

Revenue Summary

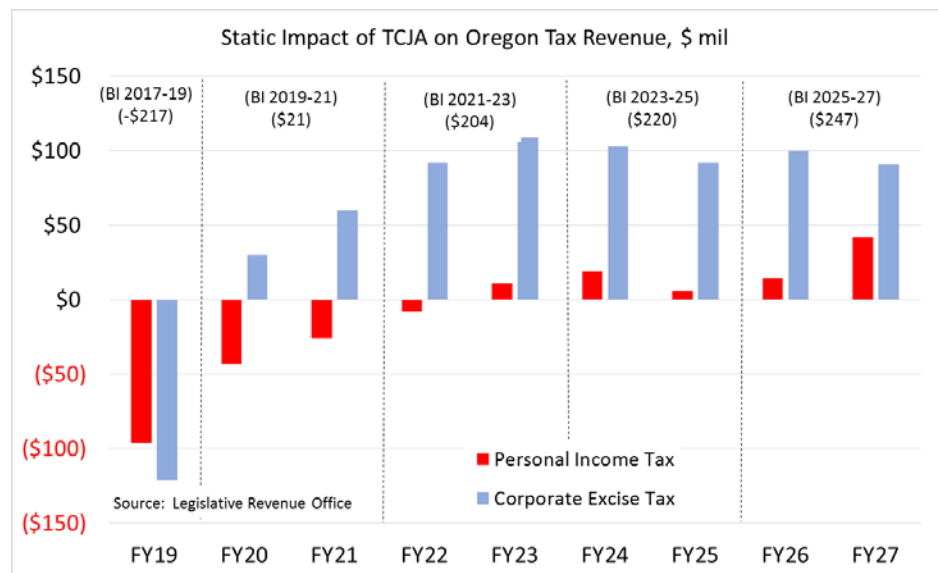
Since the September 2017 forecast, two significant factors have come into play that have changed Oregon’s General Fund revenue outlook. The first factor, the new federal tax law (Tax Cuts and Jobs Act), stands to reduce state revenues in the near term, and will boost them in future budget periods. The second factor, a potential equity market correction, draws down revenues after a short delay.

Oregon’s tax collections are tied to federal tax law both directly and indirectly. The starting point for calculating Oregon income tax is taxable income from a filer’s federal return. As a result, most federal changes to what is defined as income, or to what can be deducted or excluded from it, directly feed into Oregon tax collections. After the last major federal tax reform in 1986, Oregon’s income tax revenues grew by 20% in the following year. This time, the largest reform to the tax base will directly reduce, rather than increase, Oregon’s revenues. The new 20% federal deduction for pass-through income will feed directly into lower Oregon taxable income.

Federal tax law changes also indirectly feed back into Oregon’s tax collections. The primary channel occurs through the subtraction for federal taxes that is allowed on Oregon returns. Since some taxpayers can subtract federal taxes from their Oregon income, when federal personal income taxes are cut, Oregon taxable income goes up. These indirect effects outweighed the direct ones following the Bush Era tax cuts, leading to a net increase in Oregon tax collections.

Ignoring behavioral responses and other dynamic effects for now, static impact estimates suggest that Oregon’s General Fund revenues will be reduced by more than \$200 million in the current biennium due to TJCA. This impact reverses during the next

decade, increasing revenues by more than \$200 million per biennium. Several provisions contribute to this pattern, including accelerated depreciation (expensing), new inflation factors, expiring individual provisions and repatriated income from multinational corporations. Due to a quirk in current tax law, multinational repatriation represents a near-term revenue loss in Oregon rather than a windfall.



These static revenue impact estimates only tell part of the story, however, as households, firms and tax professionals are all certain to change their behavior in light of the new rules of the game. Many of these behavioral responses will serve to mute the impact of TJCA on Oregon General Fund collections.

As has been detailed earlier in the report, the dynamic response of the economy to tax cuts is likely to be positive in the near term, as deficit spending leads to additional economic growth. Longer term, larger deficits

will weigh on growth somewhat. Although economic feedback will serve to offset the direct revenue impact of the TJCA, the effect is not expected to be large.

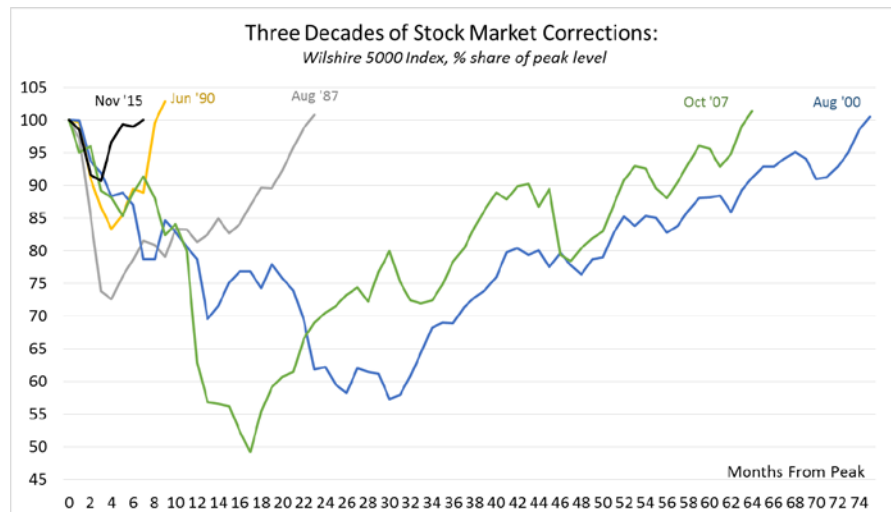
Behavioral changes on the part of taxpayers are likely to move the needle more than will economic feedback. The TJCA gives preference to certain taxpayers and activities while increasing the burden on others. There will be a considerable amount of tax planning as taxpayers adjust to the provisions of the bill.

Tax planning around the TJCA is already affecting the timing of Oregon’s revenue collections. Year-end estimated payments of personal income taxes for 2017 were up nearly 50% relative to last year. Advanced corporate tax payments were up sharply at the end of 2017 as well. This growth was not unique to Oregon, with many other states reporting even stronger gains. Taxpayers rushed to take advantage of expiring breaks, including an uncapped deduction for state and local taxes paid. Since Oregon does not allow the prepayment of state taxes, some of this money might be returned to filers next year. Tax payments related to the TCJA also are appearing in the form of strong withholdings. Large year-end bonuses are driving withholdings significantly above what recent wage growth alone can support. In general, with rates set to change, many businesses had an incentive to pull forward costs into 2017, and push income into future years.

While changes in the timing of tax payments are already evident, it will take some time before it becomes clear how many taxpayers will change their filing status in light of TJCA provisions. Some workers and investors could choose to file as businesses. Also, some businesses could benefit by changing from passthrough entities into C-Corporations, or the other way around.

One behavioral response that is assumed to have a large revenue impact is the second order effect of multinational repatriation. After multinationals have brought their deferred income back home, and paid state and federal taxes on it, what will they do with it? Will they continue to sit on it? Reinvest it in the business here or abroad? During the repatriation holiday in 2004, more than half of repatriated income was returned to individual shareholders. Although the size of the impact is uncertain, Oregon investors will be paid more taxable dividends and see more taxable capital gains from stock buybacks.

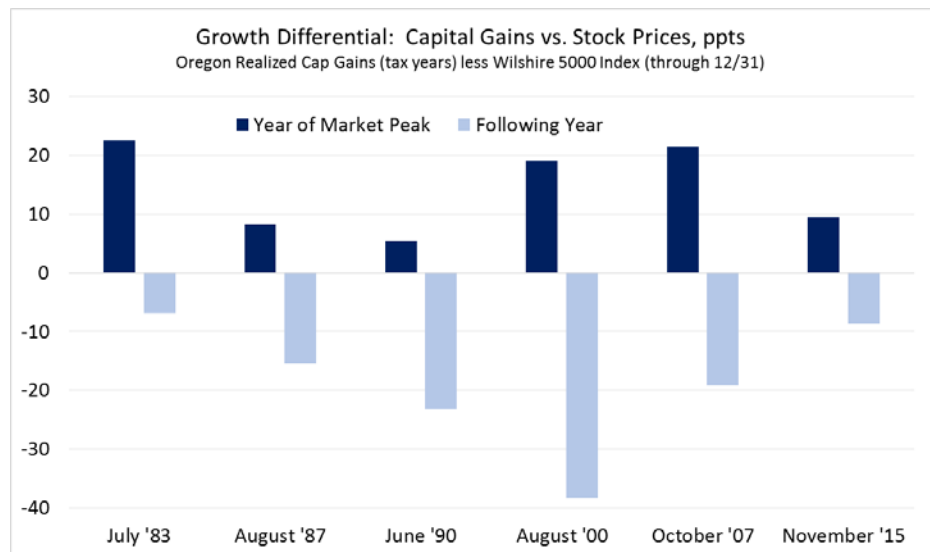
Although the net impact on the General Fund of federal tax reform is expected to be positive in future biennia, this is offset by a darker outlook for equity markets. Earlier this month (February 2018), stock price indices fell by around 10% over a few days. Such a drop only happens every few years, however, it doesn’t always spell disaster. For now, the outlook calls for a quick rebound along the lines of what was seen during the November 2015 and June 1990 market corrections. Animal spirits aside, equity prices are no longer way out of whack for where we are in the cycle. Even with a quick rebound assumed, the drop in equity prices is expected to cost the General Fund around \$100 million per year in income tax revenue.



Given its high degree of dependence on Oregon’s relatively progressive income tax system, the General Fund is very sensitive to equity prices. The performance of equity markets feed into personal and corporate tax liability in many complex ways, but capital gains are the largest single piece.

Oregon’s realizations of taxable capital gains are extremely volatile, with revenues subject to the sometimes unpredictable behavior of investors. Although housing wealth is playing a larger role in driving taxable capital gains during the current business cycle than in the past, earnings and losses in stock markets account for the lion’s share of movements in taxable capital gains in the typical year. Unfortunately, taxable capital gains are even more volatile than are underlying asset prices. During the 2007 market crash, Oregon’s taxable capital gains dropped from nearly \$10 billion to just over \$2 billion. A 10% drop in stock prices will typically lead to a 15%-20% decline in the amount of net capital gains reported on tax returns.

This negative impact on personal income tax collections is often delayed for several months after investors pull their assets out of equity markets. During a sell-off, the volume of trades increases, and paper gains from past years become subject to tax. Afterward, taxable capital gains face considerable downward pressure, with paper earnings from past years having been tapped, and with losses being carried forward into future tax years.



Should the stock market correction become severe, concerns spread beyond the direct impact on General Fund revenues. There are many channels through which the performance of equity markets can feed back through the economy:

- *Effect of Stock Prices on Earnings and Employment in Financial Service Industries*

Given the nature of the regional economy, Oregon is relatively shielded from the adverse conditions facing many parts of the financial service industry. Unlike San Francisco, Chicago, and the financial centers of the Northeast, Oregon does not have much exposure to some of the hardest hit industry segments such as investment houses and large banks. Oregon’s financial service industry is split roughly evenly between real estate firms, insurance providers, and regional banks. As a share of overall employment, Oregon is less concentrated in non-real estate activities than is the typical state.

- *Effect of Stock Prices on Local Business Investment*

Oregon’s largest employers have traditionally not relied very heavily on equity markets to generate capital for investments, which will help to mute the effect of stock price declines on the regional economy. However, falling stock prices threaten to hurt regional investment in other, less direct, ways.

Small banks may see their margins pinched. The flow of venture capital is also threatened by lower stock prices. When a risky investment bears fruit, venture capitalists reap the rewards by selling the successful business model, often through equity markets.

Also, when stock prices fall, purchasing existing businesses becomes less expensive relative to investing in new facilities and equipment. Not only can this slow the growth of Oregon's capital stock, but may also result in less demand for the many local firms that cater to corporate investors in other states and countries (e.g. technology producers, metal makers, machinery firms and transportation equipment producers).

- *Effect of Stock Prices on Consumer Spending*

The drag posed by wealth losses among Oregon's households represents the largest threat to the regional economy resulting from stock price declines. The timing of the technology and housing bubbles could not have been worse for household balance sheets. Households in the baby boom population cohort were fooled by temporary wealth gains in the middle of their peak earning years, which was a time when they should have been saving more than ever. Federal Reserve research models have typically found that for each dollar of wealth lost, household spending is reduced by three to five cents.

2017-19 General Fund Revenues

General Fund revenues for the 2017-19 biennium are expected to reach \$19,491 million. This represents a decrease of \$40.1 million from the December 2017 forecast, and an increase of just under \$1 billion relative to the 2015-17 biennium.

This outlook tracks closely with the assumptions used when crafting the budget. General Fund revenues for the 2015-17 biennium are expected to come in \$61 million below the Close of Session forecast.

Personal Income Tax

Personal income tax collections were \$2,191 million during

the second quarter of fiscal year 2018, \$229 million (11.7%) above the latest forecast. Compared to the year-ago level, total personal income tax collections grew by 14.5% relative to a forecast that called for a 2.5% increase.

Table R.1

2017-19 General Fund Forecast Summary

(Millions)	2017 COS Forecast	December 2017 Forecast	March 2018 Forecast	Change from Prior Forecast	Change from COS Forecast
Structural Revenues					
Personal Income Tax	\$17,147.4	\$17,118.5	\$17,174.8	\$56.2	\$27.4
Corporate Income Tax	\$1,077.0	\$1,078.0	\$978.2	-\$99.8	-\$98.8
All Other Revenues	\$1,327.6	\$1,334.3	\$1,337.8	\$3.5	\$10.2
Gross GF Revenues	\$19,551.9	\$19,530.8	\$19,490.7	-\$40.1	-\$61.2
Offsets and Transfers	-\$75.5	-\$73.9	-\$67.0	\$7.0	\$8.5
Administrative Actions ¹	-\$21.5	-\$21.5	-\$21.5	\$0.0	\$0.0
Legislative Actions	-\$180.1	-\$180.1	-\$179.4	\$0.7	\$0.7
Net Available Resources	\$20,055.7	\$20,130.9	\$20,200.8	\$69.8	\$145.0
Confidence Intervals					
67% Confidence	+/- 6.2%		\$1,206.3	\$18.28B to \$20.70B	
95% Confidence	+/- 12.4%		\$2,412.7	\$17.08B to \$21.90B	

¹ Reflects cost of cashflow management actions, exclusive of internal borrowing.

Much of this rapid growth can be explained by reactions to the Tax Cuts and Jobs Act. In particular, year-end estimated payments for 2017 were up nearly 50% relative to last year. This growth was not unique to Oregon, with many other states reporting even stronger gains. Taxpayers rushed to take advantage of expiring breaks, including an uncapped deduction for state and local taxes paid. Since Oregon does not allow the prepayment of state taxes, some of this money might be returned to filers next year. Tax payments related to the TCJA also are appearing as strong withholdings. Large year-end bonuses are driving withholdings significantly above what wage growth alone can support. With rates set to change, businesses had an incentive to pull forward costs into 2017, and push income into future years. Table B.8 in Appendix B presents a comparison of actual and projected personal income tax revenues for the October-December quarter.

Corporate Excise Tax

Corporate excise tax collections equaled \$142 million for the second quarter of fiscal year 2018, \$10.4 million (7.9%) above the December forecast. Compared to the year-ago level, net corporate excise tax collections fell by 0.2% relative to a forecast that called for a 7.5% decrease.

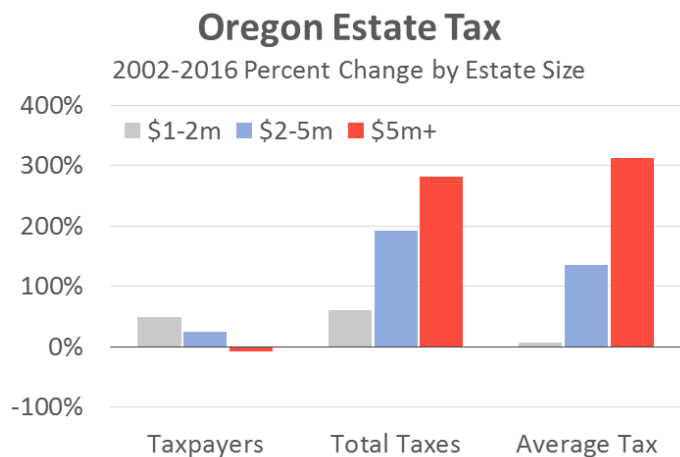
Federal Tax Law Changes have injected a good deal of uncertainty into the outlook for corporate tax payments. Some employees, investors, partnerships, S-corps and sole proprietorships face a larger tax incentive to incorporate. Conversely, some C-corporations will benefit from becoming passthrough entities. Excluding these behavioral changes, under current law, the TJCA stands to significantly reduce Oregon’s corporate tax collections in the near term, while boosting them in later years. Accelerated depreciation provisions contribute to this pattern, as does the repatriation of deferred income from multinational corporations. As Oregon’s tax law is currently written, corporations can take a large dividend received deduction on both their state and federal taxes, leading to revenue losses rather than a windfall.

Following sharp declines, corporate tax collections have stabilized in recent months. Even so, corporate collections remain high relative to past years. In addition to profitability, recent law changes have supported collections, as has a decline in outstanding Business Energy Tax Credits. The baseline outlook calls for corporate collections to fluctuate around their current level going forward.

Other Sources of Revenue

While estate tax collections continue to be strong, they are no longer coming in significantly above forecast. Estate taxes last biennium were \$106 million above the 2015 Close of Session. Fiscal year 2017 set a record by a considerable amount. This means, everything else being equal, estate taxes accounted for 22% of the state’s kicker for last biennium. This from a revenue source that accounts for roughly 1% of General Fund revenues.

In examining estate tax collections two clear trends emerge. The first is that Oregon is seeing an increase in the number of estates impacted by the tax. Compared to other states and the federal government, Oregon has a relatively low threshold at \$1 million. Given home prices and asset markets, \$1 million estates, while still very rare, are



Source: Oregon Dept. of Revenue, Legislative Revenue Office, Oregon Office of Economic Analysis

somewhat more commonplace today than a decade ago. The second trend, which impacts the revenues to a larger degree, is a considerable increase in the size of estates for a few taxpayers. Oregon tends to see approximately 60 estate tax payers with estate valuations greater than \$5 million each year. However in the last decade, among these estates, the average size, and average tax payment has increased considerably. These trends are heavily influenced by a handful of estates. Moving forward, the outlook for estate tax collections remains strong. However not quite as strong as demographics and asset markets alone suggest due to tax planning.

All told, General Fund revenues excluding personal and corporate taxes are increased by \$3.5 million this forecast, relative to the previous forecast. Such revenues are now \$10.2 million above the Close of Session outlook.

Extended General Fund Outlook

Table R.2 exhibits the long-run forecast for General Fund revenues through the 2025-27 biennium. Users should note that the potential for error in the forecast increases substantially the further ahead we look.

Revenue growth in Oregon and other states will face considerable downward pressure over the 10-year extended forecast horizon. As the baby boom population cohort works less and spends less, traditional state tax instruments such as personal income taxes and general sales taxes will become less effective, and revenue growth will fail to match the pace seen in the past.

Table R.2

General Fund Revenue Forecast Summary (Millions of Dollars, Current Law)												
Revenue Source	Forecast 2015-17		Forecast 2017-19		Forecast 2019-21		Forecast 2021-23		Forecast 2023-25		Forecast 2025-27	
	Biennium	% Chg	Biennium	% Chg	Biennium	% Chg	Biennium	% Chg	Biennium	% Chg	Biennium	% Chg
Personal Income Taxes	16,055.8	15.0%	17,174.8	7.0%	19,164.3	11.6%	21,089.6	10.0%	23,133.0	9.7%	25,519.0	10.3%
Corporate Income Taxes	1,210.7	8.4%	978.2	-19.2%	1,164.5	19.0%	1,336.5	14.8%	1,410.4	5.5%	1,462.1	3.7%
All Others	1,289.3	25.2%	1,337.8	3.8%	1,314.8	-1.7%	1,390.1	5.7%	1,465.3	5.4%	1,544.4	5.4%
Gross General Fund	18,555.9	15.2%	19,490.7	5.0%	21,643.5	11.0%	23,816.1	10.0%	26,008.7	9.2%	28,525.4	9.7%
Offsets and Transfers	(32.9)		(67.0)		(74.7)		(77.9)		(82.5)		(86.7)	
Net Revenue	18,523.0	15.5%	19,423.8	4.9%	21,568.8	11.0%	23,738.3	10.1%	25,926.2	9.2%	28,438.7	9.7%

Tax Law Assumptions

The revenue forecast is based on existing law, including measures and actions signed into law during the 2017 Oregon Legislative Session. OEA makes routine adjustments to the forecast to account for legislative and other actions not factored into the personal and corporate income tax models. These adjustments can include expected kicker refunds, when applicable, as well as any tax law changes not yet present in the historical data. A summary of actions taken during the 2017 Legislative Session can be found in Appendix B Table B.3. For a detailed treatment of the components of the 2017 Legislatively Enacted Budget, see: [LFO 2017-19 Budget Summary](#).

Although based on current law, many of the tax policies that impact the revenue forecast are not set in stone. In particular, sunset dates for many large tax credits have been scheduled. As credits are allowed to disappear, considerable support is lent to the revenue outlook in the outer years of the forecast. To the extent that tax credits are extended and not allowed to expire when their sunset dates arrive, the outlook for revenue growth will be reduced. The current forecast relies on estimates taken from the [Oregon Department of Revenue's 2017-19 Tax Expenditure Report](#) together with more timely updates produced by the Legislative Revenue Office.

Alternative Scenarios

The latest revenue forecast for the current biennium represents the most probable outcome given available information. OEA feels that it is important that anyone using this forecast for decision-making purposes recognize the potential for actual revenues to depart significantly from this projection.

Currently, the overwhelming downside risk facing the revenue outlook is the threat that the U.S. economic recovery will lose steam in the near term. Such a scenario, however it played out, would result in drastic revenue losses. Two recessionary scenarios are displayed in table R.2b. In a severe recession, biennial revenues could come in as much as \$2.4 billion lower than predicted¹³.

Lottery Earnings

The lottery forecast has been raised sizably relative to last quarter. Available resources for the 2017-19

TABLE R2b

		Alternative Cyclical Revenue Forecast (\$ millions)									
		2015-17 BN		2017-19 BN		2019-21 BN		2021-23 BN		2023-25 BN	
		FY '16	FY '17	FY '18	FY '19	FY '20	FY '21	FY '22	FY '23	FY '24	FY '25
Baseline Case											
Personal Income											
Level		183.0	188.7	197.5	209.1	220.7	231.8	241.6	254.8	266.8	279.8
% change		6.1%	3.1%	4.7%	5.9%	5.6%	5.0%	4.2%	5.4%	4.7%	4.9%
Taxes											
Personal Income		7,599	8,457	8,496	8,679	9,328	9,837	10,332	10,758	11,289	11,844
Corporate Excise & Income		603	608	557	421	563	601	648	688	702	708
Other General Fund		530	759	604	734	646	669	685	705	723	742
Total General Fund		8,732	9,824	9,657	9,834	10,537	11,106	11,665	12,151	12,714	13,294
% change		3.2%	12.5%	-1.7%	1.8%	7.2%	5.4%	5.0%	4.2%	4.6%	4.6%
Moderate Recession											
Personal Income											
Level		183.0	188.7	192.7	199.0	212.4	225.6	237.1	251.9	264.5	277.8
% change		6.1%	3.1%	2.1%	3.3%	6.7%	6.2%	5.1%	6.2%	5.0%	5.0%
Taxes											
Personal Income		7,599	8,457	8,206	8,096	8,835	9,470	10,063	10,588	11,140	11,706
<i>Deviation from baseline</i>				-290	-584	-492	-366	-269	-170	-149	-138
Corporate Excise & Income		603	608	530	380	521	569	624	673	690	698
<i>Deviation from baseline</i>				-27	-40	-42	-32	-24	-16	-12	-10
Other General Fund		530	759	604	734	646	669	685	705	723	742
Total General Fund		8,732	9,824	9,340	9,210	10,002	10,708	11,372	11,965	12,553	13,146
% change		3.2%	12.5%	-4.9%	-1.4%	8.6%	7.1%	6.2%	5.2%	4.9%	4.7%
<i>Deviation from baseline</i>			0	-317	-624	-535	-398	-293	-185	-161	-148
<i>Biennial Deviation</i>			0	-941		-933		-479		-309	
Severe Recession											
Personal Income											
Level		183.0	188.7	180.0	188.7	204.3	219.6	233.4	250.6	263.1	276.3
% change		6.1%	3.1%	-4.6%	4.9%	8.2%	7.5%	6.3%	7.3%	5.0%	5.0%
Taxes											
Personal Income		7,599	8,457	7,441	7,496	8,353	9,114	9,842	10,509	11,058	11,619
<i>Deviation from baseline</i>				-1,055	-1,183	-975	-723	-490	-249	-231	-224
Corporate Excise & Income		496	608	459	339	479	538	604	666	682	691
<i>Deviation from baseline</i>				-99	-82	-84	-63	-44	-23	-20	-18
Other General Fund		530	759	604	734	646	669	685	705	723	742
Total General Fund		8,625	9,824	8,503	8,569	9,478	10,321	11,132	11,879	12,463	13,052
% change		3.2%	13.9%	-13.4%	0.8%	10.6%	8.9%	7.9%	6.7%	4.9%	4.7%
<i>Deviation from baseline</i>				-1,154	-1,265	-1,059	-786	-534	-271	-251	-242
<i>Biennial Deviation</i>				-2,418		-1,845		-805		-493	

¹³ The methodology for computing alternative scenarios has been changed to reflect recent work done by the Legislative Revenue Office. Assumptions: Recessions begin in 2018 and return to baseline income by 2025. The moderate recession scenario assumes personal income growth will be reduced by one-half relative to the baseline in 2018 and 2019. The severe recession scenario assumes personal income will decline in 2018 by as much as it did in 2009. The percentage deviation in personal income taxes is 1.4 times the deviation in personal income. The percentage deviation in corporate income taxes is 2.0 times the deviation in personal income.

biennium are revised upward by \$29.3 million (+2.1%) with the outer biennia raised between \$4 million (+0.2%) and \$12 million (+0.9%). This upward revision is roughly split in half due to tracking and half due to increased expectations for future sales. In particular, the largest single change in the outlook is a near-term adjustment to video lottery sales at +\$12.9 million in 2017-19 and +\$8.6 million in 2019-2. This upward revision is the result of removing any real hangover, or year-over-year declines due to the ilani Casino Resort in southwest Washington. Over the forecast horizon there still is an impact built in, however expectations are now that sales will continue slow, but remain positive on a year-over-year basis. Previous forecasts assumed there would be some outright declines in the first year to 18 months after opening.

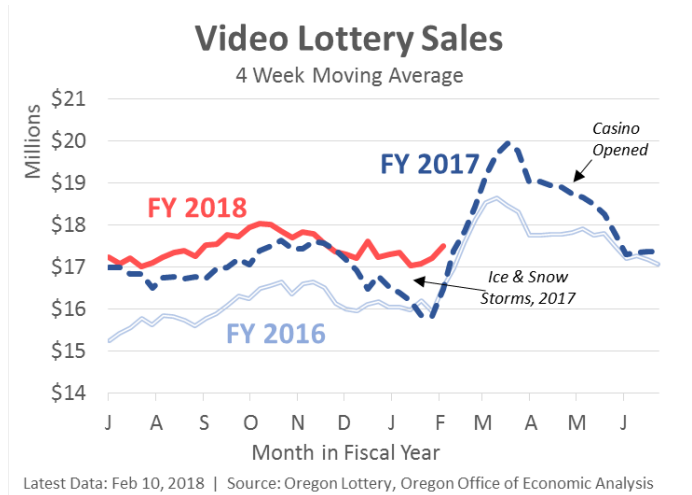
Cowlitz Tribe’s ilani Casino Resort Impact

Over the past year and a half our office has incorporated a lower video lottery sales forecast due to the opening of the ilani Casino Resort in southwest Washington. The casino has now been open for more than nine or ten months and there has been a noticeable impact on Oregon video lottery sales. However the impact is considerably smaller than was initially expected. In the recent sales data, the impact is averaging just 15 percent the original estimate.

It is challenging to do a full and accurate postmortem on the reasons for such a large error.

Many factors influenced the forecast itself and the grand opening and rollout of the casino was not without issues either. That said there was a clear forecast mistake. Our office overestimated the impact of the new casino on video lottery sales at the neighborhood level in North and Northeast Portland, and the impact on sales throughout the rest of the Portland metropolitan area. Video lottery sales in zip codes along the Oregon-Washington border in the Portland region have fallen around 15 percent, instead of the 40 percent expected. The rest of the metro area sales have increased some compared with expectations of small declines. Sales in the rest of Oregon, outside the Portland region continue to grow, which was expected.

In somewhat comforting news, our office was not alone is overestimating the initial impact of the new casino. The Confederated Tribes of Grand Ronde, owners of the Spirit Mountain casino which was previously the closest casino to the Portland metro region, announced back in fall that sales had fallen around 17 percent relative to the previous year whereas they forecasted sales would fall by 40 percent.



Even as video lottery sales have come in considerably higher than expected, the outlook remains uncertain. In analyzing casino trends elsewhere in the country, sales increase for a year or two after a new casino opens. Furthermore expectations are that opening the gaming floor is just phase one for the ilani Resort Casino. Future expansions may include a buffet, and a hotel to attract overnight guests and make it more of a destination and not a day trip activity. In the event any of these options materialized, our office would reassess the impact on video lottery sales. Our office will continue to work with the Oregon Lottery, particularly the research team, the Legislative Fiscal Office and Legislative Revenue Office to monitor sales and discuss the outlook.

Gaming as Share of Personal Income



Latest Data: 2017q4 | Source: BEA, Oregon Lottery, Oregon Office of Economic Analysis

Lottery Sales and Distributions

The robust gains seen in video lottery sales following the first wave of terminal replacements have slowed. This was expected. The second wave of replacements are nearing completion today, however their impact on sales is less, even as the upgrade in new technology and underlying infrastructure is important.

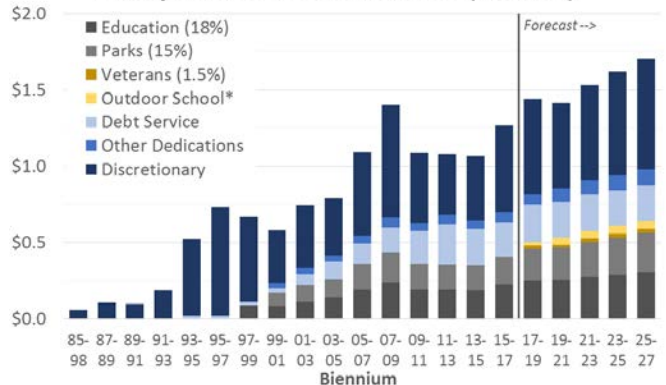
Video lottery sales in the Portland region are flat year-over-year, primarily due to the new casino, while sales in the rest of the state remain healthy.

Issues to watch include broader national trends in gaming markets, demographic preferences for recreational activities, and to what extent consumers increase the share of their incomes spent on gaming. In much of the past 6 years, consumers have remained cautious with their disposable income.

Finally, Oregon voters last year approved two new amendments for where lottery resources are to be spent. The Outdoor School Education Fund is set to receive the lesser of 4 percent of net proceeds or \$5.5 million per quarter (\$44 million per biennium), adjusted for inflation. The Veterans’ Services Fund is set to receive 1.5 percent of net proceeds.

The full extended outlook for lottery earnings can be found in Table B.9 in Appendix B.

Lottery Resources and Distributions (\$ billions)



* Outdoor School will receive up to \$44 million per biennium, adjusted for inflation. However the 2017 Legislature set the 2017-19 distribution at \$24 million. | Source: Oregon Lottery, Oregon Office of Economic Analysis

Budgetary Reserves

The state currently administers two general reserve accounts, the Oregon Rainy Day Fund¹⁴ (ORDF) and the Education Stability Fund¹⁵ (ESF). This section updates balances and recalculates the outlook for these funds based on the March revenue forecast.

As of this forecast, the two reserve funds currently total a combined \$1.02 billion. Additionally there is a projected General Fund ending balance for this biennium of \$342.0 million, bringing effective reserves to \$1.362 billion, or about 7 percent of current biennium’s revenue.

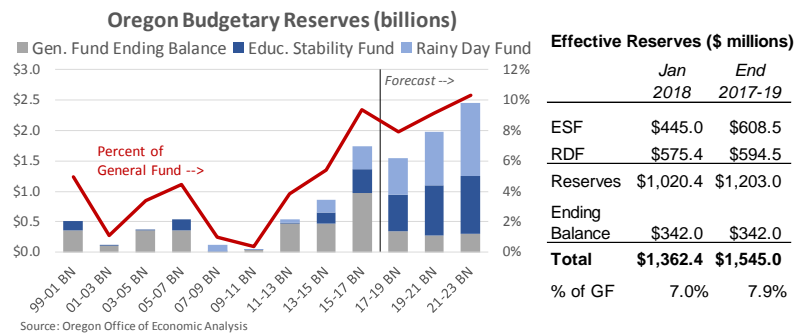
The forecast for the ORDF includes two deposits for this biennium. One relates to the General Fund ending balance from last biennium (2015-17). A deposit of \$179.4 million occurred in January 2018 after the accountants closed the book on the biennium. The other one related to increased corporate taxes from Measure 67 during the 2015-17 biennium. A \$16.2 million transfer occurred in September 2017. These bring the projected ORDF ending balance at the end of 2017-19 to \$594.5 million.

The forecast calls for \$224.7 million in deposits into the ESF in 2017-19 based on the current Lottery forecast. This would bring the ESF balance to \$608.5 million at the end of the current biennium.

Together, the ORDF and ESF are projected to have a combined balance of \$1.2 billion at the close of the 2017-19 biennium. Provided the General Fund ending balance remains unallocated, total effective reserves at the end of 2017-19 would total more than \$1.5 billion, or nearly 8 percent of current revenues.

Such levels of reserve balances are bigger than Oregon has ever been able to accumulate, at least in the state’s recent history. However, such reserves would barely be sufficient to withstand a typical recession’s impact on state revenues, let alone account for the increase in public services and programs during downturns. That said, reserves of approximately 7 percent are generally accepted to withstand a medium sized recession.

B.10 in Appendix B provides more details for Oregon’s budgetary reserves.



¹⁴ The ORDF is funded from ending balances each biennium, up to one percent of appropriations. The Legislature can deposit additional funds, as it did in first populating the ORDF with surplus corporate income tax revenues from the 2005-07 biennium. The ORDF also retains interest earnings. Withdrawals from the ORDF require one of three triggers, including a decline in employment, a projected budgetary shortfall, or declaration of a state of emergency, plus a three-fifths vote. Withdrawals are capped at two-thirds of the balance as of the beginning of the biennium in question. Fund balances are capped at 7.5 percent of General Fund revenues in the prior biennium.

¹⁵ The ESF gained its current reserve structure and mechanics via constitutional amendment in 2002. The ESF receives 18 percent of lottery earnings, deposited on a quarterly basis – 5% of which are deposited in the Oregon Growth sub-account. The ESF does not retain interest earnings. The ESF has similar triggers as the ORDF, but does not have the two-thirds cap on withdrawals. The ESF balance is capped at five percent of General Fund revenues collected in the prior biennium.

Recreational Marijuana Tax Collections

During the most recent legislative session, [HB 3470](#) officially gave our office the responsibilities for forecasting recreational marijuana taxes. Overall our office's baseline outlook remains essentially unchanged given it has tracked well since our very first such forecast back in May 2017. That said, after accounting for sales coming in slightly above expectations in recent months and updating the program's administrative costs, the net change to the forecast for 2017-19 is +\$0.6 million. The outer biennia each see a net \$0.2 million reduction as the sales outlook remains unchanged and administrative costs are updated to better reflect ongoing program costs.

Recreational Marijuana Forecast Process

In developing this outlook, our office held another preliminary forecast meeting with stakeholders from state agencies, local governments and industry professionals. Our office also spoke again with our counterparts in both Colorado and Washington to better understand what their experiences and to discuss marketplace trends. Moving forward, our office will continue to work with stakeholders and those who can advise us on industry and consumer trends, regulatory impacts, issues to watch, and the like.

Currently the outlook for recreational marijuana sales and tax collections remains highly uncertain. While Oregon has now collected nearly two years' worth of taxes, there have been substantial changes during this time that complicate any analysis. Early start sales through medical dispensaries were taxed at a 25 percent of rate, while sales at OLCC licensed retailers are now taxed at a 17 percent rate, with the local option of adding up to 3 additional percent. Furthermore, regulatory changes, more stringent product testing requirements, and Mother Nature all impacted and reduced available supply on the market during this time.

Combined, it is challenging to get a handle on the underlying trends in this newly legalized world. Thankfully, Oregon is not alone. Both Colorado and Washington are two years ahead of Oregon. Both states have seen tremendous growth in sales and tax collections, which serves as a guide for where Oregon is likely headed in the near-term. Over time, as the market matures, future growth will follow trends in the economy and consumer spending. However the coming few years will see strong growth as the product becomes more widely available, more socially acceptable, and more black and gray market sales are realized in the legal market.

Almost two years' worth of tax collections, and one set of quarterly tax returns filed by dispensaries is certainly more valuable than no data. Our office's forecasting responsibilities are made considerably easier than what faced those estimating the potential impact of Measure 91 (2014) which legalized recreational sales. That said, not quite two years' worth of data is not enough to build a full-fledged forecasting model, particularly when it is a brand new legal market. Over time, as we accumulate more data, a longer history of sales, and detailed breakdowns of consumer purchases and consumer demographics, our office will build an econometric model. Until then, in consultation with our advisory group, and using Colorado and Washington as a guide, our office is relying on trends for the short-term outlook.

Recent Market Trends and State Comparisons

So far, Oregon's first two years of recreational sales closely tracks Colorado's first two years and outpaces Washington's, after controlling for the fact both states have larger populations than Oregon. There are at least four main reasons for this pattern.

First, Oregon's marijuana usage rates are higher than those seen in Washington. In fact, in the most recent survey data from 2015-2016, Oregon saw a large increase in reported usage. As such, Oregon is more likely to

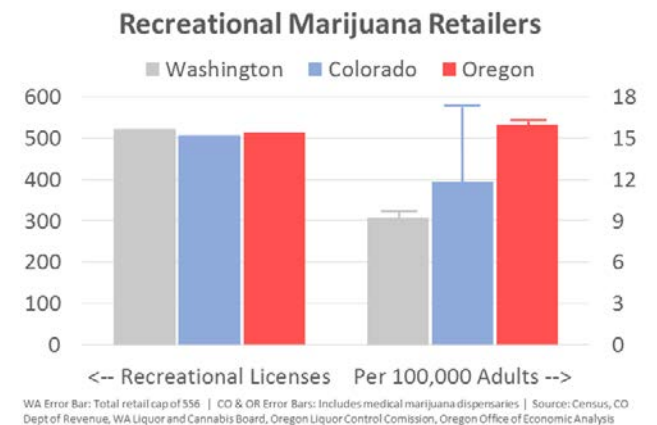
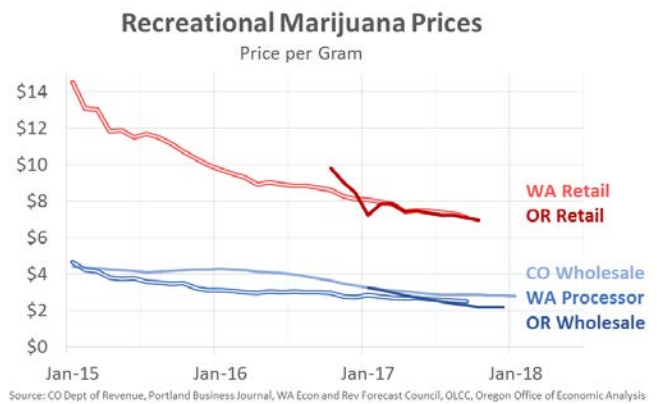
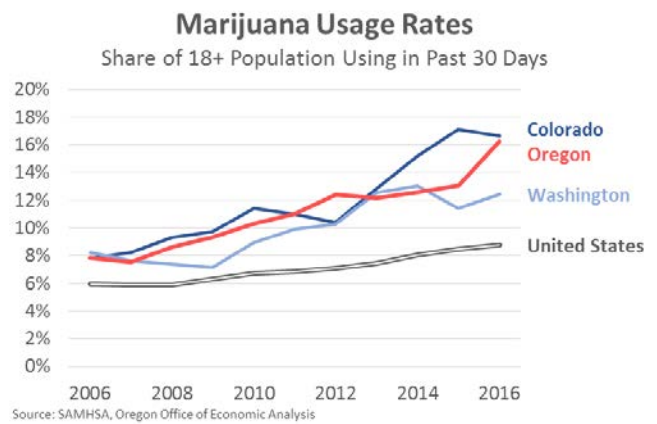
see larger sales than in Washington, when adjusting for population size. While usage rates are not the only metric that matters, it does make sense that Oregon and Colorado are seeing similar sales figures, given they have similar usage rates.

Second, prices and taxes matter. Oregon has a significantly lower tax rate than does Washington, which helps keep final consumer prices lower. Even as Colorado and Washington have two additional years to build their industry in the newly legalized world, Oregon's prices are very competitive with those seen in the other states. A lower price, everything else equal, should bring more consumers into the market and also induce more black market conversions.

Third, the cross-border effect with legal sales beginning earlier in Washington likely had an impact on Oregon's first year of sales. Counties in southwest Washington saw sales fall by nearly 40 percent once Oregon's early sales began. Clearly there was plenty of cross-border activity. Effectively this meant Oregon had somewhat of a built-in customer base who were used to going to dispensaries and retailers and purchasing in the legal market. Thus Oregon's initial sales were larger than in Washington, but this may, at least in part, have some to do with social acceptance and being used to the new system rather than fundamentally stronger sales.

Fourth, both Colorado and Washington initially had relatively few retail outlets in major population centers. In Colorado, Denver had retailers but Boulder did not initially. In Washington, Seattle had only a few retailers at first, but have added quite a few in recent years. As such, some of each state's strong growth in the first two years was simply due to market access and product availability, particularly in places where lots of people live. It is unlikely this is a similar issue in Oregon, with our major population centers having dispensaries at first, and retailers now.

In fact, today each state has just over 500 licensed recreational marijuana dispensaries or retailers. However once you account for the adult population size differences, Oregon has more stores than either Colorado or Washington. This does not necessarily mean that Oregon is overstored. That may be the case, however the other states may be understored. For example, while Colorado has a bit more than 500 recreational licenses issued, the state supports 700+ marijuana businesses that sell recreational and/or medical marijuana. At the least, the vast majority of Oregon consumers do not lack for access to recreational marijuana.

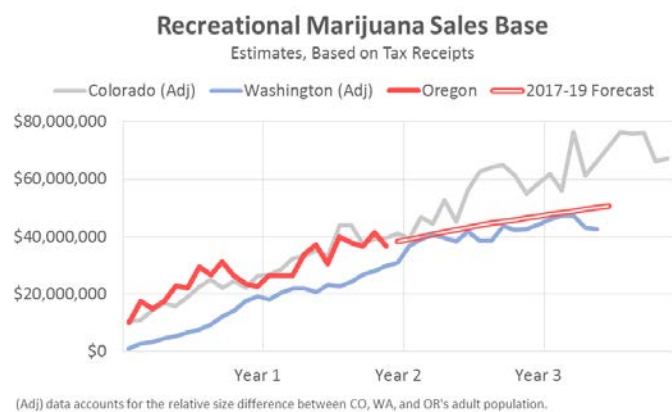


Recreational Marijuana Outlook

In terms of the outlook, Oregon is poised for strong growth in the coming years. However, given the above and the advice from our advisory group, our office is not forecasting revenues to be quite as strong as those seen in Colorado over their third and four years. This outlook remains highly uncertain with substantial upside and downside risks.

On the downside, supply constraints that keep products and inventory low will result in fewer sales, and tax collections. Such constraints could be regulatory changes that impact grower, processors or retailers, or regulatory bottlenecks where companies in the industry are unable to get their licenses, renewals or tests completed or approved in a timely manner. Another downside risk for tax collections are prices, given Oregon levies the tax based on the sales price. Recent data shows retail marijuana prices declining between 10 and 20 percent in Colorado, Washington, and Oregon. Marijuana is a commodity and eventually will be commoditized. How far and how quickly prices decline is a risk to the outlook for tax collections. Offsetting this risk somewhat is the fact that lower prices should result in larger sales. Finally, the one risk that looms large over the entire forecast is the federal government, which recently rescinded the so-called Cole memo. While there as yet to be any real action taken, there is a non-zero chance the federal government could step in and eliminate, or severely restrict recreational marijuana sales. In this event, taxes collected would be considerably less than forecasted.

On the upside, consumers overall could get more comfortable with legalized recreational marijuana sales, and the industry gains broader social acceptance, resulting in larger sales. As the chart on the previous page shows, reported usage rates have doubled in the past decade. Furthermore, a faster rate of black market conversion would also result in more legal sales. Similarly, conversions from the medical marijuana market to the recreational market would result in more sales and taxes collections. The impact of the seed-to-sale tracking system may also increase activity within the legal market, resulting in fewer black or grey market sales, provided enforcement is effective.



Long-term the real economic impact from recreational marijuana will come not from the growing and retailing, which are low-wage and low value-added market segments. It will come from higher value-added products like oils, creams, and edibles, in addition to niche, specialty strains. These developments, as economist Beau Whitney points out, would be quite similar to the emergence and growth of craft beer in recent decades. Here, among the value-added manufacturing processes in addition to the building up of a broader cluster of suppliers and ancillary industries that Oregon will see the real economic impacts. Furthermore, the long-term potential of exporting Oregon products and business know-how to the rest of the country remains large, at least once marijuana is legalized nationwide.

The other market development will be mass-produced and lower priced products. This is the end result of the commodification of marijuana. Margins will be low, but due to scale, businesses remain viable. These are more likely to be outdoor grows, due to costs. Even a world of legalized marijuana nationwide, it is plausible that

Oregon, along with California, would remain a national leader in this market due to agricultural and growing conditions in the Emerald Triangle.

See Table B.11 in Appendix B for a full breakdown of distributions for recreational marijuana tax collections. Note that these distributions are based on current law.

POPULATION AND DEMOGRAPHIC OUTLOOK

Population and Demographic Summary

Oregon's population count on April 1, 2010 was 3,831,074. Oregon gained 409,550 persons between the years 2000 and 2010. The population growth during the decade of 2000 to 2010 was 12.0 percent, down from 20.4 percent growth from the previous decade. Oregon's rankings in terms of decennial growth rate dropped from 11th between 1990-2000 to 18th between 2000 and 2010. Oregon's national ranking, including D.C., in population growth rate was 12th between 2010 and 2016 lagging behind all of the neighboring states, except California. Slow population growth during the decade preceding the 2010 Census characterized by double recessions probably cost Oregon one additional seat in the U.S. House of Representatives. Actually, Oregon's decennial population growth rate during the most recent decade was the second lowest since 1900. As a result of economic downturn and sluggish recovery that followed, Oregon's population increased at a slow pace in the recent past. However, Oregon's current population is showing very strong growth as a consequence of state's strong economic recovery. Population growth between 2015 and 2016 was 6th fastest in the nation. Based on the current forecast, Oregon's population of 4.14 million in 2017 will reach 4.63 million in the year 2026 with an annual rate of growth of 1.2 percent between 2017 and 2026.

Oregon's economic condition heavily influences the state's population growth. Its economy determines the ability to retain existing work force as well as attract job seekers from national and international labor market. As Oregon's total fertility rate remains below the replacement level and number of deaths continue to rise due to ageing population, long-term growth comes mainly from net in-migration. Working-age adults come to Oregon as long as we have favorable economic and employment environments. During the 1980s, which include a major recession and a net loss of population during the early years, net migration contributed to 22 percent of the population change. On the other extreme, net migration accounted for 76 percent of the population change during the booming economy of early 1990s. This share of migration to population change declined to 32 percent in 2010, lowest since early 1980s when we actually had negative net migration for several years. As a sign of slow to modest economic gain, the ratio of net migration-to-population change has already exceeded 80 percent and remain that way throughout the forecast horizon due largely to combination of continued high net migration and rise in the number of deaths among elderly population associated with increasing number of elderly population. Although economy and employment situation in Oregon looked stagnant in the recent past, migration situation was not similar to the early 1980s pattern of negative net migration. Potential Oregon out-migrants had no better place to go since other states were also in the same boat in terms of economy and employment. California is the number one state of origin of migrants to Oregon. With improvement in California's housing market and Oregon's growing economy continues, we expect positive impact on Oregon's net migration.

Age structure and its change affect employment, state revenue, and expenditure. Demographics are the major budget drivers, which are modified by policy choices on service coverage and delivery. Growth in many age groups will show the effects of the baby-boom and their echo generations during the period of 2017-2026. It will also reflect demographics impacted by the depression era birth cohort combined with diminished migration of working age population and elderly retirees. After a period of slow growth during the 1990s and early 2000s, the elderly population (65+) has picked up a faster pace of growth and will surge to the record high levels as the baby-boom generation continue to enter this age group and attrition of small depression era cohort due to death. The average annual growth of the elderly population will be 3.4 percent during the 2017-2026 forecast

period. However, the youngest elderly (aged 65-74) has been growing at an extremely fast pace in the recent past and will continue the trend in the near future exceeding 4 percent annual rate of growth due to the direct impact of the baby-boom generation entering the retirement age and smaller pre-baby boom cohort exiting the 65-74 age group. This fast paced growth rate will taper off to below one percent by the end of the forecast period as a sign of baby-boom generation's transition to elderly age group. Reversing several years of slow growth and shrinking population, the elderly aged 75-84 started to show a positive growth as the effect of depression era birth-cohort has dissipated. An unprecedented fast pace of growth of population in this age group has started as the baby-boom generation starts to mature into 75-84 age group. Annual growth rate during the forecast period is expected to be unusually high 5.7 percent. The oldest elderly (aged 85+) will continue to grow at a slow but steady rate in the near future due to the combination of cohort change, continued positive net migration, and improving longevity. The average annual rate of growth for this oldest elderly over the forecast horizon will be 2.0 percent. An unprecedented growth in oldest elderly will commence near the end of the forecast horizon.

As the baby-boom generation matures out of oldest working-age cohort combined with slowing net migration, the once fast-paced growth of population aged 45-64 has gradually tapered off to below zero percent rate of growth by 2012 and will remain at slow or below zero growth phase for several years. The size of this older working-age population will remain virtually unchanged at the beginning to the end of the forecast period. The 25-44 age group population is recovering from several years of declining and slow growing trend. The decline was mainly due to the exiting baby-boom cohort. This age group has seen positive growth starting in the year 2004 and will increase by 1.7 percent annual average rate during the forecast horizon mainly because of the exiting smaller birth (baby-bust) cohort being replaced by baby-boom echo cohort. The young adult population (aged 18-24) will remain nearly unchanged over the forecast period. Although the slow or stagnant growth of college-age population (age 18-24), in general, tend to ease the pressure on public spending on higher education, college enrollment typically goes up during the time of very competitive job market, high unemployment, and scarcity of well-paying jobs when even the older people flock back to colleges to better position themselves in a tough job market. The growth in K-12 population (aged 5-17) will remain very low which will translate into slow growth in school enrollments. This school-age population has actually declined in size in recent past years and will grow in the future at well below the overall state average. The growth rate for children under the age of five has remained below or near zero percent in the recent past due to the sharp decline in the number of births. This cohort of children will see steady positive growth after 2016. Although the number of children under the age of five declined in the recent years, the demand for child care services and pre-Kindergarten program will be additionally determined by the labor force participation and poverty rates of the parents. Overall, elderly population over age 65 will increase rapidly whereas population groups under age 65 will experience slow growth in the coming years. Hence, based solely on demographics of Oregon, demand for public services geared towards children and young adults will likely to increase at a slower pace, whereas demand for elderly care and services will increase rapidly.

Procedure and Assumptions

Population forecasts by age and sex are developed using the cohort-component projection procedure. The population by single year of age and sex is projected based on the specific assumptions of vital events and migrations. Oregon's estimated population of July 1, 2010 based on the most recent decennial census is the base for the forecast. To explain the cohort-component projection procedure very briefly, the forecasting model

"survives" the initial population distribution by age and sex to the next age-sex category in the following year, and then applies age-sex-specific birth and migration rates to the mid-period population. Further iterations subject the in-and-out migrants to the same mortality and fertility rates.

Populations by age-sex detail for the years 2000 through 2009, called intercensal estimates, in the following tables are developed by OEA based on 2000 and 2010 censuses. Post-censal population totals for the years 2010 through 2015 are from the Population Research Center, Portland State University. The numbers of births and deaths through 2015 are from Oregon's Center for Health Statistics. All other numbers and age-sex detail are generated by OEA.

Annual numbers of births are determined from the age-specific fertility rates projected based on Oregon's past trends and past and projected national trends. Oregon's total fertility rate is assumed to remain below the replacement level of 2.1 children per woman during the forecast period, tracking at slightly lower than the national rate.

Life Table survival rates are developed for the year 2010. Male and female life expectancies for the 2010-202 period are projected based on the past three decades of trends and national projected life expectancies. Gradual improvements in life expectancies are expected over the forecast period. At the same time, the difference between the male and female life expectancies will continue to shrink. The male life expectancy at births of 77.4 and the female life expectancy of 81.8 in 2010 are projected to improve to 79.0 years for males and 83.2 years for females by the year 2026.

Estimates and forecasts of the number of net migrations are based on the residuals from the difference between population change and natural increase (births minus deaths) in a given forecast period. The migration forecasting model uses Oregon's employment, unemployment rates, income/wage data from Oregon and neighboring states, and past trends. Distribution of migrants by age and sex is based on detailed data from the American Community Survey. The annual net migration between 2017 and 2026 is expected to remain in the range of 44,500 to 53,400, averaging 47,600 persons annually. Slowdown in Oregon's economy in the recent years resulted in smaller net migration and slow population growth. Estimated population growth and net migration rates in 2010 and 2011 were the lowest in over two decades. Oregon's population growth has already rebounded and will continue high rate of growth in the near future. Migration is intrinsically related to economy and employment situation of the state. Still, high unemployment and job loss in the recent past have impacted net migration and population growth, but not to the extent in the early 1980s. Main reason for this is the fact that other states of potential destination for Oregon out-migrants were not faring any better either. Hence the potential out-migrants had very limited destination choices. The future growth will not look like high growth period of 1990s. The role of net migration in Oregon's population growth will get more prominence as the natural increase will decline considerably due to rapid increase in the number of deaths associated with ageing population.