placed moratoria on cannabis businesses, so that some areas eligible for retail licenses do not have operating retail outlets.

Evolution of the Cannabis Market

Changing nature of the market means we have yet to observe "typical" market conditions

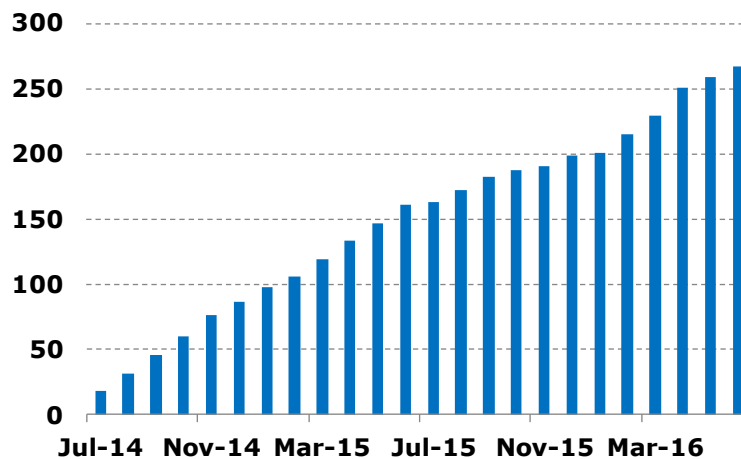
The changing nature of the recreational cannabis market means that we have yet to observe what might be referred to as typical or equilibrium market conditions. With one exception, statewide sales have increased every month between July 2014 and June 2016. However, it is unclear how much of the growth in sales is due to increasing numbers of retail outlets, to declining prices, or to changes in the quality and type of cannabis products for sale. In the early days of legal sales, it appeared that lack of supply constrained sales, with retail outlets occasionally closing for lack of products; this is no longer an issue.

First legal recreational sales occurred in July 2014

The first legal recreational retail sales occurred in July 2014. At that time, there were 18 licensed and operating retail stores in the state. As Figure 4.1 indicates, the number of retail stores with sales has grown every month and stood at 267 in June 2016.

The number of operating retail stores increased in every month

Figure 4.1: Operating Retail Stores, by month



Source: Liquor and Cannabis Board, data through June 2016

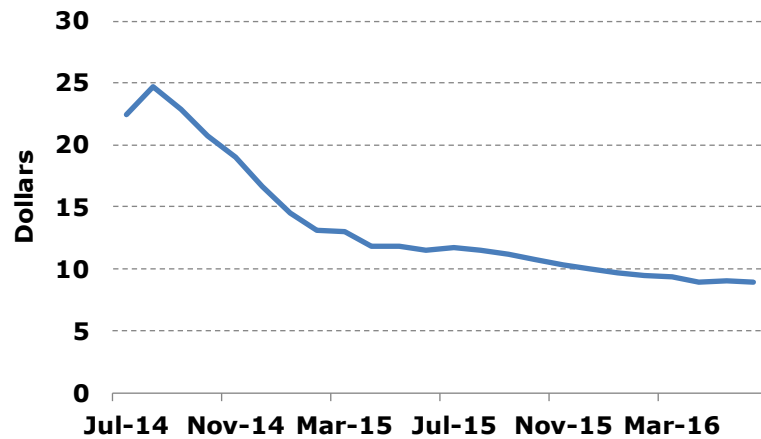
Producer and processor output has increased

Over time, producer and processor output has increased. In July 2014, only 16 processors (six of whom were also producers) had sales to retail outlets. By June 2016, 492 processors had sales to retail outlets. In addition to indoor growing operations (which typically produce five

harvests per year¹), outdoor growing operations had annual harvests in 2014 and 2015. The result has been a greater supply of both “usable” cannabis (the smokable flowers) and other products such as edibles and extracts. Not surprisingly, as supply has increased, prices have dropped from an average of almost \$25 per gram for usable cannabis to just under \$9 per gram in June 2016².

As supply has increased, prices have dropped

Figure 4.2: Average Retail Price Per Gram, Including Tax



Source: Liquor and Cannabis Board, data through June 2016

A variety of infused products and extracts are available accounting for more than 30% of sales in June 2016

The majority of sales at recreational stores are for usable cannabis. However, over time a variety of infused products and extracts has become available, accounting for more than 30% of sales in June 2016. As of late June 2016, over 1,000 infused products had been approved for sale, ranging from parmesan marijuana crisps to infused pomegranate soda. This increase in products, plus a likely increase in varieties of usable cannabis, may have also played a role in increased sales over time.

Until October 2015 WA and CO were the only states with legal recreational cannabis

Another factor that is likely to have changed over time is the demand for recreational cannabis from out-of-state residents. Washington and Colorado were the only states in the U.S. with legal recreational cannabis until October 2015, so it is possible that some sales in Washington were to residents of other nearby states³.

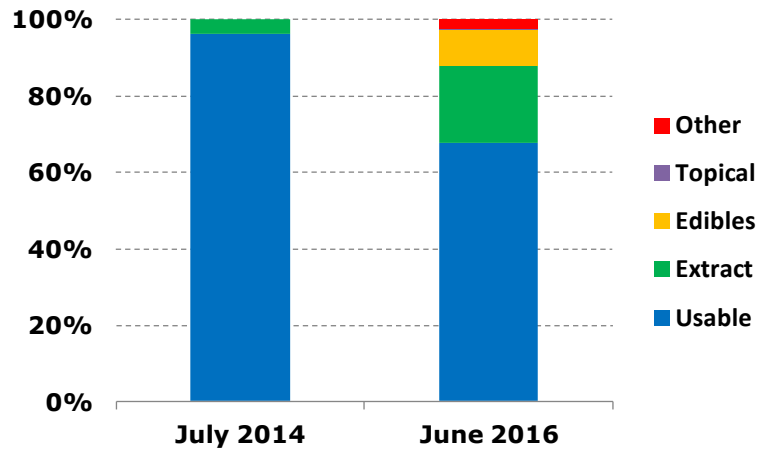
¹ See Caulkins, J., Cohen, M. and Zamarra, L., “Estimating Adequate Licensed Square Footage for Production,” BOTE Analysis, http://www.liq.wa.gov/publications/Marijuana/BOTEC%20reports/5a_Cannabis_Yields-Final.pdf

² Data on producer, processor, and retail licenses and cannabis sales provided by the Liquor and Cannabis Board

³ Alaska has legalized recreational cannabis but retail stores are not expected to open until September 2016; see <https://www.commerce.alaska.gov/web/amco/MarijuanaFAQs.aspx>

Figure 4.3: Share of Retail Sales by Cannabis Product Type

This increase in variety may have played a role in increased sales over time



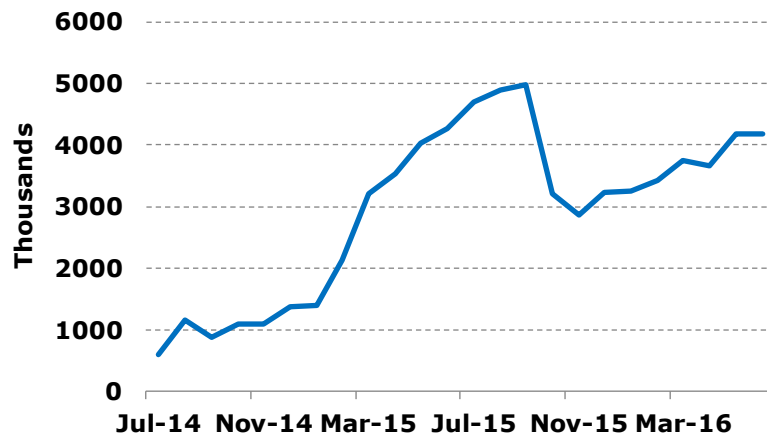
Source: Liquor and Cannabis Board, data through June 2016

Clark County accounted for 13% of statewide sales in September 2015

For example, sales in Clark County, across the Columbia River from Portland, accounted for 13% of statewide sales in September 2015 in a county with slightly over 6% of the state’s population⁴. This suggests that Portland-area residents may have accounted for some of those Clark County sales. Consistent with that view, when Oregon legalized recreational cannabis in October 2015, sales in Clark County fell off considerably as can be seen in Figure 4.4.

Figure 4.4: Total Retail Sales in Clark County

Clark County sales fell off in October 2015 after Oregon legalized recreational cannabis



Source: Liquor and Cannabis Board, data through June 2016

⁴ Based on 2015 population estimates from the Office of Financial Management

Data Analysis

The goals of this analysis are fairly modest

Given the relatively short time period that recreational sales have been legal in Washington and the number of factors which have been in flux, the goals of this analysis are fairly modest. We are interested in whether sales in border counties are significantly different from sales in non-border counties. We are also interested in whether there are other county characteristics that have a unique impact on sales.

We will estimate a panel data model with the following general specification:

$$\text{Tot_sales}_{it} = a + bX_{it} + e_{it} ;$$

Where **Tot_sales**_{it} is the dollar value of sales of all cannabis products (including taxes) in county **i** in month **t**, **a** is a constant term, **X**_{it} represents explanatory variable for county **i** in month **t** such as number of retail outlets, **b** represents the coefficient estimates for those explanatory variables, and **e**_{it} is the error term associated with county **i** and month **t**.

Data are organized as panel data

The data are organized by county and by date for those time periods where at least one retail store in the county had sales. Data organized in this fashion (i.e., multiple observations for an entity, in this case a county, over time) are referred to as panel data.

The panel format has two major advantages

Alternatively, we could have simply looked at statewide data on cannabis sales each month. However, the panel format has two major advantages over a statewide analysis. First, we have more observations - one for each county for each month in which there were cannabis sales as opposed to only 24 observations using statewide data. In general, econometric models will be estimated with greater precision with more observations. Second, it is likely that sales patterns across counties differ for a variety of reasons, many of which are not readily observed. The panel data will allow us to take advantage of those differences to improve our model estimation and to answer some questions that cannot be answered using statewide data.

33 counties are represented

Thirty-three counties are represented in the data; Adams, Columbia, Garfield, Lincoln, Pend Oreille and Wahkiakum counties did not have any operating retail stores between July 2014 and June 2016. Depending on when licenses were approved and on the timing of bans or moratoria on cannabis retailers, the dataset contains from two to 24 observations for the 33 counties with active retailers during the July 2014 through June 2016 time period for a total of 678 observations.

Dummy variables will be used to measure border impacts

For each county-month observation, the data contain the number of retail stores with sales in that county and that month and the total dollar value (including taxes) of retail sales across all stores and for all cannabis products in that county for that month. The analysis will rely heavily on indicator, or "dummy" variables, which take on a value of

either one or zero. For example, dummy variables will be used to indicate that sales occurred in a specific month to test whether some unobserved factors which occurred in that month had a significant impact on sales. The dummy variable for July 2014 would take on a value of one for all observations, regardless of county, dated July 2014 but would be zero otherwise. Likewise, we can use dummy variables to indicate the county where sales took place or whether the sales took place in a county on the Idaho or Oregon border.

Due to data lags or timing of reports we are unable to use some potentially useful data

Data on population and income are potentially useful variables in explaining statewide and county cannabis sales. Unfortunately, due to data lags or the timing of data reporting (e.g., population estimates are only available on an annual basis), we are unable to use these variables in our analysis without having to drop a substantial number of observations. County employment data are also reported with a lag and are only available through March 2016 at the time of this analysis. We report results for models with an employment variable (covering the period July 2014 to March 2016) and without (covering the period July 2014 to June 2016).

Model (1) uses number of retail stores and dummy variables for month and county as independent variables

Model (1) includes dummy variables for each county and for each time period (month) for which we have data, as well as the number of retail stores (Stores) with sales in each month by county. This model explains a very high fraction of the variance in the data (adjusted $R^2 = .966$) and indicates that, after accounting for the unique impacts of counties and time periods, an additional retail store generates just under \$257,000 in monthly sales for the average county (see Table 4.1).

An alternative to model (1) is to include a dummy variable for months in which cannabis was legal in Oregon

An alternative to model (1) is to include a dummy variable equal to one for the months in which recreational cannabis was legal in Oregon and zero otherwise (OR_legal) as in model (2). We cannot include dummy variables for time periods in this model; each county-month observation must be uniquely identified for a regression model to be estimated. So, for example, we could include a dummy variable for October 2015 or a dummy variable for months in which cannabis was legal in Oregon (which includes October 2015) but not both.

The coefficient on the Stores variable is very close to model (1)

The coefficient on the Stores variable is very close to the model (1) estimate. The coefficient on the OR_legal variable indicates that, for the average county, Oregon legalization reduced monthly sales by just under \$86,000.

Oregon's legalization of cannabis had a negative impact on Washington sales

Given that we have county-level data, we should be able to estimate more specific impacts of Oregon's legalization of cannabis. The negative coefficient on the OR_legal variable in model (2) implies that Oregon residents had been purchasing cannabis in Washington but reduced those purchases once cannabis was legal in Oregon. Presumably, Oregon residents would have been most likely to purchase cannabis in Washington counties on the Oregon border, at least prior to October 2015.

Dummy variables are used to test whether being a border county has a significant impact on sales

In order to test whether being a border county has a significant impact on sales, we include a dummy variable equal to one for counties on the Oregon border and zero otherwise (Border_OR) in model (3). Because Idaho residents may also be purchasing cannabis in Washington, we construct a similar dummy variable for counties on the Idaho border (Border_ID)⁵. For the same reason that we could not include both a time period dummy and an Oregon legalization dummy in model (1), we cannot include both border county dummies and county dummies in model (3) - each county-month observation must be uniquely identified for a regression model to be estimated. So, for example, since Clark County would always be identified as an Oregon border county, we can use a dummy variable for Clark County or for being an Oregon border county but not both.

There is a positive and significant border county impact

Clearly, there is a positive and significant border county impact on sales. For counties on the Idaho border, that impact amounts to an additional \$411,000 in monthly sales over non-border counties; for counties on the Oregon border, there is an even larger \$597,000 monthly impact compared to non-border counties.

Model (3) does not account for the fact that recreational cannabis sales became legal in OR starting in October 2015

However, model (3) does not account for the fact that recreational cannabis sales became legal in Oregon starting in October 2015. To test whether legalization in Oregon had an impact on border county sales, we split the Oregon border county dummy into two variables. For counties on the Oregon border, the variable Border_OR_pre equals one for months prior to October 2015 and zero otherwise while the variable Border_OR_post equals one only for October 2015 and after⁶.

Even after OR legalization, the border county effect is still positive

Model (4) indicates that, prior to Oregon legalization, Oregon border counties had \$664,000 in additional monthly sales compared to non-border counties, a slightly larger impact than in model (2). Surprisingly, even after Oregon legalization, the border county effect is still positive. Although legalization in Oregon did reduce the border county impact, border counties still had \$485,000 more in monthly sales than non-border counties even after legalization.

County-level employment used in models 5-8

As noted above, it is possible to include county employment as an independent variable but with the loss of data for April, May and June 2016 due to a lag in data availability. Models (5) – (8) replicate models (1) – (4) with the addition county employment and the elimination of the last three months of data (see Table 4.1).

Employment does not substantially alter results

The inclusion of employment as an independent variable does not substantially alter the results obtained with models (1) – (4). The coefficient estimate on the Stores variable is slightly lower, as are the border county impacts.

⁵ Although Asotin County borders both Oregon and Idaho, the retail stores in Asotin County are both in Clarkston, which is near the Idaho border. Therefore, Asotin County is considered an Idaho border county for the purpose of this analysis.

⁶ Model (4) was estimated with and without time period dummies; the time period dummy variables were not statistically significant and so only the version without time period dummy variables is shown here.

Including employment variable has impacts

Inclusion of the employment variable does cause the dummy variable for Oregon legalization used in model (2) to no longer be statistically significant. This may be due to the fact that the three months of data dropped from the analysis are all months when Oregon legalization was in effect. The other impact of including the employment variable is to change both the county and time period dummy variable estimates. Because these dummy variables are capturing a variety of otherwise unmodeled effects, the only actual conclusion that can be drawn from this impact is that some of the county and time period specific unobservable effects are correlated with employment.

Conclusion

The Washington cannabis market has changed enormously

The last two years have witnessed an enormous change in the market for cannabis in Washington. In July 2014, the first month of legal recreational sales, statewide sales were \$1.8 million at 18 licensed retail outlets. By June 2016, statewide sales exceeded \$54 million at 267 licensed retail outlets. In that time period, recreational cannabis prices dropped by over 160%, a wide variety of new cannabis products have been licensed for sale, and Oregon legalized recreational cannabis sales.

Our analysis raises questions for future research

As a result, the factors influencing the recreational cannabis market in Washington are far from settled. Our analysis allows us to draw some conclusions while raising other questions for future consideration.

Differences in income, population per retail store call for additional research

The inclusion of county-specific dummy variables in models (1) and (2) suggest there are some significant differences across counties, after adjusting for the impact of the number of retail stores, that impact retail sales. Besides border impacts, examined further in models (3) and (4), differences in income, population per retail store and in factors that influence cannabis use are possible county-specific factors affecting sales and require further investigation.

It is likely that some of the higher sales are due to purchases by ID and OR residents

Models (3) and (4) indicate a significant border impact on sales. It is possible that border counties have attributes that lead to higher sales, such as the factors mentioned previously. However, it is likely that at least some of the higher sales observed in border counties are due to purchases by Idaho and Oregon residents.

OR legalization appears to have reduced purchases by OR residents in WA border counties

Model (4) reinforces the conclusion that higher border county sales are due, at least in part, to purchases by out-of-state residents. When the Border_OR variable is split into before and after legalization in Oregon, we see that the pre-legalization impact is nearly \$180,000 per month larger. This implies that, once Oregon legalized recreational cannabis, fewer Oregon residents purchased cannabis in Washington border counties. An obvious question is why any Oregon residents would purchase cannabis in Washington after October 2015. Differences in prices and product availability are possible answers; clearly this is an area for further research.

Table 4.1

Dependent Variable: Total Retail Cannabis Sales by County and Month

Model	Independent variables										N	adjusted R ²		
	Constant	Stores	Employment	OR_legal	Border_ID	Border_OR	Border_OR_pre	Border_OR_post	County dummies	Time dummies				
(1)	354,505***	256,611***									Yes	Yes	678	0.966
	35,900	6,548												
(2)	312,824***	255,631***		-85,890***							Yes	No	678	0.966
	32,602	6,110		26,485										
(3)	594,198***	275,601***				411,397***	596,595***				No	Yes	678	0.920
	25,589	3,706				83,936	46,525							
(4)	575,966***	272,768***				403,090***		664,319***	484,938***		No	No	678	0.921
	32,389	3,886				82,601		62,874	51,501					
(5)	693,416***	238,308***	32.1***								Yes	Yes	582	0.964
	1,025,726	11,703	9.98											
(6)	586,650***	239,286***	31.2***	-35,677							Yes	No	582	0.965
	814,832	9,061	7.84	26,448										
(7)	537,900***	243,670***	1.3***			355,316***	562,987***				No	Yes	582	0.923
	29,765	7,430	0.22			76,917	49,316							
(8)	38,6901***	244,002***	1.3***			354,852***		623,229***	456,843***		No	No	582	0.923
	29,889	7,444	0.22			76,984		61,026	61,401					

*** statistically significant at .01 level

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Detail Components of the Washington State Economic and Revenue Forecast

Calendar Years

Note: The economic data discussed in these tables were current at the time the forecast was prepared. Many concepts have changed since then due to new releases and data revisions.

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Table A1.1
U.S. Economic Forecast Summary
Forecast 2016 to 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Real National Income Accounts (Billions of Chained 2009 Dollars)								
Real Gross Domestic Product	15,982.3	16,397.2	16,645.0	17,019.4	17,393.8	17,759.1	18,149.8	18,530.9
% Ch	2.4	2.6	1.5	2.2	2.2	2.1	2.2	2.1
Real Consumption	10,868.9	11,214.7	11,515.8	11,809.5	12,081.1	12,346.9	12,618.4	12,895.9
% Ch	2.9	3.2	2.7	2.6	2.3	2.2	2.2	2.2
Real Nonresidential Fixed Investment	2,155.6	2,200.2	2,198.1	2,267.6	2,350.6	2,455.7	2,562.9	2,652.3
% Ch	6.0	2.1	-0.1	3.2	3.7	4.5	4.4	3.5
Real Residential Fixed Investment	505.4	564.5	592.6	627.1	664.7	681.2	701.5	709.3
% Ch	3.5	11.7	5.0	5.8	6.0	2.5	3.0	1.1
Real Personal Income	13,567.7	14,112.9	14,425.8	14,766.9	15,170.1	15,590.4	16,014.2	16,404.9
% Ch	3.7	4.0	2.2	2.4	2.7	2.8	2.7	2.4
Real Per Capita Income (\$/Person)	42,464	43,831	44,456	45,138	46,001	46,902	47,800	48,589
% Ch	2.9	3.2	1.4	1.5	1.9	2.0	1.9	1.6
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.091	1.095	1.107	1.127	1.145	1.166	1.188	1.212
% Ch	1.5	0.4	1.1	1.7	1.6	1.8	1.9	2.0
U.S. Consumer Price Index (1982-84=1.0)	2.367	2.370	2.402	2.459	2.509	2.562	2.621	2.682
% Ch	1.6	0.1	1.3	2.4	2.0	2.1	2.3	2.3
Employment Cost Index (Dec. 2005=1.0)	1.206	1.233	1.265	1.301	1.341	1.384	1.429	1.475
% Ch	2.0	2.3	2.5	2.9	3.0	3.2	3.3	3.3
Current Dollar National Income (Billions of Dollars)								
Gross Domestic Product	17,393.1	18,036.7	18,571.6	19,396.7	20,212.5	21,045.2	21,944.7	22,859.2
% Ch	4.2	3.7	3.0	4.4	4.2	4.1	4.3	4.2
Personal Income	14,809.8	15,458.5	15,977.1	16,640.1	17,375.7	18,179.5	19,030.8	19,883.2
% Ch	5.2	4.4	3.4	4.1	4.4	4.6	4.7	4.5
Employment (Millions)								
U.S. Civilian Labor Force	155.9	157.1	159.2	161.2	163.1	164.7	166.2	167.2
Total U.S. Employment	146.3	148.8	151.5	153.6	155.4	156.9	158.3	159.1
Unemployment Rate (%)	6.17	5.28	4.84	4.67	4.63	4.65	4.71	4.77
Nonfarm Payroll Employment	138.94	141.83	144.36	146.16	147.25	148.36	149.50	150.48
% Ch	1.9	2.1	1.8	1.2	0.8	0.8	0.8	0.7
Manufacturing	12.18	12.32	12.31	12.34	12.37	12.54	12.68	12.75
% Ch	1.4	1.1	-0.1	0.3	0.2	1.4	1.1	0.6
Durable Manufacturing	7.67	7.76	7.70	7.73	7.75	7.90	8.05	8.13
% Ch	1.7	1.1	-0.7	0.4	0.3	1.9	1.8	1.1
Nondurable Manufacturing	4.51	4.56	4.60	4.61	4.61	4.64	4.63	4.62
% Ch	0.9	1.1	0.9	0.2	-0.1	0.6	-0.1	-0.3
Construction	6.15	6.44	6.66	6.86	7.09	7.29	7.47	7.62
% Ch	5.0	4.8	3.4	2.9	3.5	2.7	2.5	2.1
Service-Providing	119.71	122.25	124.70	126.25	127.06	127.79	128.59	129.33
% Ch	1.8	2.1	2.0	1.2	0.6	0.6	0.6	0.6
Miscellaneous Indicators								
Oil-WTI (\$ per barrel)	93.3	48.7	42.5	49.8	52.0	53.4	54.5	55.5
Personal Saving/Disposable Income (%)	5.6	5.8	5.7	5.4	5.7	6.1	6.2	6.2
Auto Sales (Millions)	7.7	7.5	7.0	7.1	7.0	7.2	7.2	7.2
% Ch	1.4	-2.2	-6.9	0.7	-0.1	2.1	0.5	0.1
Housing Starts (Millions)	1.001	1.108	1.178	1.346	1.492	1.571	1.646	1.656
% Ch	7.8	10.7	6.3	14.3	10.8	5.3	4.8	0.6
Federal Budget Surplus (Billions)	-612.9	-569.7	-667.3	-685.0	-768.7	-818.2	-794.7	-814.9
Net Exports (Billions)	-508.8	-522.0	-494.8	-495.8	-503.2	-500.7	-503.6	-487.7
3-Month Treasury Bill Rate (%)	0.03	0.05	0.32	0.87	1.61	2.48	2.82	2.81
10-Year Treasury Note Yield (%)	2.54	2.14	1.76	2.31	2.89	3.50	3.70	3.69
Bond Index of 20 G.O. Munis. (%)	4.24	3.66	3.14	3.57	4.55	5.07	5.22	5.20
30-Year Fixed Mortgage Rate (%)	4.17	3.85	3.60	4.13	4.87	5.54	5.78	5.79

Table A1.2
U.S. Economic Forecast Summary
Forecast 2016 to 2021

	2016:1	2016:2	2016:3	2016:4	2017:1	2017:2	2017:3	2017:4
Real National Income Accounts (Billions of Chained 2009 Dollars)								
Real Gross Domestic Product	16,525.0	16,570.2	16,692.1	16,792.8	16,884.3	16,978.2	17,066.4	17,148.6
% Ch , Annual Rate	0.8	1.1	3.0	2.4	2.2	2.2	2.1	1.9
Real Consumption	11,365.2	11,487.4	11,569.3	11,641.2	11,708.6	11,777.9	11,843.4	11,908.0
% Ch , Annual Rate	1.6	4.4	2.9	2.5	2.3	2.4	2.2	2.2
Real Nonresidential Fixed Investment	2,179.7	2,174.8	2,207.5	2,230.5	2,241.8	2,261.4	2,275.2	2,292.2
% Ch , Annual Rate	-3.4	-0.9	6.2	4.2	2.0	3.5	2.5	3.0
Real Residential Fixed Investment	600.7	588.8	585.8	595.3	605.4	620.7	635.9	646.3
% Ch , Annual Rate	7.8	-7.7	-2.0	6.6	7.0	10.6	10.2	6.7
Real Personal Income	14,313.2	14,387.2	14,466.4	14,536.5	14,633.8	14,721.6	14,809.3	14,902.9
% Ch , Annual Rate	1.0	2.1	2.2	2.0	2.7	2.4	2.4	2.6
Real Per Capita Income (\$/Person)	44,244	44,388	44,534	44,659	44,867	45,046	45,223	45,417
% Ch , Annual Rate	0.4	1.3	1.3	1.1	1.9	1.6	1.6	1.7
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.100	1.105	1.109	1.116	1.120	1.125	1.129	1.133
% Ch , Annual Rate	0.3	2.0	1.6	2.3	1.5	1.7	1.6	1.6
U.S. Consumer Price Index (1982-84=1.0)	2.379	2.394	2.407	2.427	2.440	2.453	2.465	2.477
% Ch , Annual Rate	-0.3	2.5	2.1	3.5	2.1	2.2	2.0	2.0
Employment Cost Index (Dec. 2005=1.0)	1.252	1.260	1.268	1.278	1.287	1.297	1.306	1.316
% Ch , Annual Rate	2.9	2.6	2.7	2.9	3.0	3.0	3.0	3.0
Current Dollar National Income (Billions of Dollars)								
Gross Domestic Product	18,281.6	18,436.5	18,673.6	18,894.5	19,098.3	19,301.3	19,499.0	19,688.4
% Ch , Annual Rate	1.3	3.4	5.2	4.8	4.4	4.3	4.2	3.9
Personal Income	15,740.1	15,900.0	16,049.4	16,219.0	16,389.5	16,557.7	16,720.8	16,892.3
% Ch , Annual Rate	1.3	4.1	3.8	4.3	4.3	4.2	4.0	4.2
Employment (Millions)								
U.S. Civilian Labor Force	158.8	158.8	159.4	160.0	160.5	161.0	161.5	161.9
Total U.S. Employment	151.0	151.0	151.8	152.3	152.9	153.4	153.9	154.3
Unemployment Rate (%)	4.93	4.87	4.82	4.75	4.70	4.66	4.66	4.67
Nonfarm Payroll Employment	143.53	143.98	144.68	145.26	145.70	146.04	146.30	146.58
% Ch , Annual Rate	1.9	1.3	2.0	1.6	1.2	0.9	0.7	0.8
Manufacturing	12.32	12.29	12.31	12.31	12.32	12.34	12.36	12.36
% Ch , Annual Rate	0.1	-0.9	0.6	0.0	0.2	0.7	0.8	0.1
Durable Manufacturing	7.72	7.69	7.69	7.69	7.69	7.72	7.75	7.76
% Ch , Annual Rate	-0.6	-1.7	0.1	0.1	0.0	1.3	1.6	0.3
Nondurable Manufacturing	4.59	4.60	4.61	4.61	4.62	4.62	4.61	4.61
% Ch , Annual Rate	1.3	0.4	1.4	-0.2	0.7	-0.3	-0.5	-0.3
Construction	6.64	6.65	6.65	6.72	6.77	6.83	6.88	6.94
% Ch , Annual Rate	5.8	0.5	0.6	3.8	3.4	3.3	3.0	3.7
Service-Providing	123.85	124.35	125.04	125.55	125.93	126.18	126.35	126.55
% Ch , Annual Rate	2.0	1.6	2.2	1.7	1.2	0.8	0.5	0.6
Miscellaneous Indicators								
Oil-WTI (\$ per barrel)	33.2	45.4	45.0	46.5	48.3	49.6	50.3	50.9
Personal Saving/Disposable Income (%)	6.1	5.7	5.5	5.4	5.5	5.4	5.3	5.4
Auto Sales (Millions)	7.1	6.8	7.0	7.2	7.0	7.0	7.1	7.1
% Ch , Annual Rate	-21.3	-15.4	16.0	9.7	-8.4	-1.8	6.4	-0.5
Housing Starts (Millions)	1.151	1.156	1.191	1.212	1.266	1.323	1.370	1.424
% Ch , Annual Rate	6.0	1.7	12.4	7.4	18.9	19.2	15.1	16.7
Federal Budget Surplus (Billions)	-668.3	-667.6	-659.6	-673.8	-687.7	-684.4	-674.9	-692.9
Net Exports (Billions)	-507.4	-495.5	-482.6	-493.5	-493.9	-499.3	-493.3	-496.8
3-Month Treasury Bill Rate (%)	0.29	0.26	0.33	0.43	0.63	0.75	0.95	1.14
10-Year Treasury Note Yield (%)	1.92	1.75	1.58	1.77	2.08	2.22	2.41	2.53
Bond Index of 20 G.O. Munis. (%)	3.36	3.26	2.90	3.04	3.25	3.41	3.68	3.93
30-Year Fixed Mortgage Rate (%)	3.74	3.59	3.45	3.60	3.84	4.02	4.23	4.43

Table A1.2 (continued)
U.S. Economic Forecast Summary
 Forecast 2016 to 2021

	2018:1	2018:2	2018:3	2018:4	2019:1	2019:2	2019:3	2019:4
Real National Income Accounts (Billions of Chained 2009 Dollars)								
Real Gross Domestic Product	17,257.0	17,357.8	17,440.7	17,519.7	17,616.5	17,709.3	17,810.5	17,900.0
% Ch , Annual Rate	2.6	2.4	1.9	1.8	2.2	2.1	2.3	2.0
Real Consumption	11,980.4	12,049.2	12,115.4	12,179.5	12,252.0	12,314.6	12,378.0	12,442.8
% Ch , Annual Rate	2.5	2.3	2.2	2.1	2.4	2.1	2.1	2.1
Real Nonresidential Fixed Investment	2,314.5	2,338.9	2,362.7	2,386.2	2,412.5	2,442.1	2,470.5	2,497.8
% Ch , Annual Rate	3.9	4.3	4.1	4.0	4.5	5.0	4.7	4.5
Real Residential Fixed Investment	656.2	662.4	668.8	671.5	672.7	677.1	684.7	690.3
% Ch , Annual Rate	6.3	3.8	3.9	1.7	0.7	2.7	4.6	3.3
Real Personal Income	15,022.4	15,125.2	15,219.0	15,314.0	15,439.1	15,540.8	15,640.5	15,741.2
% Ch , Annual Rate	3.2	2.8	2.5	2.5	3.3	2.7	2.6	2.6
Real Per Capita Income (\$/Person)	45,690	45,911	46,104	46,299	46,585	46,799	47,006	47,216
% Ch , Annual Rate	2.4	1.9	1.7	1.7	2.5	1.9	1.8	1.8
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.138	1.143	1.148	1.153	1.158	1.163	1.169	1.174
% Ch , Annual Rate	1.6	1.7	1.8	1.8	1.8	1.8	1.9	1.9
U.S. Consumer Price Index (1982-84=1.0)	2.490	2.503	2.515	2.529	2.542	2.555	2.569	2.583
% Ch , Annual Rate	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.2
Employment Cost Index (Dec. 2005=1.0)	1.326	1.336	1.346	1.356	1.367	1.378	1.389	1.400
% Ch , Annual Rate	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2
Current Dollar National Income (Billions of Dollars)								
Gross Domestic Product	19,909.8	20,121.1	20,314.5	20,504.6	20,722.2	20,931.9	21,157.4	21,369.3
% Ch , Annual Rate	4.6	4.3	3.9	3.8	4.3	4.1	4.4	4.1
Personal Income	17,095.0	17,284.2	17,467.7	17,655.7	17,879.4	18,078.2	18,278.7	18,481.7
% Ch , Annual Rate	4.9	4.5	4.3	4.4	5.2	4.5	4.5	4.5
Employment (Millions)								
U.S. Civilian Labor Force	162.4	162.9	163.3	163.7	164.1	164.5	164.9	165.3
Total U.S. Employment	154.8	155.2	155.6	156.0	156.4	156.8	157.2	157.5
Unemployment Rate (%)	4.65	4.62	4.62	4.64	4.64	4.64	4.65	4.67
Nonfarm Payroll Employment	146.80	147.14	147.41	147.67	147.96	148.24	148.50	148.75
% Ch , Annual Rate	0.6	0.9	0.7	0.7	0.8	0.7	0.7	0.7
Manufacturing	12.34	12.33	12.37	12.42	12.48	12.52	12.55	12.60
% Ch , Annual Rate	-0.7	-0.3	1.1	1.9	1.7	1.4	1.1	1.6
Durable Manufacturing	7.74	7.73	7.75	7.80	7.85	7.88	7.91	7.96
% Ch , Annual Rate	-1.0	-0.5	1.3	2.6	2.3	1.9	1.5	2.3
Nondurable Manufacturing	4.60	4.61	4.61	4.62	4.63	4.64	4.64	4.64
% Ch , Annual Rate	-0.3	0.1	0.6	0.8	0.7	0.5	0.4	0.3
Construction	7.01	7.07	7.12	7.17	7.22	7.26	7.31	7.36
% Ch , Annual Rate	3.9	3.5	3.3	2.7	2.5	2.5	2.9	2.5
Service-Providing	126.72	127.01	127.18	127.33	127.53	127.71	127.89	128.04
% Ch , Annual Rate	0.5	0.9	0.6	0.5	0.6	0.6	0.6	0.5
Miscellaneous Indicators								
Oil-WTI (\$ per barrel)	51.4	51.8	52.2	52.7	53.0	53.3	53.5	53.9
Personal Saving/Disposable Income (%)	5.6	5.7	5.7	5.8	6.0	6.1	6.1	6.2
Auto Sales (Millions)	7.0	7.0	7.1	7.1	7.1	7.2	7.2	7.2
% Ch , Annual Rate	-2.8	-1.3	2.3	-0.5	4.5	5.1	-0.5	0.2
Housing Starts (Millions)	1.457	1.481	1.509	1.520	1.534	1.558	1.582	1.608
% Ch , Annual Rate	9.6	6.7	7.8	2.9	3.7	6.5	6.4	6.7
Federal Budget Surplus (Billions)	-742.5	-760.1	-775.6	-796.4	-830.1	-830.0	-810.5	-802.0
Net Exports (Billions)	-500.5	-504.3	-506.3	-501.7	-498.9	-501.1	-499.2	-503.7
3-Month Treasury Bill Rate (%)	1.33	1.45	1.70	1.95	2.13	2.39	2.60	2.81
10-Year Treasury Note Yield (%)	2.70	2.79	2.98	3.11	3.23	3.42	3.65	3.70
Bond Index of 20 G.O. Munis. (%)	4.29	4.52	4.66	4.75	4.85	5.01	5.19	5.22
30-Year Fixed Mortgage Rate (%)	4.66	4.76	4.97	5.07	5.20	5.47	5.69	5.77

Table A1.2 (continued)
U.S. Economic Forecast Summary
Forecast 2016 to 2021

	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4
Real National Income Accounts (Billions of Chained 2009 Dollars)								
Real Gross Domestic Product	18,001.2	18,106.0	18,199.6	18,292.3	18,388.9	18,481.2	18,577.9	18,675.7
% Ch , Annual Rate	2.3	2.4	2.1	2.1	2.1	2.0	2.1	2.1
Real Consumption	12,517.3	12,585.1	12,651.3	12,719.8	12,794.6	12,862.2	12,928.2	12,998.6
% Ch , Annual Rate	2.4	2.2	2.1	2.2	2.4	2.1	2.1	2.2
Real Nonresidential Fixed Investment	2,524.5	2,551.0	2,576.9	2,599.3	2,620.8	2,642.5	2,663.2	2,682.9
% Ch , Annual Rate	4.3	4.3	4.1	3.5	3.4	3.4	3.2	3.0
Real Residential Fixed Investment	692.8	699.4	705.8	708.1	706.0	706.7	711.0	713.4
% Ch , Annual Rate	1.5	3.8	3.7	1.3	-1.2	0.4	2.5	1.3
Real Personal Income	15,868.4	15,970.5	16,064.7	16,153.3	16,267.6	16,361.4	16,448.9	16,541.8
% Ch , Annual Rate	3.3	2.6	2.4	2.2	2.9	2.3	2.2	2.3
Real Per Capita Income (\$/Person)	47,504	47,717	47,905	48,076	48,322	48,507	48,673	48,854
% Ch , Annual Rate	2.5	1.8	1.6	1.4	2.1	1.5	1.4	1.5
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.180	1.185	1.191	1.197	1.203	1.209	1.215	1.221
% Ch , Annual Rate	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0
U.S. Consumer Price Index (1982-84=1.0)	2.599	2.614	2.628	2.643	2.659	2.674	2.690	2.705
% Ch , Annual Rate	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3
Employment Cost Index (Dec. 2005=1.0)	1.411	1.423	1.434	1.446	1.458	1.470	1.481	1.493
% Ch , Annual Rate	3.2	3.3	3.3	3.3	3.3	3.3	3.2	3.2
Current Dollar National Income (Billions of Dollars)								
Gross Domestic Product	21,605.8	21,839.0	22,056.2	22,277.8	22,515.1	22,740.3	22,972.5	23,209.1
% Ch , Annual Rate	4.5	4.4	4.0	4.1	4.3	4.1	4.1	4.2
Personal Income	18,721.1	18,932.7	19,134.7	19,334.9	19,569.7	19,780.7	19,985.0	20,197.6
% Ch , Annual Rate	5.3	4.6	4.3	4.3	4.9	4.4	4.2	4.3
Employment (Millions)								
U.S. Civilian Labor Force	165.7	166.1	166.4	166.6	166.9	167.1	167.3	167.6
Total U.S. Employment	157.8	158.2	158.5	158.7	158.8	159.0	159.2	159.5
Unemployment Rate (%)	4.68	4.69	4.71	4.74	4.76	4.77	4.77	4.78
Nonfarm Payroll Employment	149.04	149.53	149.63	149.79	150.04	150.33	150.62	150.93
% Ch, Annual Rate	0.8	1.3	0.3	0.4	0.7	0.8	0.8	0.8
Manufacturing	12.64	12.66	12.70	12.72	12.74	12.75	12.76	12.76
% Ch, Annual Rate	1.2	0.6	1.2	0.9	0.4	0.5	0.2	0.0
Durable Manufacturing	8.00	8.03	8.06	8.09	8.11	8.13	8.14	8.15
% Ch, Annual Rate	2.1	1.3	2.0	1.5	0.8	0.9	0.5	0.3
Nondurable Manufacturing	4.64	4.63	4.63	4.63	4.63	4.62	4.62	4.61
% Ch, Annual Rate	-0.4	-0.6	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4
Construction	7.40	7.44	7.49	7.54	7.57	7.60	7.64	7.68
% Ch, Annual Rate	2.3	2.4	2.7	2.3	1.8	1.8	2.2	2.0
Service-Providing	128.25	128.67	128.68	128.76	128.96	129.20	129.44	129.71
% Ch, Annual Rate	0.7	1.3	0.0	0.2	0.6	0.7	0.8	0.8
Miscellaneous Indicators								
Oil-WTI (\$ per barrel)	54.1	54.4	54.6	54.9	55.1	55.4	55.5	55.8
Personal Saving/Disposable Income (%)	6.3	6.2	6.2	6.1	6.3	6.3	6.2	6.2
Auto Sales (Millions)	7.2	7.2	7.2	7.3	7.2	7.2	7.2	7.3
% Ch, Annual Rate	-0.7	1.2	0.7	2.0	-2.2	0.2	0.0	1.3
Housing Starts (Millions)	1.635	1.644	1.651	1.653	1.653	1.651	1.660	1.660
% Ch, Annual Rate	6.9	2.2	1.8	0.5	0.0	-0.5	2.1	0.0
Federal Budget Surplus (Billions)	-809.5	-810.0	-783.3	-776.1	-809.7	-820.7	-814.0	-815.0
Net Exports (Billions)	-504.4	-509.1	-504.5	-496.6	-493.4	-490.6	-485.7	-481.1
3-Month Treasury Bill Rate (%)	2.82	2.82	2.82	2.82	2.81	2.81	2.80	2.80
10-Year Treasury Note Yield (%)	3.70	3.70	3.70	3.70	3.69	3.69	3.69	3.68
Bond Index of 20 G.O. Munis. (%)	5.22	5.22	5.22	5.21	5.21	5.21	5.20	5.20
30-Year Fixed Mortgage Rate (%)	5.78	5.78	5.78	5.78	5.79	5.79	5.79	5.79

Table A1.3
Washington Economic Forecast Summary
Forecast 2016 to 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Real Income (Billions of Chained 2009 Dollars)								
Real Personal Income	320.953	335.015	347.356	356.444	368.303	380.405	392.368	403.540
% Ch	4.3	4.4	3.7	2.6	3.3	3.3	3.1	2.8
Real Wage and Salary Disb.	166.722	174.707	183.709	188.162	193.552	198.444	203.056	207.975
% Ch	5.1	4.8	5.2	2.4	2.9	2.5	2.3	2.4
Real Nonwage Income	154.231	160.308	163.647	168.281	174.751	181.961	189.312	195.565
% Ch	3.4	3.9	2.1	2.8	3.8	4.1	4.0	3.3
Real Per Capita Income (\$/Person)	45,444	46,714	47,738	48,328	49,288	50,267	51,213	52,056
% Ch	3.0	2.8	2.2	1.2	2.0	2.0	1.9	1.6
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.091	1.095	1.107	1.127	1.145	1.166	1.188	1.212
% Ch	1.5	0.4	1.1	1.7	1.6	1.8	1.9	2.0
Seattle Cons. Price Index (1982-84=1.0)	2.460	2.494	2.551	2.614	2.670	2.728	2.792	2.859
% Ch	1.8	1.4	2.3	2.5	2.1	2.2	2.3	2.4
Average Nonfarm Annual Wage	57,227	58,643	60,687	62,321	64,267	66,259	68,316	70,642
% Ch	4.4	2.5	3.5	2.7	3.1	3.1	3.1	3.4
Avg. Hourly Earnings-Mfg. (\$/Hour)	25.16	25.52	26.55	27.41	28.15	28.96	29.81	30.70
% Ch	3.4	1.4	4.0	3.3	2.7	2.9	2.9	3.0
Current Dollar Income (Billions of Dollars)								
Personal Income	350.322	366.950	384.700	401.654	421.842	443.570	466.270	489.093
% Ch	5.8	4.7	4.8	4.4	5.0	5.2	5.1	4.9
Disposable Personal Income	308.050	320.930	337.603	351.830	369.002	387.324	405.548	424.805
% Ch	5.7	4.2	5.2	4.2	4.9	5.0	4.7	4.7
Per Capita Income (\$/Person)	49,602	51,167	52,869	54,457	56,452	58,612	60,858	63,090
% Ch	4.5	3.2	3.3	3.0	3.7	3.8	3.8	3.7
Employment (Thousands)								
Washington Civilian Labor Force	3,489.6	3,540.3	3,627.4	3,689.0	3,754.4	3,814.5	3,870.5	3,917.4
Total Washington Employment	3,276.8	3,339.9	3,418.8	3,486.9	3,557.5	3,618.8	3,673.3	3,718.4
Unemployment Rate (%)	6.10	5.66	5.75	5.48	5.25	5.13	5.09	5.08
Nonfarm Payroll Employment	3,059.7	3,145.9	3,235.3	3,285.5	3,332.5	3,374.8	3,414.1	3,449.9
% Ch	2.5	2.8	2.8	1.6	1.4	1.3	1.2	1.0
Manufacturing	288.7	290.8	288.4	284.7	285.3	287.7	290.3	293.0
% Ch	0.7	0.7	-0.8	-1.3	0.2	0.9	0.9	0.9
Durable Manufacturing	210.0	211.1	207.3	203.2	203.3	204.7	206.8	209.0
% Ch	0.2	0.5	-1.8	-2.0	0.1	0.7	1.0	1.1
Aerospace	94.2	93.9	90.0	84.4	82.5	80.9	80.3	80.3
% Ch	-1.9	-0.4	-4.1	-6.3	-2.2	-2.0	-0.8	0.0
Nondurable Manufacturing	78.7	79.7	81.1	81.5	81.9	83.0	83.5	84.0
% Ch	2.1	1.2	1.8	0.5	0.5	1.3	0.6	0.6
Construction	159.7	173.2	183.2	186.1	194.2	199.4	202.4	204.6
% Ch	7.2	8.5	5.7	1.6	4.3	2.7	1.5	1.1
Service-Providing	2,605.1	2,675.5	2,757.4	2,808.3	2,846.6	2,881.1	2,914.7	2,945.5
% Ch	2.4	2.7	3.1	1.8	1.4	1.2	1.2	1.1
Software Publishers	55.6	56.0	59.2	60.6	61.1	61.7	62.3	63.0
% Ch	3.3	0.7	5.7	2.4	0.8	1.0	1.0	1.1
Housing Indicators (Thousands)								
Housing Units Authorized by Bldg. Permit	33.898	40.374	40.977	42.258	44.100	44.391	44.385	43.975
% Ch	2.8	19.1	1.5	3.1	4.4	0.7	0.0	-0.9
Single-Family	17.905	19.797	22.577	25.196	27.678	28.292	28.476	28.453
% Ch	-2.7	10.6	14.0	11.6	9.8	2.2	0.6	-0.1
Multi-Family	15.993	20.577	18.401	17.061	16.422	16.099	15.910	15.522
% Ch	9.8	28.7	-10.6	-7.3	-3.7	-2.0	-1.2	-2.4
30-Year Fixed Mortgage Rate (%)	4.17	3.85	3.60	4.13	4.87	5.54	5.78	5.79

Table A1.4
Washington Economic Forecast Summary
Forecast 2016 to 2021

	2016:1	2016:2	2016:3	2016:4	2017:1	2017:2	2017:3	2017:4
Real Income (Billions of Chained 2009 Dollars)								
Real Personal Income	346.122	346.731	347.811	348.760	354.978	355.287	356.190	359.320
% Ch, Annual Rate	9.4	0.7	1.3	1.1	7.3	0.3	1.0	3.6
Real Wage and Salary Disb.	184.028	183.645	183.555	183.607	188.578	187.681	187.365	189.025
% Ch, Annual Rate	17.0	-0.8	-0.2	0.1	11.3	-1.9	-0.7	3.6
Real Nonwage Income	162.093	163.086	164.256	165.153	166.400	167.606	168.825	170.295
% Ch, Annual Rate	1.5	2.5	2.9	2.2	3.1	2.9	2.9	3.5
Real Per Capita Income (\$/Person)	47,819	47,733	47,717	47,685	48,371	48,251	48,213	48,478
% Ch, Annual Rate	7.9	-0.7	-0.1	-0.3	5.9	-1.0	-0.3	2.2
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.100	1.105	1.109	1.116	1.120	1.125	1.129	1.133
% Ch, Annual Rate	0.3	2.0	1.6	2.3	1.5	1.7	1.6	1.6
Seattle Cons. Price Index (1982-84=1.0)	2.527	2.541	2.557	2.579	2.593	2.608	2.621	2.635
% Ch, Annual Rate	2.3	2.2	2.7	3.3	2.3	2.2	2.1	2.1
Average Nonfarm Annual Wage	60,764	60,643	60,575	60,765	62,428	62,149	62,064	62,645
% Ch, Annual Rate	12.3	-0.8	-0.4	1.3	11.4	-1.8	-0.5	3.8
Avg. Hourly Earnings-Mfg. (\$/Hour)	26.02	26.41	26.79	26.96	27.14	27.32	27.50	27.68
% Ch, Annual Rate	3.7	6.2	5.9	2.6	2.7	2.7	2.7	2.6
Current Dollar Income (Billions of Dollars)								
Personal Income	380.619	383.181	385.871	389.128	397.567	399.598	402.165	407.286
% Ch, Annual Rate	9.7	2.7	2.8	3.4	9.0	2.1	2.6	5.2
Disposable Personal Income	333.883	336.293	338.660	341.577	348.719	350.048	352.062	356.491
% Ch, Annual Rate	10.9	2.9	2.8	3.5	8.6	1.5	2.3	5.1
Per Capita Income (\$/Person)	52,585	52,750	52,938	53,204	54,175	54,269	54,436	54,949
% Ch, Annual Rate	8.2	1.3	1.4	2.0	7.5	0.7	1.2	3.8
Employment (Thousands)								
Washington Civilian Labor Force	3,604.1	3,626.9	3,631.0	3,647.4	3,663.8	3,680.8	3,697.5	3,713.9
Total Washington Employment	3,395.2	3,417.1	3,422.4	3,440.4	3,459.3	3,478.4	3,496.4	3,513.5
Unemployment Rate (%)	5.80	5.79	5.75	5.67	5.58	5.50	5.44	5.40
Nonfarm Payroll Employment	3,210.5	3,230.7	3,245.1	3,254.8	3,267.6	3,279.8	3,291.1	3,303.5
% Ch, Annual Rate	4.2	2.5	1.8	1.2	1.6	1.5	1.4	1.5
Manufacturing	291.0	289.9	288.5	284.1	284.2	284.5	285.0	285.0
% Ch, Annual Rate	0.7	-1.4	-2.0	-6.0	0.2	0.5	0.6	0.0
Durable Manufacturing	209.8	208.9	207.4	203.0	202.7	203.0	203.5	203.4
% Ch, Annual Rate	-1.2	-1.8	-2.7	-8.3	-0.5	0.6	0.9	-0.1
Aerospace	92.6	91.6	90.2	85.7	85.2	84.6	84.1	83.6
% Ch, Annual Rate	-2.4	-4.3	-5.9	-18.5	-2.5	-2.5	-2.5	-2.5
Nondurable Manufacturing	81.2	81.1	81.1	81.0	81.4	81.5	81.5	81.5
% Ch, Annual Rate	5.9	-0.6	-0.1	-0.1	1.9	0.4	0.0	0.2
Construction	181.7	183.3	184.0	183.8	183.7	184.9	186.6	189.3
% Ch, Annual Rate	15.4	3.5	1.7	-0.6	-0.1	2.6	3.7	5.9
Service-Providing	2,731.5	2,751.2	2,766.3	2,780.6	2,793.3	2,804.0	2,813.1	2,822.8
% Ch, Annual Rate	3.9	2.9	2.2	2.1	1.8	1.5	1.3	1.4
Software Publishers	57.9	58.8	59.9	60.2	60.5	60.6	60.6	60.7
% Ch, Annual Rate	5.4	6.4	8.1	1.7	2.1	0.7	0.2	0.8
Housing Indicators (Thousands)								
Housing Units Authorized by Bldg. Permit	37.584	45.283	40.512	40.530	41.259	42.079	42.568	43.125
% Ch, Annual Rate	-8.0	110.7	-35.9	0.2	7.4	8.2	4.7	5.3
Single-Family	22.287	22.612	22.582	22.827	23.747	24.829	25.679	26.530
% Ch, Annual Rate	18.3	6.0	-0.5	4.4	17.1	19.5	14.4	13.9
Multi-Family	15.298	22.671	17.930	17.703	17.511	17.250	16.889	16.595
% Ch, Annual Rate	-34.5	382.4	-60.9	-5.0	-4.3	-5.8	-8.1	-6.8
30-Year Fixed Mortgage Rate (%)	3.74	3.59	3.45	3.60	3.84	4.02	4.23	4.43

Table A1.4 (continued)
Washington Economic Forecast Summary
Forecast 2016 to 2021

	2018:1	2018:2	2018:3	2018:4	2019:1	2019:2	2019:3	2019:4
Real Income (Billions of Chained 2009 Dollars)								
Real Personal Income	367.121	367.187	367.516	371.388	379.775	379.108	379.236	383.502
% Ch, Annual Rate	9.0	0.1	0.4	4.3	9.3	-0.7	0.1	4.6
Real Wage and Salary Disb.	194.849	193.206	191.991	194.164	200.424	198.027	196.432	198.894
% Ch, Annual Rate	12.9	-3.3	-2.5	4.6	13.5	-4.7	-3.2	5.1
Real Nonwage Income	172.272	173.981	175.525	177.224	179.350	181.081	182.803	184.608
% Ch, Annual Rate	4.7	4.0	3.6	3.9	4.9	3.9	3.9	4.0
Real Per Capita Income (\$/Person)	49,369	49,218	49,104	49,463	50,420	50,173	50,034	50,440
% Ch, Annual Rate	7.6	-1.2	-0.9	3.0	8.0	-1.9	-1.1	3.3
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.138	1.143	1.148	1.153	1.158	1.163	1.169	1.174
% Ch, Annual Rate	1.6	1.7	1.8	1.8	1.8	1.8	1.9	1.9
Seattle Cons. Price Index (1982-84=1.0)	2.649	2.662	2.677	2.691	2.706	2.720	2.736	2.751
% Ch, Annual Rate	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3
Average Nonfarm Annual Wage	64,635	64,099	63,748	64,584	66,776	66,040	65,619	66,600
% Ch, Annual Rate	13.3	-3.3	-2.2	5.3	14.3	-4.3	-2.5	6.1
Avg. Hourly Earnings-Mfg. (\$/Hour)	27.87	28.06	28.25	28.44	28.65	28.85	29.06	29.27
% Ch, Annual Rate	2.7	2.8	2.7	2.7	2.9	2.9	2.9	2.9
Current Dollar Income (Billions of Dollars)								
Personal Income	417.773	419.600	421.819	428.178	439.801	441.008	443.205	450.267
% Ch, Annual Rate	10.7	1.8	2.1	6.2	11.3	1.1	2.0	6.5
Disposable Personal Income	365.598	367.108	368.911	374.392	384.494	385.280	386.849	392.672
% Ch, Annual Rate	10.6	1.7	2.0	6.1	11.2	0.8	1.6	6.2
Per Capita Income (\$/Person)	56,180	56,243	56,359	57,026	58,389	58,366	58,473	59,221
% Ch, Annual Rate	9.3	0.4	0.8	4.8	9.9	-0.2	0.7	5.2
Employment (Thousands)								
Washington Civilian Labor Force	3,731.0	3,746.7	3,762.1	3,778.0	3,792.6	3,807.4	3,821.9	3,836.1
Total Washington Employment	3,532.4	3,549.8	3,566.0	3,581.7	3,596.8	3,612.2	3,626.4	3,640.0
Unemployment Rate (%)	5.32	5.25	5.21	5.19	5.16	5.13	5.12	5.11
Nonfarm Payroll Employment	3,315.2	3,327.5	3,338.5	3,349.0	3,360.3	3,370.7	3,379.5	3,388.6
% Ch, Annual Rate	1.4	1.5	1.3	1.3	1.4	1.2	1.1	1.1
Manufacturing	284.8	284.7	285.3	286.2	287.0	287.5	287.8	288.4
% Ch, Annual Rate	-0.3	-0.1	0.8	1.3	1.1	0.8	0.4	0.8
Durable Manufacturing	203.2	202.9	203.3	203.9	204.3	204.6	204.7	205.1
% Ch, Annual Rate	-0.5	-0.4	0.7	1.2	0.9	0.5	0.1	0.8
Aerospace	83.2	82.7	82.3	81.9	81.5	81.1	80.7	80.3
% Ch, Annual Rate	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Nondurable Manufacturing	81.6	81.8	82.0	82.3	82.6	82.9	83.2	83.4
% Ch, Annual Rate	0.4	0.7	1.3	1.5	1.5	1.3	1.1	1.0
Construction	191.9	193.4	195.0	196.4	197.8	199.1	199.8	200.8
% Ch, Annual Rate	5.6	3.2	3.2	3.0	2.9	2.6	1.4	1.9
Service-Providing	2,832.1	2,842.9	2,851.7	2,859.8	2,868.9	2,877.5	2,885.3	2,892.8
% Ch, Annual Rate	1.3	1.5	1.2	1.1	1.3	1.2	1.1	1.1
Software Publishers	60.9	61.0	61.2	61.3	61.5	61.6	61.8	61.9
% Ch, Annual Rate	0.8	0.9	1.1	1.2	1.0	0.9	0.8	0.9
Housing Indicators (Thousands)								
Housing Units Authorized by Bldg. Permit	43.711	44.355	44.196	44.138	44.171	44.449	44.482	44.463
% Ch, Annual Rate	5.5	6.0	-1.4	-0.5	0.3	2.5	0.3	-0.2
Single-Family	27.155	27.583	27.909	28.065	28.153	28.268	28.330	28.418
% Ch, Annual Rate	9.8	6.4	4.8	2.3	1.3	1.6	0.9	1.3
Multi-Family	16.556	16.773	16.287	16.073	16.017	16.181	16.152	16.045
% Ch, Annual Rate	-0.9	5.3	-11.1	-5.2	-1.4	4.1	-0.7	-2.6
30-Year Fixed Mortgage Rate (%)	4.66	4.76	4.97	5.07	5.20	5.47	5.69	5.77

Table A1.4 (continued)
Washington Economic Forecast Summary
Forecast 2016 to 2021

	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4
Real Income (Billions of Chained 2009 Dollars)								
Real Personal Income	391.569	391.350	391.228	395.326	403.085	402.551	402.117	406.408
% Ch, Annual Rate	8.7	-0.2	-0.1	4.3	8.1	-0.5	-0.4	4.3
Real Wage and Salary Disb.	204.718	202.718	201.051	203.736	209.651	207.622	205.888	208.739
% Ch, Annual Rate	12.2	-3.9	-3.2	5.4	12.1	-3.8	-3.3	5.7
Real Nonwage Income	186.850	188.632	190.177	191.589	193.434	194.929	196.229	197.670
% Ch, Annual Rate	4.9	3.9	3.3	3.0	3.9	3.1	2.7	3.0
Real Per Capita Income (\$/Person)	51,342	51,157	50,987	51,368	52,223	52,002	51,797	52,200
% Ch, Annual Rate	7.3	-1.4	-1.3	3.0	6.8	-1.7	-1.6	3.2
Price and Wage Indexes								
U.S. Implicit Price Deflator, PCE (2009=1.0)	1.180	1.185	1.191	1.197	1.203	1.209	1.215	1.221
% Ch, Annual Rate	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0
Seattle Cons. Price Index (1982-84=1.0)	2.768	2.784	2.800	2.817	2.833	2.850	2.867	2.884
% Ch, Annual Rate	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4
Average Nonfarm Annual Wage	68,724	68,046	67,682	68,810	71,009	70,446	69,983	71,130
% Ch, Annual Rate	13.4	-3.9	-2.1	6.8	13.4	-3.1	-2.6	6.7
Avg. Hourly Earnings-Mfg. (\$/Hour)	29.48	29.70	29.92	30.14	30.37	30.59	30.81	31.03
% Ch, Annual Rate	2.9	3.0	3.0	3.0	3.0	3.0	2.9	2.9
Current Dollar Income (Billions of Dollars)								
Personal Income	461.963	463.937	465.992	473.189	484.904	486.677	488.563	496.227
% Ch, Annual Rate	10.8	1.7	1.8	6.3	10.3	1.5	1.6	6.4
Disposable Personal Income	402.433	403.680	405.003	411.076	421.482	422.820	424.223	430.695
% Ch, Annual Rate	10.3	1.2	1.3	6.1	10.5	1.3	1.3	6.2
Per Capita Income (\$/Person)	60,572	60,645	60,730	61,485	62,823	62,870	62,932	63,737
% Ch, Annual Rate	9.4	0.5	0.6	5.1	9.0	0.3	0.4	5.2
Employment (Thousands)								
Washington Civilian Labor Force	3,850.2	3,864.5	3,877.8	3,889.5	3,901.0	3,911.8	3,922.9	3,934.1
Total Washington Employment	3,653.5	3,667.9	3,680.4	3,691.5	3,702.0	3,712.8	3,723.7	3,734.9
Unemployment Rate (%)	5.11	5.09	5.09	5.09	5.10	5.09	5.08	5.06
Nonfarm Payroll Employment	3,398.1	3,413.6	3,418.7	3,426.0	3,435.1	3,444.9	3,454.6	3,464.8
% Ch, Annual Rate	1.1	1.8	0.6	0.9	1.1	1.1	1.1	1.2
Manufacturing	289.2	289.8	290.7	291.5	292.1	292.8	293.3	293.9
% Ch, Annual Rate	1.1	0.7	1.3	1.2	0.9	0.8	0.7	0.7
Durable Manufacturing	205.8	206.3	207.1	207.8	208.3	208.8	209.3	209.7
% Ch, Annual Rate	1.5	1.0	1.5	1.4	0.9	0.9	0.8	0.8
Aerospace	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3
% Ch, Annual Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nondurable Manufacturing	83.4	83.4	83.6	83.7	83.8	83.9	84.0	84.2
% Ch, Annual Rate	0.3	-0.1	0.7	0.6	0.6	0.6	0.5	0.6
Construction	201.5	202.1	202.8	203.4	203.9	204.4	204.9	205.3
% Ch, Annual Rate	1.4	1.3	1.3	1.2	1.1	1.0	0.9	0.8
Service-Providing	2,900.8	2,915.1	2,918.6	2,924.4	2,932.4	2,941.0	2,949.7	2,958.9
% Ch, Annual Rate	1.1	2.0	0.5	0.8	1.1	1.2	1.2	1.2
Software Publishers	62.0	62.2	62.4	62.5	62.7	62.9	63.1	63.2
% Ch, Annual Rate	1.0	0.9	1.1	1.1	1.1	1.2	1.1	1.1
Housing Indicators (Thousands)								
Housing Units Authorized by Bldg. Permit	44.441	44.412	44.394	44.295	44.133	43.953	43.968	43.845
% Ch, Annual Rate	-0.2	-0.3	-0.2	-0.9	-1.4	-1.6	0.1	-1.1
Single-Family	28.464	28.492	28.491	28.455	28.407	28.380	28.490	28.535
% Ch, Annual Rate	0.6	0.4	0.0	-0.5	-0.7	-0.4	1.6	0.6
Multi-Family	15.978	15.920	15.902	15.839	15.726	15.572	15.479	15.310
% Ch, Annual Rate	-1.7	-1.4	-0.4	-1.6	-2.8	-3.8	-2.4	-4.3
30-Year Fixed Mortgage Rate (%)	5.78	5.78	5.78	5.78	5.79	5.79	5.79	5.79

Table A2.1

U.S. Nonagricultural Employment by Industry (Millions)

Forecast 2016 to 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Nonfarm Payroll Employment	138.94	141.83	144.36	146.16	147.25	148.36	149.50	150.48
% Ch	1.9	2.1	1.8	1.2	0.8	0.8	0.8	0.7
Manufacturing	12.18	12.32	12.31	12.34	12.37	12.54	12.68	12.75
% Ch	1.4	1.1	-0.1	0.3	0.2	1.4	1.1	0.6
Durable Manufacturing	7.67	7.76	7.70	7.73	7.75	7.90	8.05	8.13
% Ch	1.7	1.1	-0.7	0.4	0.3	1.9	1.8	1.1
Wood Products	0.37	0.38	0.38	0.41	0.43	0.44	0.46	0.48
% Ch	5.2	2.1	1.0	5.9	5.2	3.6	5.1	3.5
Primary and Fabricated Metals	1.85	1.85	1.81	1.83	1.82	1.86	1.91	1.94
% Ch	1.4	0.0	-2.3	0.9	-0.1	2.0	2.4	1.8
Computer and Electronic Products	1.05	1.05	1.04	1.04	1.06	1.07	1.07	1.07
% Ch	-1.5	0.1	-1.0	-0.4	2.4	1.1	-0.2	0.0
Machinery and Electrical Equipment	1.50	1.51	1.47	1.47	1.48	1.51	1.54	1.56
% Ch	1.8	0.1	-2.2	-0.2	0.4	2.4	1.9	1.3
Transportation Equipment	1.56	1.60	1.61	1.59	1.54	1.58	1.63	1.63
% Ch	3.3	2.6	0.8	-1.7	-2.6	2.5	2.8	0.3
Other Durables	1.34	1.37	1.38	1.41	1.42	1.43	1.44	1.45
% Ch	1.7	2.5	1.1	1.7	1.1	0.6	0.5	0.5
Nondurable Manufacturing	4.51	4.56	4.60	4.61	4.61	4.64	4.63	4.62
% Ch	0.9	1.1	0.9	0.2	-0.1	0.6	-0.1	-0.3
Food Manufacturing	1.48	1.51	1.53	1.57	1.59	1.61	1.63	1.64
% Ch	0.7	1.4	1.9	2.1	1.4	1.5	0.8	0.9
Paper and Paper Products	0.37	0.37	0.37	0.37	0.36	0.36	0.36	0.36
% Ch	-1.2	-0.2	-0.3	-1.0	-1.1	-0.2	-0.5	-0.2
Other Nondurables	2.65	2.68	2.70	2.68	2.66	2.66	2.65	2.62
% Ch	1.2	1.2	0.6	-0.7	-0.8	0.1	-0.6	-1.0
Natural Resources and Mining	0.89	0.82	0.70	0.70	0.74	0.75	0.76	0.77
% Ch	3.2	-7.9	-14.7	0.4	4.7	1.5	1.7	2.1
Construction	6.15	6.44	6.66	6.86	7.09	7.29	7.47	7.62
% Ch	5.0	4.8	3.4	2.9	3.5	2.7	2.5	2.1
Trade, Transportation, and Utilities	26.38	26.91	27.35	27.48	27.40	27.36	27.26	27.21
% Ch	2.0	2.0	1.6	0.5	-0.3	-0.2	-0.4	-0.2
Wholesale Trade	5.81	5.87	5.92	5.93	5.95	5.99	6.03	6.08
% Ch	1.4	1.1	0.8	0.1	0.4	0.7	0.6	0.8
Retail Trade	15.35	15.64	15.96	16.03	15.88	15.79	15.65	15.54
% Ch	1.9	1.9	2.1	0.4	-0.9	-0.6	-0.9	-0.7
Trans., Warehousing, and Utilities	5.21	5.40	5.46	5.52	5.57	5.58	5.58	5.60
% Ch	3.2	3.7	1.1	1.1	0.8	0.2	0.1	0.2
Information	2.73	2.75	2.78	2.80	2.80	2.79	2.78	2.82
% Ch	0.8	0.9	1.1	0.8	-0.2	-0.4	-0.3	1.5
Publishing Industries	0.73	0.73	0.73	0.73	0.71	0.70	0.68	0.67
% Ch	-0.8	-0.2	0.4	-0.3	-2.5	-1.9	-2.0	-1.4
Other Information	2.00	2.03	2.05	2.08	2.09	2.09	2.10	2.15
% Ch	1.3	1.3	1.3	1.2	0.6	0.1	0.3	2.4
Financial Activities	7.98	8.12	8.29	8.34	8.31	8.26	8.23	8.24
% Ch	1.1	1.9	2.0	0.7	-0.4	-0.6	-0.3	0.1
Professional and Business Services	19.06	19.66	20.24	20.96	21.63	22.18	22.67	23.19
% Ch	2.9	3.1	2.9	3.6	3.2	2.5	2.2	2.3
Education and Health Services	21.44	22.05	22.69	23.07	23.23	23.37	23.48	23.66
% Ch	1.7	2.9	2.9	1.7	0.7	0.6	0.5	0.8
Leisure and Hospitality	14.69	15.12	15.53	15.80	15.86	15.90	15.98	16.11
% Ch	3.1	2.9	2.7	1.7	0.4	0.3	0.5	0.8
Other Services	5.57	5.62	5.69	5.63	5.56	5.49	5.45	5.43
% Ch	1.5	1.0	1.1	-1.0	-1.3	-1.1	-0.7	-0.4
Federal Government	2.73	2.75	2.78	2.79	2.75	2.71	2.83	2.66
% Ch	-1.3	0.7	1.1	0.1	-1.3	-1.5	4.6	-6.0
State and Local Government	19.14	19.25	19.36	19.39	19.53	19.73	19.90	20.00
% Ch	0.3	0.6	0.6	0.2	0.7	1.0	0.9	0.5

Table A2.2

U.S. Nonagricultural Employment by Industry (Millions)

Forecast 2016 to 2021

	2016:1	2016:2	2016:3	2016:4	2017:1	2017:2	2017:3	2017:4
Nonfarm Payroll Employment	143.53	143.98	144.68	145.26	145.70	146.04	146.30	146.58
% Ch, Annual Rate	1.9	1.3	2.0	1.6	1.2	0.9	0.7	0.8
Manufacturing	12.32	12.29	12.31	12.31	12.32	12.34	12.36	12.36
% Ch, Annual Rate	0.1	-0.9	0.6	0.0	0.2	0.7	0.8	0.1
Durable Manufacturing	7.72	7.69	7.69	7.69	7.69	7.72	7.75	7.76
% Ch, Annual Rate	-0.6	-1.7	0.1	0.1	0.0	1.3	1.6	0.3
Wood Products	0.38	0.38	0.38	0.38	0.39	0.40	0.41	0.42
% Ch, Annual Rate	-0.9	-0.4	1.0	1.3	9.7	9.1	8.3	7.6
Primary and Fabricated Metals	1.82	1.81	1.80	1.81	1.82	1.82	1.83	1.83
% Ch, Annual Rate	-1.9	-2.9	-1.1	1.7	1.6	2.0	1.3	0.0
Computer and Electronic Products	1.04	1.04	1.04	1.03	1.03	1.03	1.04	1.04
% Ch, Annual Rate	0.3	-1.3	-1.6	-0.9	-3.0	2.1	2.8	1.8
Machinery and Electrical Equipment	1.48	1.47	1.47	1.48	1.46	1.47	1.48	1.47
% Ch, Annual Rate	-2.2	-3.7	0.4	2.6	-3.6	0.6	2.4	-0.5
Transportation Equipment	1.61	1.61	1.62	1.61	1.60	1.59	1.58	1.57
% Ch, Annual Rate	-0.1	0.4	2.4	-0.9	-2.7	-3.2	-2.8	-2.5
Other Durables	1.39	1.39	1.38	1.37	1.39	1.40	1.42	1.42
% Ch, Annual Rate	1.8	-1.2	-0.1	-2.9	4.7	3.5	3.5	1.6
Nondurable Manufacturing	4.59	4.60	4.61	4.61	4.62	4.62	4.61	4.61
% Ch, Annual Rate	1.3	0.4	1.4	-0.2	0.7	-0.3	-0.5	-0.3
Food Manufacturing	1.52	1.53	1.55	1.54	1.56	1.56	1.57	1.57
% Ch, Annual Rate	3.0	2.0	4.8	-0.1	3.4	1.8	1.2	1.2
Paper and Paper Products	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
% Ch, Annual Rate	-0.2	-1.3	-0.5	-1.1	-0.4	-1.4	-1.5	-1.5
Other Nondurables	2.70	2.70	2.70	2.70	2.69	2.68	2.67	2.67
% Ch, Annual Rate	0.6	-0.2	-0.2	-0.1	-0.7	-1.3	-1.4	-1.1
Natural Resources and Mining	0.73	0.70	0.68	0.68	0.68	0.69	0.71	0.72
% Ch, Annual Rate	-19.2	-18.1	-8.2	0.5	0.4	5.8	7.6	10.0
Construction	6.64	6.65	6.65	6.72	6.77	6.83	6.88	6.94
% Ch, Annual Rate	5.8	0.5	0.6	3.8	3.4	3.3	3.0	3.7
Trade, Transportation, and Utilities	27.23	27.30	27.40	27.46	27.49	27.49	27.47	27.45
% Ch, Annual Rate	2.3	1.1	1.5	0.8	0.4	0.0	-0.3	-0.3
Wholesale Trade	5.92	5.92	5.93	5.93	5.93	5.93	5.93	5.93
% Ch, Annual Rate	1.4	0.4	0.3	0.0	0.3	-0.2	-0.1	0.0
Retail Trade	15.88	15.93	16.00	16.05	16.05	16.04	16.02	15.99
% Ch, Annual Rate	3.5	1.3	1.9	1.3	0.0	-0.3	-0.6	-0.8
Trans., Warehousing, and Utilities	5.43	5.45	5.48	5.48	5.51	5.52	5.53	5.54
% Ch, Annual Rate	-0.1	1.2	1.9	0.4	1.9	1.0	0.5	0.6
Information	2.77	2.77	2.79	2.80	2.81	2.80	2.80	2.80
% Ch, Annual Rate	1.6	-0.7	2.9	1.2	2.6	-1.4	-0.7	-0.5
Publishing Industries	0.73	0.73	0.73	0.73	0.74	0.73	0.72	0.72
% Ch, Annual Rate	1.0	-0.3	3.1	0.6	1.9	-2.9	-4.6	-2.5
Other Information	2.05	2.04	2.06	2.06	2.08	2.07	2.08	2.08
% Ch, Annual Rate	1.8	-0.8	2.8	1.4	2.8	-0.8	0.7	0.2
Financial Activities	8.22	8.27	8.31	8.35	8.36	8.35	8.33	8.33
% Ch, Annual Rate	1.9	2.4	2.0	2.1	0.3	-0.6	-0.7	-0.2
Professional and Business Services	20.01	20.14	20.32	20.48	20.70	20.87	21.05	21.22
% Ch, Annual Rate	1.8	2.6	3.5	3.3	4.3	3.4	3.6	3.3
Education and Health Services	22.47	22.62	22.75	22.90	23.00	23.08	23.09	23.11
% Ch, Annual Rate	2.7	2.7	2.2	2.8	1.7	1.3	0.2	0.5
Leisure and Hospitality	15.41	15.47	15.58	15.67	15.72	15.78	15.83	15.86
% Ch, Annual Rate	2.7	1.5	3.0	2.2	1.3	1.6	1.2	0.9
Other Services	5.67	5.68	5.69	5.70	5.68	5.64	5.61	5.59
% Ch, Annual Rate	1.6	0.8	0.7	0.7	-1.6	-2.7	-2.5	-1.4
Federal Government	2.77	2.78	2.79	2.79	2.79	2.79	2.79	2.78
% Ch, Annual Rate	1.0	1.8	1.7	0.4	-0.4	-0.2	-0.6	-1.1
State and Local Government	19.30	19.33	19.41	19.40	19.38	19.39	19.39	19.42
% Ch, Annual Rate	0.6	0.6	1.7	-0.3	-0.4	0.2	0.1	0.6

Table A2.2 (continued)

U.S. Nonagricultural Employment by Industry (Millions)

Forecast 2016 to 2021

	2018:1	2018:2	2018:3	2018:4	2019:1	2019:2	2019:3	2019:4
Nonfarm Payroll Employment	146.80	147.14	147.41	147.67	147.96	148.24	148.50	148.75
% Ch, Annual Rate	0.6	0.9	0.7	0.7	0.8	0.7	0.7	0.7
Manufacturing	12.34	12.33	12.37	12.42	12.48	12.52	12.55	12.60
% Ch, Annual Rate	-0.7	-0.3	1.1	1.9	1.7	1.4	1.1	1.6
Durable Manufacturing	7.74	7.73	7.75	7.80	7.85	7.88	7.91	7.96
% Ch, Annual Rate	-1.0	-0.5	1.3	2.6	2.3	1.9	1.5	2.3
Wood Products	0.42	0.42	0.43	0.43	0.44	0.44	0.44	0.45
% Ch, Annual Rate	2.7	3.2	5.1	4.7	3.0	1.9	3.0	6.0
Primary and Fabricated Metals	1.82	1.82	1.82	1.83	1.84	1.86	1.86	1.88
% Ch, Annual Rate	-1.6	-1.1	0.6	2.2	3.0	2.3	1.7	3.0
Computer and Electronic Products	1.05	1.06	1.06	1.07	1.07	1.07	1.07	1.07
% Ch, Annual Rate	2.9	2.0	2.6	2.7	0.6	0.0	-0.1	-0.1
Machinery and Electrical Equipment	1.47	1.47	1.48	1.49	1.50	1.51	1.51	1.52
% Ch, Annual Rate	-0.9	-0.2	1.8	3.4	3.5	2.3	1.2	2.3
Transportation Equipment	1.55	1.54	1.54	1.55	1.56	1.58	1.59	1.61
% Ch, Annual Rate	-4.5	-3.5	0.5	2.4	2.2	4.6	4.6	3.8
Other Durables	1.42	1.42	1.42	1.43	1.43	1.43	1.43	1.43
% Ch, Annual Rate	-0.3	0.2	0.8	1.7	1.3	-0.6	-0.9	0.6
Nondurable Manufacturing	4.60	4.61	4.61	4.62	4.63	4.64	4.64	4.64
% Ch, Annual Rate	-0.3	0.1	0.6	0.8	0.7	0.5	0.4	0.3
Food Manufacturing	1.58	1.58	1.59	1.60	1.60	1.61	1.61	1.62
% Ch, Annual Rate	1.4	1.2	1.7	1.9	1.4	1.4	1.3	1.2
Paper and Paper Products	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
% Ch, Annual Rate	-1.5	-0.9	-0.2	-0.1	0.0	-0.1	-0.3	-0.2
Other Nondurables	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66
% Ch, Annual Rate	-1.1	-0.4	0.1	0.3	0.4	0.1	-0.1	-0.2
Natural Resources and Mining	0.73	0.73	0.74	0.74	0.74	0.74	0.75	0.75
% Ch, Annual Rate	2.6	3.0	2.3	1.9	1.2	0.5	1.3	1.5
Construction	7.01	7.07	7.12	7.17	7.22	7.26	7.31	7.36
% Ch, Annual Rate	3.9	3.5	3.3	2.7	2.5	2.5	2.9	2.5
Trade, Transportation, and Utilities	27.40	27.41	27.40	27.39	27.39	27.37	27.35	27.32
% Ch, Annual Rate	-0.6	0.1	-0.1	-0.2	-0.1	-0.2	-0.3	-0.4
Wholesale Trade	5.93	5.95	5.96	5.97	5.98	5.99	6.00	6.00
% Ch, Annual Rate	0.5	1.1	0.8	0.5	0.8	0.7	0.6	0.2
Retail Trade	15.93	15.89	15.87	15.85	15.83	15.81	15.77	15.74
% Ch, Annual Rate	-1.5	-0.8	-0.7	-0.5	-0.5	-0.6	-0.8	-0.8
Trans., Warehousing, and Utilities	5.54	5.57	5.57	5.58	5.58	5.58	5.58	5.58
% Ch, Annual Rate	0.7	1.8	0.4	0.1	0.0	0.1	0.1	0.0
Information	2.79	2.80	2.80	2.80	2.80	2.79	2.78	2.78
% Ch, Annual Rate	-0.3	0.6	0.4	-0.1	-0.4	-0.8	-1.2	-1.0
Publishing Industries	0.71	0.71	0.71	0.70	0.70	0.70	0.69	0.69
% Ch, Annual Rate	-2.5	-2.1	-1.3	-1.1	-2.0	-2.2	-2.6	-2.3
Other Information	2.08	2.09	2.09	2.10	2.10	2.09	2.09	2.09
% Ch, Annual Rate	0.5	1.5	1.0	0.3	0.2	-0.3	-0.7	-0.5
Financial Activities	8.32	8.32	8.31	8.29	8.28	8.27	8.25	8.24
% Ch, Annual Rate	-0.4	0.0	-0.5	-0.8	-0.5	-0.7	-0.8	-0.7
Professional and Business Services	21.40	21.59	21.72	21.81	21.95	22.10	22.26	22.39
% Ch, Annual Rate	3.3	3.6	2.4	1.7	2.7	2.8	2.9	2.3
Education and Health Services	23.16	23.21	23.24	23.29	23.35	23.36	23.37	23.40
% Ch, Annual Rate	0.8	0.9	0.5	0.7	1.1	0.3	0.1	0.5
Leisure and Hospitality	15.84	15.85	15.86	15.88	15.87	15.88	15.91	15.93
% Ch, Annual Rate	-0.4	0.1	0.3	0.5	-0.4	0.4	0.8	0.5
Other Services	5.57	5.56	5.55	5.54	5.52	5.50	5.49	5.47
% Ch, Annual Rate	-0.9	-0.8	-0.9	-1.1	-1.0	-1.3	-1.2	-1.3
Federal Government	2.77	2.75	2.74	2.73	2.72	2.71	2.70	2.69
% Ch, Annual Rate	-1.7	-1.6	-1.4	-1.5	-1.4	-1.5	-1.5	-1.4
State and Local Government	19.47	19.51	19.55	19.60	19.65	19.71	19.76	19.81
% Ch, Annual Rate	0.9	0.9	0.9	1.0	1.0	1.3	1.0	1.0

Table A2.2 (continued)

U.S. Nonagricultural Employment by Industry (Millions)

Forecast 2016 to 2021

	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4
Nonfarm Payroll Employment	149.04	149.53	149.63	149.79	150.04	150.33	150.62	150.93
% Ch, Annual Rate	0.8	1.3	0.3	0.4	0.7	0.8	0.8	0.8
Manufacturing	12.64	12.66	12.70	12.72	12.74	12.75	12.76	12.76
% Ch, Annual Rate	1.2	0.6	1.2	0.9	0.4	0.5	0.2	0.0
Durable Manufacturing	8.00	8.03	8.06	8.09	8.11	8.13	8.14	8.15
% Ch, Annual Rate	2.1	1.3	2.0	1.5	0.8	0.9	0.5	0.3
Wood Products	0.46	0.46	0.47	0.47	0.48	0.48	0.48	0.48
% Ch, Annual Rate	5.7	5.3	5.9	4.9	3.1	2.1	1.9	2.0
Primary and Fabricated Metals	1.89	1.90	1.91	1.92	1.93	1.94	1.94	1.95
% Ch, Annual Rate	2.9	2.0	2.3	2.4	1.6	1.7	1.5	1.4
Computer and Electronic Products	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
% Ch, Annual Rate	0.1	-0.8	0.0	0.1	-0.1	0.3	0.3	0.2
Machinery and Electrical Equipment	1.53	1.53	1.54	1.55	1.55	1.56	1.56	1.56
% Ch, Annual Rate	1.9	1.5	2.4	1.6	1.1	1.1	0.7	0.9
Transportation Equipment	1.62	1.62	1.63	1.64	1.64	1.64	1.63	1.62
% Ch, Annual Rate	2.6	1.3	2.1	0.8	0.1	0.3	-0.9	-2.1
Other Durables	1.43	1.44	1.44	1.44	1.44	1.45	1.45	1.45
% Ch, Annual Rate	1.1	0.5	1.2	0.8	0.2	0.5	0.4	0.4
Nondurable Manufacturing	4.64	4.63	4.63	4.63	4.63	4.62	4.62	4.61
% Ch, Annual Rate	-0.4	-0.6	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4
Food Manufacturing	1.62	1.62	1.63	1.63	1.63	1.64	1.64	1.64
% Ch, Annual Rate	0.6	0.2	1.0	0.9	1.0	0.9	0.9	0.9
Paper and Paper Products	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
% Ch, Annual Rate	-0.9	-0.9	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2
Other Nondurables	2.66	2.65	2.64	2.64	2.63	2.62	2.62	2.61
% Ch, Annual Rate	-0.9	-1.1	-0.7	-0.8	-1.0	-1.0	-1.2	-1.3
Natural Resources and Mining	0.75	0.76	0.76	0.77	0.77	0.77	0.78	0.78
% Ch, Annual Rate	2.0	1.8	2.0	2.8	2.5	1.8	1.1	1.3
Construction	7.40	7.44	7.49	7.54	7.57	7.60	7.64	7.68
% Ch, Annual Rate	2.3	2.4	2.7	2.3	1.8	1.8	2.2	2.0
Trade, Transportation, and Utilities	27.30	27.25	27.24	27.23	27.21	27.22	27.21	27.21
% Ch, Annual Rate	-0.3	-0.7	-0.2	-0.1	-0.3	0.1	-0.1	0.0
Wholesale Trade	6.01	6.02	6.03	6.04	6.06	6.07	6.08	6.09
% Ch, Annual Rate	0.9	0.2	0.8	0.9	0.9	0.9	0.8	0.7
Retail Trade	15.70	15.66	15.63	15.60	15.56	15.55	15.53	15.52
% Ch, Annual Rate	-1.0	-1.2	-0.8	-0.7	-1.0	-0.3	-0.5	-0.4
Trans., Warehousing, and Utilities	5.58	5.58	5.58	5.59	5.59	5.60	5.60	5.60
% Ch, Annual Rate	0.2	-0.3	0.2	0.3	0.3	0.3	0.1	0.0
Information	2.77	2.77	2.78	2.79	2.80	2.82	2.83	2.84
% Ch, Annual Rate	-0.6	-0.4	1.5	1.8	1.5	1.8	1.6	1.4
Publishing Industries	0.69	0.68	0.68	0.68	0.68	0.67	0.67	0.67
% Ch, Annual Rate	-1.7	-2.1	-1.3	-1.3	-1.4	-1.1	-1.4	-1.6
Other Information	2.09	2.09	2.10	2.12	2.13	2.14	2.16	2.17
% Ch, Annual Rate	-0.2	0.2	2.4	2.8	2.5	2.7	2.5	2.4
Financial Activities	8.24	8.23	8.23	8.23	8.23	8.24	8.25	8.25
% Ch, Annual Rate	0.0	-0.4	0.1	0.0	0.1	0.4	0.4	0.1
Professional and Business Services	22.50	22.60	22.72	22.86	22.98	23.10	23.25	23.42
% Ch, Annual Rate	1.9	1.7	2.3	2.4	2.1	2.2	2.5	3.0
Education and Health Services	23.46	23.44	23.49	23.52	23.59	23.63	23.68	23.73
% Ch, Annual Rate	1.0	-0.2	0.7	0.6	1.2	0.6	0.8	1.0
Leisure and Hospitality	15.94	15.96	16.00	16.04	16.06	16.10	16.13	16.14
% Ch, Annual Rate	0.2	0.4	1.1	0.9	0.6	0.9	0.7	0.4
Other Services	5.47	5.46	5.45	5.44	5.44	5.43	5.43	5.42
% Ch, Annual Rate	-0.1	-0.7	-0.5	-0.5	-0.4	-0.3	-0.4	-0.5
Federal Government	2.71	3.07	2.85	2.70	2.67	2.67	2.66	2.65
% Ch, Annual Rate	3.0	64.4	-26.4	-19.2	-3.9	-1.0	-0.9	-0.8
State and Local Government	19.86	19.89	19.92	19.95	19.97	19.99	20.01	20.04
% Ch, Annual Rate	0.9	0.7	0.6	0.5	0.4	0.5	0.5	0.5

Table A2.3

Washington Nonagricultural Employment by Industry (Thousands)

Forecast 2016 to 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Nonfarm Payroll Employment	3,059.7	3,145.9	3,235.3	3,285.5	3,332.5	3,374.8	3,414.1	3,449.9
% Ch	2.5	2.8	2.8	1.6	1.4	1.3	1.2	1.0
Manufacturing	288.7	290.8	288.4	284.7	285.3	287.7	290.3	293.0
% Ch	0.7	0.7	-0.8	-1.3	0.2	0.9	0.9	0.9
Durable Manufacturing	210.0	211.1	207.3	203.2	203.3	204.7	206.8	209.0
% Ch	0.2	0.5	-1.8	-2.0	0.1	0.7	1.0	1.1
Wood Products	13.4	13.3	13.1	13.6	13.9	14.1	14.5	14.7
% Ch	3.0	-1.1	-1.2	3.2	2.7	1.3	2.6	1.3
Primary and Fabricated Metals	25.6	25.7	24.9	25.0	24.9	25.6	26.4	27.0
% Ch	2.5	0.2	-2.9	0.4	-0.5	2.6	3.3	2.4
Computer and Electronic Products	20.0	20.0	20.1	20.2	21.1	21.6	21.7	21.9
% Ch	-1.0	-0.1	0.5	0.5	4.4	2.4	0.6	1.0
Machinery and Electrical Equipment	20.8	20.8	20.9	21.5	22.3	23.9	25.3	26.7
% Ch	4.9	0.1	0.3	2.9	3.8	6.8	6.1	5.4
Aerospace	94.2	93.9	90.0	84.4	82.5	80.9	80.3	80.3
% Ch	-1.9	-0.4	-4.1	-6.3	-2.2	-2.0	-0.8	0.0
Other Transportation Equip.	9.7	10.2	10.1	9.8	9.5	9.3	9.0	8.7
% Ch	-0.7	5.3	-0.4	-3.4	-3.5	-1.2	-3.6	-3.2
Other Durables	26.2	27.2	28.1	28.7	29.1	29.4	29.6	29.8
% Ch	2.1	3.9	3.1	2.4	1.3	0.9	0.8	0.5
Nondurable Manufacturing	78.7	79.7	81.1	81.5	81.9	83.0	83.5	84.0
% Ch	2.1	1.2	1.8	0.5	0.5	1.3	0.6	0.6
Food Manufacturing	36.4	36.5	36.1	36.0	36.3	36.7	36.7	36.7
% Ch	1.9	0.3	-0.9	-0.5	0.9	1.1	0.1	0.2
Paper and Paper Products	8.0	8.0	7.7	7.6	7.4	7.3	7.2	7.1
% Ch	-1.2	-0.5	-3.4	-1.5	-2.3	-1.2	-1.7	-1.3
Other Nondurables	34.3	35.2	37.2	37.9	38.2	39.0	39.6	40.1
% Ch	3.2	2.6	5.7	1.9	0.8	2.0	1.5	1.3
Natural Resources and Mining	6.2	6.3	6.3	6.4	6.5	6.6	6.6	6.7
% Ch	1.7	1.6	0.3	1.5	1.2	1.1	1.1	1.1
Construction	159.7	173.2	183.2	186.1	194.2	199.4	202.4	204.6
% Ch	7.2	8.5	5.7	1.6	4.3	2.7	1.5	1.1
Trade, Transportation, and Utilities	569.9	589.0	605.3	614.6	619.5	623.7	625.6	628.1
% Ch	3.4	3.4	2.8	1.5	0.8	0.7	0.3	0.4
Wholesale Trade	130.0	132.6	134.2	135.0	136.9	138.8	140.3	141.9
% Ch	2.4	2.1	1.2	0.6	1.4	1.4	1.1	1.2
Retail Trade	342.1	355.1	366.5	373.4	375.3	377.2	377.4	377.8
% Ch	3.7	3.8	3.2	1.9	0.5	0.5	0.1	0.1
Trans., Warehousing, and Utilities	97.8	101.3	104.6	106.1	107.2	107.7	108.0	108.4
% Ch	4.0	3.5	3.3	1.4	1.0	0.5	0.3	0.4
Information	109.8	114.4	120.3	122.6	123.6	124.6	125.6	128.1
% Ch	3.4	4.1	5.2	1.9	0.9	0.8	0.8	2.0
Software Publishers	55.6	56.0	59.2	60.6	61.1	61.7	62.3	63.0
% Ch	3.3	0.7	5.7	2.4	0.8	1.0	1.0	1.1
Other Publishing Industries	6.6	6.2	6.1	6.0	5.6	5.2	4.9	4.6
% Ch	-4.9	-6.8	-0.6	-1.4	-7.0	-6.4	-6.9	-6.2
Other Information	47.6	52.2	55.0	56.0	56.9	57.6	58.4	60.6
% Ch	4.8	9.6	5.4	1.7	1.7	1.2	1.3	3.7
Financial Activities	145.1	147.6	151.9	152.7	152.2	151.1	150.2	150.0
% Ch	1.0	1.7	2.9	0.5	-0.3	-0.7	-0.6	-0.1
Professional and Business Services	372.0	388.2	402.4	418.2	434.1	447.8	460.3	473.0
% Ch	3.0	4.3	3.6	3.9	3.8	3.2	2.8	2.8
Education and Health Services	446.7	449.1	463.5	473.9	481.4	488.4	494.4	501.5
% Ch	1.5	0.5	3.2	2.2	1.6	1.4	1.2	1.4
Leisure and Hospitality	297.0	309.4	321.4	327.6	331.2	334.2	337.6	341.2
% Ch	3.4	4.2	3.9	1.9	1.1	0.9	1.0	1.1
Other Services	113.8	115.6	118.8	120.0	120.6	121.3	122.0	122.8
% Ch	2.3	1.5	2.9	0.9	0.5	0.5	0.6	0.7
Federal Government	71.3	73.2	74.8	75.1	74.6	74.0	76.7	73.5
% Ch	-0.5	2.6	2.2	0.4	-0.7	-0.8	3.6	-4.2
State and Local Government	479.4	489.2	499.0	503.5	509.4	516.2	522.3	527.3
% Ch	1.6	2.0	2.0	0.9	1.2	1.3	1.2	1.0

Table A2.4

Washington Nonagricultural Employment by Industry (Thousands)

Forecast 2016 to 2021

	2016:1	2016:2	2016:3	2016:4	2017:1	2017:2	2017:3	2017:4
Nonfarm Payroll Employment	3,210.5	3,230.7	3,245.1	3,254.8	3,267.6	3,279.8	3,291.1	3,303.5
% Ch, Annual Rate	4.2	2.5	1.8	1.2	1.6	1.5	1.4	1.5
Manufacturing	291.0	289.9	288.5	284.1	284.2	284.5	285.0	285.0
% Ch, Annual Rate	0.7	-1.4	-2.0	-6.0	0.2	0.5	0.6	0.0
Durable Manufacturing	209.8	208.9	207.4	203.0	202.7	203.0	203.5	203.4
% Ch, Annual Rate	-1.2	-1.8	-2.7	-8.3	-0.5	0.6	0.9	-0.1
Wood Products	13.2	13.1	13.1	13.1	13.3	13.5	13.7	13.8
% Ch, Annual Rate	-0.7	-1.9	-1.7	-0.7	6.6	6.1	5.4	4.8
Primary and Fabricated Metals	25.3	24.9	24.7	24.8	24.9	25.0	25.1	25.1
% Ch, Annual Rate	-3.7	-6.1	-3.5	1.4	1.5	2.6	1.6	-0.4
Computer and Electronic Products	20.0	20.1	20.1	20.0	19.9	20.0	20.3	20.5
% Ch, Annual Rate	1.1	1.1	-0.3	-0.6	-3.7	3.9	4.9	3.5
Machinery and Electrical Equipment	20.7	20.8	20.9	21.2	21.1	21.3	21.7	21.8
% Ch, Annual Rate	0.2	2.9	0.9	6.9	-1.7	4.1	6.7	2.5
Aerospace	92.6	91.6	90.2	85.7	85.2	84.6	84.1	83.6
% Ch, Annual Rate	-2.4	-4.3	-5.9	-18.5	-2.5	-2.5	-2.5	-2.5
Other Transportation Equip.	10.3	10.3	10.0	9.9	9.9	9.8	9.8	9.7
% Ch, Annual Rate	-2.2	0.8	-11.3	-5.6	0.5	-3.4	-1.5	-3.9
Other Durables	27.6	28.0	28.4	28.3	28.5	28.7	28.8	28.9
% Ch, Annual Rate	3.0	4.8	7.2	-2.2	3.5	2.1	2.2	1.6
Nondurable Manufacturing	81.2	81.1	81.1	81.0	81.4	81.5	81.5	81.5
% Ch, Annual Rate	5.9	-0.6	-0.1	-0.1	1.9	0.4	0.0	0.2
Food Manufacturing	37.2	36.3	35.6	35.5	35.8	35.9	36.0	36.1
% Ch, Annual Rate	6.6	-8.9	-7.5	-1.3	3.9	1.4	0.6	0.6
Paper and Paper Products	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.5
% Ch, Annual Rate	-7.0	-1.6	2.7	-2.2	-1.4	-2.6	-2.7	-2.7
Other Nondurables	36.3	37.1	37.7	37.8	37.9	37.9	37.9	38.0
% Ch, Annual Rate	8.1	8.9	6.8	1.6	0.7	0.1	0.0	0.4
Natural Resources and Mining	6.3	6.3	6.3	6.4	6.4	6.4	6.4	6.5
% Ch, Annual Rate	2.9	-1.4	2.2	4.8	-0.6	1.4	1.4	1.5
Construction	181.7	183.3	184.0	183.8	183.7	184.9	186.6	189.3
% Ch, Annual Rate	15.4	3.5	1.7	-0.6	-0.1	2.6	3.7	5.9
Trade, Transportation, and Utilities	599.5	604.5	607.2	610.0	612.2	614.0	615.4	616.7
% Ch, Annual Rate	3.3	3.4	1.8	1.8	1.5	1.2	0.9	0.9
Wholesale Trade	134.2	134.1	134.2	134.3	134.6	134.8	135.2	135.6
% Ch, Annual Rate	3.1	-0.3	0.2	0.4	0.8	0.8	1.0	1.3
Retail Trade	362.0	365.9	367.7	370.4	371.9	373.2	374.0	374.7
% Ch, Annual Rate	4.4	4.4	1.9	3.0	1.7	1.3	0.9	0.7
Trans., Warehousing, and Utilities	103.3	104.5	105.4	105.3	105.7	106.0	106.2	106.4
% Ch, Annual Rate	-0.2	4.9	3.3	-0.2	1.6	1.0	0.8	0.9
Information	118.9	119.7	121.0	121.6	122.5	122.5	122.6	122.8
% Ch, Annual Rate	5.2	2.6	4.5	1.9	2.9	0.0	0.4	0.7
Software Publishers	57.9	58.8	59.9	60.2	60.5	60.6	60.6	60.7
% Ch, Annual Rate	5.4	6.4	8.1	1.7	2.1	0.7	0.2	0.8
Other Publishing Industries	6.0	6.0	6.2	6.2	6.2	6.1	5.9	5.8
% Ch, Annual Rate	-2.4	2.8	15.9	-1.7	0.4	-7.5	-10.2	-7.0
Other Information	55.1	54.9	54.9	55.2	55.8	55.8	56.1	56.2
% Ch, Annual Rate	6.0	-1.3	-0.3	2.6	4.0	0.2	1.8	1.3
Financial Activities	150.4	151.6	152.5	153.2	153.0	152.8	152.5	152.5
% Ch, Annual Rate	3.7	3.1	2.6	1.6	-0.3	-0.7	-0.7	0.1
Professional and Business Services	397.5	401.2	403.5	407.2	412.1	416.1	420.4	424.4
% Ch, Annual Rate	4.1	3.8	2.3	3.8	4.8	4.0	4.2	3.9
Education and Health Services	459.4	462.8	464.0	468.0	470.9	473.5	474.9	476.5
% Ch, Annual Rate	5.3	3.0	1.1	3.5	2.5	2.2	1.2	1.4
Leisure and Hospitality	318.5	319.8	322.8	324.3	325.6	327.1	328.3	329.4
% Ch, Annual Rate	4.5	1.7	3.7	1.9	1.6	1.8	1.6	1.4
Other Services	117.6	118.7	119.3	119.8	119.9	119.9	120.0	120.1
% Ch, Annual Rate	4.6	3.7	2.3	1.4	0.5	0.0	0.1	0.5
Federal Government	74.2	75.0	74.9	75.1	75.1	75.2	75.2	75.1
% Ch, Annual Rate	1.0	4.3	-0.2	0.8	0.1	0.3	-0.1	-0.5
State and Local Government	495.6	497.9	501.0	501.5	501.9	503.0	503.9	505.3
% Ch, Annual Rate	2.8	1.9	2.4	0.4	0.4	0.8	0.8	1.1

Table A2.4 (continued)

Washington Nonagricultural Employment by Industry (Thousands)

Forecast 2016 to 2021

	2018:1	2018:2	2018:3	2018:4	2019:1	2019:2	2019:3	2019:4
Nonfarm Payroll Employment	3,315.2	3,327.5	3,338.5	3,349.0	3,360.3	3,370.7	3,379.5	3,388.6
% Ch, Annual Rate	1.4	1.5	1.3	1.3	1.4	1.2	1.1	1.1
Manufacturing	284.8	284.7	285.3	286.2	287.0	287.5	287.8	288.4
% Ch, Annual Rate	-0.3	-0.1	0.8	1.3	1.1	0.8	0.4	0.8
Durable Manufacturing	203.2	202.9	203.3	203.9	204.3	204.6	204.7	205.1
% Ch, Annual Rate	-0.5	-0.4	0.7	1.2	0.9	0.5	0.1	0.8
Wood Products	13.8	13.9	14.0	14.0	14.1	14.1	14.1	14.2
% Ch, Annual Rate	0.5	0.9	2.6	2.3	0.8	-0.1	0.8	3.4
Primary and Fabricated Metals	25.0	24.8	24.9	25.0	25.3	25.5	25.6	25.9
% Ch, Annual Rate	-2.5	-2.1	0.5	3.0	4.0	3.1	2.1	4.1
Computer and Electronic Products	20.7	20.9	21.2	21.4	21.5	21.6	21.6	21.6
% Ch, Annual Rate	5.2	3.8	4.7	4.9	1.7	0.9	0.6	0.7
Machinery and Electrical Equipment	21.9	22.1	22.4	22.9	23.3	23.7	24.0	24.4
% Ch, Annual Rate	1.9	3.0	5.8	8.2	8.4	6.6	5.1	6.7
Aerospace	83.2	82.7	82.3	81.9	81.5	81.1	80.7	80.3
% Ch, Annual Rate	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Other Transportation Equip.	9.5	9.4	9.4	9.4	9.4	9.4	9.3	9.3
% Ch, Annual Rate	-5.8	-4.5	0.1	-1.6	-1.7	1.6	-2.2	-3.8
Other Durables	29.0	29.1	29.1	29.2	29.3	29.3	29.4	29.5
% Ch, Annual Rate	1.0	0.9	0.9	1.2	1.1	0.5	0.4	1.1
Nondurable Manufacturing	81.6	81.8	82.0	82.3	82.6	82.9	83.2	83.4
% Ch, Annual Rate	0.4	0.7	1.3	1.5	1.5	1.3	1.1	1.0
Food Manufacturing	36.1	36.2	36.3	36.5	36.5	36.6	36.7	36.8
% Ch, Annual Rate	0.9	0.6	1.4	1.6	1.0	0.9	0.8	0.7
Paper and Paper Products	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3
% Ch, Annual Rate	-2.7	-2.0	-1.3	-1.1	-1.1	-1.1	-1.4	-1.3
Other Nondurables	38.0	38.1	38.3	38.5	38.7	38.9	39.1	39.3
% Ch, Annual Rate	0.6	1.3	1.7	2.0	2.5	2.2	1.9	1.8
Natural Resources and Mining	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6
% Ch, Annual Rate	0.7	1.1	1.9	1.4	0.8	0.6	1.0	1.4
Construction	191.9	193.4	195.0	196.4	197.8	199.1	199.8	200.8
% Ch, Annual Rate	5.6	3.2	3.2	3.0	2.9	2.6	1.4	1.9
Trade, Transportation, and Utilities	617.4	618.9	620.2	621.3	622.5	623.5	624.1	624.6
% Ch, Annual Rate	0.5	1.0	0.8	0.7	0.8	0.7	0.4	0.3
Wholesale Trade	136.1	136.7	137.2	137.7	138.2	138.7	139.0	139.3
% Ch, Annual Rate	1.6	1.7	1.5	1.3	1.5	1.3	1.0	0.8
Retail Trade	374.6	375.0	375.6	376.1	376.7	377.2	377.4	377.5
% Ch, Annual Rate	-0.1	0.5	0.6	0.6	0.6	0.5	0.2	0.2
Trans., Warehousing, and Utilities	106.7	107.2	107.4	107.5	107.6	107.7	107.7	107.8
% Ch, Annual Rate	1.1	1.7	0.7	0.4	0.4	0.4	0.3	0.2
Information	123.0	123.5	123.9	124.2	124.4	124.5	124.6	124.7
% Ch, Annual Rate	0.8	1.4	1.3	1.0	0.7	0.5	0.2	0.4
Software Publishers	60.9	61.0	61.2	61.3	61.5	61.6	61.8	61.9
% Ch, Annual Rate	0.8	0.9	1.1	1.2	1.0	0.9	0.8	0.9
Other Publishing Industries	5.7	5.6	5.6	5.5	5.4	5.3	5.2	5.1
% Ch, Annual Rate	-7.1	-6.5	-5.3	-4.9	-6.6	-7.1	-7.9	-7.4
Other Information	56.5	56.8	57.1	57.3	57.5	57.6	57.7	57.7
% Ch, Annual Rate	1.6	2.7	2.1	1.4	1.3	0.7	0.3	0.5
Financial Activities	152.5	152.4	152.2	151.9	151.6	151.3	150.9	150.5
% Ch, Annual Rate	-0.2	-0.1	-0.6	-0.9	-0.6	-0.8	-1.2	-0.9
Professional and Business Services	428.5	432.9	436.2	438.8	442.4	446.0	449.8	453.1
% Ch, Annual Rate	3.9	4.2	3.1	2.4	3.2	3.4	3.4	2.9
Education and Health Services	478.5	480.6	482.3	484.1	486.4	487.7	488.9	490.4
% Ch, Annual Rate	1.7	1.8	1.4	1.5	1.9	1.1	1.0	1.3
Leisure and Hospitality	330.0	330.7	331.5	332.4	332.9	333.7	334.7	335.5
% Ch, Annual Rate	0.6	0.9	1.0	1.1	0.5	1.0	1.2	1.0
Other Services	120.3	120.5	120.7	120.9	121.1	121.2	121.3	121.5
% Ch, Annual Rate	0.7	0.7	0.7	0.6	0.6	0.4	0.5	0.4
Federal Government	74.9	74.7	74.5	74.4	74.2	74.1	73.9	73.8
% Ch, Annual Rate	-1.0	-0.9	-0.8	-0.9	-0.8	-0.9	-0.8	-0.8
State and Local Government	507.0	508.6	510.2	511.8	513.5	515.4	517.1	518.7
% Ch, Annual Rate	1.4	1.3	1.3	1.3	1.3	1.5	1.3	1.3

Table A2.4 (continued)

Washington Nonagricultural Employment by Industry (Thousands)

Forecast 2016 to 2021

	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4
Nonfarm Payroll Employment	3,398.1	3,413.6	3,418.7	3,426.0	3,435.1	3,444.9	3,454.6	3,464.8
% Ch, Annual Rate	1.1	1.8	0.6	0.9	1.1	1.1	1.1	1.2
Manufacturing	289.2	289.8	290.7	291.5	292.1	292.8	293.3	293.9
% Ch, Annual Rate	1.1	0.7	1.3	1.2	0.9	0.8	0.7	0.7
Durable Manufacturing	205.8	206.3	207.1	207.8	208.3	208.8	209.3	209.7
% Ch, Annual Rate	1.5	1.0	1.5	1.4	0.9	0.9	0.8	0.8
Wood Products	14.3	14.4	14.5	14.6	14.7	14.7	14.7	14.7
% Ch, Annual Rate	3.2	2.8	3.4	2.5	0.9	0.1	-0.2	-0.1
Primary and Fabricated Metals	26.1	26.3	26.5	26.7	26.8	27.0	27.1	27.2
% Ch, Annual Rate	3.9	2.7	3.2	3.2	2.0	2.1	1.8	1.6
Computer and Electronic Products	21.7	21.7	21.7	21.8	21.8	21.9	21.9	22.0
% Ch, Annual Rate	1.0	-0.4	0.8	1.0	0.8	1.3	1.4	1.2
Machinery and Electrical Equipment	24.8	25.1	25.5	25.9	26.2	26.5	26.8	27.1
% Ch, Annual Rate	6.1	5.5	6.9	5.8	5.0	5.1	4.6	4.8
Aerospace	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3
% Ch, Annual Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Transportation Equip.	9.1	9.0	9.0	8.9	8.8	8.8	8.7	8.6
% Ch, Annual Rate	-4.6	-4.8	-3.5	-3.0	-2.9	-3.2	-3.2	-3.4
Other Durables	29.5	29.6	29.7	29.7	29.7	29.8	29.8	29.8
% Ch, Annual Rate	1.1	0.7	1.0	0.7	0.3	0.3	0.3	0.2
Nondurable Manufacturing	83.4	83.4	83.6	83.7	83.8	83.9	84.0	84.2
% Ch, Annual Rate	0.3	-0.1	0.7	0.6	0.6	0.6	0.5	0.6
Food Manufacturing	36.7	36.7	36.7	36.7	36.7	36.7	36.8	36.8
% Ch, Annual Rate	-0.3	-0.9	0.3	0.1	0.3	0.2	0.2	0.2
Paper and Paper Products	7.3	7.2	7.2	7.2	7.2	7.1	7.1	7.1
% Ch, Annual Rate	-2.0	-2.1	-1.3	-1.3	-1.3	-1.2	-1.3	-1.3
Other Nondurables	39.4	39.5	39.7	39.8	39.9	40.1	40.2	40.3
% Ch, Annual Rate	1.2	1.1	1.5	1.4	1.3	1.3	1.1	1.2
Natural Resources and Mining	6.6	6.6	6.7	6.7	6.7	6.7	6.7	6.7
% Ch, Annual Rate	0.6	1.3	1.3	1.5	1.2	0.9	0.9	0.5
Construction	201.5	202.1	202.8	203.4	203.9	204.4	204.9	205.3
% Ch, Annual Rate	1.4	1.3	1.3	1.2	1.1	1.0	0.9	0.8
Trade, Transportation, and Utilities	625.1	625.2	625.8	626.5	626.9	627.8	628.5	629.2
% Ch, Annual Rate	0.3	0.1	0.4	0.5	0.3	0.6	0.4	0.5
Wholesale Trade	139.8	140.0	140.4	140.8	141.3	141.7	142.1	142.4
% Ch, Annual Rate	1.3	0.7	1.1	1.2	1.3	1.2	1.1	1.0
Retail Trade	377.5	377.2	377.3	377.5	377.3	377.7	377.9	378.3
% Ch, Annual Rate	-0.1	-0.2	0.1	0.2	-0.2	0.4	0.3	0.3
Trans., Warehousing, and Utilities	107.9	107.9	108.0	108.2	108.3	108.4	108.5	108.5
% Ch, Annual Rate	0.4	0.1	0.3	0.5	0.4	0.4	0.3	0.2
Information	124.9	125.1	125.8	126.5	127.1	127.8	128.5	129.1
% Ch, Annual Rate	0.6	0.7	2.0	2.2	2.0	2.2	2.1	2.0
Software Publishers	62.0	62.2	62.4	62.5	62.7	62.9	63.1	63.2
% Ch, Annual Rate	1.0	0.9	1.1	1.1	1.1	1.2	1.1	1.1
Other Publishing Industries	5.0	4.9	4.8	4.8	4.7	4.6	4.5	4.5
% Ch, Annual Rate	-6.5	-7.3	-5.9	-5.9	-6.3	-5.7	-6.5	-6.9
Other Information	57.9	58.0	58.6	59.2	59.7	60.3	60.8	61.4
% Ch, Annual Rate	0.9	1.3	3.6	4.1	3.8	4.0	3.7	3.6
Financial Activities	150.4	150.2	150.1	150.0	149.9	150.0	150.0	149.9
% Ch, Annual Rate	-0.2	-0.7	-0.2	-0.3	-0.2	0.2	0.1	-0.2
Professional and Business Services	455.9	458.6	461.7	465.0	468.0	471.1	474.5	478.4
% Ch, Annual Rate	2.5	2.4	2.8	2.9	2.6	2.7	2.9	3.3
Education and Health Services	492.5	493.3	495.1	496.7	499.0	500.5	502.3	504.2
% Ch, Annual Rate	1.7	0.6	1.4	1.3	1.8	1.3	1.4	1.5
Leisure and Hospitality	336.2	337.0	338.1	339.1	339.9	340.9	341.7	342.4
% Ch, Annual Rate	0.8	1.0	1.3	1.2	1.0	1.1	1.0	0.8
Other Services	121.7	121.9	122.1	122.3	122.5	122.7	122.9	123.1
% Ch, Annual Rate	0.9	0.6	0.7	0.7	0.7	0.7	0.6	0.6
Federal Government	73.7	82.0	76.9	74.1	73.6	73.5	73.4	73.4
% Ch, Annual Rate	-0.5	53.8	-22.9	-13.4	-3.0	-0.5	-0.4	-0.3
State and Local Government	520.3	521.7	523.0	524.3	525.4	526.7	527.9	529.2
% Ch, Annual Rate	1.2	1.1	1.0	0.9	0.9	0.9	0.9	1.0

Table A3.1

U.S. Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Personal Income	14,809.8	15,458.5	15,977.1	16,640.1	17,375.7	18,179.5	19,030.8	19,883.2
% Ch	5.2	4.4	3.4	4.1	4.4	4.6	4.7	4.5
Total Wage and Salary Disbursements	7,476.3	7,854.8	8,139.2	8,477.1	8,807.1	9,146.9	9,507.1	9,891.8
% Ch	5.1	5.1	3.6	4.2	3.9	3.9	3.9	4.0
Nonwage Personal Income	7,333.4	7,603.7	7,838.0	8,163.0	8,568.6	9,032.6	9,523.7	9,991.4
% Ch	5.4	3.7	3.1	4.1	5.0	5.4	5.4	4.9
Supplements to Wages and Salaries	1,777.1	1,838.2	1,908.5	1,978.6	2,034.8	2,096.3	2,158.4	2,219.7
% Ch	3.0	3.4	3.8	3.7	2.8	3.0	3.0	2.8
Proprietor's Income	1,337.7	1,376.8	1,418.6	1,488.2	1,553.5	1,610.8	1,673.8	1,751.4
% Ch	4.1	2.9	3.0	4.9	4.4	3.7	3.9	4.6
Farm	68.5	40.0	32.6	34.4	36.1	38.0	38.8	42.8
% Ch	...	...	...	...	...	...	...	...
Nonfarm	1,269.2	1,336.8	1,386.0	1,453.7	1,517.4	1,572.8	1,635.0	1,708.6
% Ch	6.0	5.3	3.7	4.9	4.4	3.6	4.0	4.5
Less: Contribution For Govt. Soc. Ins.	1,154.9	1,203.5	1,244.0	1,296.4	1,347.7	1,398.4	1,453.7	1,514.0
% Ch	4.6	4.2	3.4	4.2	4.0	3.8	4.0	4.1
Dividends/Int./Rent	2,833.1	2,913.5	2,970.7	3,074.6	3,253.4	3,484.0	3,744.2	3,961.3
% Ch	8.0	2.8	2.0	3.5	5.8	7.1	7.5	5.8
Transfer Payments	2,540.4	2,678.7	2,784.2	2,918.1	3,074.6	3,239.8	3,401.1	3,573.1
% Ch	4.6	5.4	3.9	4.8	5.4	5.4	5.0	5.1

Table A3.2

U.S. Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2016:1	2016:2	2016:3	2016:4	2017:1	2017:2	2017:3	2017:4
Personal Income	15,740.1	15,900.0	16,049.4	16,219.0	16,389.5	16,557.7	16,720.8	16,892.3
% Ch, Annual Rate	1.3	4.1	3.8	4.3	4.3	4.2	4.0	4.2
Total Wage and Salary Disbursements	8,011.3	8,103.9	8,177.3	8,264.2	8,352.3	8,437.9	8,519.8	8,598.3
% Ch, Annual Rate	-0.7	4.7	3.7	4.3	4.3	4.2	3.9	3.7
Nonwage Personal Income	7,728.8	7,796.1	7,872.1	7,954.8	8,037.2	8,119.8	8,201.0	8,294.0
% Ch, Annual Rate	3.3	3.5	4.0	4.3	4.2	4.2	4.1	4.6
Supplements to Wages and Salaries	1,881.3	1,900.8	1,918.7	1,933.2	1,955.6	1,972.2	1,986.8	1,999.8
% Ch, Annual Rate	2.9	4.2	3.8	3.1	4.7	3.4	3.0	2.6
Proprietor's Income	1,403.9	1,410.7	1,420.8	1,439.0	1,458.6	1,479.7	1,498.4	1,516.0
% Ch, Annual Rate	0.9	2.0	2.9	5.2	5.5	5.9	5.2	4.8
Farm	32.3	31.8	32.3	34.2	33.4	32.7	34.5	37.1
% Ch, Annual Rate	...	...	...	...	...	...	...	...
Nonfarm	1,371.6	1,378.9	1,388.6	1,404.8	1,425.2	1,446.9	1,463.9	1,478.9
% Ch, Annual Rate	2.6	2.1	2.8	4.8	5.9	6.2	4.8	4.1
Less: Contribution For Govt. Soc. Ins.	1,229.0	1,239.6	1,248.3	1,259.1	1,281.7	1,291.5	1,301.5	1,310.9
% Ch, Annual Rate	1.6	3.5	2.8	3.5	7.4	3.1	3.1	2.9
Dividends/Int./Rent	2,928.7	2,959.2	2,984.3	3,010.6	3,031.2	3,056.0	3,084.3	3,126.8
% Ch, Annual Rate	2.2	4.2	3.4	3.6	2.8	3.3	3.8	5.6
Transfer Payments	2,744.0	2,765.1	2,796.6	2,831.0	2,873.5	2,903.5	2,933.0	2,962.3
% Ch, Annual Rate	5.4	3.1	4.6	5.0	6.1	4.2	4.1	4.1

Table A3.2 (continued)

U.S. Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2018:1	2018:2	2018:3	2018:4	2019:1	2019:2	2019:3	2019:4
Personal Income	17,095.0	17,284.2	17,467.7	17,655.7	17,879.4	18,078.2	18,278.7	18,481.7
% Ch, Annual Rate	4.9	4.5	4.3	4.4	5.2	4.5	4.5	4.5
Total Wage and Salary Disbursements	8,682.9	8,767.3	8,849.5	8,928.6	9,016.8	9,103.6	9,190.5	9,276.6
% Ch, Annual Rate	4.0	3.9	3.8	3.6	4.0	3.9	3.9	3.8
Nonwage Personal Income	8,412.1	8,516.9	8,618.2	8,727.1	8,862.6	8,974.6	9,088.2	9,205.1
% Ch, Annual Rate	5.8	5.1	4.8	5.2	6.4	5.2	5.2	5.2
Supplements to Wages and Salaries	2,014.9	2,026.9	2,041.5	2,055.8	2,074.8	2,089.4	2,103.5	2,117.6
% Ch, Annual Rate	3.1	2.4	2.9	2.8	3.7	2.8	2.7	2.7
Proprietor's Income	1,530.7	1,547.5	1,561.3	1,574.5	1,590.4	1,605.2	1,618.1	1,629.6
% Ch, Annual Rate	3.9	4.5	3.6	3.4	4.1	3.8	3.3	2.9
Farm	36.8	35.6	35.9	36.2	37.9	38.1	38.3	37.8
% Ch, Annual Rate	...	...	...	...	...	...	...	...
Nonfarm	1,493.9	1,511.9	1,525.5	1,538.3	1,552.6	1,567.0	1,579.8	1,591.8
% Ch, Annual Rate	4.1	4.9	3.6	3.4	3.8	3.8	3.3	3.1
Less: Contribution For Govt. Soc. Ins.	1,332.5	1,343.2	1,352.7	1,362.2	1,383.7	1,393.4	1,403.1	1,413.4
% Ch, Annual Rate	6.8	3.3	2.9	2.8	6.5	2.8	2.8	3.0
Dividends/Int./Rent	3,174.2	3,228.9	3,275.6	3,334.9	3,388.5	3,449.8	3,514.0	3,583.8
% Ch, Annual Rate	6.2	7.1	5.9	7.4	6.6	7.4	7.6	8.2
Transfer Payments	3,024.8	3,056.7	3,092.6	3,124.2	3,192.6	3,223.7	3,255.6	3,287.5
% Ch, Annual Rate	8.7	4.3	4.8	4.2	9.0	4.0	4.0	4.0

Table A3.2 (continued)

U.S. Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4
Personal Income	18,721.1	18,932.7	19,134.7	19,334.9	19,569.7	19,780.7	19,985.0	20,197.6
% Ch, Annual Rate	5.3	4.6	4.3	4.3	4.9	4.4	4.2	4.3
Total Wage and Salary Disbursements	9,369.8	9,461.0	9,552.3	9,645.5	9,745.1	9,841.8	9,940.4	10,039.9
% Ch, Annual Rate	4.1	4.0	3.9	4.0	4.2	4.0	4.1	4.1
Nonwage Personal Income	9,351.3	9,471.7	9,582.3	9,689.4	9,824.5	9,938.9	10,044.6	10,157.7
% Ch, Annual Rate	6.5	5.2	4.8	4.5	5.7	4.7	4.3	4.6
Supplements to Wages and Salaries	2,137.7	2,151.6	2,165.1	2,179.0	2,199.6	2,212.6	2,226.1	2,240.4
% Ch, Annual Rate	3.8	2.6	2.5	2.6	3.8	2.4	2.5	2.6
Proprietor's Income	1,646.6	1,666.0	1,682.3	1,700.3	1,721.3	1,743.1	1,761.9	1,779.5
% Ch, Annual Rate	4.3	4.8	4.0	4.4	5.0	5.2	4.4	4.0
Farm	38.1	38.0	39.0	39.9	41.6	42.4	43.3	43.9
% Ch, Annual Rate	...	...	...	...	...	...	...	...
Nonfarm	1,608.5	1,628.0	1,643.2	1,660.4	1,679.7	1,700.7	1,718.6	1,735.5
% Ch, Annual Rate	4.3	4.9	3.8	4.2	4.7	5.1	4.3	4.0
Less: Contribution For Govt. Soc. Ins.	1,437.9	1,448.1	1,458.3	1,470.6	1,497.5	1,508.4	1,519.5	1,530.7
% Ch, Annual Rate	7.1	2.9	2.8	3.4	7.5	2.9	3.0	3.0
Dividends/Int./Rent	3,651.3	3,717.7	3,776.8	3,830.9	3,883.9	3,938.2	3,985.5	4,037.5
% Ch, Annual Rate	7.7	7.5	6.5	5.9	5.7	5.7	4.9	5.3
Transfer Payments	3,353.7	3,384.5	3,416.5	3,449.8	3,517.2	3,553.5	3,590.7	3,631.0
% Ch, Annual Rate	8.3	3.7	3.8	4.0	8.0	4.2	4.3	4.6

Table A3.3

Washington Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Personal Income	350.322	366.950	384.700	401.654	421.842	443.570	466.270	489.093
% Ch	5.8	4.7	4.8	4.4	5.0	5.2	5.1	4.9
Total Wage and Salary Disbursements	181.978	191.362	203.455	212.024	221.682	231.387	241.294	252.060
% Ch	6.7	5.2	6.3	4.2	4.6	4.4	4.3	4.5
Manufacturing	21.781	21.733	21.694	21.973	22.610	23.384	24.292	25.294
% Ch	6.0	-0.2	-0.2	1.3	2.9	3.4	3.9	4.1
Durable Manufacturing	17.664	17.577	17.287	17.416	17.883	18.448	19.166	19.968
% Ch	6.4	-0.5	-1.7	0.7	2.7	3.2	3.9	4.2
Nondurable Manufacturing	4.117	4.156	4.407	4.557	4.727	4.937	5.127	5.326
% Ch	4.0	0.9	6.0	3.4	3.7	4.4	3.8	3.9
Nonmanufacturing	153.326	162.758	174.645	182.785	191.561	200.223	208.942	218.411
% Ch	7.2	6.2	7.3	4.7	4.8	4.5	4.4	4.5
Other Private Wages	1.116	1.143	1.195	1.155	1.194	1.232	1.271	1.312
% Ch	3.2	2.4	4.6	-3.4	3.4	3.2	3.1	3.3
Farm Wages	1.624	1.679	1.727	1.798	1.881	1.963	2.049	2.142
% Ch	3.1	3.4	2.9	4.1	4.6	4.4	4.4	4.5
Military Wages	4.131	4.050	4.194	4.313	4.436	4.585	4.739	4.901
% Ch	-4.1	-2.0	3.6	2.8	2.9	3.4	3.4	3.4
Nonwage Personal Income	168.343	175.588	181.245	189.629	200.160	212.183	224.976	237.033
% Ch	4.9	4.3	3.2	4.6	5.6	6.0	6.0	5.4
Supplements to Wages and Salaries	41.754	43.328	45.508	47.263	48.933	50.636	52.329	54.024
% Ch	2.8	3.8	5.0	3.9	3.5	3.5	3.3	3.2
Proprietor's Income	25.979	27.486	28.423	29.984	31.425	32.641	33.961	35.532
% Ch	3.5	5.8	3.4	5.5	4.8	3.9	4.0	4.6
Farm	1.253	0.996	0.668	0.809	0.884	0.929	0.950	0.983
% Ch	...	...	...	...	...	...	...	...
Nonfarm	24.726	26.490	27.755	29.175	30.540	31.713	33.011	34.549
% Ch	5.3	7.1	4.8	5.1	4.7	3.8	4.1	4.7
Less: Contribution For Govt. Soc. Ins.	30.320	31.524	33.254	34.695	36.253	37.739	39.309	40.982
% Ch	4.7	4.0	5.5	4.3	4.5	4.1	4.2	4.3
Plus: Residence Adjustment	3.353	3.591	3.792	3.973	4.138	4.311	4.495	4.691
% Ch	-1.1	7.1	5.6	4.8	4.2	4.2	4.3	4.4
Dividends/Int./Rent	72.149	75.148	77.687	80.839	85.978	92.515	99.874	106.099
% Ch	4.0	4.2	3.4	4.1	6.4	7.6	8.0	6.2
Transfer Payments	55.427	57.559	59.089	62.266	65.939	69.819	73.627	77.670
% Ch	8.8	3.8	2.7	5.4	5.9	5.9	5.5	5.5
State U.I. Benefits	1.062	1.002	0.972	0.822	0.678	0.602	0.575	0.564
% Ch	-38.4	-5.7	-2.9	-15.5	-17.5	-11.3	-4.4	-2.0
Other Transfers	54.365	56.557	58.117	61.444	65.261	69.217	73.052	77.106
% Ch	10.4	4.0	2.8	5.7	6.2	6.1	5.5	5.5

Table A3.4

Washington Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2016:1	2016:2	2016:3	2016:4	2017:1	2017:2	2017:3	2017:4
Personal Income	380.619	383.181	385.871	389.128	397.567	399.598	402.165	407.286
% Ch, Annual Rate	9.7	2.7	2.8	3.4	9.0	2.1	2.6	5.2
Total Wage and Salary Disbursements	202.370	202.951	203.641	204.859	211.203	211.088	211.549	214.258
% Ch, Annual Rate	17.3	1.2	1.4	2.4	13.0	-0.2	0.9	5.2
Manufacturing	21.275	21.993	21.928	21.580	21.718	21.891	22.074	22.211
% Ch, Annual Rate	-3.2	14.2	-1.2	-6.2	2.6	3.2	3.4	2.5
Durable Manufacturing	16.907	17.593	17.511	17.135	17.219	17.351	17.497	17.598
% Ch, Annual Rate	-8.2	17.2	-1.9	-8.3	2.0	3.1	3.4	2.3
Nondurable Manufacturing	4.368	4.400	4.416	4.445	4.499	4.540	4.577	4.613
% Ch, Annual Rate	19.8	3.0	1.5	2.7	4.9	3.7	3.3	3.2
Nonmanufacturing	173.809	173.928	174.645	176.197	182.273	181.946	182.186	184.736
% Ch, Annual Rate	19.8	0.3	1.7	3.6	14.5	-0.7	0.5	5.7
Other Private Wages	1.406	1.119	1.124	1.130	1.140	1.150	1.160	1.169
% Ch, Annual Rate	179.1	-59.8	1.9	2.0	3.6	3.5	3.4	3.2
Farm Wages	1.707	1.721	1.734	1.747	1.768	1.788	1.808	1.828
% Ch, Annual Rate	2.7	3.2	3.0	3.2	4.8	4.6	4.6	4.4
Military Wages	4.174	4.190	4.210	4.204	4.304	4.313	4.321	4.313
% Ch, Annual Rate	7.8	1.5	1.9	-0.6	9.9	0.8	0.8	-0.8
Nonwage Personal Income	178.249	180.231	182.230	184.269	186.364	188.510	190.616	193.028
% Ch, Annual Rate	1.8	4.5	4.5	4.6	4.6	4.7	4.5	5.2
Supplements to Wages and Salaries	44.792	45.397	45.808	46.035	46.637	47.069	47.483	47.863
% Ch, Annual Rate	7.5	5.5	3.7	2.0	5.3	3.8	3.6	3.2
Proprietor's Income	28.015	28.256	28.531	28.890	29.338	29.816	30.212	30.571
% Ch, Annual Rate	0.5	3.5	4.0	5.1	6.3	6.7	5.4	4.8
Farm	0.594	0.644	0.691	0.741	0.767	0.789	0.822	0.858
% Ch, Annual Rate	...	...	...	...	...	...	...	...
Nonfarm	27.420	27.612	27.840	28.149	28.571	29.027	29.390	29.713
% Ch, Annual Rate	7.4	2.8	3.3	4.5	6.1	6.5	5.1	4.5
Less: Contribution For Govt. Soc. Ins.	32.801	33.188	33.408	33.618	34.252	34.538	34.847	35.144
% Ch, Annual Rate	9.6	4.8	2.7	2.5	7.8	3.4	3.6	3.4
Plus: Residence Adjustment	3.718	3.772	3.814	3.864	3.910	3.953	3.995	4.034
% Ch, Annual Rate	2.9	6.0	4.5	5.4	4.8	4.6	4.2	4.0
Dividends/Int./Rent	76.419	77.343	78.094	78.892	79.539	80.296	81.147	82.372
% Ch, Annual Rate	2.0	4.9	3.9	4.1	3.3	3.9	4.3	6.2
Transfer Payments	58.107	58.651	59.393	60.206	61.193	61.912	62.626	63.332
% Ch, Annual Rate	1.9	3.8	5.2	5.6	6.7	4.8	4.7	4.6
State U.I. Benefits	0.993	0.979	0.979	0.937	0.883	0.834	0.799	0.772
% Ch, Annual Rate	-0.5	-5.7	0.0	-16.0	-21.4	-20.3	-15.9	-12.6
Other Transfers	57.114	57.672	58.414	59.269	60.310	61.078	61.827	62.560
% Ch, Annual Rate	1.9	4.0	5.2	6.0	7.2	5.2	5.0	4.8

Table A3.4 (continued)

Washington Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2018:1	2018:2	2018:3	2018:4	2019:1	2019:2	2019:3	2019:4
Personal Income	417.773	419.600	421.819	428.178	439.801	441.008	443.205	450.267
% Ch, Annual Rate	10.7	1.8	2.1	6.2	11.3	1.1	2.0	6.5
Total Wage and Salary Disbursements	221.732	220.785	220.359	223.854	232.103	230.360	229.567	233.520
% Ch, Annual Rate	14.7	-1.7	-0.8	6.5	15.6	-3.0	-1.4	7.1
Manufacturing	22.357	22.499	22.689	22.894	23.094	23.291	23.473	23.678
% Ch, Annual Rate	2.7	2.6	3.4	3.7	3.5	3.5	3.2	3.5
Durable Manufacturing	17.702	17.801	17.940	18.091	18.238	18.380	18.510	18.662
% Ch, Annual Rate	2.4	2.3	3.2	3.4	3.3	3.2	2.8	3.3
Nondurable Manufacturing	4.656	4.698	4.750	4.802	4.857	4.911	4.964	5.016
% Ch, Annual Rate	3.7	3.7	4.4	4.5	4.6	4.6	4.4	4.2
Nonmanufacturing	191.925	190.791	190.131	193.397	201.292	199.307	198.286	202.007
% Ch, Annual Rate	16.5	-2.3	-1.4	7.0	17.4	-3.9	-2.0	7.7
Other Private Wages	1.180	1.190	1.199	1.208	1.218	1.228	1.237	1.246
% Ch, Annual Rate	3.9	3.4	3.2	2.8	3.5	3.2	3.0	2.9
Farm Wages	1.851	1.872	1.892	1.911	1.933	1.954	1.974	1.994
% Ch, Annual Rate	5.1	4.6	4.4	4.1	4.7	4.4	4.2	4.1
Military Wages	4.419	4.433	4.447	4.445	4.566	4.581	4.597	4.596
% Ch, Annual Rate	10.2	1.2	1.3	-0.2	11.3	1.3	1.4	-0.1
Nonwage Personal Income	196.041	198.815	201.460	204.324	207.698	210.648	213.638	216.747
% Ch, Annual Rate	6.4	5.8	5.4	5.8	6.8	5.8	5.8	5.9
Supplements to Wages and Salaries	48.371	48.725	49.128	49.510	50.066	50.460	50.825	51.194
% Ch, Annual Rate	4.3	3.0	3.3	3.2	4.6	3.2	2.9	2.9
Proprietor's Income	30.913	31.299	31.601	31.886	32.208	32.522	32.792	33.044
% Ch, Annual Rate	4.6	5.1	3.9	3.7	4.1	4.0	3.4	3.1
Farm	0.871	0.877	0.889	0.900	0.919	0.927	0.934	0.935
% Ch, Annual Rate	...	...	...	...	...	...	...	...
Nonfarm	30.042	30.423	30.711	30.985	31.289	31.595	31.858	32.109
% Ch, Annual Rate	4.5	5.2	3.8	3.6	4.0	4.0	3.4	3.2
Less: Contribution For Govt. Soc. Ins.	35.795	36.120	36.409	36.689	37.316	37.602	37.873	38.166
% Ch, Annual Rate	7.6	3.7	3.2	3.1	7.0	3.1	2.9	3.1
Plus: Residence Adjustment	4.075	4.118	4.159	4.200	4.244	4.288	4.333	4.377
% Ch, Annual Rate	4.1	4.2	4.1	3.9	4.3	4.2	4.3	4.2
Dividends/Int./Rent	83.727	85.277	86.616	88.291	89.818	91.552	93.362	95.329
% Ch, Annual Rate	6.7	7.6	6.4	8.0	7.1	7.9	8.1	8.7
Transfer Payments	64.749	65.516	66.366	67.126	68.678	69.428	70.199	70.969
% Ch, Annual Rate	9.3	4.8	5.3	4.7	9.6	4.4	4.5	4.5
State U.I. Benefits	0.726	0.684	0.658	0.645	0.624	0.600	0.593	0.589
% Ch, Annual Rate	-22.0	-21.3	-14.1	-7.5	-12.9	-14.0	-4.7	-2.7
Other Transfers	64.023	64.833	65.708	66.480	68.054	68.828	69.606	70.380
% Ch, Annual Rate	9.7	5.2	5.5	4.8	9.8	4.6	4.6	4.5

Table A3.4 (continued)

Washington Personal Income by Component (Billions of Dollars)

Forecast 2016 to 2021

	2020:1	2020:2	2020:3	2020:4	2021:1	2021:2	2021:3	2021:4
Personal Income	461.963	463.937	465.992	473.189	484.904	486.677	488.563	496.227
% Ch, Annual Rate	10.8	1.7	1.8	6.3	10.3	1.5	1.6	6.4
Total Wage and Salary Disbursements	241.522	240.318	239.472	243.864	252.206	251.012	250.149	254.871
% Ch, Annual Rate	14.4	-2.0	-1.4	7.5	14.4	-1.9	-1.4	7.8
Manufacturing	23.921	24.153	24.418	24.678	24.924	25.171	25.417	25.663
% Ch, Annual Rate	4.2	3.9	4.5	4.3	4.0	4.0	4.0	3.9
Durable Manufacturing	18.863	19.054	19.268	19.478	19.674	19.870	20.066	20.261
% Ch, Annual Rate	4.4	4.1	4.6	4.4	4.1	4.1	4.0	4.0
Nondurable Manufacturing	5.058	5.098	5.149	5.200	5.250	5.301	5.351	5.402
% Ch, Annual Rate	3.5	3.2	4.1	4.0	4.0	3.9	3.8	3.9
Nonmanufacturing	209.610	208.126	206.967	211.066	219.000	217.508	216.348	220.788
% Ch, Annual Rate	15.9	-2.8	-2.2	8.2	15.9	-2.7	-2.1	8.5
Other Private Wages	1.256	1.266	1.275	1.285	1.297	1.307	1.317	1.328
% Ch, Annual Rate	3.3	3.4	3.0	3.2	3.5	3.2	3.2	3.2
Farm Wages	2.016	2.039	2.060	2.082	2.107	2.130	2.153	2.177
% Ch, Annual Rate	4.5	4.6	4.2	4.4	4.8	4.4	4.5	4.5
Military Wages	4.719	4.734	4.752	4.753	4.879	4.896	4.914	4.915
% Ch, Annual Rate	11.1	1.3	1.5	0.1	11.0	1.4	1.5	0.1
Nonwage Personal Income	220.441	223.620	226.520	229.325	232.698	235.666	238.414	241.356
% Ch, Annual Rate	7.0	5.9	5.3	5.0	6.0	5.2	4.7	5.0
Supplements to Wages and Salaries	51.759	52.160	52.508	52.889	53.486	53.837	54.198	54.576
% Ch, Annual Rate	4.5	3.1	2.7	2.9	4.6	2.7	2.7	2.8
Proprietor's Income	33.397	33.809	34.134	34.503	34.920	35.363	35.743	36.102
% Ch, Annual Rate	4.3	5.0	3.9	4.4	4.9	5.2	4.4	4.1
Farm	0.941	0.944	0.953	0.961	0.973	0.980	0.987	0.992
% Ch, Annual Rate	...	...	...	...	...	...	...	...
Nonfarm	32.456	32.865	33.181	33.543	33.946	34.383	34.755	35.110
% Ch, Annual Rate	4.4	5.1	3.9	4.4	4.9	5.2	4.4	4.1
Less: Contribution For Govt. Soc. Ins.	38.853	39.162	39.438	39.784	40.536	40.832	41.131	41.430
% Ch, Annual Rate	7.4	3.2	2.9	3.6	7.8	3.0	3.0	2.9
Plus: Residence Adjustment	4.425	4.471	4.518	4.566	4.616	4.665	4.716	4.767
% Ch, Annual Rate	4.4	4.2	4.3	4.3	4.5	4.4	4.4	4.4
Dividends/Int./Rent	97.233	99.114	100.797	102.349	103.872	105.427	106.798	108.297
% Ch, Annual Rate	8.2	8.0	7.0	6.3	6.1	6.1	5.3	5.7
Transfer Payments	72.480	73.228	74.000	74.801	76.341	77.205	78.090	79.044
% Ch, Annual Rate	8.8	4.2	4.3	4.4	8.5	4.6	4.7	5.0
State U.I. Benefits	0.585	0.572	0.571	0.572	0.578	0.568	0.560	0.549
% Ch, Annual Rate	-2.6	-9.0	-0.4	0.9	3.6	-6.2	-5.7	-7.4
Other Transfers	71.895	72.656	73.429	74.228	75.763	76.637	77.530	78.495
% Ch, Annual Rate	8.9	4.3	4.3	4.4	8.5	4.7	4.7	5.1

Table A4.1
Selected Inflation Indicators
(Deflator 2009=1; CPI 1982-84=1)

	Price Deflator*		U.S. CPI#		Seattle CPI+	
	Index	Percent Change	Index	Percent Change	Index	Percent Change
1971	0.233	4.2	0.405	4.2	0.382	2.1
1972	0.241	3.4	0.418	3.3	0.393	2.9
1973	0.254	5.4	0.444	6.3	0.418	6.4
1974	0.280	10.4	0.493	11.0	0.464	11.0
1975	0.303	8.3	0.538	9.1	0.511	10.2
1976	0.320	5.5	0.569	5.8	0.540	5.5
1977	0.341	6.5	0.606	6.5	0.583	8.0
1978	0.365	7.0	0.652	7.6	0.640	9.9
1979	0.397	8.9	0.726	11.3	0.709	10.8
1980	0.440	10.7	0.824	13.5	0.827	16.7
1981	0.478	8.8	0.909	10.4	0.916	10.8
1982	0.505	5.5	0.965	6.2	0.978	6.7
1983	0.526	4.3	0.996	3.2	0.993	1.5
1984	0.546	3.8	1.039	4.4	1.030	3.8
1985	0.566	3.5	1.076	3.5	1.056	2.5
1986	0.578	2.2	1.097	1.9	1.066	1.0
1987	0.596	3.2	1.136	3.6	1.092	2.4
1988	0.620	3.9	1.183	4.1	1.128	3.3
1989	0.646	4.3	1.239	4.8	1.181	4.7
1990	0.674	4.3	1.307	5.4	1.268	7.3
1991	0.696	3.3	1.362	4.2	1.341	5.8
1992	0.715	2.6	1.403	3.0	1.390	3.7
1993	0.733	2.5	1.445	3.0	1.429	2.8
1994	0.748	2.1	1.482	2.6	1.478	3.4
1995	0.764	2.1	1.524	2.8	1.522	3.0
1996	0.780	2.1	1.569	2.9	1.575	3.4
1997	0.793	1.7	1.605	2.3	1.630	3.5
1998	0.799	0.8	1.630	1.5	1.677	2.9
1999	0.811	1.5	1.666	2.2	1.728	3.0
2000	0.831	2.5	1.722	3.4	1.792	3.7
2001	0.847	1.9	1.770	2.8	1.857	3.6
2002	0.859	1.3	1.799	1.6	1.893	2.0
2003	0.876	2.0	1.840	2.3	1.924	1.6
2004	0.897	2.4	1.889	2.7	1.947	1.2
2005	0.923	2.9	1.953	3.4	2.002	2.8
2006	0.947	2.7	2.016	3.2	2.076	3.7
2007	0.971	2.5	2.073	2.9	2.157	3.9
2008	1.001	3.1	2.153	3.8	2.247	4.2
2009	1.000	-0.1	2.146	-0.3	2.260	0.6
2010	1.016	1.7	2.181	1.6	2.267	0.3
2011	1.041	2.5	2.249	3.1	2.327	2.7
2012	1.061	1.9	2.296	2.1	2.386	2.5
2013	1.075	1.3	2.330	1.5	2.416	1.2
2014	1.091	1.5	2.367	1.6	2.460	1.8
2015	1.095	0.4	2.370	0.1	2.494	1.4
Forecast						
2016	1.107	1.1	2.402	1.3	2.551	2.3
2017	1.127	1.7	2.459	2.4	2.614	2.5
2018	1.145	1.6	2.509	2.0	2.670	2.1
2019	1.166	1.8	2.562	2.1	2.728	2.2
2020	1.188	1.9	2.621	2.3	2.792	2.3
2021	1.212	2.0	2.682	2.3	2.859	2.4

* Chain-Weight Implicit Price Deflator for Personal Consumption Expenditures

Consumer Price Index for all Urban Consumers

+ Consumer Price Index for the Seattle-Tacoma-Bremerton, WA CMSA

Consumer Price Index and Implicit Price Deflator values shown here are annual averages of seasonally adjusted quarterly data and may differ slightly from the annual values published by the Bureau of Labor Statistics and Bureau of Economic Analysis.

Table A4.2
Chain-Weighted Price Indices
(2009=100)

	Services		Food		Fuels		Gasoline	
	Index	Percent Change	Index	Percent Change	Index	Percent Change	Index	Percent Change
1971	17.9	5.5	22.8	2.3	7.4	6.4	14.0	0.7
1972	18.7	4.2	23.9	4.8	7.5	0.6	14.2	1.3
1973	19.6	4.8	26.9	12.7	8.6	14.6	15.5	9.6
1974	21.3	8.5	31.0	15.2	13.6	58.9	21.0	35.1
1975	23.1	8.6	33.3	7.5	14.8	8.5	22.4	6.7
1976	24.7	6.9	34.0	1.9	15.9	7.3	23.3	4.2
1977	26.6	7.5	36.0	5.9	17.9	13.2	24.7	5.8
1978	28.6	7.8	39.4	9.6	19.0	5.7	25.8	4.3
1979	31.0	8.4	43.3	9.8	26.2	37.9	34.5	34.0
1980	34.2	10.3	46.9	8.4	36.7	40.4	47.9	38.8
1981	37.7	10.2	50.3	7.1	44.9	22.3	53.3	11.3
1982	40.6	7.8	51.6	2.6	44.1	-1.9	50.6	-5.1
1983	43.2	6.2	52.2	1.1	40.6	-7.8	48.9	-3.3
1984	45.4	5.2	53.7	3.0	41.5	2.2	48.2	-1.5
1985	47.7	5.0	54.3	1.1	39.9	-3.9	48.6	0.8
1986	49.6	4.1	55.6	2.4	31.2	-21.7	38.2	-21.5
1987	51.1	2.9	57.4	3.2	32.1	2.6	39.6	3.8
1988	53.5	4.8	59.1	3.0	32.0	0.0	40.0	0.8
1989	56.0	4.6	62.2	5.3	34.0	6.0	43.7	9.2
1990	58.5	4.5	65.2	4.9	40.9	20.4	49.7	13.8
1991	60.7	3.8	67.3	3.1	38.9	-4.8	49.1	-1.3
1992	62.8	3.5	67.8	0.8	37.3	-4.1	48.9	-0.4
1993	65.0	3.5	68.7	1.4	37.1	-0.7	48.4	-1.0
1994	66.8	2.7	69.9	1.7	36.4	-1.8	48.6	0.5
1995	68.6	2.7	71.4	2.2	36.1	-0.9	49.4	1.6
1996	70.5	2.7	73.6	3.1	40.9	13.3	52.4	6.1
1997	72.4	2.8	75.0	1.9	41.0	0.2	52.4	0.0
1998	73.9	2.1	75.9	1.3	36.3	-11.4	45.6	-12.9
1999	75.4	2.0	77.2	1.6	36.9	1.7	49.6	8.9
2000	77.5	2.8	79.0	2.3	54.1	46.6	63.4	27.8
2001	79.9	3.1	81.3	2.9	53.1	-2.0	61.2	-3.6
2002	82.0	2.6	82.5	1.5	47.3	-10.8	57.5	-6.0
2003	84.5	3.1	84.1	1.9	57.2	20.9	67.0	16.5
2004	87.1	3.0	86.7	3.1	66.6	16.4	78.8	17.6
2005	89.9	3.3	88.2	1.7	88.6	33.0	95.8	21.6
2006	93.0	3.4	89.7	1.7	100.7	13.7	108.0	12.8
2007	96.0	3.2	93.2	3.9	107.7	6.9	117.1	8.4
2008	98.9	3.1	98.9	6.1	146.0	35.6	136.6	16.6
2009	100.0	1.1	100.0	1.2	100.0	-31.5	100.0	-26.8
2010	101.7	1.7	100.3	0.3	117.0	17.0	118.2	18.2
2011	103.5	1.8	104.3	4.0	148.8	27.2	149.3	26.3
2012	105.8	2.2	106.7	2.3	150.7	1.3	154.7	3.6
2013	108.3	2.3	107.8	1.1	148.9	-1.2	149.7	-3.2
2014	110.9	2.5	109.8	1.8	148.3	-0.4	144.0	-3.8
2015	113.1	2.0	111.0	1.1	105.5	-28.8	106.2	-26.3

Forecast

2016	115.7	2.3	110.2	-0.7	90.5	-14.2	95.7	-9.8
2017	118.5	2.4	111.2	0.9	100.2	10.7	102.5	7.1
2018	121.3	2.3	113.2	1.8	104.7	4.4	105.5	2.9
2019	124.2	2.4	115.5	2.1	108.8	3.9	108.0	2.4
2020	127.4	2.5	117.8	2.0	113.2	4.0	110.7	2.6
2021	130.6	2.5	120.2	2.0	117.7	4.0	113.5	2.5

Table A5.1

Washington Resident Population and Components of Change*
(Thousands)

	<u>Population</u>	<u>Change</u>	<u>Percent Change</u>	<u>Births</u>	<u>Deaths</u>	<u>Net Migration</u>
1970	3413.2	16.2	0.5	59.9	30.0	-13.7
1971	3436.3	23.1	0.7	60.0	29.8	-7.1
1972	3430.3	-6.0	-0.2	53.1	30.4	-28.7
1973	3444.3	14.0	0.4	47.7	30.4	-3.3
1974	3508.7	64.4	1.9	48.2	29.9	46.1
1975	3567.9	59.2	1.7	50.1	30.3	39.4
1976	3634.9	67.0	1.9	51.4	30.2	45.8
1977	3715.4	80.5	2.2	54.2	29.1	55.4
1978	3836.2	120.8	3.3	57.3	30.4	93.9
1979	3979.2	143.0	3.7	60.2	30.2	113.0
1980	4132.2	153.0	3.8	65.4	31.3	118.9
1981	4229.3	97.1	2.4	68.2	31.8	60.8
1982	4276.5	47.3	1.1	70.1	31.7	8.9
1983	4307.2	30.7	0.7	69.5	32.5	-6.2
1984	4354.1	46.8	1.1	68.5	33.2	11.6
1985	4415.8	61.7	1.4	69.1	34.0	26.6
1986	4462.2	46.4	1.1	70.2	34.0	10.2
1987	4527.1	64.9	1.5	69.3	34.4	30.0
1988	4616.9	89.8	2.0	71.0	36.0	54.8
1989	4728.1	111.2	2.4	73.0	36.0	74.2
1990	4866.7	138.6	2.9	76.4	36.2	98.5
1991	5021.3	154.6	3.2	79.1	36.6	112.1
1992	5141.2	119.8	2.4	80.2	37.2	76.8
1993	5265.7	124.5	2.4	79.1	39.4	84.8
1994	5364.3	98.7	1.9	78.2	39.5	60.0
1995	5470.1	105.8	2.0	77.5	40.0	68.3
1996	5567.8	97.7	1.8	77.0	41.2	61.8
1997	5663.8	96.0	1.7	78.0	42.6	60.6
1998	5750.0	86.3	1.5	78.8	41.6	49.0
1999	5830.8	80.8	1.4	79.8	43.1	44.2
2000	5894.1	63.3	1.1	79.9	43.7	27.2
2001	5970.5	76.4	1.3	80.7	43.9	39.6
2002	6059.7	89.2	1.5	79.3	44.9	54.8
2003	6126.9	67.2	1.1	79.1	44.7	32.9
2004	6208.5	81.6	1.3	81.0	46.0	46.7
2005	6298.8	90.3	1.5	81.8	45.6	54.1
2006	6420.3	121.4	1.9	83.2	45.3	83.6
2007	6525.1	104.8	1.6	87.8	46.2	63.2
2008	6608.2	83.2	1.3	89.6	47.9	41.5
2009	6672.2	63.9	1.0	89.8	48.1	22.2
2010	6724.5	52.4	0.8	88.4	47.7	11.6
2011	6767.9	43.4	0.6	86.4	48.8	5.8
2012	6817.8	49.9	0.7	87.1	49.2	12.0
2013	6882.4	64.6	0.9	87.3	51.1	28.5
2014	6968.2	85.8	1.2	87.0	50.7	49.5
2015	7061.4	93.2	1.3	88.5	52.8	57.6
Forecast						
2016	7155.3	93.9	1.3	89.0	53.3	58.3
2017	7247.6	92.2	1.3	90.6	53.9	55.5
2018	7334.5	86.9	1.2	91.5	54.7	50.2
2019	7417.7	83.1	1.1	92.2	55.6	46.5
2020	7498.5	80.8	1.1	92.9	56.5	44.5
2021	7577.2	78.7	1.0	93.3	57.6	43.0

* As of April 1 of Each Year

Source: Office of Financial Management

Table A5.2
Washington Population*
 (Thousands)

	Actual									
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Total Population	6817.8	6882.4	6968.2	7061.4	7155.3	7247.6	7334.5	7417.7	7498.5	7577.2
Percent Change	0.7	0.9	1.2	1.3	1.3	1.3	1.2	1.1	1.1	1.0
Age 17 and Under	1572.6	1577.2	1588.4	1602.7	1616.9	1631.2	1643.7	1655.9	1670.2	1684.0
Percent of Total	23.1	22.9	22.8	22.7	22.6	22.5	22.4	22.3	22.3	22.2
Age 6-18	1137.5	1141.1	1151.0	1162.2	1173.2	1182.8	1192.1	1200.1	1207.5	1217.7
Percent of Total	16.7	16.6	16.5	16.5	16.4	16.3	16.3	16.2	16.1	16.1
Age 18 and Over	5245.2	5305.2	5379.8	5458.7	5538.4	5616.4	5690.9	5761.7	5828.3	5893.2
Percent of Total	76.9	77.1	77.2	77.3	77.4	77.5	77.6	77.7	77.7	77.8
Age 21 and Over	4965.3	5029.2	5107.4	5187.1	5266.0	5342.0	5414.1	5483.5	5551.2	5617.8
Percent of Total	72.8	73.1	73.3	73.5	73.6	73.7	73.8	73.9	74.0	74.1
Age 20-34	1413.1	1426.9	1445.8	1458.8	1471.4	1481.5	1489.3	1497.5	1503.5	1509.0
Percent of Total	20.7	20.7	20.7	20.7	20.6	20.4	20.3	20.2	20.1	19.9
Age 18-64	4349.5	4365.7	4396.9	4431.0	4465.8	4496.6	4520.1	4540.2	4553.7	4566.8
Percent of Total	63.8	63.4	63.1	62.7	62.4	62.0	61.6	61.2	60.7	60.3
Age 65 and Over	895.6	939.5	982.8	1027.7	1072.6	1119.8	1170.7	1221.5	1274.6	1326.4
Percent of Total	13.1	13.7	14.1	14.6	15.0	15.5	16.0	16.5	17.0	17.5

* As of April 1 of Each Year

Source: Office of Financial Management

Table A6.1

Summary of National and State Indicators

Indicator	Latest Data	Indication*
U.S. Leading Index	August 2016	-
U.S. Real GDP Growth	2nd quarter 2016	+
U.S. ISM Index	September 2016	+
U.S. Employment Y-O-Y%Δ	August 2016	unchanged
U.S. Unemployment Rate	August 2016	unchanged
U.S. Fed Funds Target	September 2016	unchanged
U.S. Consumer Confidence	September 2016	+
U.S. Consumer Sentiment	September 2016	+
U.S. Light Vehicle Sales	September 2016	+
U.S. CPI Y-O-Y%Δ	August 2016	-
U.S. Home Prices	July 2016	-
S&P 500 Index	September 2016	-
WA Leading Index	August 2016	-
WA ISM-WW Index	September 2016	+
WA Employment Y-O-Y%Δ	August 2016	-
WA Aerospace Empl. Y-O-Y%Δ	August 2016	-
WA Unemployment Rate	August 2016	+
WA Help Wanted Index	September 2016	-
WA Business Cycle Indicator	August 2016	-
WA Initial Unemploy. Claims	September 2016	+
WA Housing Permits	August 2016	-
WA Weekly Hours in Mfg.	August 2016	-
WA New Vehicle Registration	September 2016	+
WA In-Migration	September 2016	-
WA Exports-Total Y-O-Y%Δ	2nd quarter 2016	+
WA Exports- w/o Trans. Equip. Y-O-Y%Δ	2nd quarter 2016	+
Seattle CPI Y-O-Y%Δ	August 2016	-
Seattle Home Prices	July 2016	+
WA Construction Activity Index	August 2016	-

*Change from the previous reading

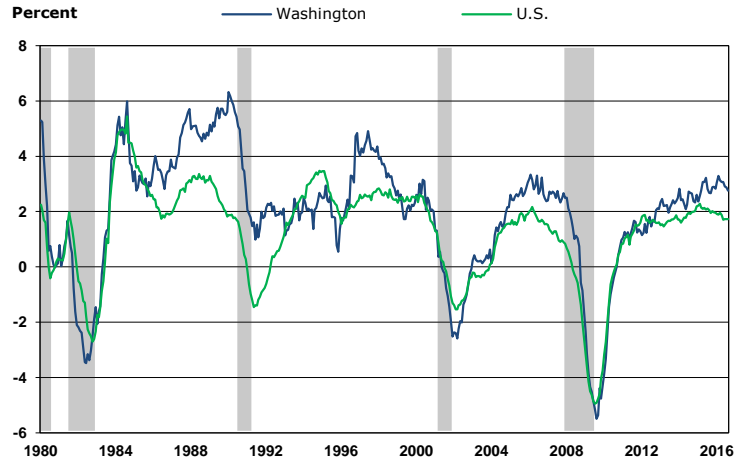
Table A6.2
Washington Business Indicators
 Historical Data

	WA Index of Leading Indicators	U.S. Index of Leading Indicators	WA State Business Cycle Indicator	WA State Construction Index	WA State Help Wanted Index	WA Purchasing Management Index	U.S. Purchasing Management Index
2013:01	114.5	109.1	40.5	93.3	128.7	60.2	52.3
2013:02	114.8	109.5	39.0	95.0	127.2	56.3	53.1
2013:03	114.0	109.2	39.2	95.5	118.8	65.4	51.5
2013:04	114.3	110.0	38.0	93.4	120.2	59.5	50.0
2013:05	114.3	110.2	39.0	93.0	120.0	53.7	50.0
2013:06	114.3	110.4	39.7	92.9	121.0	61.0	52.5
2013:07	114.5	110.8	41.6	96.4	118.6	60.3	54.9
2013:08	115.1	111.6	41.9	95.1	118.7	53.8	56.3
2013:09	115.2	112.5	41.5	93.0	116.6	52.7	56.0
2013:10	114.6	112.8	42.6	94.9	112.7	54.2	56.6
2013:11	116.1	113.8	43.2	93.2	118.2	61.1	57.0
2013:12	116.4	113.8	43.9	97.9	118.2	62.3	56.5
2014:01	115.8	113.7	44.8	94.6	118.2	63.5	51.8
2014:02	115.6	114.3	43.2	92.1	118.5	68.7	54.3
2014:03	116.4	115.4	43.8	94.2	118.6	63.6	54.4
2014:04	117.2	115.8	46.1	97.5	120.6	53.7	55.3
2014:05	117.4	116.5	46.9	95.8	118.7	59.6	55.6
2014:06	118.5	117.2	47.2	97.4	121.0	67.0	55.7
2014:07	118.8	118.4	48.7	97.8	121.3	50.1	56.4
2014:08	118.8	118.5	48.6	97.9	121.6	62.9	58.1
2014:09	118.5	119.2	48.9	98.8	114.3	60.3	56.1
2014:10	119.2	119.9	48.8	100.6	119.0	57.6	57.9
2014:11	119.9	120.5	51.1	101.6	128.0	63.1	57.6
2014:12	119.6	121.0	51.8	102.8	122.0	53.3	55.1
2015:01	119.3	121.2	53.4	98.2	127.6	66.6	53.5
2015:02	120.4	120.9	58.0	107.3	137.2	65.9	52.9
2015:03	120.0	121.5	57.8	101.0	138.8	64.1	51.5
2015:04	120.3	122.2	58.6	99.9	135.7	60.4	51.5
2015:05	120.6	122.8	58.8	98.3	139.0	60.3	52.8
2015:06	120.8	122.9	58.9	99.9	136.0	51.4	53.5
2015:07	120.6	122.8	59.8	100.3	141.0	53.6	52.7
2015:08	120.1	122.8	58.6	99.3	139.1	48.0	51.1
2015:09	118.6	122.6	58.0	93.3	126.6	48.0	50.2
2015:10	119.8	123.2	59.3	98.7	132.4	46.1	50.1
2015:11	120.2	123.7	59.9	100.4	134.3	50.0	48.6
2015:12	119.6	123.3	62.8	97.3	130.7	54.5	48.0
2016:01	119.2	123.0	64.7	98.0	128.7	57.2	48.2
2016:02	119.7	123.0	66.0	100.0	124.9	55.4	49.5
2016:03	120.4	123.0	64.0	101.1	128.9	55.7	51.8
2016:04	121.3	123.6	64.0	102.7	130.9	50.8	50.8
2016:05	122.1	123.4	66.9	102.1	148.2	49.2	51.3
2016:06	122.2	123.7	67.3	101.2	151.3	49.1	53.2
2016:07	122.6	124.3	68.2	101.5	156.3	50.8	52.6
2016:08	122.3	124.1	66.3	99.1	153.1	47.7	49.4
2016:09					143.4	51.4	51.5

Figure A7.1: Washington State Economic Indicators

Year-over-Year Employment Growth

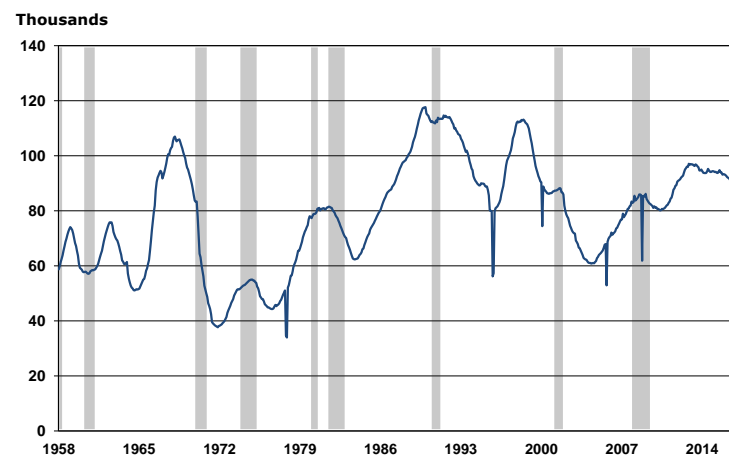
January 1980 to August 2016



* Bureau of Labor Statistics, WA State Employment Security, ERFC Kalman Filtered Data

Washington Aircraft and Parts Employment

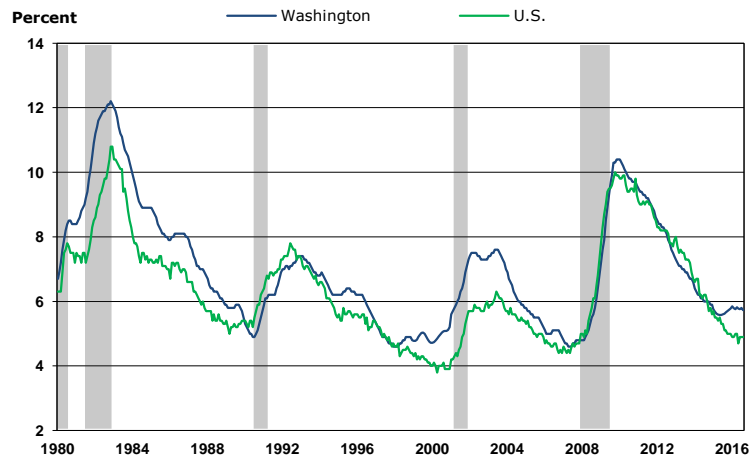
January 1958 to August 2016



* Source: Bureau of Labor Statistics, ERFC

Unemployment Rate, S.A.

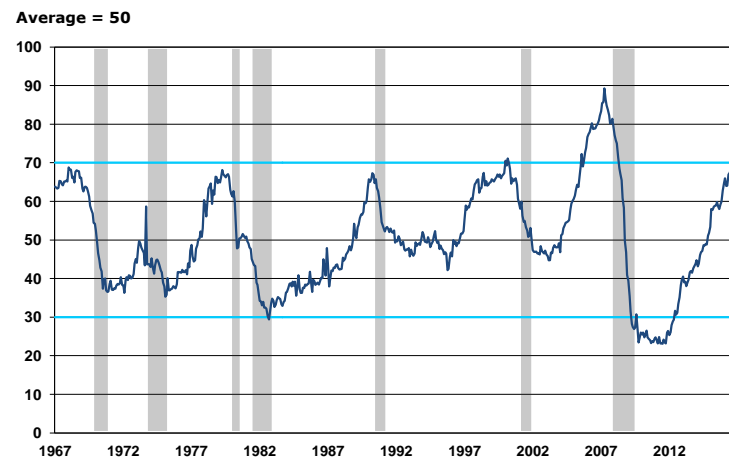
January 1980 to August 2016



* Source: Bureau of Labor Statistics

Washington Business Cycle Indicator

January 1968 to August 2016



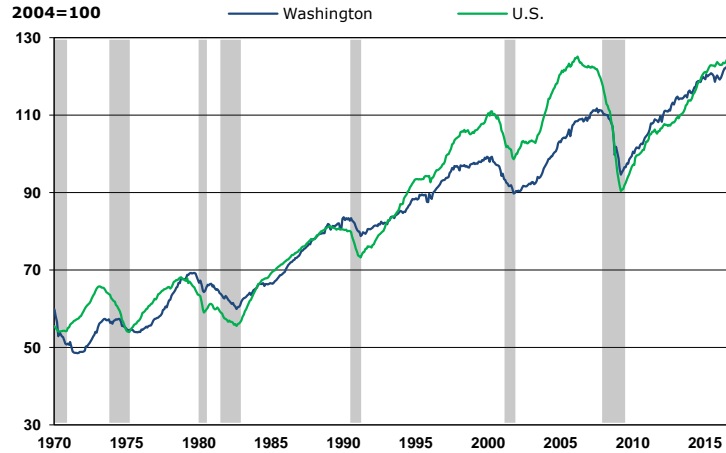
* Source: ERFC

* Shaded areas correspond with national recessions.
Appendix

Figure A7.2: Washington State Leading Indicators

The Washington and U.S. Indexes of Leading Indicators

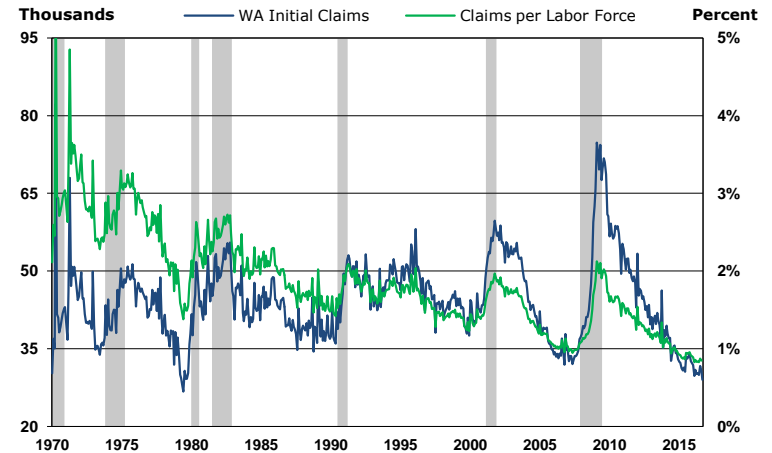
January 1970 to August 2016



* The Conference Board, ERFC

Washington Initial Claims for Unemployment Insurance

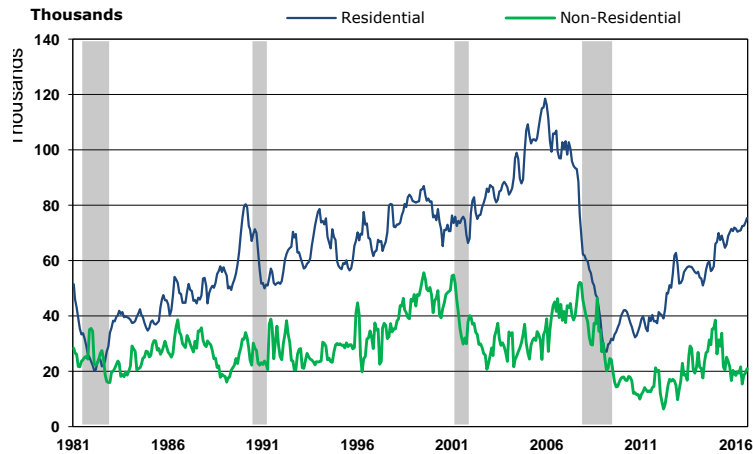
January 1970 to September, S.A.



* Source: WA State Employment Security, ERFC

Square Footage of Construction Projects in WA State

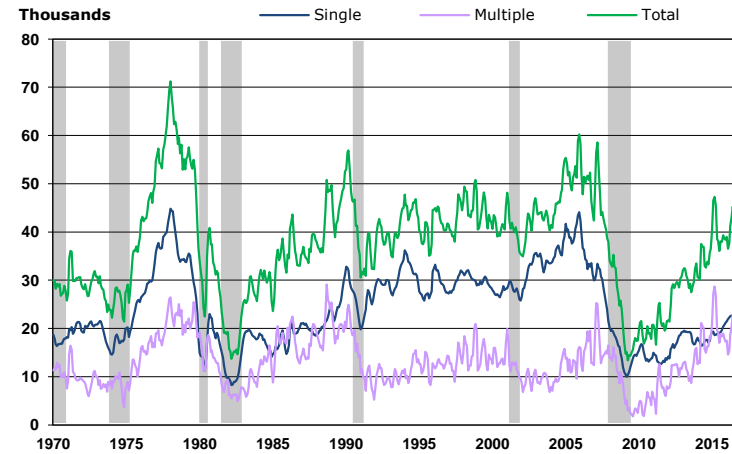
January 1981 to August 2016, 3mma, SAAR



* Source: McGraw-Hill Construction, ERFC

Housing Units Authorized in Washington State

January 1970 to August 2016, 3mma, SAAR



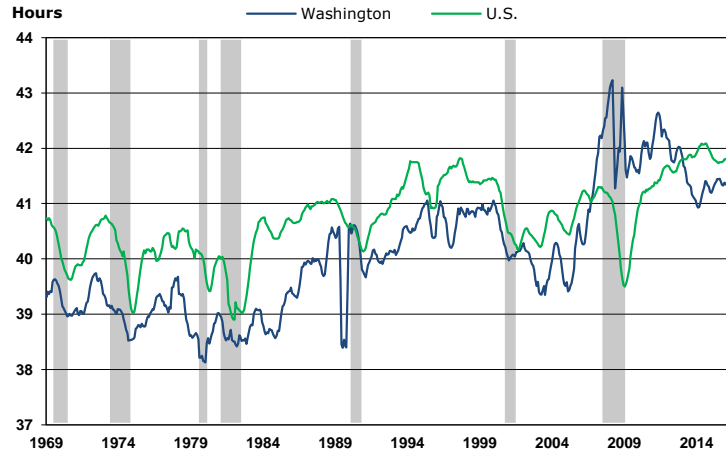
* Source: Census Bureau, ERFC

* Shaded areas correspond with national recessions.
Appendix

Figure A7.3: Other State Economic Indicators

Average Weekly Hours in Manufacturing

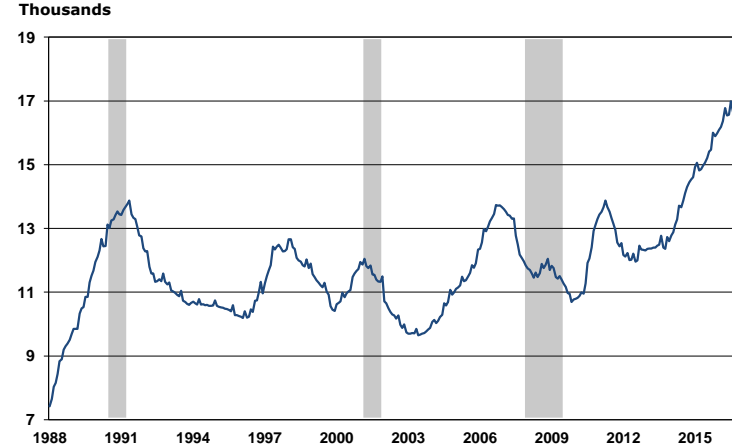
June 1969 to August 2016, 6-Mo. Moving Average, S.A.



* Bureau of Labor Statistics, ERFC

Washington Driver's License In-Migration

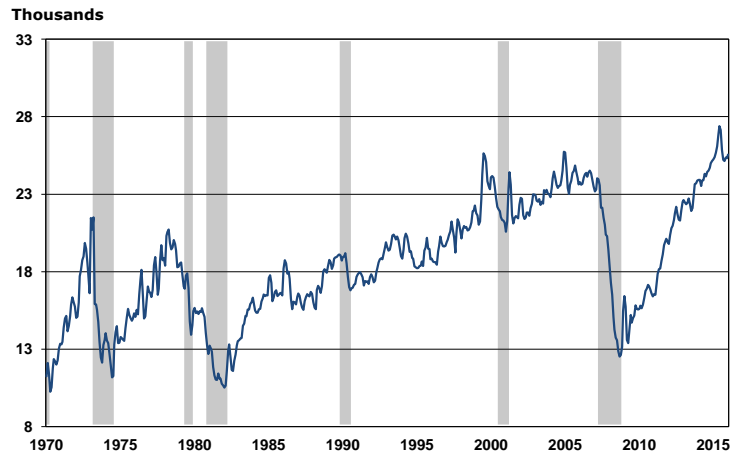
January 1988 to September 2016, 12-Month Moving Average



* Source: WA State Department of Licensing, ERFC

New Car and Truck Registrations in Washington

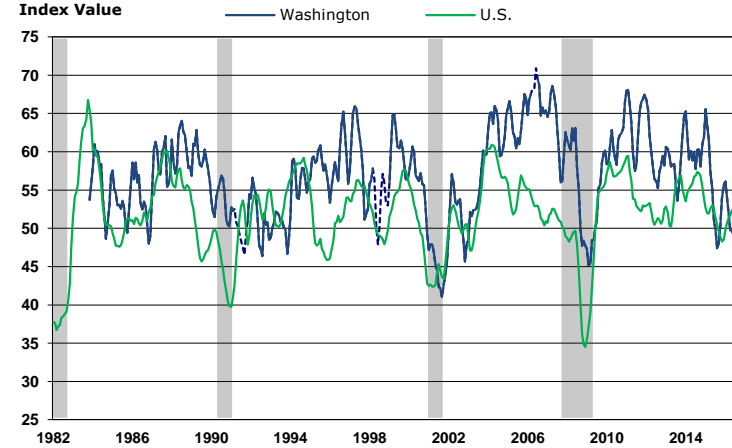
September 1970 to September 2016, 3-Month Moving Average, S.A.



* Source: WA State Department of Licensing, ERFC

Institute for Supply Management Index

March 1982 to September 2016, 3-Month Moving Average, S.A.



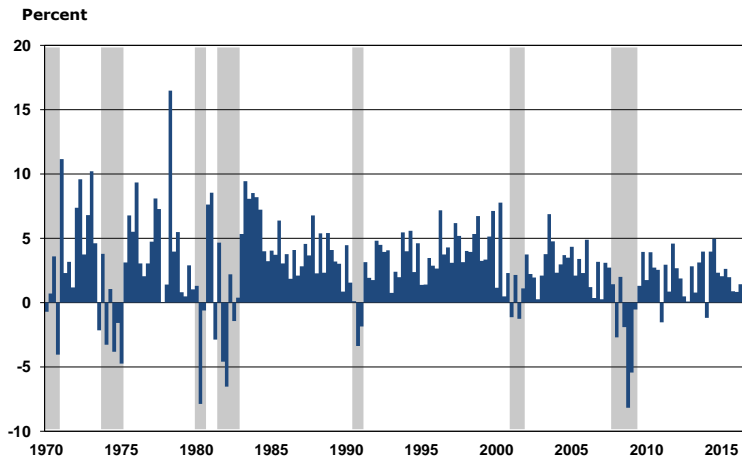
* Source: Institute for Supply Management, ISM-WW, ERFC

* Shaded areas correspond with national recessions.
Appendix

Figure A7.4: Other Economic Indicators

Quarterly U.S. Real GDP Growth

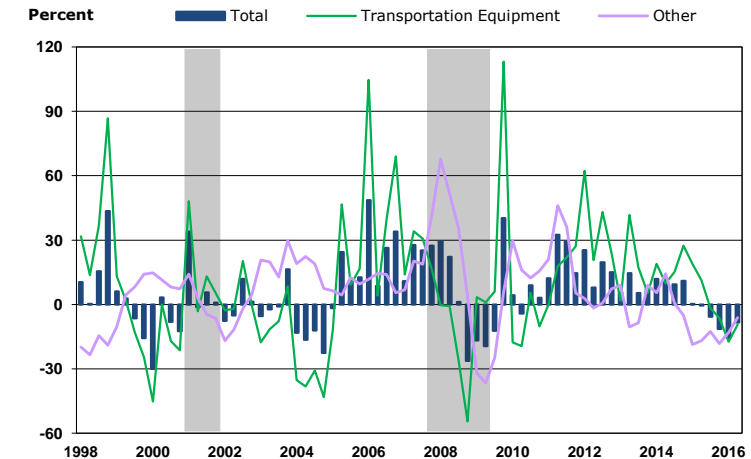
1970Q1 to 2016Q2, SAAR



* Source: Bureau of Economic Analysis

Washington State Export Composition

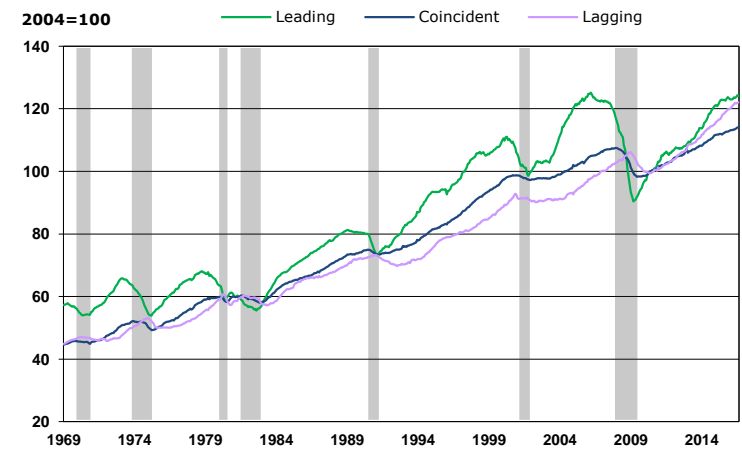
1998Q1 to 2016Q2, Year-over-year percent change



* Source: WISER

U.S. Economic Indicators

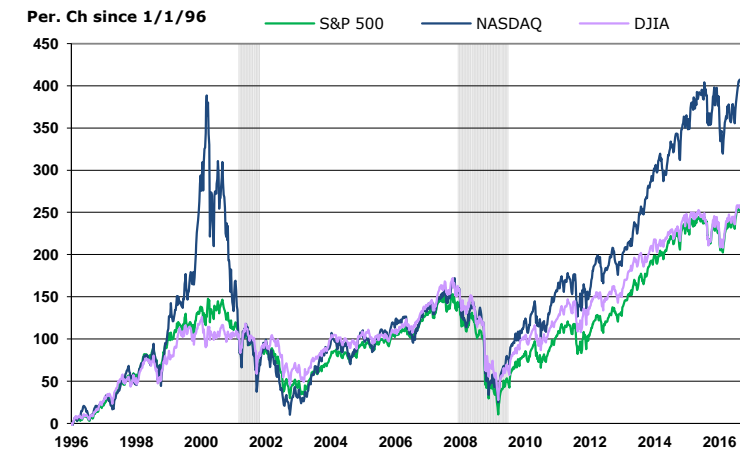
January 1969 to August 2016



* Source: The Conference Board

National Stock Indexes

January 1, 1996 to September 30, 2016



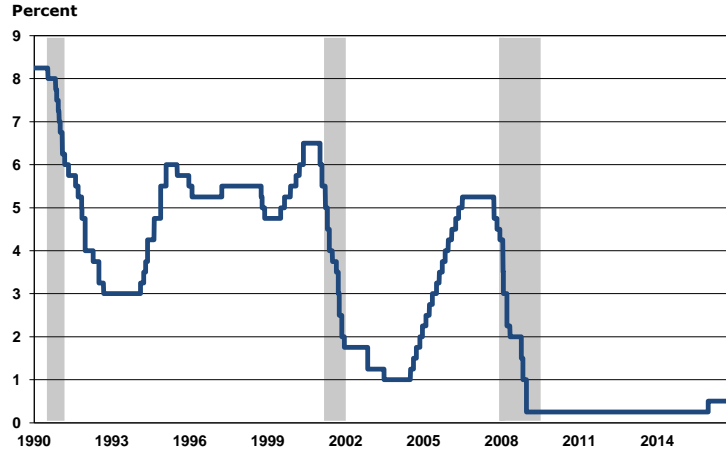
* Source: ERFC

* Shaded areas correspond with national recessions.

Figure A7.4: Other Economic Indicators (continued...)

Federal Funds Target Rate

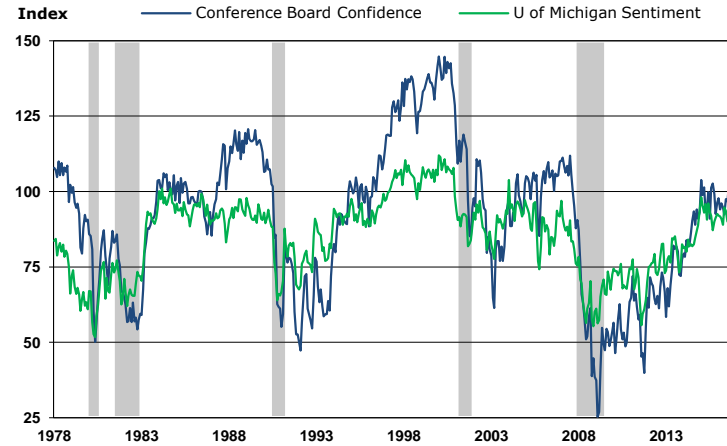
January 1, 1990 to October 1, 2016



* Federal Reserve

Consumer Confidence

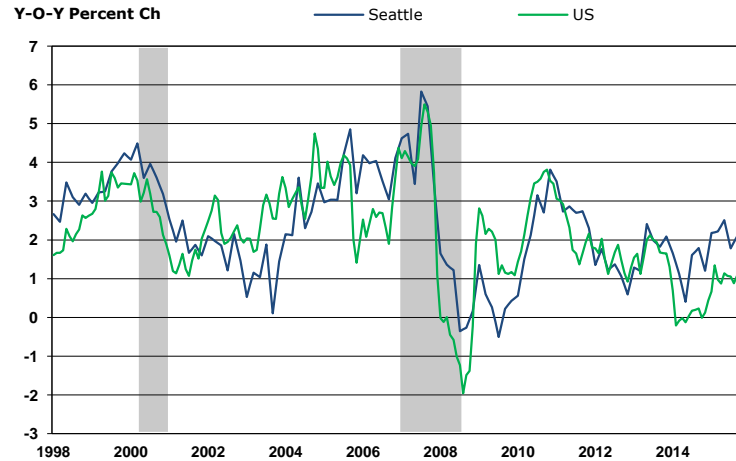
March 1978 to September 2016



* Source: The Conference Board, University of Michigan

Seattle vs U.S. CPI (All Urban Consumers)

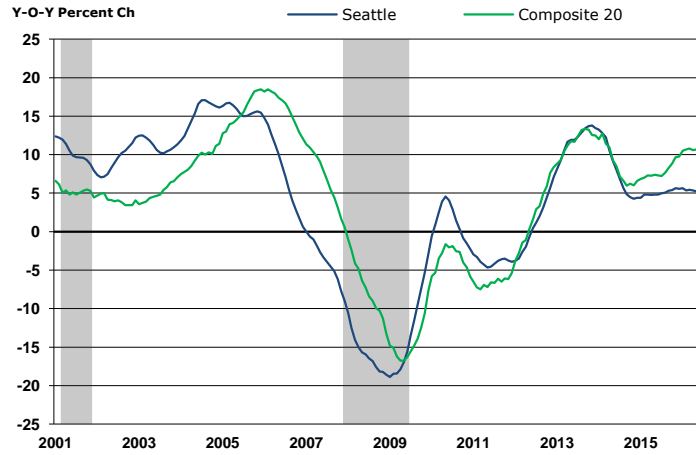
December 1998 to August 2016



* Source: Bureau of Labor Statistics

Case Shiller Home Price Index

January 2001 to July 2016, SA



* Source: Case Shiller, ERFC

* Shaded areas correspond with national recessions.
Appendix

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Glossary

Biennium: The state's two years budget cycle.

Cash Basis: Cash receipts received during a period. The Forecast Council forecasts revenues on a Cash and GAAP (Generally Accepted Accounting Principles) basis.

CPI: The Consumer Price Index for All Urban Consumers. The Bureau of Labor Statistics (BLS) updates the CPI monthly, surveying over 60,000 goods in 85 urban areas.

Tax Elasticity: A measure of how tax revenues respond to changes in personal income. If tax revenue elasticity is greater than one, a one percent change in personal income will be associated with more than a one percent increase in tax revenues. If elasticity is less than one, a one percent increase in personal income will be associated with less than a one percent increase in tax revenues.

Fiscal Year: The state's budget year. Washington State's fiscal year runs from July 1 through June 30. Fiscal year 2014, for example, ran from July 1, 2013 through June 30, 2014.

GAAP Basis: Generally Accepted Accounting Principles measure revenue in the period during which they accrue rather than the period in which they are received.
General Fund: Accounts for all financial resources and transactions not accounted for in another fund.

General Fund-State (GF-S) Revenue: Resources from state sources only, excludes federal monies. The general fund is the principal state fund supporting the operation of the state.

Implicit Price Deflator, PCE (IPD): The IPD for consumption is a by-product of the National Income and Product Accounts. It is derived by dividing current dollar (nominal) consumer expenditures by constant dollar (real) consumer expenditures.

Mortgage Rate: The average interest rate on 30 year conventional loan (as reported by Freddie Mac).

Near General Fund: All accounts included in the General Fund - State plus the Education Legacy Trust Account.

Non-Wage Income: Personal income other than from wages and salaries. The major components are: proprietor's income, transfer payments, and dividends, interest and rent.

Real GDP: Gross Domestic Production adjusted for the price level.

Revenue Act: Revenue Act taxes consist of the retail sales tax, use tax, business and occupation tax, public utility tax and tobacco products tax, plus penalty and interest payments associated with those taxes.

Personal Income: Income from wages and salaries; other labor income; proprietor's income; dividends, interest and rent; transfer payments; and a residence adjustment. It is reduced by employee contributions for social insurance.

Seasonally Adjusted: Adjusted for normal seasonal variations. Monthly statistics, such as the unemployment rate, are seasonally adjusted to make month-to-month comparisons possible.

Seasonally Adjusted Annual Rate: A rate for a given period that is typically less than one year, but that is computed as if the rate were for a full year and seasonally adjusted.

Nonfarm Payroll Employment: Civilian non-farm payroll employees. The self-employed, farm workers, members of the armed forces, private household employees, and workers on strike are excluded.