

Economic and Revenue Forecast



Third Quarter
Fiscal Year 2013

March 2013



WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

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In the final analysis, the views expressed are our own and may not necessarily represent the views of the contributors or reviewers.

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http://www.dnr.wa.gov/BusinessPermits/Topics/EconomicReports/Pages/econ_timb_rev_forcsts.aspx

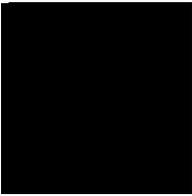
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Acronyms and abbreviations

bbf	Billion board feet
BLS	U.S. Bureau of Labor Statistics
CAD	Canadian dollar
CNY	Chinese yuan (renminbi)
CPI	Consumer Price Index
CY	Calendar Year
DNR	Washington Department of Natural Resources
ECB	European Central Bank
ERFC	Washington State Economic and Revenue Forecast Council
FDA	Forest Development Account
FEA	Forest Economic Advisors
Fed	U.S. Federal Reserve Board
FOMC	Federal Open Market Committee
FY	Fiscal Year
GDP	Gross Domestic Product
HMI	National Association of Home Builders/Wells Fargo Housing Market Index
IMF	International Monetary Fund
ISM	Institute for Supply Management
LVL	Laminated Veneer Lumber
mbf	Thousand board feet
mmbf	Million board feet
NAFTA	North American Free Trade Agreement
OPEC	Organization of Petroleum Exporting Nations
PPI	Producer Price Index
Q1	First quarter of year (similarly, Q2, Q3, and Q4)
QE	Quantitative Easing
RCW	Revised Code of Washington
RISI	Resource Information Systems, Inc.
RMCA	Resource Management Cost Account
SA	Seasonally Adjusted
SAAR	Seasonally Adjusted Annual Rate
USD	U.S. Dollar
WDFW	Washington Department of Fish and Wildlife
WWPA	Western Wood Products Association
WTO	World Trade Organization



Preface

This *Economic and Revenue Forecast* projects revenues from Washington state lands managed by the Washington State Department of Natural Resources (DNR). These revenues are distributed to management funds and beneficiaries as directed by statute. The Forecast revenues are organized by source, fund, and fiscal year.

DNR revises its Forecast quarterly to provide updated information for trust beneficiaries and state and department budgeting purposes. See the Forecast calendar at the end of this section for release dates. We strive to produce the most accurate and objective forecast possible, based on current policy direction and available information. Actual revenues depend on DNR's future policy decisions and on changes in market conditions beyond our control.

This Forecast covers fiscal years 2013 through 2017. Fiscal years for Washington State government begin July 1 and end June 30. For example, Fiscal Year 2013 runs from July 1, 2012 through June 30, 2013.

The baseline date (the point that designates the transition from "actuals" to forecast) for DNR revenues in this Forecast is February 1st, 2013. The forecast numbers beyond that date are predicted from the most up-to-date DNR sales and revenue data available, including DNR's timber sales results through February 2013. Macroeconomic and market outlook data and trends are the most up to date available as the Forecast document is being written.

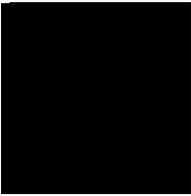
Unless otherwise indicated, values are expressed in nominal terms without adjustment for inflation or seasonality. Therefore, interpreting trends in the Forecast requires attention to inflationary changes in the value of money over time separate from changes attributable to other economic influences.

Each DNR Forecast builds on the previous one, emphasizing ongoing changes. Before preparing each Forecast, world and national macroeconomic conditions and the demand and supply for forest products and other commodities are re-evaluated. The impact on projected revenues from DNR-managed lands is then assessed, given the current economic conditions and outlook.

DNR Forecasts provide information used in the *Washington Economic and Revenue Forecast* issued by the Washington State Economic and Revenue Forecast Council. The release dates for DNR Forecasts are determined by the state's Forecast schedule as prescribed by RCW 82.33.020. The table below shows the anticipated schedule for future *Economic and Revenue Forecasts*.

Economic Forecast Calendar

Forecast Title	Baseline Date	Draft Revenue Data Release Date	Final Data and Publication Date (approximate)
June 2013	May 1, 2013	June 7, 2013	June 28, 2013
September 2013	August 1, 2013	September 9, 2013	September 30, 2013
November 2013	October 1, 2013	November 5, 2013	November 30, 2013
February 2014	January 1, 2014	February 6, 2014	February 28, 2014



Introduction and Forecast Highlights

U.S. Economy and Housing Market. The U.S. economy continues its slow recovery from the Great Recession. The unemployment rate, which peaked at 10.00 percent in October 2009, is down to 7.74 percent as of February. GDP growth remains modest at below two percent on an annual basis for 2012. The housing market continues to show positive signs: new housing starts in February were at a seasonally adjusted annual rate of 917,000, their highest level since July 2008, and average U.S. housing prices have increased in each of the last 12 months through February. However, the U.S. economy faces significant challenges. There are still too many unemployed workers; the financial crisis in Europe is improving but several European countries are now in recession; China's economy has slowed; and Congress is now imposing blanket expenditure reductions across most federal programs.

Log and Lumber Prices. Pacific Northwest log prices were fairly flat for most of 2011 and 2012, but picked up from December through February. The price for a "typical" DNR log delivered to the mill averaged \$479/mbf in 2012, down from \$483/mbf for all of 2011. Log prices have since jumped to \$521/mbf and \$556/mbf in January and February, respectively. West Coast lumber prices are moving up sharply: the Random Lengths' Coast Dry Random and Stud composite lumber price averaged \$309/mbf in 2012, compared with \$270/mbf for all of 2011, and has since risen to \$378/mbf in January and to \$399/mbf in February.

Timber Sales Volume. Compared to the November Forecast, projected timber sales volumes for FY 2013 are reduced by 25 mmbf, but they are unchanged for FYs 2014-2017. Timber sales volumes are predicted to be 535 mmbf for FY 2013, 562 mmbf for FY 2014, and about 587 mmbf for each of the outlying years.

Timber Sales Prices. Predicted timber sales prices are revised up for each year of the forecast period. The FY 2013 average sales price is now predicted to be about \$323/mbf, up from \$280/mbf; sales prices have averaged \$319/mbf in the first eight months of the fiscal year. Based on plans for the timber mix to be offered for sale and on increasing confidence in a genuine recovery in the U.S. housing market, timber sales prices are raised considerably to about \$369/mbf in FY 2014, \$405/mbf in FY 2015, \$409/mbf in FY 2016, and \$418/mbf in FY 2017.

Timber Removal Volume and Prices. DNR timber purchasers' harvest plans for volume currently under contract suggest that some of the volume formerly slated for harvest in FYs 2014-2015 will be brought forward to FY 2013 and some will be pushed back to FY 2016. Removal volumes for FYs 2013-2017 are forecast to be 511 (+21), 563 (-34), 584 (-33), 600 (+18), and 587 mmbf respectively. Projected timber removal prices are \$294 (+\$8.7), \$326 (+\$36.2), \$368 (+\$57.7), \$396 (+\$70.3), and \$411 (+\$91.0) per mbf for each fiscal year in the

forecast period. These higher removal prices follow from—and lag behind—the higher projected timber sales prices.

Bottom Line for Timber Revenues. Due to the anticipated drop in FY 2013 sales volume, the change in the timing of removals, and the projected increase in sales prices, predicted timber revenues have increased throughout the forecast period. The timber revenue projection for the 2011-2013 Biennium is revised upward three percent from \$307.4 million to \$317.9 million. For the 2013-2015 Biennium, the projected revenue from timber removals is revised upwards nine percent from \$364.7 million to \$398.8 million. Revenues for the 2015-2017 Biennium are predicted to be \$478.7 million, up twenty-seven percent from \$376.8 million.

Uplands and Aquatic Lands Lease (Non-Timber) Revenues. In addition to revenue from timber removals on state-managed lands, DNR also generates sizable revenues from managing leases on uplands and aquatic lands.

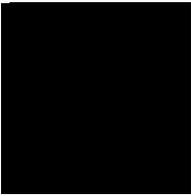
Compared to the previous Forecast, revenues from agricultural and other upland leases are increased eleven percent to \$27.4 million in FY 2013, four percent to \$24.5 million in FY 2014, five percent to \$24.9 million in FY 2015, four percent to \$25.2 million in FY 2016, and four percent to \$25.4 million in FY 2017.

There is an upward revision of \$0.4 million to commercial lease revenues for FY 2014, but no change to any of the other years of the Forecast period. Revenues from these commercial leases are forecast to total \$9.5, \$10.1, \$9.9, \$9.9, and \$9.9 million respectively.

Due primarily to a downward revision in projected geoduck harvest volumes, aquatic lands revenues in FY 2013 are expected to total \$26.9 million, falling short of the previous Forecast by \$2.9 million. Revenues from aquatic lands are expected to total about \$31.9 million in FY 2014, \$32.7 million in FY 2015, \$33.2 million in FY 2016, and \$33.5 million in FY 2017. These higher prices reflect modest increases in both geoduck price and volume assumptions.

Total Revenues. Total 2011-2013 Biennium revenues are projected to be \$458.2 million, up \$10.2 million (two percent) from the November Forecast. For the 2013-2015 Biennium total revenues are projected to be \$532.7 million, up \$39.6 million (eight percent) from the previous projection. Revenues for the 2016-2017 Biennium are expected to total \$616.0 million, up \$105.1 million (twenty-one percent) from the November estimate.

Risks to the Forecast. The largest risk to the Forecast is falling short of projected timber sales volumes due to potential environmental, operational, forest productivity, and policy issues (e.g., riparian management areas, and continued timber harvest deferrals pending implementation of a long-term marbled murrelet conservation strategy). This risk is particularly heavy for FYs 2015-2017. Also on the downside are the many challenges to U.S. economic recovery cited in the opening paragraph above. On the upside, the nascent recovery in the U.S. housing market may strengthen even sooner than anticipated.



Part 1. Macroeconomic Conditions

This section briefly reviews current conditions in the United States and world economies, because they affect the bid prices for DNR timber sales as well as lease revenues from DNR-managed uplands and aquatic lands.

International supply and demand also affect domestic timber stumpage and lumber prices. On the supply side, for example, Canada has a strong influence on the U.S. wood products sectors because it is a major source of lumber entering U.S. markets. On the demand side, China is an important market for commodities including logs and geoducks.

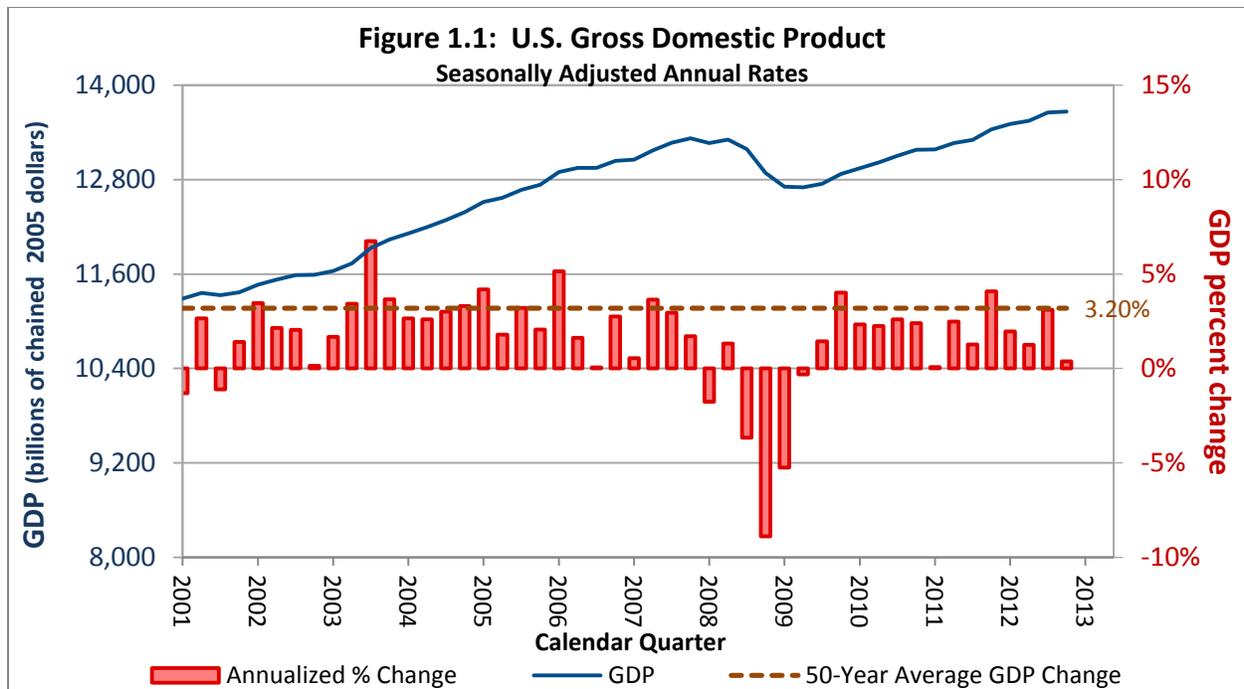
Unless otherwise noted, all years in this section are calendar years.

U.S. economy

Gross Domestic Product (GDP). GDP is the total output of goods and services produced by labor and property located in the United States, minus inflation. **Figure 1.1** clearly shows the magnitude of the Great Recession during 2008 and the first half of 2009, when GDP actually declined in five out of six quarters. It took almost four years—until Q4 2011—for real GDP to return to its pre-recession peak (Q4 2007). Since turning positive again in mid-2009, GDP growth has averaged a rather weak 2.1 percent on a real annual basis, compared with an annualized average of 3.2 percent over the last 50 years.

Subdued by the fourth quarter's low growth rate of 0.38 percent, GDP growth in 2012 averaged 1.7 percent. The primary contributors to the nation's fourth quarter slowdown were reductions in private inventory investment, federal government spending, and state and local government spending. These downturns were somewhat offset by moderately strong upturns in commercial fixed investment and by improved consumer spending.

The latest Blue Chip Consensus GDP projections average 2.0% for 2013 (about 1.6% in Q1, 2.1% in Q2, 2.5% in Q3, and 2.7% in Q4) and 2.6% for 2014 (about 2.7% in Q1, 2.8% in Q2, 2.9% in Q3, and 3.0% in Q4).

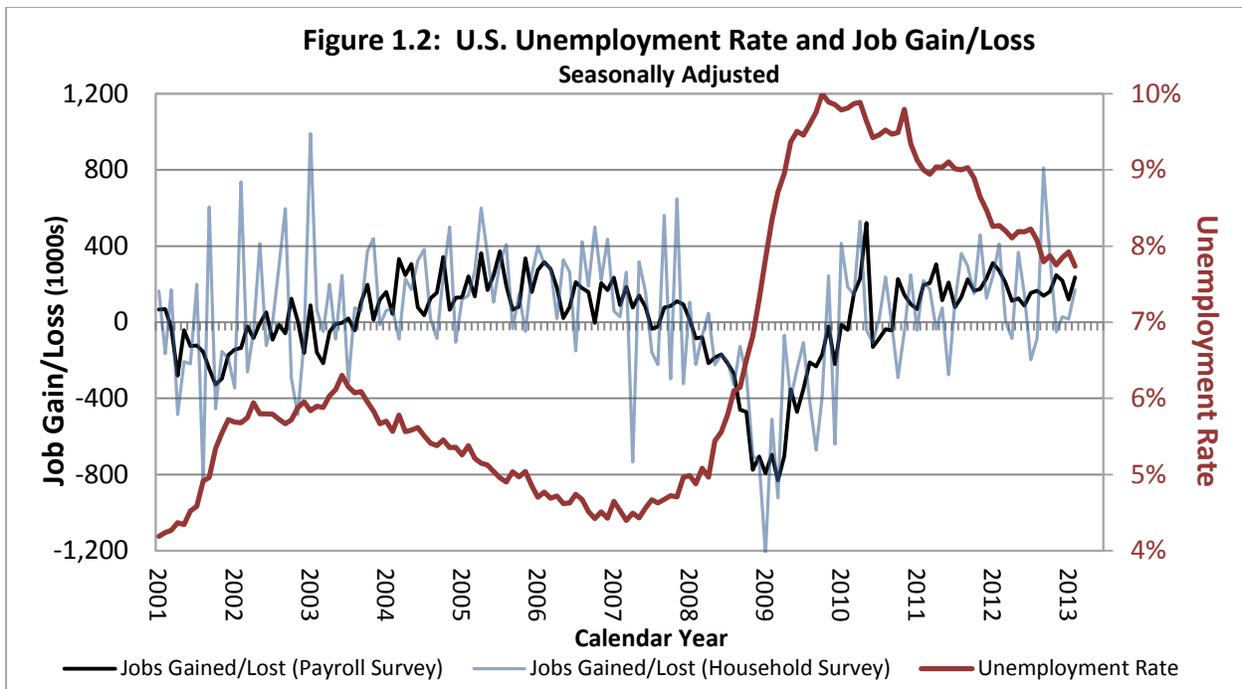


Employment. The U.S. unemployment rate continues to fall. As shown by the red line in **Figure 1.2**, the national unemployment rate, which rose as high as 10.0 percent in October 2009, has fallen to 7.7 percent as of February. The unemployment rate is now at its lowest level since December 2008.

There are two major official U.S. employment data series—the household survey and the payroll survey—both maintained by the U.S. Bureau of Labor Statistics. The household survey (or current population survey) is a sample survey of households, and it includes self-employed persons and farm workers. The unemployment, total work force, and labor force participation statistics are derived from the household survey. The payroll survey (or establishment survey) samples firms and does not include self-employed persons or farm workers. Employment statistics by industry sector are derived from the payroll survey. **Figure 1.2** shows changes in the number of employed persons, or jobs gained or lost, according to each. Many economists favor the payroll survey data as a measure of job growth, or to measure monthly changes in employment levels, mostly because its month to month changes are much less volatile.

According to February’s payroll survey, there were 2.0 million more jobs in the United States than there were a year earlier, while there were 1.5 million more according to the household survey. Moreover, the payroll survey has shown job growth for 29 consecutive months.

All else being equal, positive monthly job change numbers will increase the employment level and decrease the unemployment rate, which is the ratio of unemployed persons (the unemployment level) to the total work force. The positive month-over-month job gains are the main reason why the unemployment rate in **Figure 1.2** generally moves down from October 2010 onward.

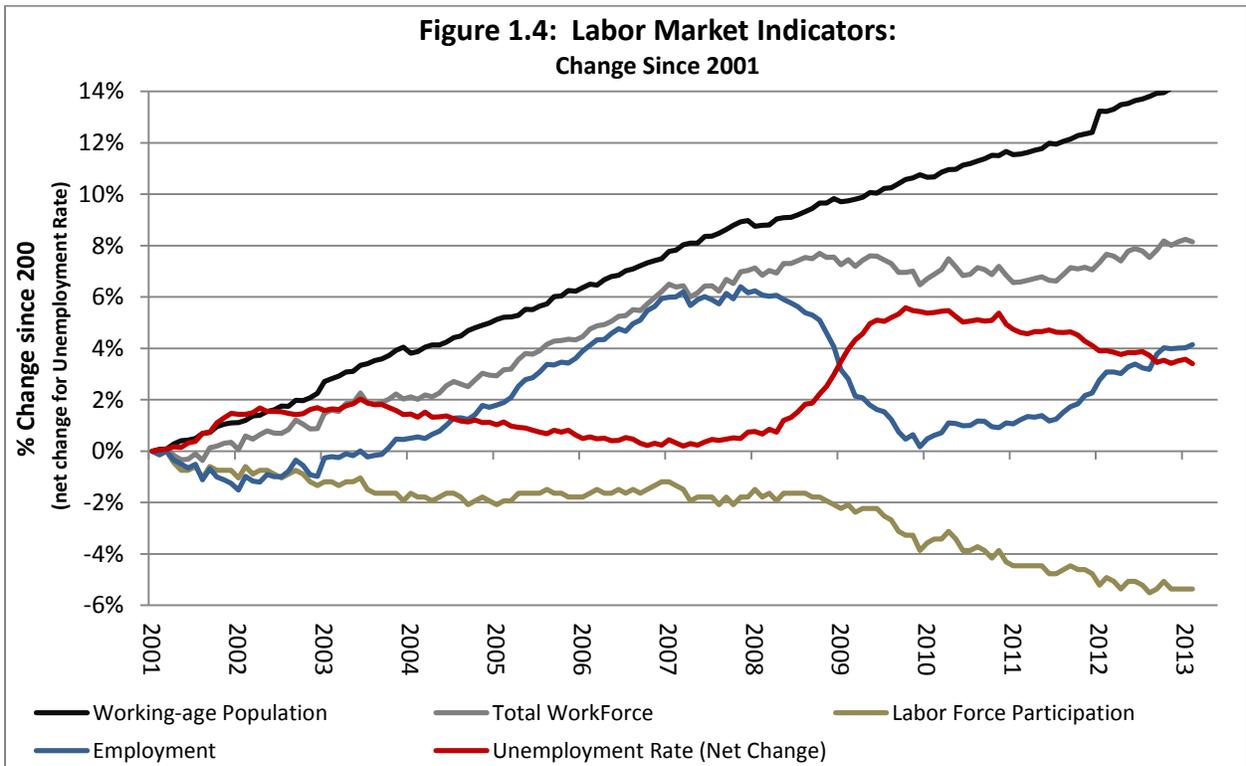
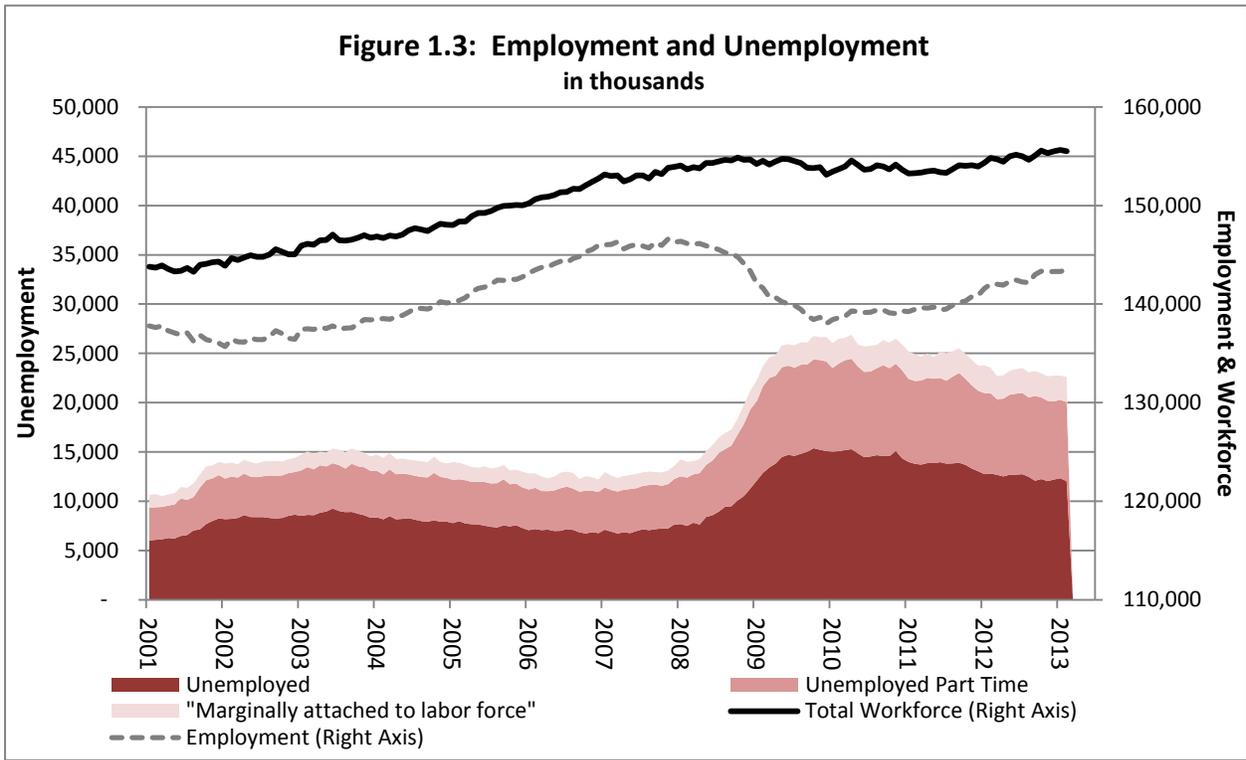


The alternative unemployment rate, U-6, measures unemployment, involuntarily part-time employment, and marginally attached workers, and so provides a more complete picture than February’s 7.7 percent headline rate. The U-6 rate was 14.3 percent in February, down from 15.0 percent a year earlier and from highs of 17.1 in 2010. **Figure 1.3** depicts the composition of the U-6 unemployment level (measured on the left-hand axis) and how persistently high it has been in comparison to the first half of the decade. It also shows how the total workforce (right axis)—the sum of working age people currently working or seeking to work—has been increasing, but at a shallower rate since mid-2008. The total workforce usually moves upward over time since entrants (from population growth, including immigration, and returning workers) tend to outnumber those leaving the labor market (see **Figures 1.3** and **1.4**).

The Great Recession also expanded the ranks of the long-term unemployed to an extent not seen since the Great Depression. In February, 4.8 million people had been unemployed for over six months. This is an improvement over the peak of 6.7 million in Spring 2010 but it is still far above the 1.3 million average for 2005-2007. Also in February, the average duration of unemployment was 36.9 weeks, which is still near the record high of 40.9 weeks in November 2011. This contrasts with the 17.4-week average for 2005-2007.

Figure 1.4 compares the growth rates of the working-age population, the total workforce, labor participation¹, and employment levels. Several insights can be drawn from comparing these growth rates. For example, the labor force participation rate is horizontal when the slopes of the working-age population and total workforce lines are parallel. The decline in the participation rate that started late in 2008 reflects the drop in the total workforce with respect to the working-age population: during the past several turbulent years, more people than usual have been

¹ The labor market participation rate is the total workforce as a percentage of the working-age population.



leaving the job market for economic reasons (i.e., not due to retirement or death).² Furthermore, in some months the unemployment rate has gone down even though there was little net job change, simply because the total workforce (and labor participation rate) dropped. In this way, monthly variations in the participation rate and total workforce have sometimes ‘inflated’ monthly improvements in the unemployment rate. However, in the past year the participation rate has begun to stabilize and the total workforce is slowly growing—though not yet at a rate to match the growth in the working-age population.

Consumption. Real personal consumption expenditures in Q4 2012 were 1.8 percent higher than a year ago. Consumer spending on durable goods was up 8.3 percent year-over-year, likely reflecting purchases of automobiles and major appliances that were deferred during the depth of the recession. Over the year period, spending on nondurable goods increased by 0.9 percent and spending on services was up by 1.1 percent. On average, total real personal expenditures in January and February 2013 are 2.1 percent higher than a year ago.

U.S. consumer confidence was deeply shaken in the recession. The final Thomson Reuters/University of Michigan Index of Consumer Sentiment for March crept up to 78.6, from 77.6 in February. This increase continues a year of mostly improving sentiment, and is surprising given higher gasoline prices, policy concerns such as sequestration, the threat of federal government shutdowns, and the expiration of the payroll tax holiday. It is a mixed blessing that consumer sentiment is fairly low due to, and may therefore be improved by, congressional action.

Interest Rates. Seldom in U.S. history has it been so inexpensive to borrow money. U.S. interest rates remain at or near record lows. The Federal Reserve funds rate has remained in the 0.0-0.25 percent range since December 2008 and the FOMC has pledged to keep rates near zero through mid-2015. Ten-year U.S. Treasury bonds averaged 2.0 percent in March.

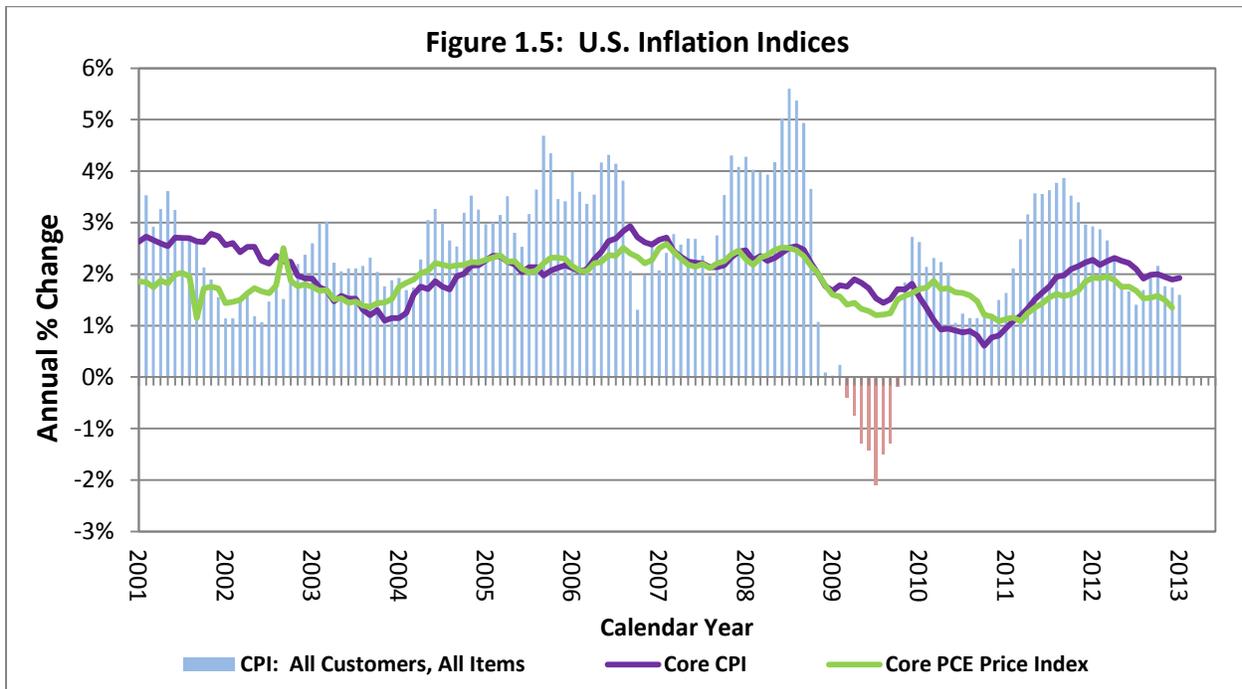
Average rates on closed conventional 30-year fixed rate mortgages were at a nearly historic low of 3.47 percent in February and have been mostly declining since the middle of 2008 (see **Figure 2.5**).

Inflation. **Figure 1.5** shows several measures of the U.S. inflation rate. The bars—representing “headline” inflation, measured by year-over-year changes in the Consumer Price Index (CPI)—show that consumer prices in the United States fell precipitously beginning in August 2008. The CPI did not recover to its July 2008 level until December 2010. In effect, inflation was zero over that two and one-half year period. The rate of inflation was 1.6 percent for all of 2010, 3.2 percent for 2011, and 2.07 percent for 2012. More recently, the year-over-year change in CPI was 1.59 percent in January. Most economic forecasters see annual inflation of 2.0 percent or below through 2016.

Figure 1.5 also shows two alternative measures of inflation—core CPI and the core personal consumption expenditures (PCE) price index—that exclude purchases of historically volatile goods such as energy and food and provide a more realistic measure of underlying long-term

² It is important to note that some of this trend is explained by the aging of the large baby boomer segment of the population.

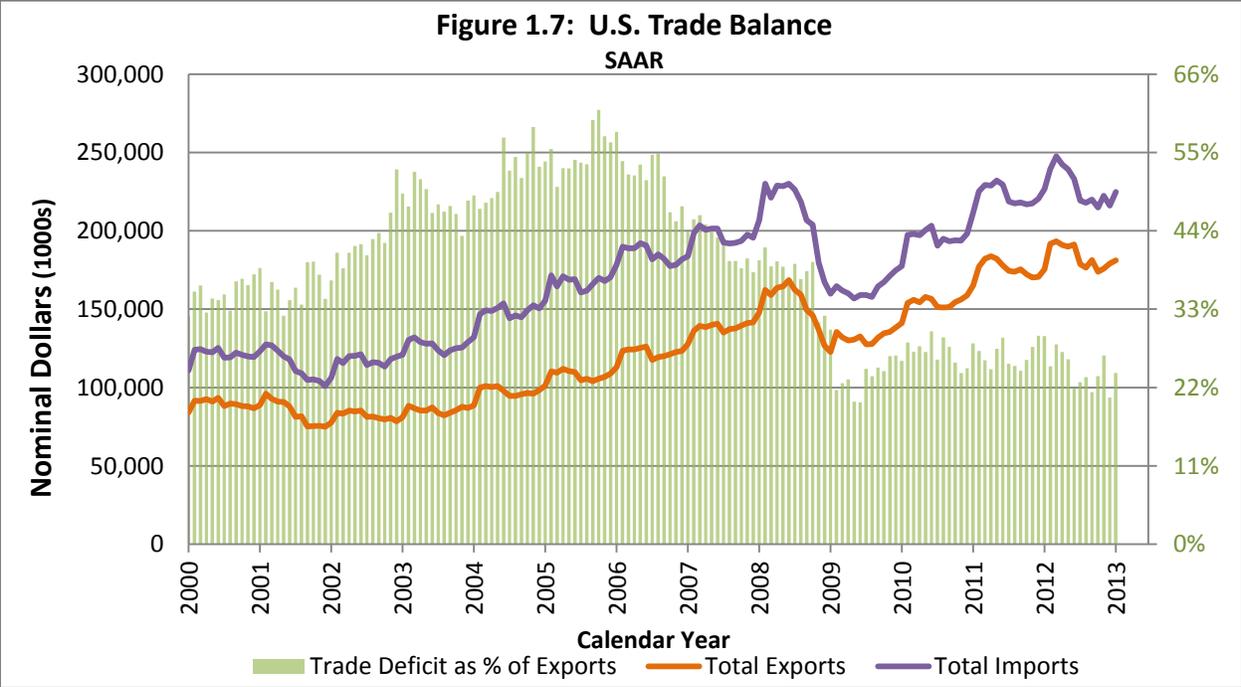
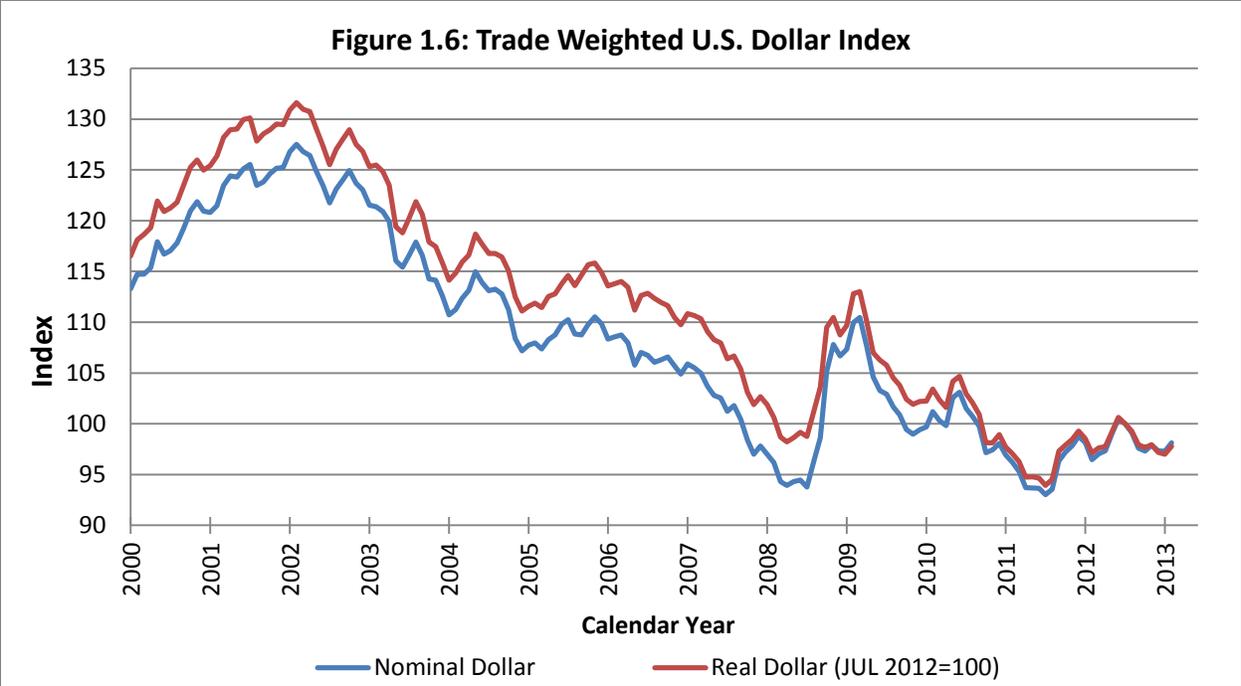
inflation. The PCE price index is preferred by the Federal Reserve; it shows that long-term inflation has been below 2 percent since November 2008.



The U.S. Dollar and Foreign Trade. Figure 1.6 shows the broad trade-weighted U.S. dollar index for the last 12 years. The broad index is a weighted average of the foreign exchange values of the U.S. dollar against the currencies of a large group of major U.S. trading partners. In July 2011, the index in nominal and real terms fell to its lowest point in the history of the data series, which began in January 1973. At its low, the (real) U.S. dollar index was 29 percent below its early 2002 highpoint. Since July 2011, the dollar has generally strengthened off the bottom.

Declines in the dollar’s trade value make American goods cheaper and more competitive relative to foreign goods. This supports U.S. exports and boosts economic growth. However, it also leads to higher prices for imports which is part of the reason why oil and gasoline prices increased in dollar terms from 2009 through much of 2011, while the dollar was weakening (see Figure 1.9).

In 2012, the total U.S. trade deficit was \$540 billion—the difference between \$2.20 trillion in exports and \$2.73 trillion in imports. The United States actually had a \$213 billion surplus on trade in services for 2012, but this was outweighed by the much larger \$797 billion deficit on trade in goods. As shown in Figure 1.7, the U.S. trade deficit as a percent of exports dropped to a cyclical low of 20 percent in May and June of 2009 (compared with a high of 60 percent in September and October of 2005) because imports fell off much more steeply than exports. More recently, this percentage has remained flat, at 26.8, 26.6, and 24.6 percent respectively for 2010, 2011, and 2012.



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World economy

Europe. Most forecasts for the U.S. economy cite the ongoing European financial crisis as a significant downside risk. Weakness in Eurozone economies means reduced demand for U.S. exports as well as continued difficulties in addressing their sovereign debt and banking crises.

The European financial crisis took a back seat in the news during the U.S. election season and after the European Central Bank's decision to serve as a lender of last resort, which calmed nerves and made an imminent breakup (e.g., a Greek exit) less likely. Disintegration may have been delayed, but the crisis seems to have no end in sight as economic conditions in Europe continue to slowly deteriorate. The policy responses to the banking crisis in Cyprus—which include the possibility of taxing depositors in several Cypriot banks to bail out (or ‘bail in’) the nation's financial institutions—has raised the specter of future mass bank runs in mainland Europe. The resolution to the crisis in Cyprus is not yet in sight, but all the solutions currently on the table seem likely both to bring about dramatic changes to the nation's financial system and to set lasting precedents for the rest of the currency union.

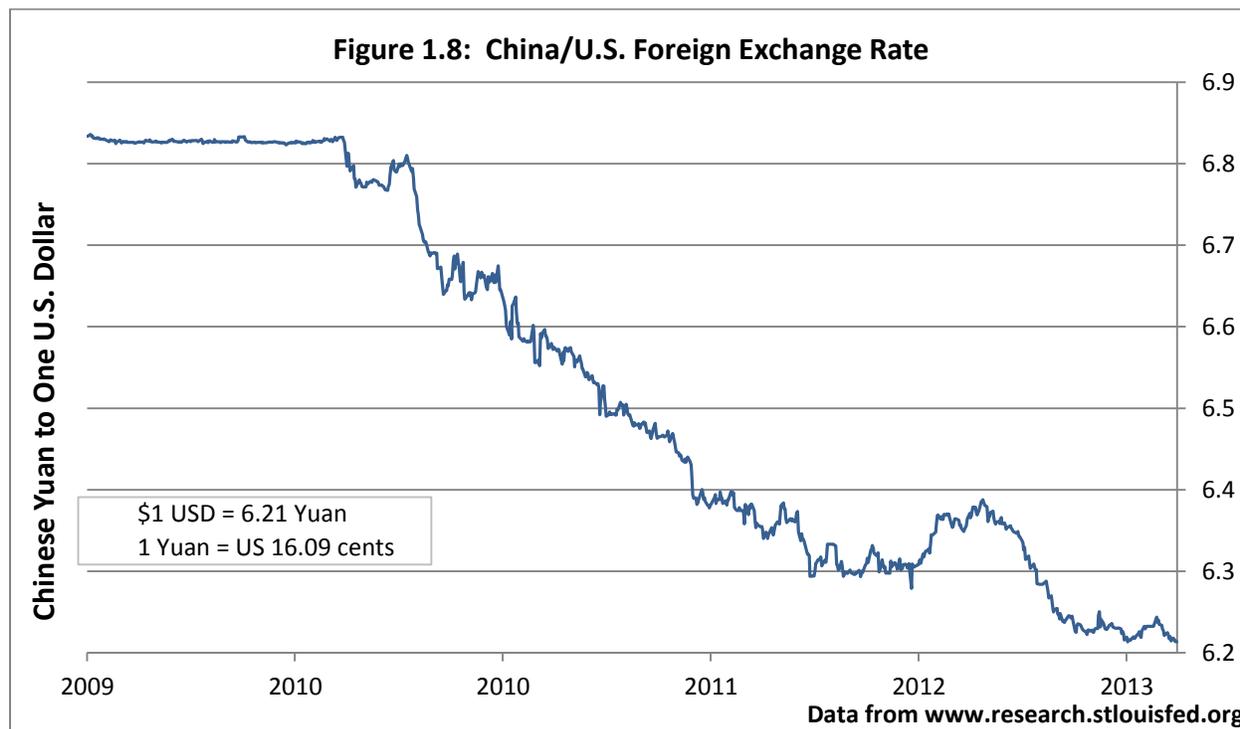
There are renewed questions about whether austerity is worsening or helping to repair the European economic situation. New budget cuts enacted in Greece and Spain are widely unpopular and have led to protests and violence on the streets. A large anti-austerity vote in the recent election in Italy led to a divided and contentious outcome, throwing the government into chaos. The IMF in its October 2012 World Economic Outlook has reversed itself and now finds that austerity measures in an economic downturn are ill-timed and that excessively rapid reductions in sovereign debt risk reduce economic growth and push advanced economies into deflationary spirals.

China. After taking over the usual offices of authority over the last few months, on March 15th Xi Jinping was elected President of the People's Republic of China, thus fully replacing Hu Jintao. Hu's rule ended after ten years (2002-2012) with an enviable economic record that, astonishingly, bested that of his predecessors. China's GDP growth averaged 9.5 percent per year under Deng Xiaoping (1978-1989) and 9.6 percent per year under Jiang Zemin (1989-2002). GDP growth was under Hu averaged 10.7 percent, even though it has slowed to less than eight percent in 2012, and his efforts to expand the role of household consumption to achieve more balanced growth was not successful.

Many analysts have predicted that a Chinese economic slowdown is inevitable because the country is approaching the per capita income at which growth in other countries began to decelerate. However, a study by the Federal Reserve Bank of San Francisco (“Is China Due for a Slowdown?”, by Israel Malkin and Mark M. Spiegel, October 15, 2012) finds that China may escape such a slowdown because of its uneven geographical development. Their analysis, based on episodes of rapid expansion in four other Asian countries, suggests that growth in China's more developed provinces may slow to 5.5 percent by the close of the decade while growth in the country's less-developed provinces is expected to run at a robust 7.5 percent pace.

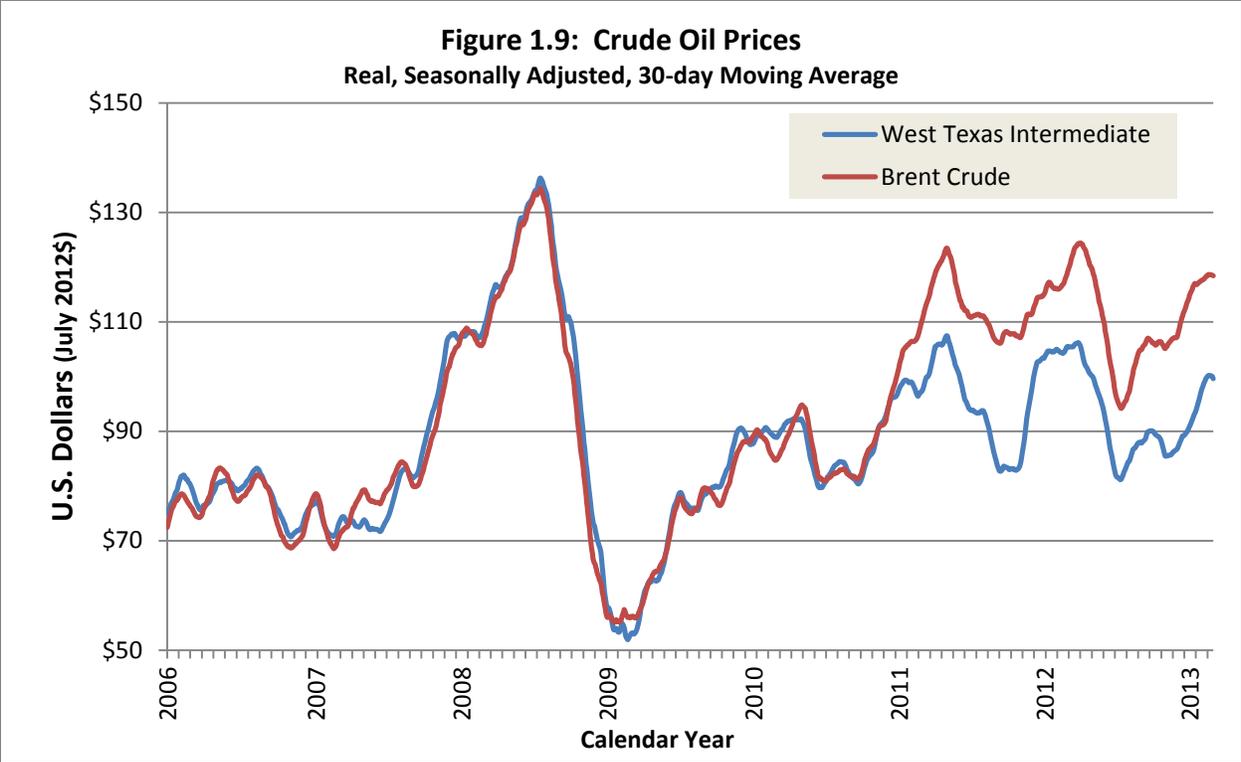
Casting China as a currency manipulator, among other things, was a popular slogan in the recent U.S. election campaigns. The accusation is that China is keeping the yuan's value artificially

low relative to the U.S. dollar in order to make importing Chinese goods to the U.S. more attractive. In fact, the yuan has been strengthening against the dollar since mid-2010 when the Chinese government allowed it to begin fluctuating again (see **Figure 1.8**). The yuan is currently worth nine percent more relative to the dollar than it was in July 2010. Critics might respond that the yuan is still too weak and that the Chinese authorities need to allow it to strengthen even more quickly.



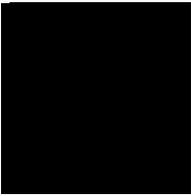
Petroleum. Crude oil prices and supply play an important role in the world and U.S. domestic economies, since crude oil and its derivatives affect production, transportation, and consumption. In addition, oil prices—especially sharp fluctuations—have the ability to influence intangible “forces” such as consumer and producer confidence. **Figure 1.9**, which presents six years of oil prices by the two most important indicators, the Brent Crude and West Texas Intermediate³, shows that this year featured the most dramatic crude oil price drop since 2008. These data have been adjusted for seasonality, so there is nothing seasonal about this trend. The lower petroleum prices this year have been one of the few points of optimism in the world economy, but prices have risen to about \$117 per barrel since their \$94 low in July.

³As shown in **Figure 1.9**, the Brent Crude and West Texas Intermediate prices were essentially the same until late 2010 when the West Texas Intermediate price started tracking below the Brent Crude price. The difference in price has developed because unusually large stockpiles of crude oil have built up in the middle of the North American oil supply system and there is a higher price to move this landlocked surplus to market. The Brent Crude price remains more important to the overall U.S. economy as it is the predominant crude oil price benchmark in the world economy.





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Part 2. Log and Lumber Industry Factors

This chapter focuses on specific market factors that affect timber stumpage prices and overall timber sales revenues received by the Washington State Department of Natural Resources (DNR). Timber stumpage prices reflect demand for lumber and other wood products, timber supply, and regional and local lumber mill capacity. The demand for lumber and structural wood products is directly related to the demand for U.S. housing and other end-use markets.

U.S. housing market

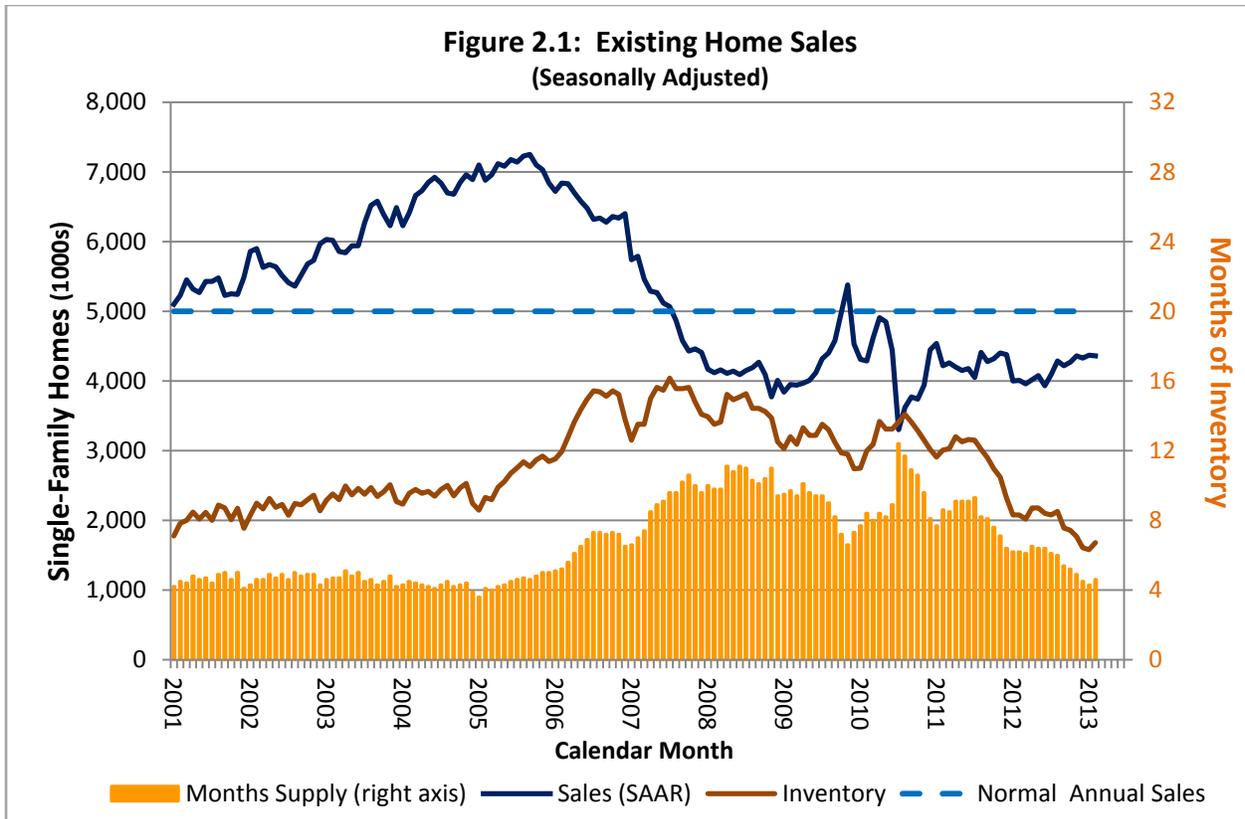
We're all seeing prices start to rise. With the underpinning of household formation coming back, a need for housing starts, low mortgage rates and a general increase in consumer confidence, we are at the early stages of a housing recovery. But it's real, it's solid and we think that we've got another three to four years in front of us just to recover to maintenance levels of what we think are necessary to cover long-term housing starts.

*Dan Fulton, President and CEO, Weyerhaeuser Co.
March 8, 2013*

Existing Home Sales. Existing home sales have been moving generally sideways for the last two and one-third years, in a range of 3.9 million to 4.5 million (seasonally adjusted annual rate), after moving up from the bottom of 3.3 million in July 2010 (see **Figure 2.1**); As the figure shows, existing homes sales are up a bit the last seven months (August 2012 through February 2013), averaging 4.3 million units as compared with the prior seven months which averaged 4.0 million.

Housing experts think that the new “normal” sales rate for existing homes will be in the range of 4.5 to 5.5 million (**Figure 2.1** shows the midpoint of 5.0 million). Although existing home sales are close to the bottom of that range now, truly normal conditions would have very few distressed sales.

The inventory of existing homes for sale continues to drop and is now at a low level not seen in the last twelve years (see **Figure 2.1**). In January, the inventory fell to 1.58 million homes before rising to 1.68 million in February. This compares with a peak of 4.0 million existing homes in the inventory in July 2007.



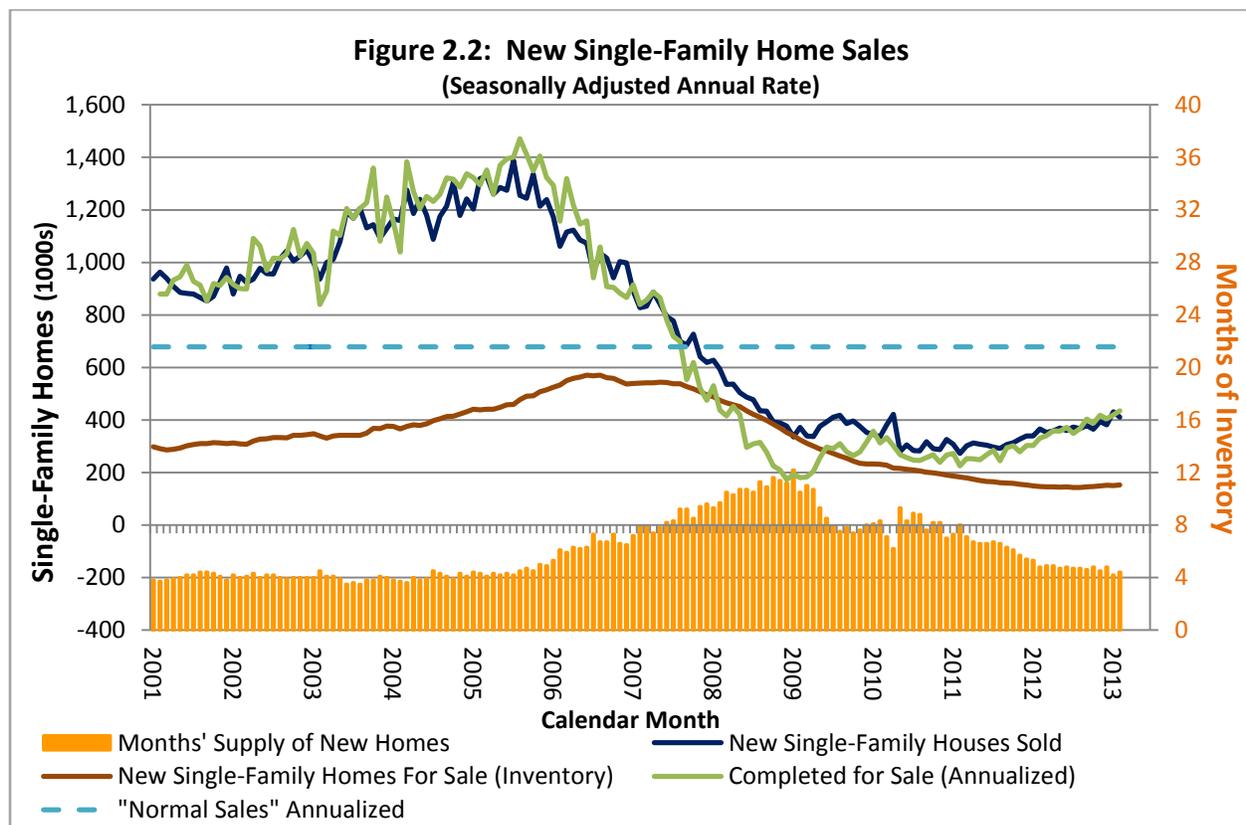
Another encouraging trend is the continued sharp fall in months' worth of sales in the inventory of used homes on the market at current sales levels (see **Figure 2.1**), now down to a level averaging 5.5 over the last twelve months and reaching a low of 4.3 months in January. This measure peaked at 12.4 months only two and two-thirds years ago in July 2010; in more normal times it varies between four and five months.

Private investors have moved into depressed housing markets and are purchasing large numbers of lower-priced foreclosed residential properties, funding a bet on long term recovery in housing prices by renting in the short term to buyers still locked out of the housing market. Blackstone Group LP, the country's largest private equity real estate investor, has already invested \$3.5 billion to buy 20,000 single family homes and has obtained a credit line of \$2.1 billion to buy even more. Big investors have been driving many housing markets: in 2012, they accounted for 30 percent of home purchases in Miami and 23 percent in Phoenix. An indication of the dominance of cash investors in the housing markets is that new mortgage loans have not shot up like they would if the market were being driven by individual home buyers. There is evidence that investors have cleaned out the housing inventory in Southern California, where there is now a buying frenzy among individuals for the few remaining homes on the market.⁴

⁴ From "So What Happened to All the People", by Mark Gimein, Bloomberg, March 19, 2013.

New Home Sales. New home sales continue to be at historically low levels, but have begun to climb out of their multi-year trough. **Figure 2.2** shows that new home sales bottomed out in mid-2010 and that they have been moving up since late 2011. Calendar year 2011 was the lowest year on record with only 307,000 new homes sold, compared with the long-term (1963-2010) “normal” annual rate of 678,000 per year. New home sales averaged 367,000 in 2012 and January 2013’s total was 437,000, the highest one-month amount since July 2008, four and one-half years ago.

Figure 2.2 also shows that new home sales and new home construction move together. As low as new home sales (blue line on graph) have been, new house construction (green line) has been even lower since early 2007. Since the number of new homes sold has exceeded the number of new homes built for the last five years, the inventory of newly built homes for sale has declined



over the same period. In the past few months, new home inventory has been down to its lowest level in six years. At a high in July 2006, there were 572,000 new single family homes available to purchase in the United States. At the end of February 2013, there were only 152,000 available. Inventories have leveled off and even grown slightly since July 2012, so the decline in the inventory of new homes may have reached its bottom: after five years, the number of completions has caught up with the number of new home sales.

An additional sign of a strengthening housing market is that the total months’ worth of inventory of new homes for sale may be near its bottom. In February, as shown in **Figure 2.2**, the months’ worth of inventory of new homes for sale (at current sales rates) decreased to 4.4 months from a

high of 12.2 months in January 2009. This measure is now approaching the pre-2006 average of about four months' worth of inventory of new homes. New home completions and sales have begun to increase because the excess supply of existing homes is being absorbed. Reducing the inventory (supply) of existing and new homes for sale is essential to the U.S. housing market recovery because it increases the need for new house construction.

Shadow Inventory. The inventories of existing and new homes discussed above are made up of those housing units that are currently listed for sale (“on the market”). While it exists even in normal times, the “shadow inventory”—housing units not currently on the market, but expected to be listed in the next few years—has gained attention as one of the most important measures of the health of the housing market. CoreLogic tracks the shadow inventory, which it defines as being composed of bank-owned properties (REO, or “real estate owned”), properties in the process of foreclosure, and properties with seriously delinquent mortgages of over 90+ days⁵. As of January 2013, the shadow inventory as defined by CoreLogic had declined to 2.2 million housing units, down 27 percent from its January 2010 peak of 3.0 million. A large shadow inventory leads to a large number of distressed sales (including short sales) and therefore pushes home prices down. The decline in the excess shadow inventory is relieving some of the downward pressure on house prices. Since mid-2011, however, the South has shown the greatest rate of increase in housing starts, followed by the West and Midwest.

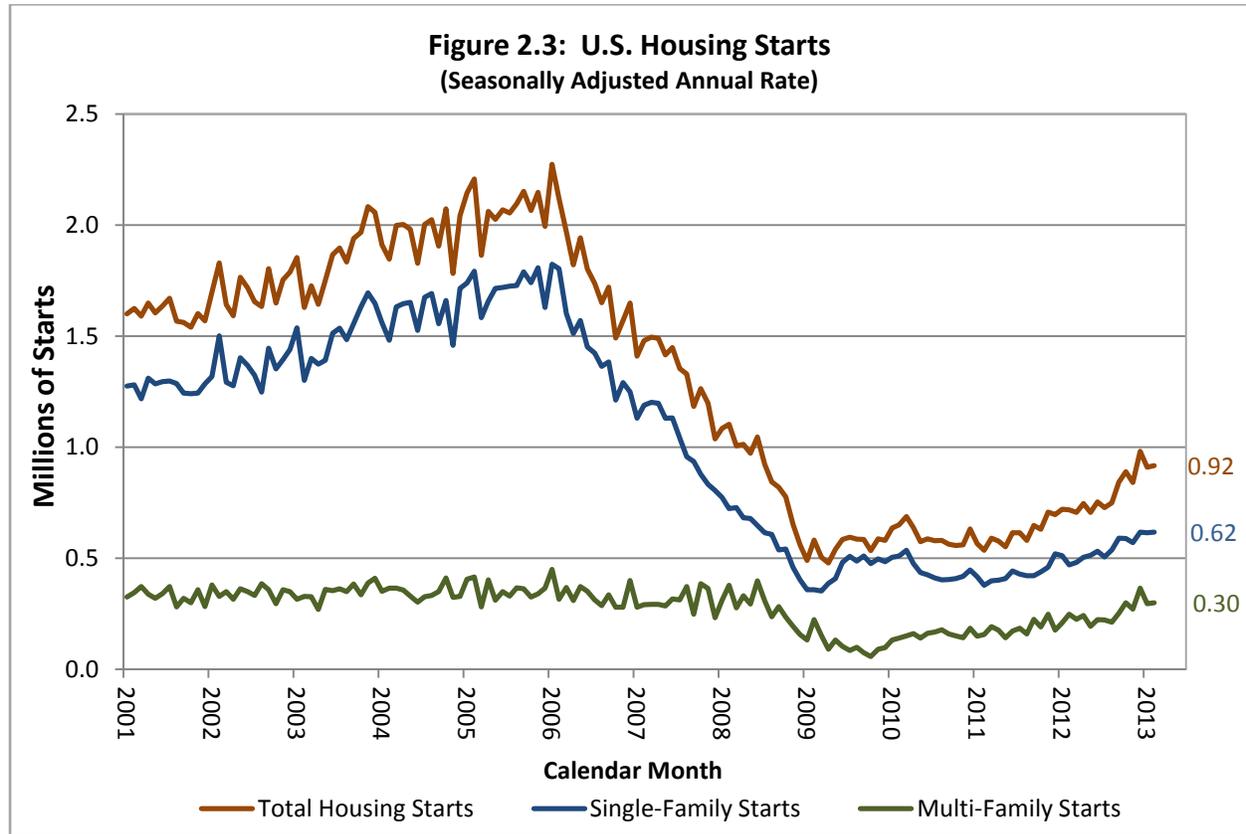
Housing Starts. Housing starts accelerated in the United States in 2012, after moving more or less sideways at a historic low level for the last three years (see **Figure 2.3**). In April 2009, they fell to 478,000 (seasonally adjusted annual rate), the all-time record low since the Census Bureau began tracking housing starts in 1959. In the last six months (September 2012-February 2013), new housing starts have averaged 897,000 (SAAR), a level not seen since early 2008 (see brown line on **Figure 2.3**). February’s 917,000 starts represent a 0.8 percent increase over January’s revised value of 910,000. The improvements of the last month have not been broad-based, however: increased starts in the Northeast and Midwest census regions offset decreases in the West and South.

In the 2009-2011 housing market trough, single family starts (blue line) averaged 440,000 (SAAR). The annualized rate of single family starts was up to 535,000 in 2012, and has been higher still in 2013—up to 618,000 in February. These upward trends are apparent in **Figure 2.3**. Multifamily starts for 2012 averaged 247,000 on an annualized basis, compared with the average of 149,000 in the three-year 2009-2011 trough. Multifamily starts were up to 299,000 in February.

Home builder confidence in the market for newly built single-family homes, which like housing starts had been moving sideways at a depressed level for several years. The HMI averaged 15-16 for years 2008-2011. It rose dramatically throughout 2012, ending at 47 in December. In March, the National Association of Home Builders/Wells Fargo Housing Market Index (HMI)

⁵ Other definitions of “shadow inventory” include other residential properties such as those with less seriously delinquent mortgages which will become seriously delinquent, condos that were converted to apartments and that are expected to be converted back in the next few years, investor-owned rental properties, and homes that owners want to sell but are not on the market.

dropped two points to 44. Any number under 50 indicates that more home builders view sales conditions as poor rather than good.



In many areas, home builders are scrambling to ramp up production but face delays because of the difficulty of finding construction workers and in obtaining permits from suddenly overwhelmed local authorities. After six years of low levels of new home building, skilled labor is scarce. Many workers in the immigrant-heavy industry have returned to Mexico. Others have pursued work in Texas and North Dakota’s energy booms, where jobs have become more plentiful. Others are hesitant to return to construction work after experiencing the employment upsets of the recession and are content to stick with lower paying but more secure jobs. In addition, many local governments were caught off-guard by the suddenly renewed interest in building and do not have enough staff in place in permit offices to handle the paperwork.⁶

Given typical economic conditions, household formation (or the growth in the number of households) is the key driver of U.S. housing starts. The shockwaves of the Great Recession, however, upset all sorts of normal variables in U.S. economic equations. Due to job and income losses and an uncertain future, household formation lagged as people doubled up and younger people, who were hit especially hard, moved back in with their parents. This reduction in

⁶ Excerpted from “Sudden Rise in Home Demand Takes Builders by Surprise”, by Catherine Rampell, New York Times, March 20, 2013.

demand for home purchases caused a surge in the inventory of excess housing units and brought housing starts to startling lows. Typical annual U.S. household formation is estimated to be in the range of 1.2-1.3 million. In the depth of the Recession, household formation dropped dramatically to 0.4 million in 2009 and to 0.5 million in 2010. With pent-up demand, household formation returned to the 1.2 million level in 2012. Looking forward, increased rates of household formation, while dependent on continued recovery in the U.S. economy, will help to eliminate the excess housing stock and to drive construction of new housing units.

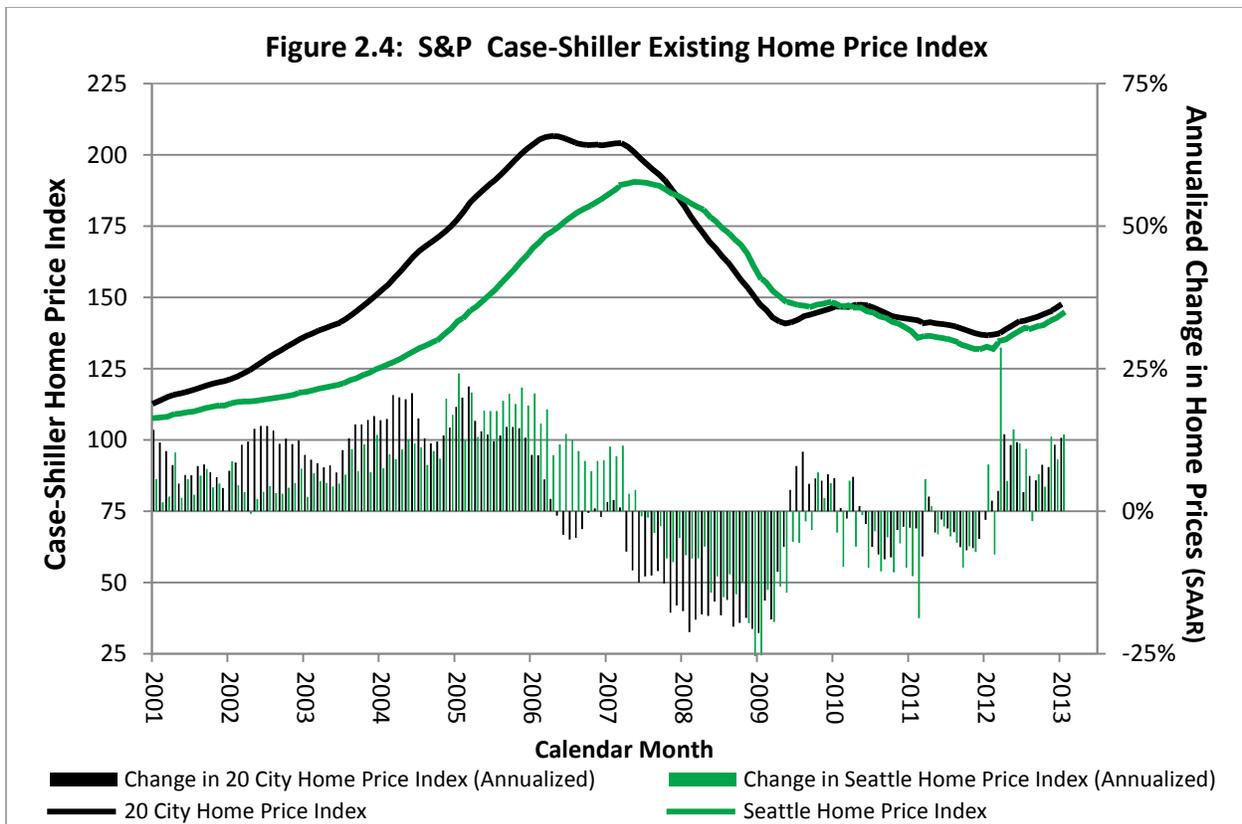
The outlook for housing starts is optimistic. As housing expert Bill McBride said in his Calculated Risk blog on February 26, 2003: “Housing is historically the best leading indicator for the economy, and this is one of the reasons I think the future's so bright, I gotta wear shades.” According to Blue Chip Economic Indicators January 2013 edition, the average forecast of U.S. housing starts by 56 top U.S. business economists was 0.95 million units for 2013 and 1.16 for 2014. The average of the top 10 forecasts for each year was 1.08 million units for 2013 and 1.46 million units for 2014. The average of the bottom 10 forecasts for each year was 0.81 million units for 2013 and 0.93 million units for 2014.

Housing Prices. An upward trend in U.S. housing prices is developing after six unprecedented years of falling and flat prices. The S&P/Case-Shiller Home Price Indices track changes in the value of residential real estate both nationally as well as in 20 metropolitan regions. The most recent release includes data through January 2013, and shows prices for existing home sales slightly up for the sixth consecutive month for half of the 20 cities individually and for the 10-city and 20-city composites.

Figure 2.4 charts the seasonally adjusted Case-Shiller indices for the 20-city composite, which represents existing national home price trends, as well as the Seattle index. The national home price index has moved up each month since bottoming out in January 2012—its lowest point since January 2003, nine years earlier. In December the average existing house in the U.S. was worth 72 percent of its value at the peak of the real estate bubble in April 2006, up modestly from 66 percent in January 2012.

Seattle house prices were similarly up in 2012, led by a striking 31 percent jump in March. When Seattle prices bottomed in February 2012—at their lowest point since June 2004—the average existing house in Seattle was worth only 69 percent of the May 2007 peak. As of January, the average Seattle home was worth 76 percent of its peak price.

At any time, these prices depend on consumer demand for houses and on the number and cost of houses available for sale. Over the past several years, excessive supply conspired with lower demand to lower housing prices. That prices are now rising suggests that these factors (and so the housing market in general) are improving, which is confirmed in the discussion of supply above. A beneficial result of rising housing prices is that fewer mortgages are “under water” to the extent that those homes’ values are now greater than the loan amount. However, rising prices are not unambiguously good; all else being equal, rising prices make housing less affordable.

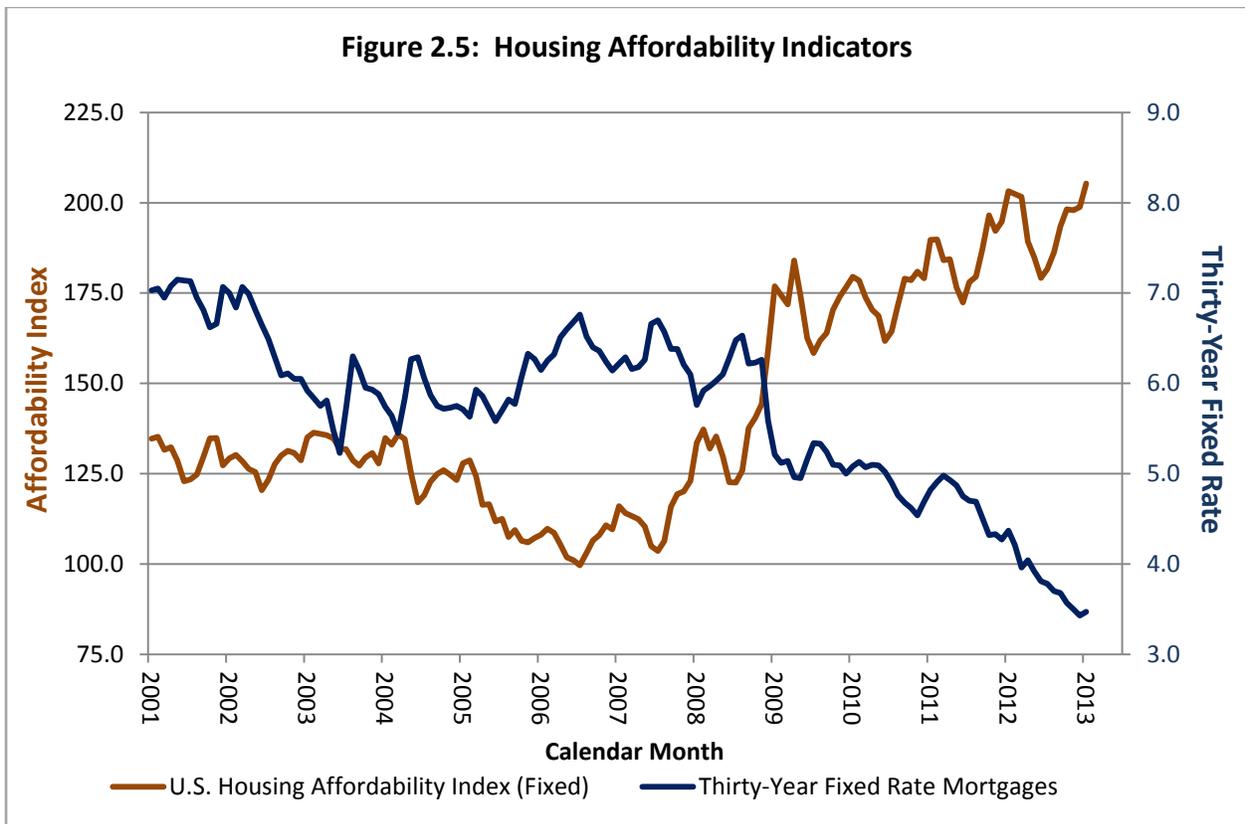


Affordability. The National Association of Realtors’ (NAR) U.S. Housing Affordability Index composite—which is based on the relationship between the median home price, the median family income, and the average mortgage interest rate—rose to a record high of 205.3 in January 2013 (see **Figure 2.5**). A higher index reflects greater household purchasing power and therefore improved affordability of the typical home.

In January last year, the affordability index broke the 200 mark for the first time since recordkeeping began in 1970. Since then, the index fell sharply to 179.2 in June, driven by a 23 percent increase in the median-priced existing single-family home (this may be due to the mix of homes sold having relatively more higher-priced homes, driving up the value of the median-priced home sold). As **Figure 2.5** shows, the affordability index improved considerably from June to January.

U.S. 30-year fixed mortgage loan rates⁷ remain at historically low levels (see **Figure 2.2**), dropping to yet another new low of 3.43 percent in December before rising slightly to 3.47 percent in January. The 30-year fixed mortgage rate has been below 5 percent for 31 consecutive months.

⁷ The data series cited here is the national average effective rate on closed fixed-rate 30-year conventional home mortgage loans by all major lenders as reported by the Federal Housing Finance Agency.



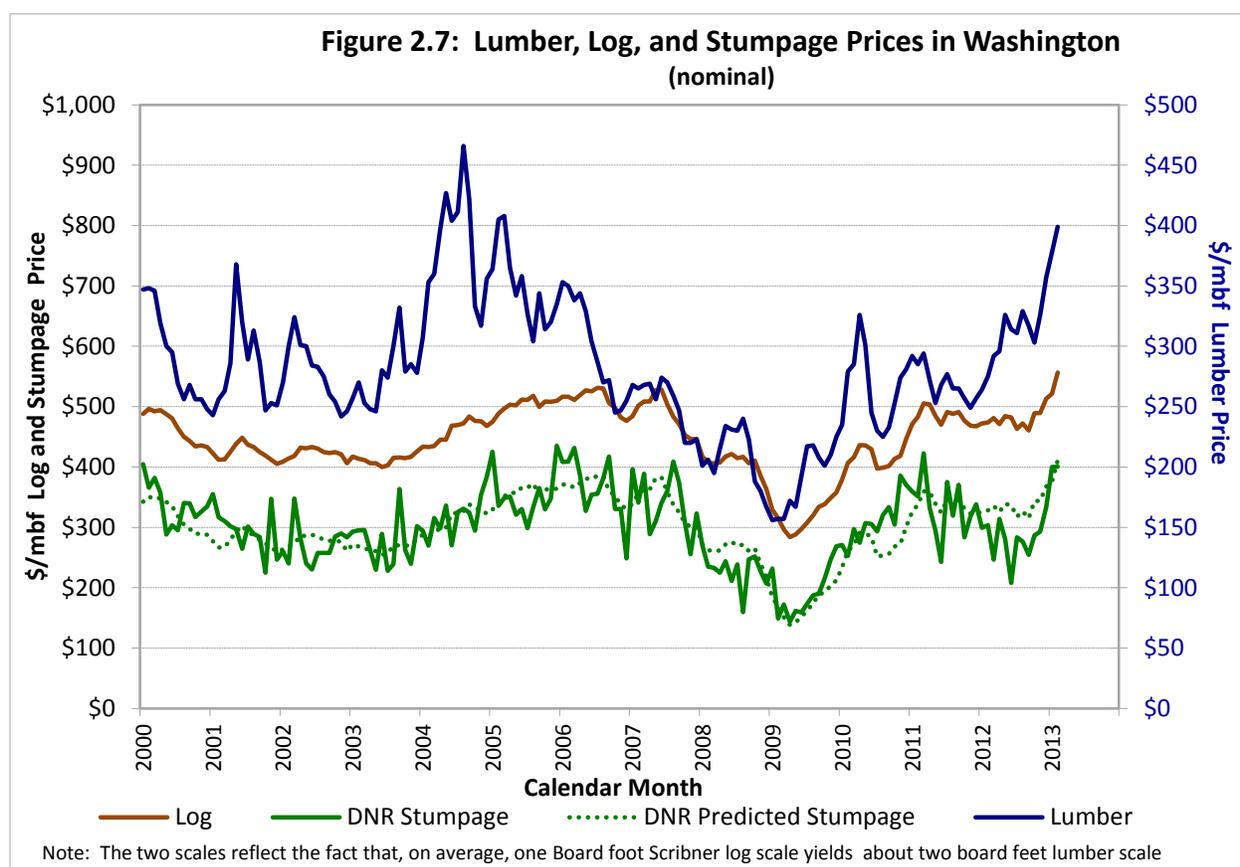
The family income required to qualify for a mortgage on the \$174,100 median-priced existing single family home in the United States at January’s rate of 3.47 percent remains relatively low at only \$29,904 per year. This compares with an average qualifying income of \$45,984 in 2008 and \$52,992 in 2007. While the qualifying income is now much lower, median family income was \$61,885, similar to the average of \$63,366 in 2008 and \$61,173 in 2007. In short, median wages have stagnated.

To date, stalled demand and stringent lending practices have held back the recovery in home sales. A large number of potential home buyers remain on the sidelines because they have been injured financially by the Great Recession. Even though the numbers are reducing, millions of homeowners remain underwater on their mortgages. Millions more have been unemployed for long periods and many of those fortunate to find jobs are now working for lower pay. Young adults, who normally are an important demand driver for home sales, are having an especially hard time in the job market and their large college loan obligations contribute to discouraging first-time home buying. In addition, banks have tightened mortgage loan requirements, such as requiring high down payments and excellent credit ratings.

Lumber, log, and timber stumpage prices

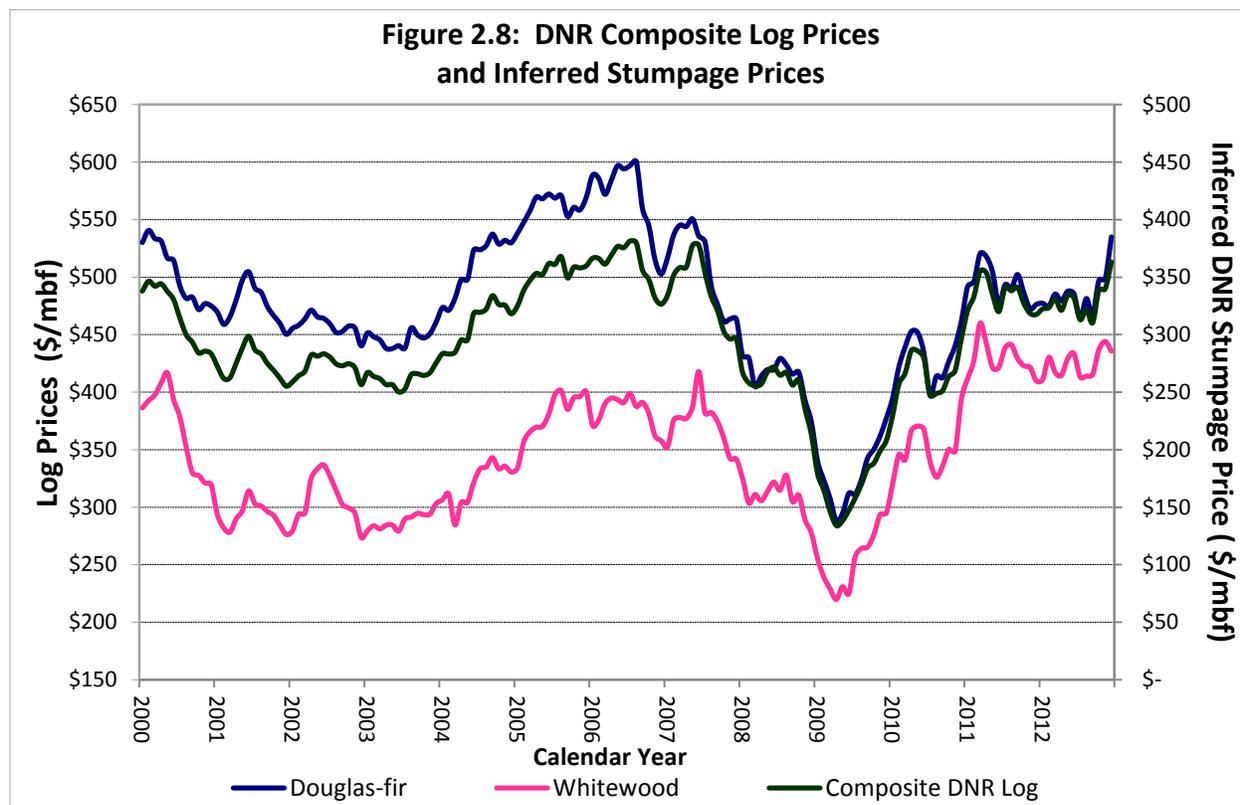
Lumber and Log Prices. Figure 2.7 shows nominal monthly lumber and log prices in Washington since 2000.

Both lumber and log prices have significantly improved from their extreme lows of 2009. The lumber price bottomed at \$156/mbf in January 2009, in the depth of the Great Recession, and rose to hit a high of \$326/mbf in April 2010 before falling steeply to \$225/mbf in August of the same year. In the last two years, the regional lumber price has been generally rising. More recently, it has risen a staggering 32% from \$303/mbf in October 2012 to \$399/mbf in February 2013.



DNR’s “composite log price” is calculated from prices for logs delivered to regional mills, weighted by the average geographic location, species, and grade composition of timber typically sold by DNR. In other words, it is the price a mill would pay for delivery of the typical log harvested from DNR-managed lands. These composite log prices are less volatile than lumber prices (see Figure 2.7). Figure 2.8 presents prices for Douglas-fir, hemlock, and DNR’s composite logs. All three hit their post-2000 low in April 2009. The composite log price rose to \$503/mbf in March 2011 and drifted down slightly through most of 2012. In the past few months, however, it rose dramatically to February’s high of \$556/mbf. Note the diverging trend

between regional lumber and log prices from late 2011 through 2012; it suggests that profit margins for lumber mills in the Pacific Northwest increased through 2012.



Log and Stumpage Prices. Stumpage prices are the prices that successful bidders pay to harvest timber from DNR-managed lands. **Figure 2.7** shows monthly nominal prices for logs as well as actual DNR stumpage prices since 2000.

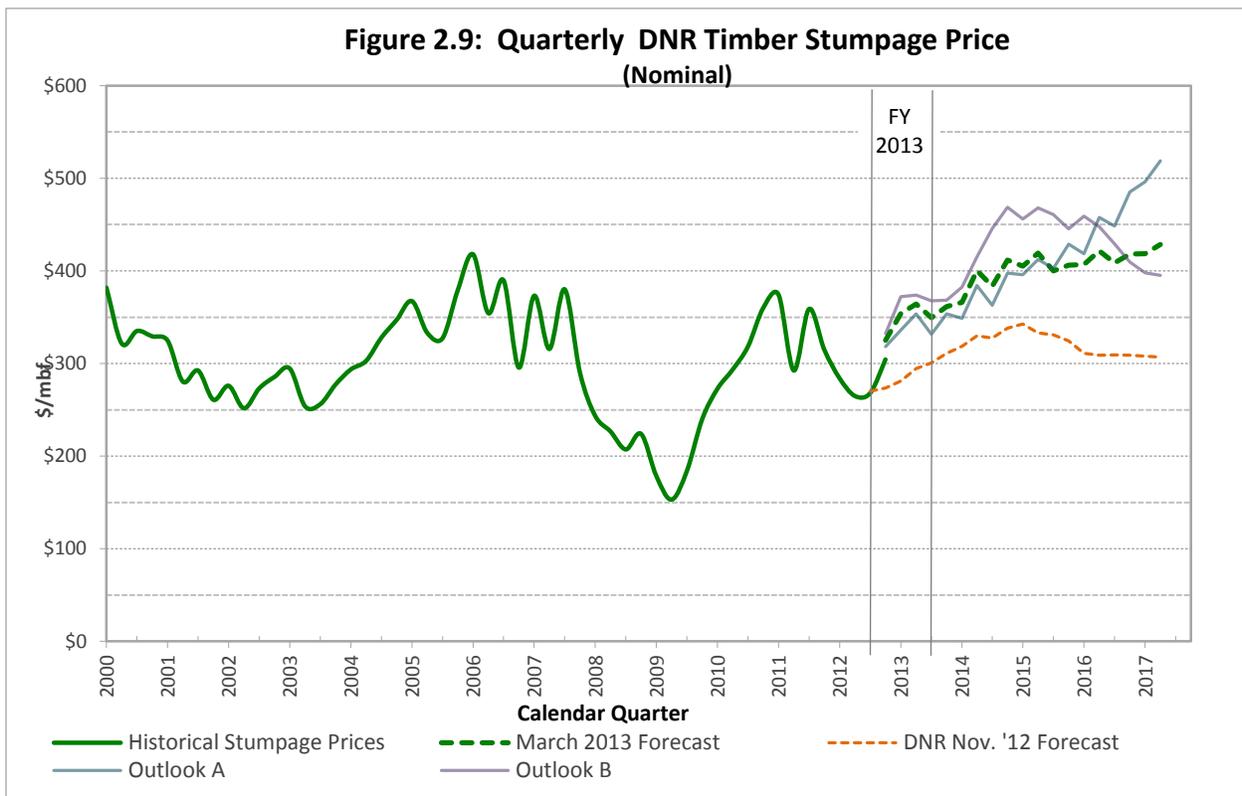
At any time, the difference between the delivered log price (in brown) and DNR’s stumpage price (in green), is equivalent to the sum of logging costs, hauling costs, and harvest profit. Taking the average of these costs over 12 years and subtracting it from the log price line gives us an inferred or estimated DNR stumpage price, as shown by the green dotted line. Stumpage prices from actual DNR timber sales in 2012 were generally lower than stumpage prices inferred from log prices, which suggested that an upward market “correction” would be forthcoming. Indeed, auction results in 2013 have done just that.

The last DNR timber sales auctions averaged \$400/mbf (in both January and February 2013). In 2012, prices had fallen as low as \$208/mbf in June, weighed down by a large-volume thinning sale in the Olympic Experimental Forest and by four lower-valued sales in the northeastern part of the state. In all of 2012, log prices averaged \$479/mbf—nearly the same as 2011’s \$481 average. Stumpage prices (weighted by volume) for 2012 averaged \$282/mbf; these are down more sharply from the \$335/mbf average for the same period in 2011 (see **Figure 2.7**).

It is interesting to compare the timing of the recent lumber, logs, and stumpage price rallies. At this time of a business cycle, one would expect lumber prices to lead off, followed by log prices

and then stumpage prices. The length of the lag between lumber and log prices would depend largely on the size of the mills' log inventory; similarly, the lagged effect of rising log prices on stumpage prices would depend on how much stumpage volume loggers have available (either on private holdings or under contract with DNR). The fact that log and stumpage prices have climbed with very little delay suggests that mills are operating with little inventory⁸ and that loggers lack sufficient stumpage volume to meet current demand and price levels. Indeed, timber purchasers currently have less than a year's worth of stumpage volume under contract with DNR.

DNR Stumpage Price Outlook. Figure 2.9 shows DNR's historical stumpage prices (the solid green line, which is a quarterly version of the line in Figure 2.7), the price outlook as of the November 2012 Forecast (orange dashed line), and our updated price outlook⁹ through the middle of calendar year 2017 (green dashed line). This significant upward shift in stumpage price expectations is justified by the strengthening demand for new home construction outlined in Part I and by the inability of log and lumber suppliers to respond smoothly and rapidly to this demand: they lack sufficient inventories at the mill or on the stump, which in turn increases bid prices for DNR-managed timber. For these reasons, DNR timber sales prices in the past few months have already exceeded November's predictions.

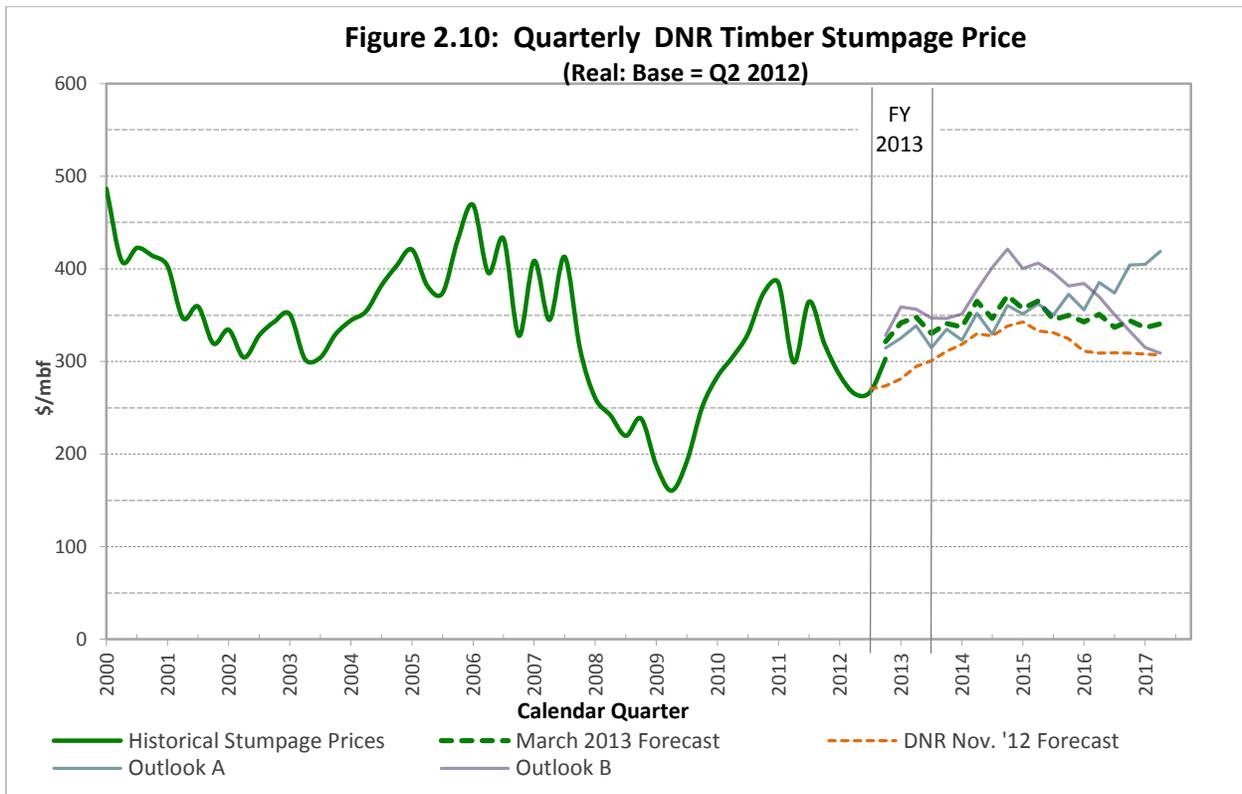


⁸ It also suggests that mills may be boosting their inventories as a hedge against even higher stumpage prices in the future—such price expectations are almost certainly at play.

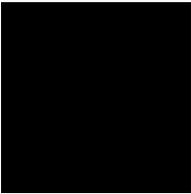
⁹ This updated price outlook is the basis for the timber revenue increases discussed in the next section.

DNR currently contracts with two forest economics consulting groups, who provide log and stumpage price forecasts, as well as valuable insights into the housing, lumber, and timber markets. By modeling DNR’s historical data on their forecasts, we arrive at two alternative stumpage price outlooks—named Outlook A and Outlook B in **Figure 2.9**. Outlook A predicts steadily rising prices through the forecast period, with some peaks and valleys that represent the market finding new equilibria in the face of demand changes and supply adaptations. Outlook B assumes that demand will outpace supply more dramatically through late 2014, and it incorporates a business cycle downturn from 2015 forward. The updated DNR Forecast represents a middle ground between these two approaches. Furthermore, the ascent of our forecast stumpage prices slows down in outlying years to account for uncertainty and to model suppliers’ gradual adaptation to increasing demand.

In **Figure 2.9**, the updated Forecast appears to culminate in prices above the highest achieved in the past twelve years—including the height of the real estate boom in 2006. Indeed, the Forecast stays at or above those high levels for several years. However, this surprising increase seems much less overly optimistic when presented in **Figure 2.10**’s real, inflation adjusted terms. Using historical BLS Core CPI values to adjust the historical prices and a 2.0 percent rate¹⁰ for future years’ prices, **Figure 2.10** shows that the new outlook, while higher than prices during the depths of the recession, is not overly optimistic.



¹⁰ Two percent is the average annual inflation rate from 2001 through 2012. The consensus of economic forecasters also has the future inflation rate at about 2.0 percent per year.



Part 3. DNR's Revenue Forecast

This Revenue Forecast includes Department revenues from timber sales on trust uplands, leases on trust uplands, and leases on aquatic lands. It also forecasts revenues to individual funds, including DNR management funds, beneficiary current funds, and beneficiary permanent funds. Some caveats about the uncertainty of forecasting Department revenues are summarized near the end of this section.

Timber revenues

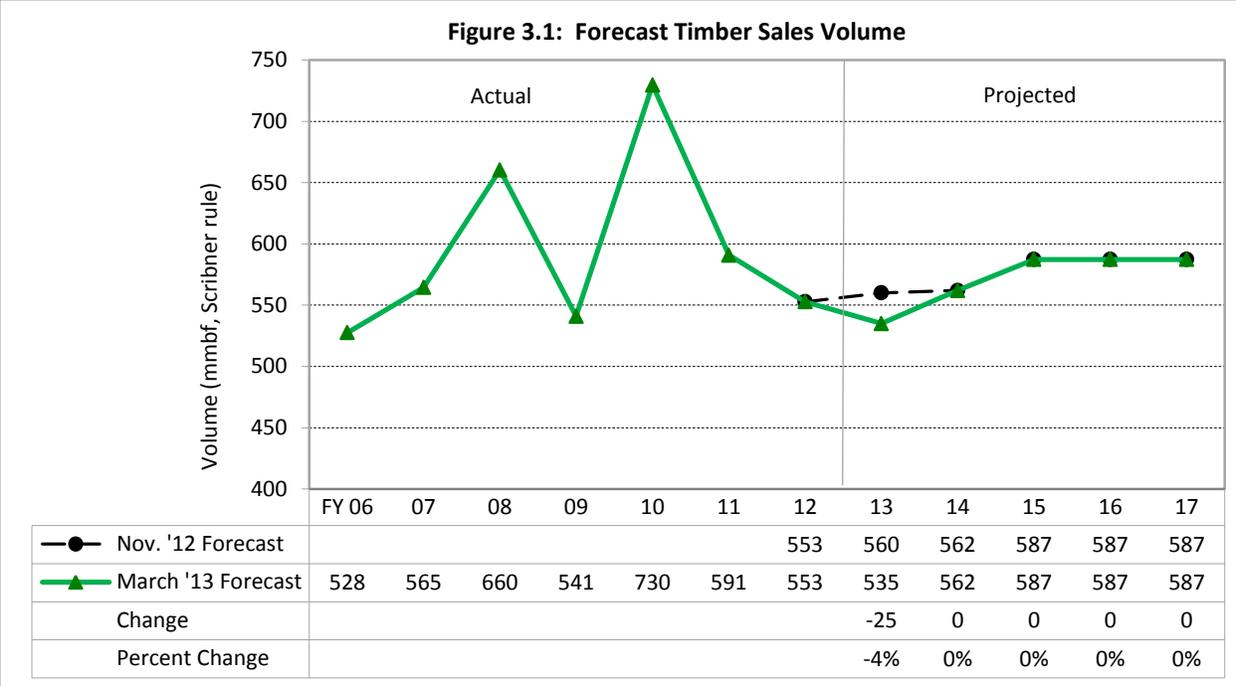
The Washington State Department of Natural Resources (DNR) sells timber through contracts. The Department determines the total volume to be offered for sale each month and the minimum bid for each timber sale. The sale is awarded to the highest bidder and the average sales price (\$/mbf), or stumpage price, is set by the result of the auction. DNR collects a 10 percent initial deposit at the time of sale and holds it until the sale is completed. Revenues are collected at the time of harvest (removal). The initial deposit is credited as the last 10 percent of timber is harvested.

Contracts for DNR timber sales sold in FY 2012 varied in duration from three months to three years, with an average (weighted by volume) of about 21.5 months. The purchaser determines the actual timing of harvest within the terms of the contract. As a result, timber revenues to beneficiaries and DNR management funds lag current market conditions: the lag is currently about 13 months.

For the purposes of this chapter, timber that is sold but not yet harvested is referred to as “volume under contract” or as “inventory.” Timber volume is added to the inventory when it is sold and placed under contract, and it is removed from the inventory as the timber is harvested.

Timber Sales Volume. DNR sold 257 mmbf in FY 2013's first eight months of timber sales. Projected timber sales volume for the current fiscal year is lowered by 25 mmbf at 535 mmbf, and the FY 2014 forecast is unchanged at 562 mmbf (see **Figure 3.1**).

FY 2014 is the last year of the current FY 2005-2014 sustainable harvest decade. If actual timber sales results follow the projections in this Forecast, the shortfall on this decade's 5,500 mmbf target for western Washington will be about 320 mmbf (25 mmbf higher than the November Forecast). However, there is a risk of falling short of these projected timber sales volumes due to prospective environmental and policy issues. If realized, these risks would deepen the decadal shortfall.



FY 2015 is the first year of the next sustainable harvest decade (FY 2015 through FY 2024) for western Washington. Until the next decade’s sustainable harvest levels are determined, the Forecast will use the Department’s estimated annual Westside sustainable harvest level of 537 mmbf, which was estimated at the beginning of the current FY 2005-2014 sustainable harvest decade. Combined with projected eastern Washington timber sales of 50 mmbf for the next several years, we arrive at a projected annual timber sales volume of 587 mmbf for FYs 2015-2017. However, there are indications that the new FY 2015-2024 Westside sustainable harvest level will be somewhat lower.

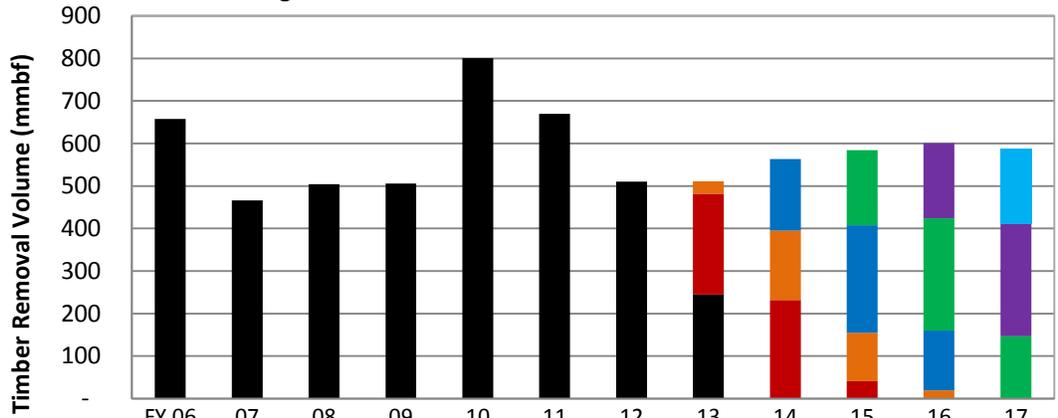
Timber Removal Volume. At the end of September, the Department had 519 mmbf of timber under sales contract, valued at \$146.5 million.

For each Forecast, we survey DNR timber sale purchasers to determine their planned removal timing for the timber volume they have under contract at the time of the survey. This Forecast’s survey, conducted in the first half of February, indicates that purchasers plan to harvest 237 mmbf, or 46 percent, of the 519 mmbf remaining under contract this fiscal year (FY 2013) and 232 mmbf (45 percent) and 41 mmbf (8 percent) of the existing inventory in FYs 2014 and 2015, respectively (see **Figure 3.2** for detail).

The survey indicates that a total of 511 mmbf will be removed in FY 2013: 245 mmbf that timber sale purchasers have already removed from July through January, anticipated removals of 237 mmbf from volume under contract as of the end of January, and 29 mmbf in FY 2013 sales volume to be removed this year (see **Figures 3.2 and 3.3**).

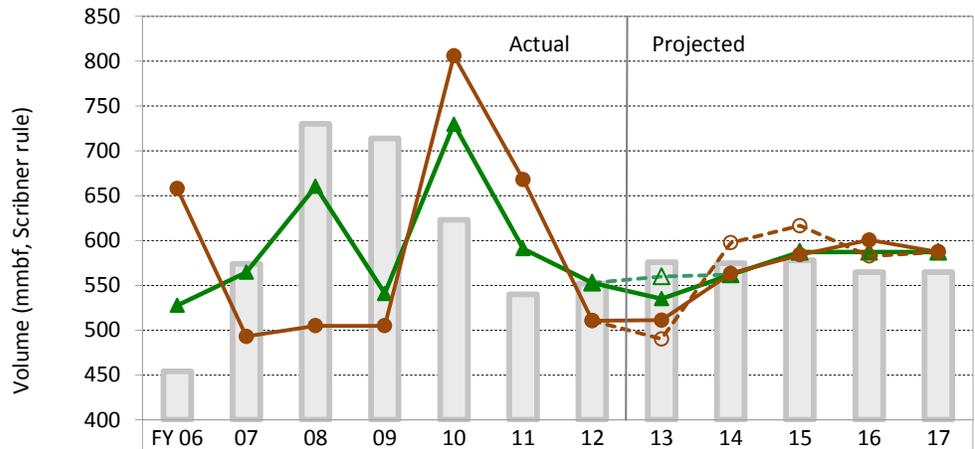
The level and timing of projected timber removal volumes have changed in this Forecast as a result of the purchasers’ plans to bring forward some of their harvests, perhaps to take advantage of higher prices in their end-use markets.

Figure 3.2: Forecast Timber Removal Volume



	FY 06	07	08	09	10	11	12	13	14	15	16	17
Total	658	466	504	506	801	670	511	511	563	584	600	587
Removals to Date	658	466	504	506	801	670	511	245				
Sales Under Contract								237	232	41		
Sales in FY 13								29	162	114	19	
Sales in FY 14									169	253	141	
Sales in FY 15										176	264	147
Sales in FY 16											176	264
Sales in FY 17												176

Figure 3.3: Timber Volume - Sales, Removals, and Inventory



	FY 06	07	08	09	10	11	12	13	14	15	16	17
Inventory	454	574	730	714	623	540	552	576	575	578	565	565
Sales - Previous Forecast								553	560	562	587	587
Sales - Current Forecast	528	565	660	541	730	591	553	535	562	587	587	587
Change								-25	0	0	0	0
Removals Prev. Forecast								511	490	598	617	583
Removals - Current Forecast	658	493	505	505	806	668	511	511	563	584	600	587
Change								21	-34	-33	18	0
Percent Change								4%	-6%	-5%	3%	0%

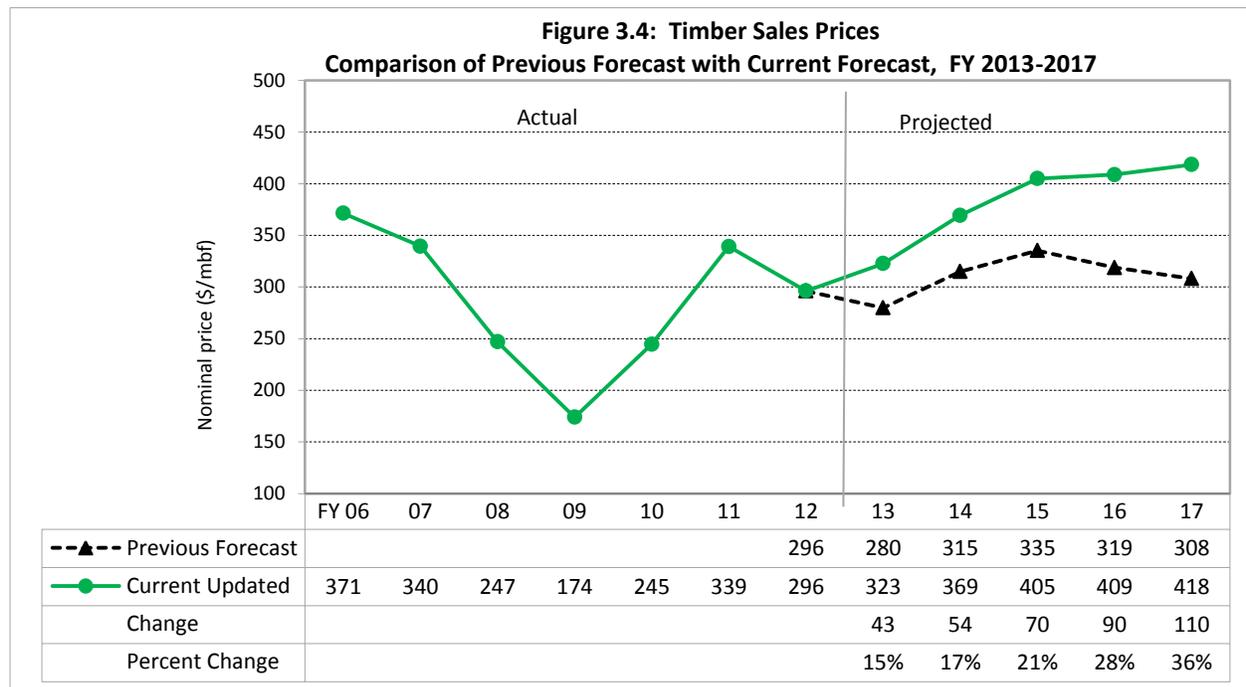
As a result, projected timber removal volumes for the current biennium, 2011-2013, are increased by 21 mmbf, or two percent, from the November Forecast.

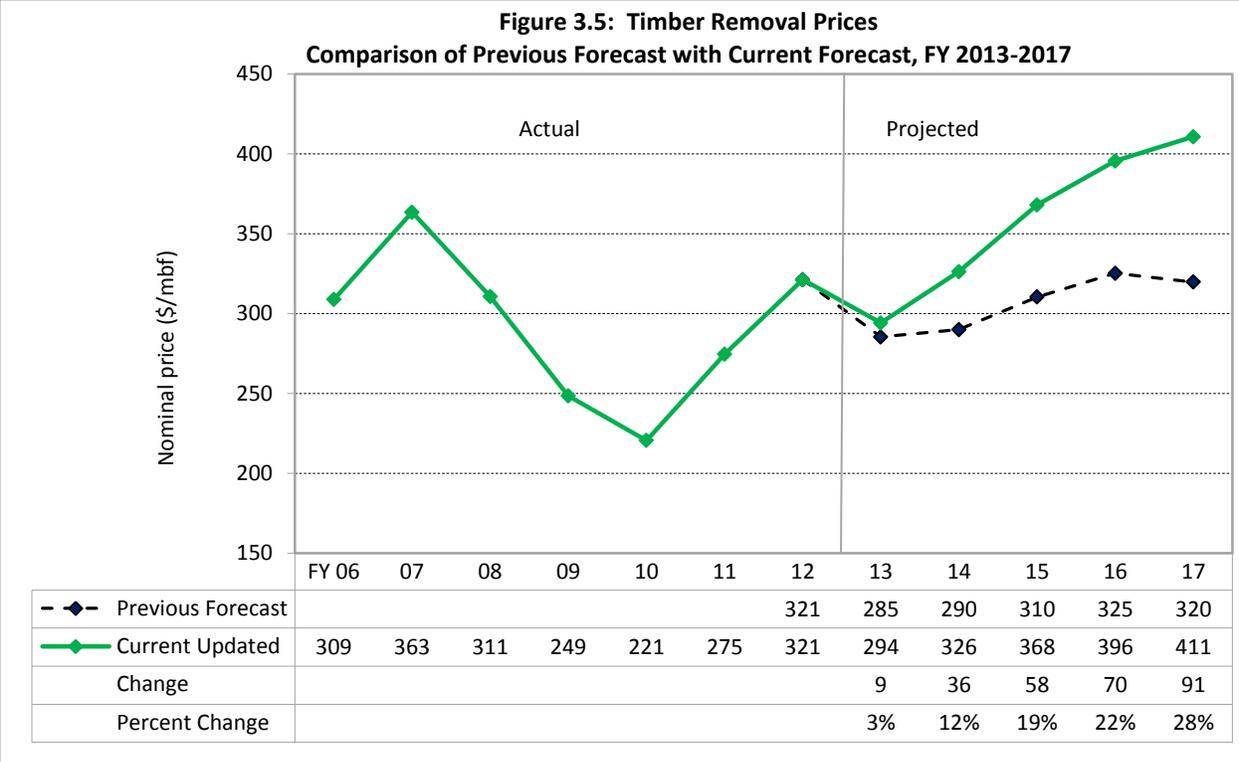
Projected volumes across the 2013-2015 Biennium are reduced by 67 mmbf, or six percent (see **Figure 3.3**). Projected removal volumes across the 2015-2017 Biennium are increased by 18 mmbf, or two percent.

Timber Sales Prices. The price results of monthly DNR timber sales (shown in **Figure 2.9** in seasonally adjusted, nominal terms) are quite volatile. In FY 2011, monthly timber sale prices were mostly above \$300/mbf and averaged \$339/mbf weighted by volume, whereas they averaged \$296/mbf in FY 2012 (see **Figure 3.4**).

As discussed in **Part 2**, the U.S. housing market is showing signs of improvement and is likely to continue to strengthen over the forecast period. The timing and magnitude of the recovery in housing construction remain uncertain, but when domestic demand for lumber strengthens, it exerts upward pressure on stumpage prices. As explained in **Part 3**, the FY 2013 average sales price is raised from \$280/mbf to \$323/mbf in this Forecast (see **Figure 3.4**). Timber sales in FY 2013 to date (through February) have already averaged \$319/mbf. Sale price estimates in FYs 2014 and 2015 are raised to \$369/mbf and \$405/mbf, respectively. We predict that prices in FYs 2016 and 2017 will increase more moderately as mill production and inventories adjust to the increased lumber quantities demanded by the growing housing market.

Timber Removal Prices. Timber removal prices are determined by the sales prices and timing of the harvests. They can be thought of as a moving average of previous timber sales prices, weighted by the volume of sold timber removed in each time period. The removal volumes used



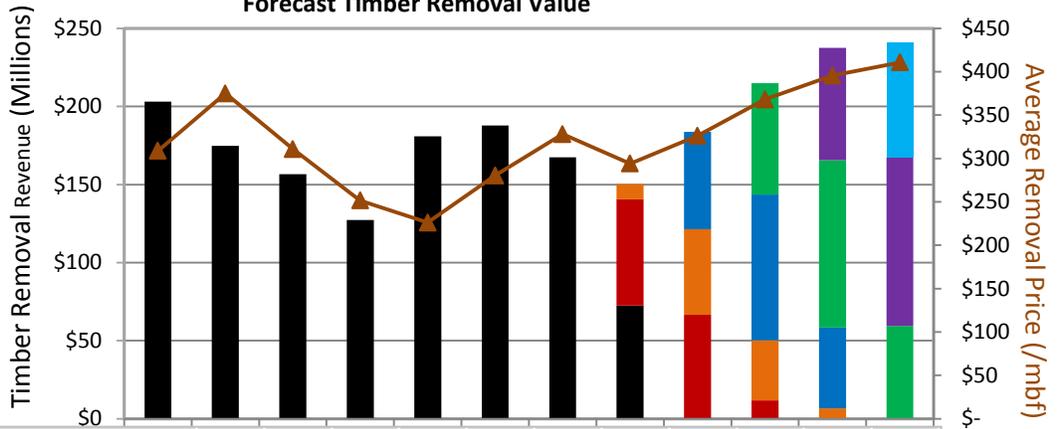


to calculate the weights are shown in **Figure 3.2**. There is a smoothing out and a lag of timber removal prices compared to timber sales prices. For example, sales prices bottomed at an average annual price of \$174/mbf in FY 2009 (see **Figure 3.4**). As shown in **Figure 3.5**, removal prices bottomed out in FY 2010 at \$221/mbf on an annual basis, which was \$47/mbf higher and came a year after the bottom for annual sales prices. FY 2012’s average removal price was \$321/mbf. **Figure 3.5** also shows that future removal prices are expected to higher than in the previous Forecast, as the higher auction prices are phased through to removals.

Timber Removal Revenues. **Figure 3.6** shows projected annual timber removal revenues and the average removal price for each fiscal year, broken down by the fiscal year in which the timber was sold (“sales under contract” are already sold as of February 1, 2013). About 48 percent (or \$72 million) of the projected \$150 million timber harvest revenue this fiscal year (FY 2013) has already been harvested, 45 percent (\$68 million) will come from previously sold timber sales currently under contract as of the end of January, and the remaining 7 percent (\$10 million) of revenue will come from removals of timber sold this year.

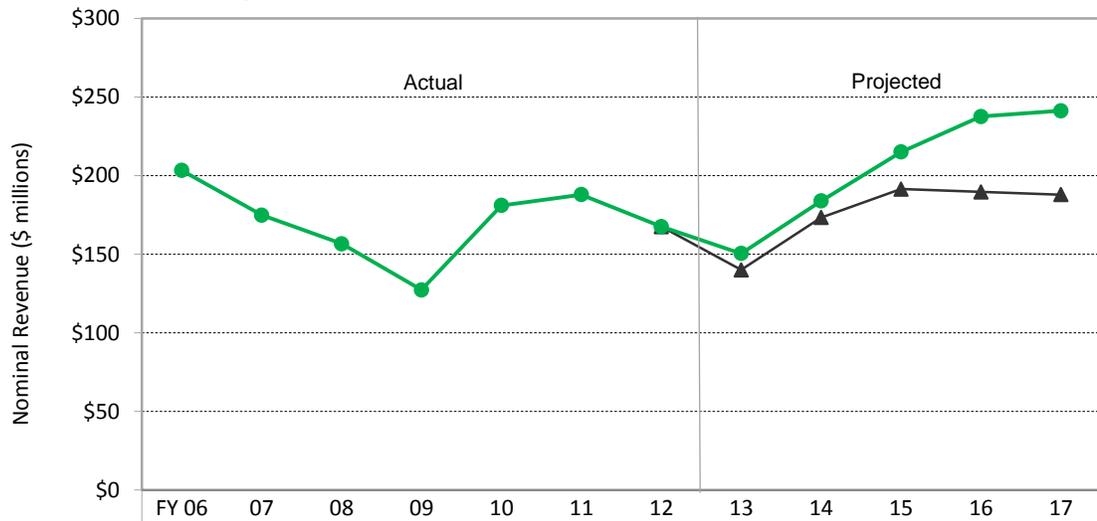
In the current 2011-2013 Biennium, projected timber revenues are revised upward from \$307.4 million to \$317.9, an increase of \$10.4 million, or three percent, from the November Forecast (see **Figure 3.7**). In the 2013-15 Biennium, forecast timber removal revenues are projected to be up nine percent, from \$364.7 million to \$398.8 million. Revenues for the 2015-2017 Biennium are predicted to be \$478.7, up from \$376.8 million.

**Figure 3.6: September 2012 Revenue Forecast
Forecast Timber Removal Value**



FY	FY 06	07	08	09	10	11	12	13	14	15	16	17
Total	203	175	157	127	181	188	168	150	184	215	238	241
Removals to Date	203	175	157	127	181	188	168	72				
Sales Under Contract								68	67	12		
Sales in FY 13								10	55	38	7	
Sales in FY 14									62	93	52	
Sales in FY 15										71	107	59
Sales in FY 16											72	108
Sales in FY 17												74

**Figure 3.7: Timber Removal Revenues
Comparison of Previous Forecast with Current Forecast, 2013-2017**



▲ Previous Forecast								167.5	139.9	173.3	191.4	189.5	187.8
● Current Updated	203.2	174.7	156.6	127.2	181.0	187.8	167.5	150.4	183.8	215.0	237.5	241.2	
Change								10.4	10.4	23.6	48.0	53.4	
Percent Change								7%	6%	12%	25%	28%	

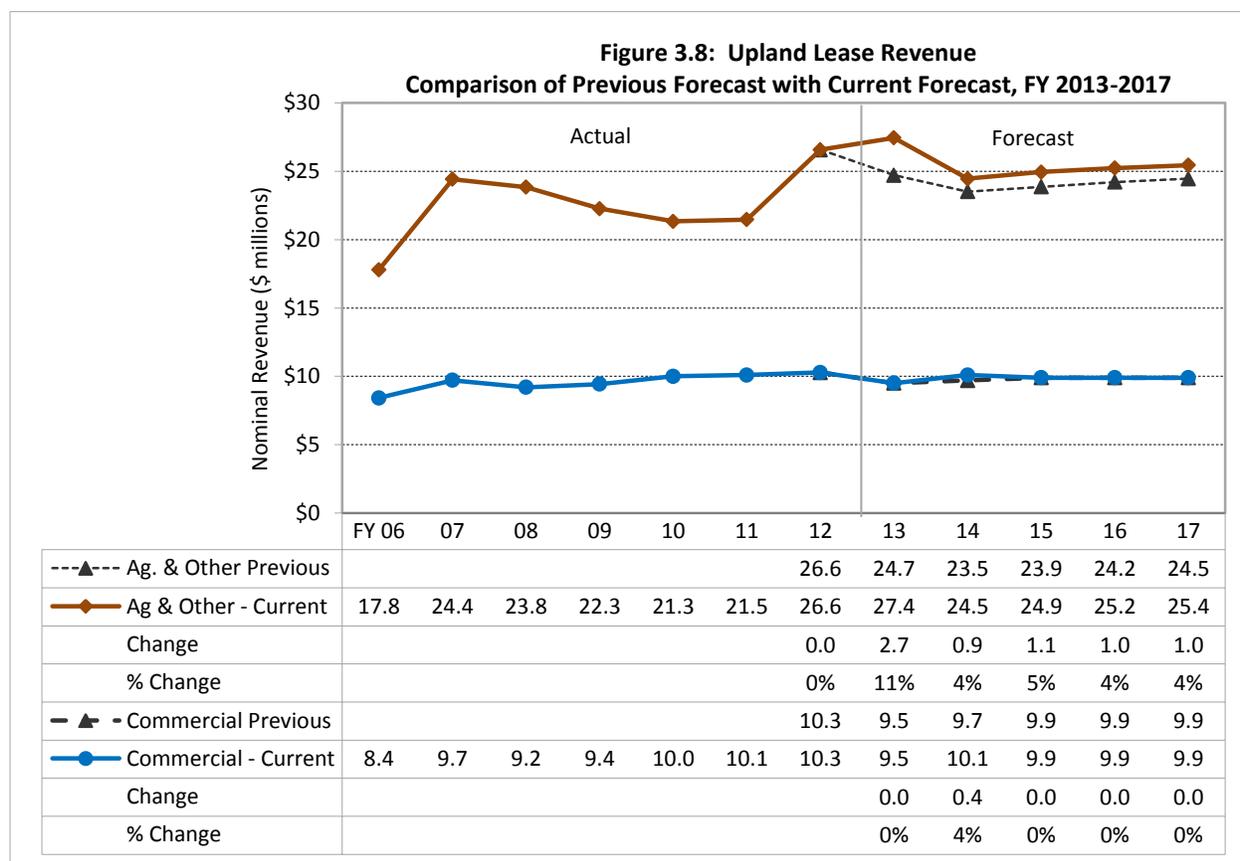
Upland lease revenues

Upland lease revenues are generated primarily from leases and the sale of valuable materials, other than timber, on state trust lands. In the Forecast, upland lease revenues are divided into two categories:

Commercial—Commercial real estate leases.

Agricultural and Other—Agricultural includes dryland cropland, irrigated cropland, and orchard and vineyard leases. “Other” includes grazing, special forest products, special use, communication site, and mineral and hydrocarbon leases, right-of-way easements, and sales of valuable materials other than timber (e.g., rock, sand, and gravel), as well as a few smaller miscellaneous revenue sources.

Commercial. Commercial real estate leases on state trust lands generate a steady source of revenue (see **Figure 3.8**). DNR has been fortunate to be able to maintain a \$10 million level of revenue from commercial leases in the last three fiscal years, FYs 2010-2012, even in the face of a difficult economy that has been hard on commercial real estate.



Projected commercial lease revenues are unchanged in all fiscal years of the forecast period, except for a small increase in FY 2014 due to the addition of a temporary lease (see **Figure 3.8**).

The upside and downside risks to future commercial lease revenue projections are deemed to be in balance.

Agricultural and Other. Revenues from agricultural and other (non-commercial) upland leases were \$21.4 million for FY 2011 and \$26.5 million for FY 2012 (see **Figure 3.8**). A more detailed breakdown of these revenues over the last two fiscal years is shown below:

	<u>FY 2011</u>	<u>FY 2012</u>	<u>Percent of FY 2011-12 Total</u>
Agricultural	\$13,058,000	\$17,471,000	63.7
<i>Irrigated</i>	3,895,000	5,762,000	20.1
<i>Orchard/Vineyard</i>	4,148,000	5,922,000	21.0
<i>Dryland</i>	5,015,000	5,788,000	22.6
Grazing	662,000	850,000	3.2
Special forest products	424,000	567,000	2.1
Special use	1,818,000	2,132,000	8.2
Communication site	3,958,000	3,814,000	16.2
Right-of-Way	433,000	634,000	2.2
Mineral, oil, and gas	282,000	147,000	0.9
Rock, sand, and gravel	595,000	877,000	3.1
Other ¹¹	181,000	135,000	0.7
Total	\$21,420,000	\$26,541,000	

FY 2012 was a record year for revenues from agricultural leases—due to a combination of a record year for irrigated crop lease revenues, an excellent year for orchard and vineyard lease revenues, and the second highest year from dryland crop lease revenue. Note in the data above that all three agricultural categories generated revenues between \$5.75 million and \$6 million last fiscal year. Also notable in FY 2012 is a rebound in revenues from rock, sand, and gravel leases, reflecting increasing construction trends in the economic recovery.

This Forecast incorporates modest increases to the upland lease revenues predicted in the November Forecast. These increases are due principally to slightly higher commodity prices than previously predicted and to the effect of changing some leases from a share cropping to a cash rent basis, which has the effect of shifting forward the timing of revenue collections (see **Figure 3.8**). These effects are strongest in FY 2013 and then decline throughout the forecast period..

Projected revenues in the agricultural and other categories for FY 2013-2017 are \$27.4 million, \$24.5 million, \$24.9 million, \$25.2 million, and \$ 25.4 million, respectively.

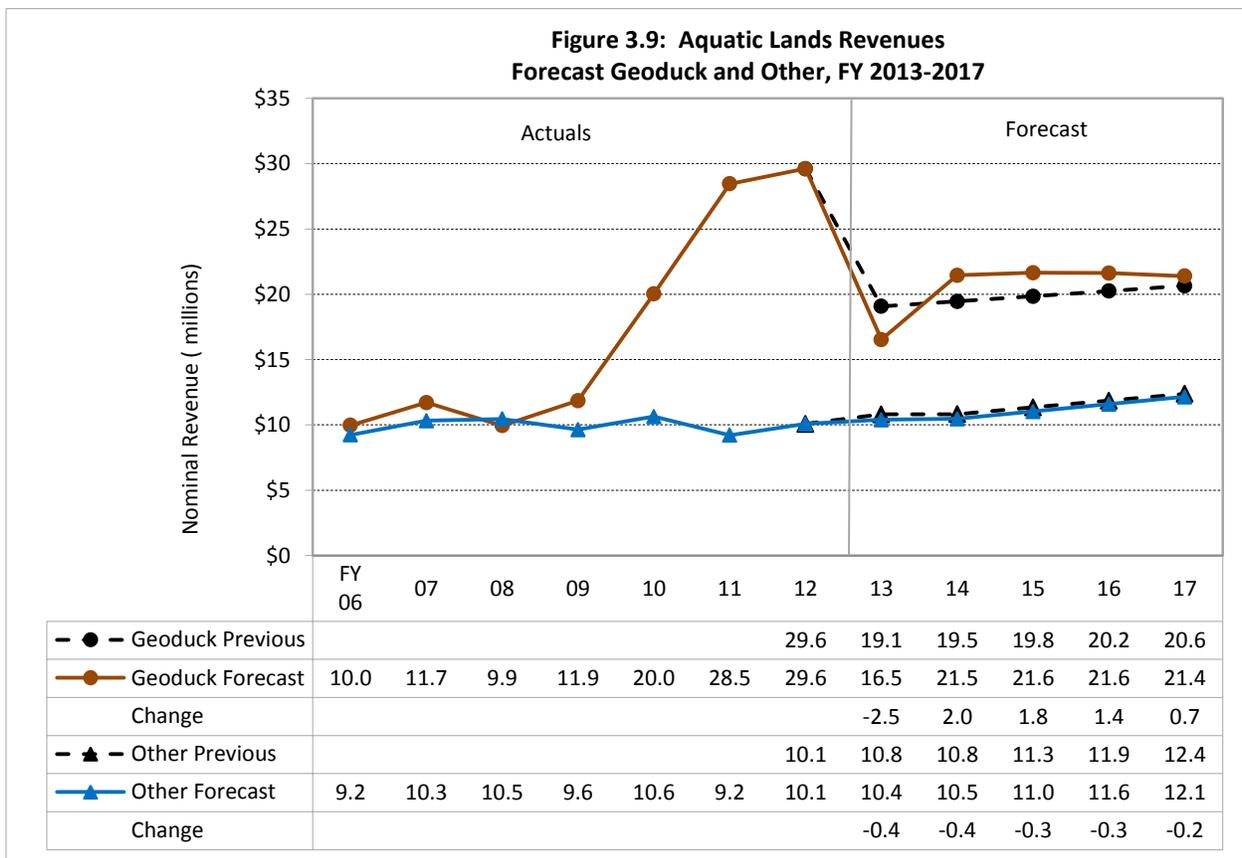
¹¹ “Other” is composed of smaller miscellaneous revenue sources including habitat and conservation leases, trespasses, assessment payments, pass-through power charges, biomass, and others.

Aquatic lands revenues

Geoduck Revenues. The projected unit price for geoducks in FY 2013 is revised up from \$8.75/lb. to \$9.17/lb. However, the total volume of geoduck harvest for FY 2013 has been reduced to account for a significant tract closure¹². This March Forecast also incorporates an improved forecasting methodology and more recent data. As a result of these changes, geoduck revenues for FYs 2013-2017 are expected to be \$16.5 million, \$21.5 million, \$21.6 million, \$21.6 million, and \$21.4 million, respectively (see **Figure 3.9**).

However, there are several downside risks that are difficult to forecast:

1. Harvests (and therefore revenues) could be deferred or lost if geoduck beds are closed due to occurrence of the paralytic shellfish poisoning (PSP) toxin.
2. A further slowdown in China's economic growth could lower demand for this luxury consumption item in its predominant end market.
3. In light of WDFW surveys of closed south Puget Sound geoduck tracts showing slowed or declining recovery rates in recent years, and of evidence of active poaching, future commercial harvest levels may be reduced.



¹² The tracts were closed temporarily due to elevated levels of paralytic shellfish poisoning (PSP). Click [here](#) for more information on PSP.

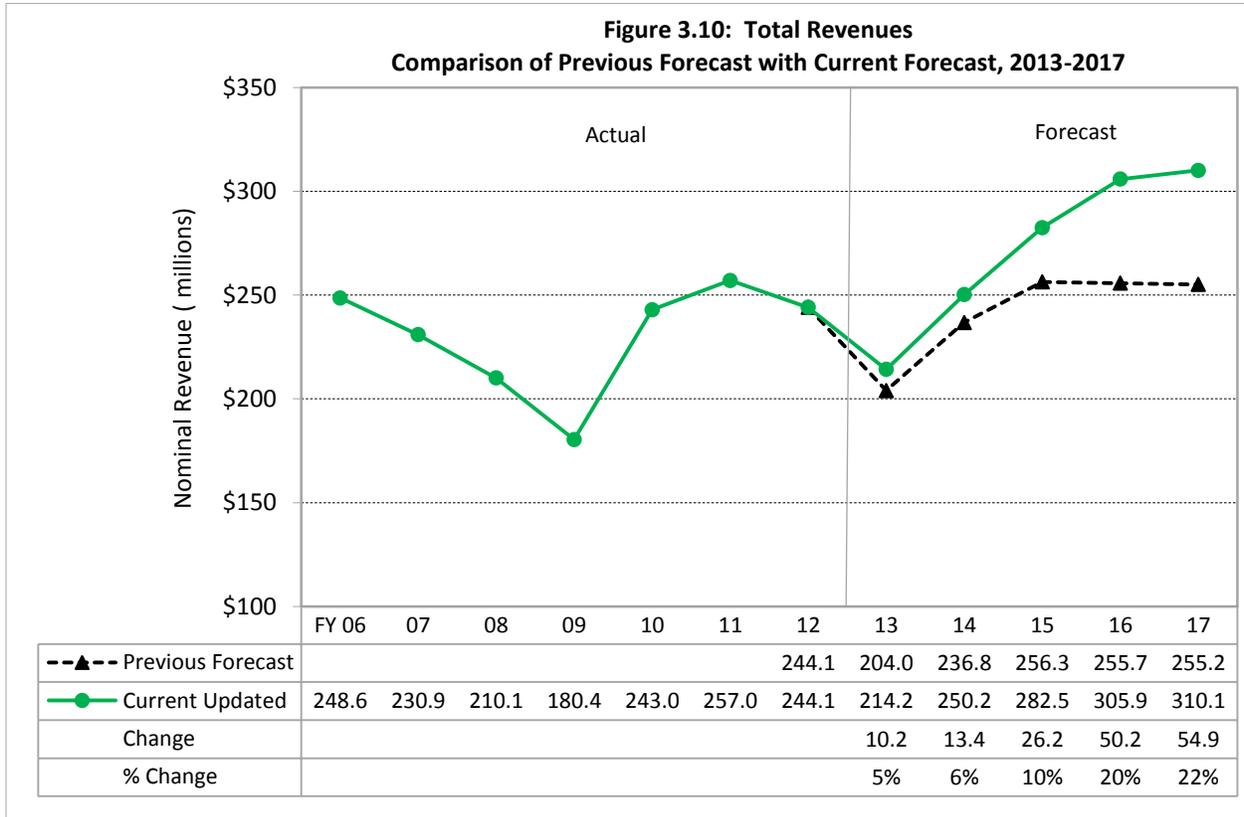
Lease and Other Revenues. DNR manages 2.6 million acres of state-owned aquatic lands for the benefit of the people of Washington. Where appropriate, these aquatic lands may be managed to generate revenue to the state. Besides auctions selling the rights to harvest geoducks, there are several other categories of revenues generated on the state's aquatic lands:

1. Water dependent leases (e.g., marinas and buoys);
2. Non-water dependent leases (e.g., structures related to upland uses);
3. Aquaculture leases (e.g., oyster and salmon “farming”);
4. Easements (e.g., powerline rights of way); and
5. Other (e.g., sand and gravel sales and trespass settlements).

In FY 2012, actual revenues from these other (non-geoduck) aquatic lands categories were \$10.1 million. The current forecast for FY 2013 is slightly lower than November, due mostly to shortfalls in revenues from water-dependent rents and from mineral sales and royalties. Overall lease revenues are projected to total \$10.4 million, \$10.5 million, \$11.0 million, \$11.6 million, and \$12.1 million, respectively (see **Figure 3.9**).

Total revenues from all sources

Total forecast revenues from DNR-managed lands for the current 2011-2013 Biennium (FYs 2012 and 2013) are up from the November Forecast by \$10.2 million, or two percent, to \$458.2 million (see **Figure 3.10**). Forecast revenues for the 2013-15 Biennium (FYs 2014 and 2015) are up from the previous Forecast by \$39.6 million (eight percent) to \$532.7 million. Revenues for the 2015-2017 Biennium are up from the previous Forecast by \$105.1 million (twenty-one percent) to \$616.0 million.



Some caveats

DNR strives to produce the most accurate and objective projections possible, based on the Department's current policy directions and available information. Actual revenues will depend on future policy decisions made by the Legislature and the Department, as well as on market and other conditions beyond DNR's control. Listed below are issues that could potentially impact future revenues from DNR-managed lands:

U.S. and Global Economic Crisis. The fragile U.S. economy faces various significant challenges—there are still too many unemployed workers; the financial crisis in Europe is improving but several European countries are now in recession; China's economy has slowed; and Congress is now imposing blanket expenditure reductions across most federal programs.

Timber Sales Volume. The largest risk to the Forecast is falling short of projected timber sales volumes due to potential environmental, operational, forest productivity, and policy issues (e.g., riparian management areas, and continued timber harvest deferrals pending implementation of a long-term marbled murrelet conservation strategy). This risk is particularly heavy for FYs 2015-2017.

As events and market conditions develop, DNR will incorporate new information into future Forecasts. At this point, we judge the downside to the overall forecast to be greater than the upside because of the risks to the timber sales volume (and therefore to timber removal volume and revenues) as well as the ongoing weakness and vulnerabilities of the U.S. and world economies.

Distribution of revenues

The distribution of timber revenues by trust are based on:

- The value of timber in the inventory (sales sold but not yet harvested) by trust;
- The volumes of timber in planned sales for FYs 2013 and 2014 by trust; and
- The estimated distribution of the sustainable harvest for FY 2015-2017 by trust.

Since a single timber sale can be worth over \$3 million, dropping, adding, or delaying even one sale can represent a significant shift in revenues to a specific trust fund.

Distributions of upland and aquatic lease revenues by trust are assumed to be proportional to historic distributions unless otherwise specified.

Management Fee Deduction. The underlying statutory management fee deductions to DNR as authorized by the legislature are up to 25 percent, as determined by the Board of Natural Resources (Board), for both the Resources Management Cost Account (RMCA) and the Forest Development Account (FDA). In budget bills, the Legislature has authorized a deduction of up to 30 percent to RMCA since July 1, 2005, now in effect through the current 2011-2013 Biennium.¹³

At its April 2011 meeting, the Board adopted a resolution to reduce the RMCA deduction from 30 to 27 percent and the FDA deduction from 25 to 23 percent. At its July 2011 meeting, the Board decided to continue the deductions at 27 percent for RMCA (so long as this rate is authorized by the legislature) and at 23 percent for FDA. At its October 2011 meeting, the Board approved a resolution to reduce the FDA deduction from 23 to 21 percent.

Given this background of official actions by the legislature and the Board, the management fee deductions assumed in this Forecast are:

	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>
FDA	21	21	21	21	21
RMCA	27	27	27	27	27

By using 27 percent for the RMCA deduction in FYs 2014-2017, the Forecast assumes that the Legislature will approve RMCA deductions of up to 30 percent for the 2013-2015 and 2015-2017 Biennia in their biennial budget bills, continuing its practice which started in FY 2006.

Changes to the RMCA and FDA management fee deductions will be incorporated into future Forecasts as appropriate to reflect future actions by the Legislature and the Board.

¹³ The Legislature most recently authorized the RMCA deduction of up to 30 percent, making it effective through the entire 2011-2013 Biennium, in the FY 2012 supplemental operating budget, Sec. 927, 3ESHB 2127.



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Revenue forecast tables

Tables 3.1 and 3.2 on the following pages provide Forecast details. Table 3.1 focuses on the source of revenues and Table 3.2 focuses on the distribution of revenues. Both tables include historical and projected figures.

March 2013 Forecast by Source (millions of dollars)

Changes are from November 2012 Forecast

Timber Sales	Actuals					Forecast				
	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Volume (mmbf)	660	541	730	591	553	535	562	587	587	587
Change						(25)	-	-	-	-
% Change						-4%	0%	0%	0%	0%
Price (\$/mbf)	\$247	\$174	\$245	\$339	\$296	\$323	\$369	\$405	\$409	\$418
Change						\$ 42.9	\$ 54.4	\$ 69.6	\$ 90.0	\$ 110.2
% Change						15%	17%	21%	28%	36%
Value of Timber Sales	\$ 163.0	\$ 94.0	\$ 178.5	\$ 200.4	\$ 163.7	\$ 172.6	\$ 207.6	\$ 237.8	\$ 240.1	\$ 245.8
Change						\$ 15.9	\$ 30.6	\$ 40.9	\$ 52.8	\$ 64.7
% Change						10%	17%	21%	28%	36%

Timber Removals	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Volume (mmbf)	504	506	801	670	511	511	563	584	600	587
Change						21	(34)	(33)	18	-
% Change						4%	-6%	-5%	3%	0%
Price (\$/mbf)	\$311	\$249	\$221	\$275	\$321	\$294	\$326	\$368	\$396	\$411
Change						\$ 8.7	\$ 36.2	\$ 57.7	\$ 70.3	\$ 91.0
% Change						3%	12%	19%	22%	28%
Timber Revenue	\$ 156.6	\$ 127.2	\$ 181.0	\$ 187.8	\$ 167.5	\$ 150.4	\$ 183.8	\$ 215.0	\$ 237.5	\$ 241.2
Change						\$ 10.4	\$ 10.4	\$ 23.6	\$ 48.0	\$ 53.4
% Change						7%	6%	12%	25%	28%

Lease Revenue	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Agricultural and Other L	\$ 23.8	\$ 22.3	\$ 21.3	\$ 21.5	\$ 26.6	\$ 27.4	\$ 24.5	\$ 24.9	\$ 25.2	\$ 25.4
Change						\$ 2.7	\$ 0.9	\$ 1.1	\$ 1.0	\$ 1.0
% Change						11%	4%	5%	4%	4%
Commercial	\$ 9.2	\$ 9.4	\$ 10.0	\$ 10.1	\$ 10.3	\$ 9.5	\$ 10.1	\$ 9.9	\$ 9.9	\$ 9.9
Change						\$ -	\$ 0.4	\$ -	\$ -	\$ -
% Change						0%	4%	0%	0%	0%
Aquatic Lands	\$ 20.4	\$ 20.9	\$ 30.8	\$ 37.7	\$ 39.6	\$ 26.9	\$ 31.9	\$ 32.7	\$ 33.2	\$ 33.5
Change						\$ (2.9)	\$ 1.6	\$ 1.5	\$ 1.1	\$ 0.5
% Change						-10%	5%	5%	3%	2%
Total Lease Revenue	\$ 53.4	\$ 52.6	\$ 62.1	\$ 69.2	\$ 76.5	\$ 63.9	\$ 66.5	\$ 67.5	\$ 68.3	\$ 68.9
Change						\$ (0.2)	\$ 3.0	\$ 2.6	\$ 2.1	\$ 1.5
% Change						0%	5%	4%	3%	2%

Total All Sources	\$ 210.0	\$ 179.8	\$ 243.1	\$ 257.0	\$ 244.0	\$ 214.2	\$ 250.2	\$ 282.5	\$ 305.9	\$ 310.1
Change						\$ 10.2	\$ 13.4	\$ 26.2	\$ 50.2	\$ 54.9
% Change						5%	6%	10%	20%	22%

Note: Timber removal revenue includes FIT (forest improvement timber) sale proceeds, timber sales default settlements, and interest and extension charges (approx. \$1-4 million per year).
 Excludes Trust Land Transfer, Real Property Replacement Account, and Land Bank property transactions and interest on property replacement funds.
 Excludes fire assessments, permits, and fees.
 Totals may not add due to rounding.

March 2013 Forecast by Fund (In millions of dollars)

Changes are from November 2012 Forecast

	Actuals					Forecast				
	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Management Funds										
041 RMCA - Uplands	\$ 32.0	\$ 26.5	\$ 31.8	\$ 33.9	\$ 29.7	\$ 29.6	\$ 33.4	\$ 37.3	\$ 40.0	\$ 40.6
Change						\$ 2.0	\$ 1.0	\$ 2.3	\$ 6.0	\$ 7.4
% Change						7%	3%	7%	18%	22%
041 RMCA - Aquatic Lands	\$ 8.6	\$ 8.9	\$ 13.9	\$ 17.5	\$ 18.4	\$ 11.9	\$ 14.4	\$ 14.7	\$ 14.8	\$ 14.9
Change						\$ (1.4)	\$ 0.9	\$ 0.8	\$ 0.6	\$ 0.3
% Change						-11%	6%	6%	4%	2%
014 FDA	\$ 18.6	\$ 17.3	\$ 25.9	\$ 25.8	\$ 20.9	\$ 16.3	\$ 20.4	\$ 24.7	\$ 27.9	\$ 28.4
Change						\$ 0.9	\$ 1.9	\$ 3.8	\$ 6.1	\$ 6.0
% Change						6%	10%	18%	28%	27%
Total Management Funds	\$ 59.2	\$ 52.7	\$ 71.6	\$ 77.1	\$ 69.0	\$ 57.7	\$ 68.2	\$ 76.6	\$ 82.7	\$ 83.9
Change						\$ 1.5	\$ 3.8	\$ 6.9	\$ 12.6	\$ 13.7
% Change						3%	6%	10%	18%	20%
Current Funds										
113 Common School Construction	\$ 56.6	\$ 41.5	\$ 47.9	\$ 56.5	\$ 56.5	\$ 58.3	\$ 67.0	\$ 74.4	\$ 78.7	\$ 79.3
Change						\$ 4.7	\$ 2.9	\$ 4.3	\$ 10.6	\$ 13.7
% Change						9%	4%	6%	16%	21%
999 Forest Board Counties	\$ 52.5	\$ 48.6	\$ 67.9	\$ 70.5	\$ 64.7	\$ 54.3	\$ 65.1	\$ 76.0	\$ 85.4	\$ 87.3
Change						\$ 4.1	\$ 5.2	\$ 10.5	\$ 18.5	\$ 18.9
% Change						8%	9%	16%	28%	28%
001 General Fund	\$ 3.0	\$ 1.4	\$ 5.0	\$ 4.2	\$ 4.5	\$ 2.1	\$ 2.6	\$ 3.7	\$ 4.3	\$ 4.2
Change						\$ 0.3	\$ 0.3	\$ 0.7	\$ 0.9	\$ 0.8
% Change						17%	15%	23%	27%	25%
348 University Bond Retirement	\$ 2.3	\$ 3.4	\$ 1.8	\$ 1.3	\$ 0.8	\$ 1.3	\$ 2.3	\$ 2.5	\$ 2.4	\$ 2.2
Change						\$ (0.5)	\$ 0.0	\$ 0.5	\$ 0.7	\$ 0.3
% Change						-26%	2%	26%	38%	18%
347 WSU Bond Retirement	\$ 1.2	\$ 1.6	\$ 1.2	\$ 1.4	\$ 1.8	\$ 1.7	\$ 1.6	\$ 1.6	\$ 1.6	\$ 1.6
Change						\$ 0.4	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3
% Change						26%	21%	20%	20%	19%
042 CEP&RI	\$ 3.8	\$ 3.8	\$ 5.6	\$ 4.9	\$ 5.0	\$ 5.2	\$ 4.2	\$ 4.5	\$ 5.5	\$ 6.3
Change						\$ (0.3)	FY 14	\$ 0.3	\$ 1.2	\$ 1.4
% Change						-6%	#VALUE!	8%	30%	28%
036 Capitol Building Construction	\$ 5.2	\$ 5.7	\$ 8.7	\$ 8.7	\$ 8.8	\$ 4.5	\$ 5.8	\$ 6.8	\$ 8.4	\$ 9.2
Change						\$ 0.1	\$ (0.1)	\$ (0.2)	\$ 1.0	\$ 1.9
% Change						3%	-2%	-3%	14%	26%
061/3/4 Normal (CWU, EWU, WWU, TESC)	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1
Change						\$ (0.0)	\$ (0.0)	\$ (0.0)	\$ (0.0)	\$ (0.0)
% Change						-3%	-11%	-11%	-11%	-11%
Other Funds	\$ 0.2	\$ 0.4	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.3	\$ 0.6	\$ 0.4	\$ 0.3	\$ 0.2
Change						\$ 0.3	\$ 0.4	\$ 0.2	\$ 0.1	\$ 0.0
% Change						1293%	246%	82%	51%	28%
Total Current Funds	\$ 125.0	\$ 106.5	\$ 138.3	\$ 147.6	\$ 142.3	\$ 128.0	\$ 149.3	\$ 170.1	\$ 186.7	\$ 190.6
Change						\$ 9.1	#VALUE!	\$ 16.5	\$ 33.3	\$ 37.3
% Change						8%	#VALUE!	11%	22%	24%

(Continued)

Table 3.2 (Continued): March 2013 Forecast by Fund (In millions of dollars)

Changes are from November 2012 Forecast

Aquatic Lands Enhancement Account	Actuals					Forecast				
	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
02R	\$ 11.7	\$ 12.0	\$ 16.8	\$ 20.2	\$ 21.2	\$ 15.1	\$ 17.6	\$ 18.0	\$ 18.4	\$ 18.6
Change						\$ (1.5)	\$ 0.8	\$ 0.7	\$ 0.5	\$ 0.2
% Change						-9%	5%	4%	3%	1%
Permanent Funds										
	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
601 Agricultural College Permanent	\$ 4.3	\$ 2.9	\$ 6.1	\$ 2.9	\$ 3.2	\$ 4.3	\$ 5.4	\$ 6.4	\$ 6.1	\$ 5.4
Change						\$ 0.4	\$ 0.3	\$ 1.0	\$ 1.4	\$ 1.2
% Change						9%	6%	19%	29%	28%
604 Normal School Permanent	\$ 3.1	\$ 2.5	\$ 4.0	\$ 3.0	\$ 3.1	\$ 1.9	\$ 2.5	\$ 3.3	\$ 3.4	\$ 3.1
Change						\$ 0.5	\$ 0.7	\$ 0.8	\$ 0.8	\$ 0.7
% Change						36%	35%	35%	32%	28%
605 Common School Permanent	\$ 0.2	\$ 0.3	\$ 0.4	\$ 0.2	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3
Change						\$ -	\$ -	\$ -	\$ -	\$ -
% Change						0%	0%	0%	0%	0%
606 Scientific Permanent	\$ 6.0	\$ 2.8	\$ 5.1	\$ 5.7	\$ 4.6	\$ 6.1	\$ 6.4	\$ 7.3	\$ 7.7	\$ 7.6
Change						\$ 0.2	\$ (1.0)	\$ 0.1	\$ 1.4	\$ 1.7
% Change						3%	-13%	1%	23%	28%
607 University Permanent	\$ 0.5	\$ 0.1	\$ 0.7	\$ 0.3	\$ 0.3	\$ 1.1	\$ 0.6	\$ 0.5	\$ 0.5	\$ 0.6
Change						\$ 0.3	\$ 0.2	\$ 0.1	\$ 0.1	\$ 0.1
% Change						45%	46%	31%	34%	28%
Total Permanent Funds	\$ 14.1	\$ 8.6	\$ 16.3	\$ 12.1	\$ 11.4	\$ 13.7	\$ 15.2	\$ 17.8	\$ 18.0	\$ 17.0
Change						\$ 1.4	\$ 0.2	\$ 2.0	\$ 3.7	\$ 3.7
% Change						11%	1%	13%	26%	28%
Total All Funds										
	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Total	\$ 210.0	\$ 179.8	\$ 243.1	\$ 257.0	\$ 244.0	\$ 214.4	\$ 250.23	\$ 282.50	\$ 305.88	\$ 310.10
Change						\$ 10.4	#VALUE!	\$ 26.2	\$ 50.2	\$ 54.9
% Change						5%	#VALUE!	10%	20%	22%

Note: Excludes Trust Land Transfer, Real Property Replacement Account, and Land Bank property transactions and interest on property replacement funds.
 Excludes fire assessments, permits, and fees.
 Totals may not add due to rounding.