ANALYSIS OF OPTIONS FOR RESTRUCTURING OREGON'S STATE AND LOCAL REVENUE SYSTEM

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Introduction

Section 1 of HB 2171, approved in the 2015 session, directs the Legislative Revenue Office to prepare an analysis of options for restructuring Oregon's state and local revenue system. The measure requires the Legislative Revenue Office to submit a report on the progress of the analysis to the interim revenue committees no later than December 1, 2015. This report is intended to fulfill that requirement.

The report is organized into 5 sections. The first section summarizes the key findings of the analysis. The second section outlines alternatives for restructuring the property tax system, methods for taxing consumption and business and options for restructuring the personal income tax. The next two sections describe the analytical tools used in the report, followed by the results of simulations under alternative reform proposals. The last section discusses the policy implications resulting from the analysis.

Key Findings

1. Oregon's tax system can be restructured in ways that are likely to lead to broad economic gains in terms of household income, employment and investment. This is clearly the case for revenue neutral proposals but also occurs for net revenue raising proposals when consumption based taxes are strategically combined with income or property tax reductions.

2. A change in the mix of taxes toward consumption and away from income is likely to improve the cyclical stability of Oregon's state tax system. However, a more cyclically stable tax system is likely to lower revenue growth over the long term.

3. The base tax burden distribution for Oregon is essentially proportional, meaning that the tax burden is roughly constant as a percentage of household income as income rises. There are two notable exceptions. At the lowest end of household income (less than $20,587) the effective tax rate is 9.29% compared to 8.89% overall. The primary reason for the higher rate is the incidence of the residential property tax. Households with income over $205,869 pay the highest effective rate at 9.56%.

4. While we believe the analysis and simulations in this report provide important insights into the best way to restructure Oregon's tax system, additional considerations should also be an important part of any comprehensive restructuring plan. These additional considerations include policies to address a transition period, ensure that governance issues as well as tax administration issues are accounted for and in the case of net revenue reductions or increases, the potential impact of government expenditures on state long-term economic performance.

Alternatives for Restructuring Oregon's Major Tax Revenue Sources

Based on the work of the Comprehensive Revenue Restructuring Task Force (see LRO Research Report #2-09) and recent revenue committee deliberations, this analysis begins with three major premises:

1. Oregon's state tax system is highly volatile due to its high level of dependence on the personal income tax and to a lesser degree its dependence on the corporate income tax.
2. Oregon's local tax system is rigid and subject to both horizontal and vertical inequities caused primarily by complex constitutional property tax limitations.
3. Both the state tax system, with its dependence on the personal income tax, and the local tax system, with its dependence on the property tax, lack diversification.

Property Taxes

Oregon's property tax system was dramatically restructured in the 1990s by the passage of Measure 5 and Measure 50. In combination, these measures brought down Oregon's property tax burden considerably. Property taxes as a percentage of income fell from 5.2% in 1989 to 3.3% in 1998, approximately where it stands today. One consequence of this broad reduction in the property tax burden was the abandonment of programs designed to provide tax relief to low income home owners. Programs such as HARRP (Home and Renter Relief Program) were phased out in response to the revenue losses brought on by the initiatives. The Senior and Disabled Property Tax Deferral Program is the major remaining low income property tax relief program. Because this program is a deferral of taxes, it is self-sustaining. The tax incidence analysis presented later in this report shows that, while residential property taxes are largely proportional to household income, lower income households do pay a higher proportion of their income in property taxes than do those in other income groups.

Measure 50 established permanent constitutional tax rates for individual districts based on the rates in existence in 1997 when the Measure was approved. It also set up an alternative assessed value measure for individual properties. The maximum assessed value under Measure 50 is allowed to grow 3% per year unless the property is changed in a specified way such as new construction, sub-division or re-zoning. In these cases, property is re-assessed to the change property ratio which is defined as the average assessed value to market value ratio of that property class in that county. Under Measure 50, the maximum assessed value becomes the assessed value only if it is less than market value. If market value is lower, then it becomes the assessed value. It is important to note that change of property ownership is not a trigger for changing the assessed value calculation. Property sales have no effect on the Measure 50 value.

While the Measure 50 system created greater certainty for taxpayers, it also created a rigid, inflexible system that leads to horizontal inequities for taxpayers. Horizontal inequities occur when two taxpayers (property owners in this case) have similarly valued homes and receive the same package of local services yet pay significantly different taxes. This phenomenon is caused by the divergence of assessed value from real market value (see LRO Research Report #4-10). By separating assessed value from real market value and establishing permanent tax rates, Measure 50 also inhibits the ability of local governments to respond to changing economic, demographic and institutional conditions.

The above discussion suggests two avenues for property tax reform. The first is a broad based low income property tax relief program. The most direct way to do this is a homestead exemption whereby a portion of value is taxed at a zero rate. If this is a fixed dollar amount (say $25,000), it means that the proportion of home value that is exempt will be higher, the lower the value for the home. Though this will provide tax relief for all home owners, it will disproportionately benefit low income home owners, though it will not directly benefit renters. Another more indirect approach is to provide a tax credit when property tax liability exceeds a certain threshold percentage of adjusted gross income. The credit would be taken when the property owner files an income tax return.

Moving assessed values back to market value (still allowing for specially assessed property) would in effect return to the pre-1997 Measure 5 assessment system. In 2014-15, total statewide assessed value was 75.5% of real market value. This suggests that a broad move to market value would generate more than adequate revenue for a large homestead exemption program. LRO estimates that returning to market value would increase property tax revenue by $1.5 billion in the 2013-14 property tax year, enough to fund a $200,000 statewide homestead exemption for owner occupied residences.

However, an immediate shift from Measure 50 assessed value to market value, especially when combined with a homestead exemption, would be very disruptive from both a regional perspective and an individual taxpayer basis. Such a shift would have to be phased in over a period of time to minimize these disruptions. Several approaches are feasible:

1. Return to market value at time of sale. This approach, long used in California, would ensure that properties are returned to market value at some point in time. This would clearly be an improvement on the Measure 50 system over time but it would also allow inequities to remain in place for considerable time as newly sold homes have higher assessed values than those that have not recently turned over.
2. Another approach is to create a lower bound for the change property ratio and gradually increase it toward 100% of market value. This policy would increase the assessed to market value ratio but would be very gradual because the change property ratio only applies when an "exception" event occurs as defined by the constitution.
3. Compute assessed value as a moving average of recent market values. For example, under this proposal, the assessed value of a property in 2016 could be determined by a weighted average of the property's market value over the past 3 to 5 years. This approach would ensure that assessed values would be based on recent market values. It would also provide flexibility and ensure that inequities caused by variations in assessment ratios would be temporary. Disruptions for taxing districts and taxpayers would be reduced but not eliminated.

All of these approaches would add flexibility to the Measure 50 assessed value system and help to mitigate horizontal inequities over time. However, each requires a constitutional amendment and a transition period that would be disruptive for some taxpayers.

Alternative Methods for Taxing Consumption

LRO has identified four general approaches to taxing consumption at the state level. These 4 approaches are shown in Table 1, along with the estimated revenue from each base in the 2017-19 biennium.

Table 1: Alternative Consumption Tax Bases

Tax Base	Assumed Rate	2017-19 Revenue Estimate (in millions)
Retail Sales Tax (Washington Base)	1%	$1,434
Expanded Retail Sales Tax including Services	1%	$1,896
Gross Receipts (Ohio Base)	.25%	$1,343
Value Added (Income Approach)	1%	$1,367

The revenue estimate for a retail sales tax is calculated by scaling Washington's tax base to Oregon's economy. This means that the estimate includes exemptions such as food for home consumption that exist in Washington. Consistent with the practice in other sales tax states, Washington exempts most services. For this reason and the growth of largely untaxed remote sales through the internet, the Washington base has consistently declined with respect to the overall state economy over the past two decades. The expanded retail sales tax base shown in the table adds services into the base. The result is an increase of roughly one-third in the size of the base. This base would also grow more rapidly over time because of the long term shift toward services.

Washington, Ohio, Delaware and Nevada (recently) are states that use gross receipts as a major tax base. The estimates in the table are based on the Ohio commercial activity tax. This tax is a privilege tax based on business sales in Ohio. It applies to all business entity types with sales over $1 million. The current Ohio tax rate is .26 %. The estimate shown in the table is based on a .25% rate using the Ohio base scaled to the Oregon economy. Gross receipts taxes are broadly based and can therefore generate large amounts of revenue with relatively low rates. However, they are subject to a phenomenon known as pyramiding (or cascading). This occurs when intermediate purchases are taxed at each level in the production process. In effect, the tax gets built into prices and compounded as a product moves through the production process.

The value added tax is used extensively throughout the world—usually at the national level. At the national level, value added taxes are generally calculated as total receipts minus the purchases from other businesses. Exporting companies generally receive a credit for their exports thereby converting the tax into one on domestic consumption or a destination based tax. At the state level, a credit for exports to other states is not legal in the U.S. This forces states to use an income approach or source based approach. This approach consists of summing up the income of the factors of production such as labor, capital and natural resources. Currently the only state using a value added tax is New Hampshire. New Hampshire imposes a business enterprise tax (BET) which is calculated by summing up payments to labor, capital and natural resources on a business tax return. These payments reflect the value added in the state by the business. It is the exclusion of purchases from other businesses that reduces the size of the value added base compared to the gross receipts base.

Consumption taxes tend to be regressive, meaning that the ratio of taxes to income falls as income rises. This is the case regardless of whether consumers pay the tax directly (retail sales tax) or indirectly (gross receipts or value added). The economic effects of consumption taxes vary depending on how sensitive consumers are to changes in prices. Market distortions tend to be greater when consumers are sensitive to price increases and alter their behavior. Table 2 summarizes the major strengths and weaknesses of the alternative consumption tax bases.

Table 2: Strengths and Weaknesses of Alternative Consumption Tax Bases.

Tax Base	Strengths	Weaknesses
Retail Sales Tax (WA Base)	Extensive experience in other states Taxpayer familiarity	Base erosion over time Generally regressive impact
Expanded Retail Sale Tax including Services	Offsets large portion of base erosion Reduces regressivity	No broad examples of successful implementation in other states
Gross Receipts (OH Base)	Broad base allows for low rates Destination base benefits traded sector	Taxation of intermediate purchases allows for pyramiding effects
Value Added (Income Approach)	Eliminates cascading effects	Source based approach at state level impacts traded sectors

The detailed analysis that follows will focus on the gross receipts alternative for consumption taxes. Although gross receipts taxes are subject to the distorting effects caused by pyramiding, a broad base and low tax rate can contain these effects while still generating substantial revenue. The decades old pattern of base erosion for the sales tax demonstrated across the country makes these alternatives less desirable over the long run. The necessity of implementing a source based value added tax at the state level imposes significant risks to the state's traded sector industries.

Methods of Business Taxation

Business taxation overlaps with property, consumption and income taxes. In economic theory, businesses do not pay taxes. Instead the ultimate burden of a tax rests on the owners of the factors of production (labor, capital and natural resources) and consumers. However a large portion of taxes are initially paid by businesses and the form of those taxes can influence business production and location decisions.

According to the annual Council on State Taxation (COST) business tax study (conducted by Ernst & Young), Oregon relies less on business taxes as a share of state and local taxes than most states. Business taxes make up 37.6% of total taxes in Oregon, compared to a national average of 45%. The primary reason for this can be seen in Table 3. This table shows the breakdown of business taxes by type of tax for the U.S. overall and for Oregon.

Table 3: State and Local Business Taxes by Tax Type

Tax Type	U.S. Average	Oregon
Property Tax	36.4%	36.9%
Sales Tax	20.7%	--
Excise Tax	12.2%	13.8%
Corporate Income Tax	9.4%	8.8%
Unemployment Insurance Tax	7.1%	17.1%
Personal Income Tax on Pass Through Entities	4.9%	9.2%
License and Other Taxes	9.3%	14.3%
Total State and Local Taxes	100%	100%

Source: Council on State Taxation

The COST study indicates that sales taxes are the second largest business tax paid at 20.7%. The absence of a general sales tax in Oregon is the primary reason for Oregon's relatively low business tax share. The alternative consumption tax bases discussed in the previous section are counted as corporate income taxes in the study. This includes Washington's Business and Occupation Tax, Ohio's Commercial Activity Tax and New Hampshire's Business Enterprise Tax. A shift toward any of the four consumption tax alternatives would move Oregon's business tax share closer to the national average. Oregon's relatively high dependence on personal income taxes paid on business pass-through income reflects the state's overall high dependence on the personal income tax. Oregon's relatively high unemployment insurance taxes are the result of a tax rate structure that automatically adjusts to the trust fund balance leading to a financially secure fund but higher rates than most other states.

While the COST study provides a comparison of how states differ in their reliance on a broad array of taxes initially paid by business, it is important to note that the impact of these taxes on the distribution of the tax burden requires a tax incidence analysis. The final incidence of a tax is determined after wages and prices have changed in response to the tax. In other words, after tax shifting has taken place. Only at this point can a tax be categorized as progressive or regressive.

Personal Income Tax

Oregon relies on the personal income for 68.3% of total state tax revenue. Personal income taxes are 4.1% of personal income in Oregon—second highest among the states. Personal income taxes have a number of advantages over other state and local taxes. They tend to grow in line with the overall economy over the long run and allow for a great deal of flexibility in policy through the use of differential marginal rates, deductions and credits. As practiced at the state level, personal income taxes tend to be proportional with respect to income. In addition, the existence of an extensive federal personal income tax structure allows states to limit administrative and compliance costs.

Since one of the goals of tax restructuring is to diversify the state's tax system, revenue reduction options are emphasized for the personal income tax. Four general approaches are considered:

1. Marginal rate reductions. Oregon's current rate structure consists of 5, 7, 9 and 9.9% brackets. The 9.9% bracket was added in 2009 and applies to taxable income above $125,000 ($250,000 for joint filers). Economic theory indicates that marginal rates potentially create the most distortions because they affect decisions made at the margin. High marginal rates also add to instability. However, they are the primary means of addressing vertical equity. Both the economic impact and the distribution impact of adjusting marginal rates are analyzed.
2. Another approach is the widening of Oregon's tax brackets. The first two brackets are much smaller than the third bracket with single filers paying a 5% marginal rate for the first $3,350 of taxable income and 7% on the increment up to $6,700. The 9% bracket covers taxable income between $6,700 and $125,000. This suggests another approach to income tax relief consisting of widening the 5 and 7% brackets.
3. Expanding the standard deduction. Oregon's standard deduction for tax year 2015 is $2,145 for single filers ($4,295 for joint filers). It is adjusted for inflation on an annual basis. In effect, the standard deduction creates a zero bracket amount of income. Expanding the deduction reduces the income tax burden on lower and middle income taxpayers. High income taxpayers generally do not benefit from an increase in the standard deduction because they itemize their deductions.

4. Increasing widely used tax credits. Oregon uses a credit for personal exemptions. This credit ($194 in 2015) is for most taxpayers and their dependents. In 2013, the Legislature disallowed exemption credits for taxpayers with adjusted gross income above $100,000 ($200,000 for joint filers). This means that an increase in the exemption credit, while retaining the cap would direct tax relief primarily to middle and lower income taxpayers, particularly larger households. Another credit widely used is the earned income tax credit (EITC). Currently, Oregon law allows a state credit equal to 8% of the federal credit. About 265,000 taxpayers (13.3% of all filers) claimed the EITC in the 2013 tax year. This credit is applied to labor income and goes primarily to workers with dependents. Increasing the federal percentage would go primarily to lower and lower middle income wage earners.

Analytical Tools

LRO used the Oregon Tax Incidence Model (OTIM) to analyze the economic and distribution implications of alternative tax restructure proposals. OTIM was originally constructed during the 1999-2001 interim. It was a joint project involving the Legislative Revenue Office, Oregon State University and Washington State University. The project benefitted greatly from previous work done by the California Department of Finance. The model was completed in 2001 and has been used to analyze the economic and distribution impacts of major state tax proposals since that time. A review and update of the data and behavioral assumptions used in the model was recently completed.

OTIM is a long-term computable general equilibrium model of the Oregon economy. It consists of a series of equations linking different sectors of the state economy with each other and the outside world. OTIM is designed to show how the state economy responds to a major change in tax policy. It does this through allowing for a change in tax policy (tax rates or deductions, new taxes, etc.) and then estimating how wages, prices, in-migration, labor force participation, capital investment and other variables respond based on the model's underlying assumptions. OTIM then calculates a new equilibrium level of income consistent with the changes in wages, investment and other variables initiated by the policy. The model results compare the new equilibrium with the starting point. So in effect, OTIM compares one point in time (the current situation) with a new point in time after the economy has responded to the change in tax policy. We assume that it takes roughly 5 years for the economy to fully respond to a change in tax policy.

The structure of OTIM is patterned after California's Dynamic Revenue Analysis Model (DRAM) which was built in the late 1990s. The main difference between OTIM and DRAM is that OTIM has a tax incidence breakdown showing how the tax burden among income groups is altered by a tax change. DRAM is focused only on the economic effects of tax changes. At about the same time OTIM was developed, Nebraska built the Tax Revenue Analysis in Nebraska (TRAIN) model. TRAIN is very similar to OTIM, including a tax burden distribution module. The Nebraska Department of Revenue maintains TRAIN and uses it for certain policy related studies. California's DRAM has not been maintained in recent years and has fallen into dis-use.

In addition to the three states that built computable general equilibrium models for tax analysis purposes, 16 other states have used a version of the REMI model according to a recent survey. REMI (Regional Econometric Modeling Incorporated) uses a computable general equilibrium core for each state and links it to a national economic forecast on an annual basis. Similar to the computable general equilibrium models, the REMI models provide estimates for income, employment and sectoral shifts while adding a specific time path for these variables that is tied to the national forecasts.

Because OTIM is a long term model that simulates how a state economy will respond to a major tax policy change over time, it is not a tool for gauging revenue stability over the course of a business cycle. To measure stability, LRO has developed an index that shows how the standard deviation of overall state taxes changes when the mix of taxes is adjusted. The index can be used to answer how shifting from income taxes to consumption taxes would affect revenue stability as measured by the standard deviation of percentage changes in revenue.

Simulations

Base Tax Burden Distribution
While the primary focus of OTIM is to simulate how major tax changes affect the economy and the distribution of the tax burden, updating the model's base data gives policy-makers information on how the current state and local tax system is distributed across household income groups. The base distribution of the tax burden for 2012 is shown in Table 4.

Table 4: Estimated Distribution of Oregon's State and Local Tax Burden

Household Income Group	Number of Households	Effective Tax Rate
Less than $20,587	229,406	9.29%
$20,587 to $34,311	198,738	6.32%
$34,311 to $48,036	194,555	7.52%
$48,036 to $68,623	256,886	8.79%
$68,623 to $102,934	312,377	9.13%
$102,934 to $137,246	189,938	8.93%
$137,246 to $205,869	176,189	8.87%
Greater than $205,869	96,204	9.56%
All Household Income Groups	1,654,292	8.89%

The income groupings are set up to facilitate policy discussions. It is important to note that the number of households in each group varies—especially at the high end. The general conclusion from Table 4 is that the distribution of Oregon's tax burden is largely proportional to household income. This means that the effective tax rate is relatively constant as income rises. There is however a spike in the tax burden at both the lowest household income level and the highest level. The higher rate among low income households is primarily caused by the residential property tax which has an effective rate of 3.76% for this group. This is caused by homeowners with relatively low current income. Often these taxpayers are elderly. At the high end, the jump is the result of the personal income tax. The effective rate of the personal income tax rises from 3.28% for the second highest income group to 4.58% for the highest group. This is primarily caused by the new 9.9% bracket, disallowance of the personal exemption credit and phase-out of

the federal tax subtraction. For a breakdown of the effective tax rate for individual taxes by household income group see Appendix C.

Revenue Restructure Simulations

The OTIM restructure simulations are based on a combination of tax policies involving business/consumption taxes, the personal income tax and the property tax. The simulations are divided into three groups of 3 packages. The first group consists of revenue neutral packages based on their 2017-18 fiscal year static revenue impact. The second group has a static revenue gain of $500 million for 2017-18 while the third group each produces a net static revenue loss of $250 million for the year.

Revenue Neutral Packages:
Package 1
Establish Commercial Activity Tax at 0.45% Rate
Static Revenue Impact: $1,108 million
Increase Personal Income Tax Standard Deduction to $9,100 for single filers ($18,200 for joint)
Static Revenue Impact: -$576 million
Repeal Corporate Income Tax
Static Revenue Impact: -$532 million
Package 1 Net Revenue Impact: $0

Package 2
Establish Commercial Activity Tax at 0.5% Rate
Static Revenue Impact: $1,231 million
Reduce Marginal Personal Income Tax Rates to 4%, 6%, 8.2%, and 9.2%
Static Revenue Impact: -$699 million
Repeal Corporate Income Tax
Static Revenue Impact: -$532 million
Package 1 Net Revenue Impact: $0

Package 3
Establish Commercial Activity Tax at 0.25% Rate
Static Revenue Impact: $615 million
Create $50,000 Owner Occupied Homestead Exemption Based on Assessed Value
Static Revenue Impact: -$615 million
Package 1 Net Revenue Impact: $0

Table 5: Simulation Results-Revenue Neutral Packages*

Revenue Packages	1	2	3
Economic Impacts			
Personal Income(millions)	+$469	-$72	+$209
Employment(thousands)	+28	+21	+21
Population(thousands)	+21	+13	+14
Investment(millions)	+$90.7	+$58.5	+$36
Price Level(Percent Change)	-.01%	+.05%	+.06%
Revenue Impacts			
Static Impact(millions)	$0	$0	$0

Dynamic Impact(millions)	+$79	+$19	+$97
Net Revenue Impact(millions)	+$79	+$19	+$97
Distribution Effects(millions)			
Households Less Than $20,587	-$13.9	-$24.3	+$10.4
Households Between $48,036 and $68,623	+$196.2	+$64.7	+$164.4
Households Greater than $205,869	-$138.5	-$6.4	-$77.8
All Households	+$383	+$70.9	+$518.1

*2017 Levels

A summary of the simulation results for the revenue neutral packages can be found in Table 5. A more detailed summary for all the simulations is available in Appendix B.

All three revenue neutral packages generally produce positive economic and revenue feedback effects. Employment, investment and population (through in-migration) increase in all three scenarios. The higher level of economic activity leads to a positive revenue feedback in all three packages. Overall household income rises in all three scenarios with middle income households showing the largest gains. Higher income households experience slight income losses under all three proposals, while the model shows income losses for low income households under packages 1 and 2. However, the inclusion of a homestead exemption in package 3 leads to gains for this group.

Revenue Increase Packages:

Package 1
Establish Commercial Activity Tax at 0.65% Rate
Static Revenue Impact: +$1,600 million
Widen 5 and 7% Personal Income Brackets to $9,300 and $18,600
Static Revenue Impact: -$568 million
Repeal Corporate Income Tax
Static Revenue Impact: -$532 million
Package 1 Net Revenue Impact: +$500 million

Package 2
Increase Top Marginal Personal Income Tax Rates to 9.7% and 12%
Static Revenue Impact: +$635 million
Create $10,000 Owner Occupied Homestead Exemption Based on Assessed Value
Static Revenue Impact: -$135 million
Package 2 Net Revenue Impact: +$500

Package 3
Establish Commercial Activity Tax at 0.3% Rate
Static Revenue Impact: +$738 million
Increase Personal Income Tax Earned Income Tax Credit to 24% of Federal
Static Revenue Impact: -$105 million
Restore Real Market Property Tax Base with $100,000 Homestead Exemption
Static Revenue Impact: +$399 million
Repeal Corporate Income Tax
Static Revenue Impact: -$532 million
Package 3 Net Revenue Impact: +$500 million

Table 6: Simulation Results-Revenue Raising Packages*

Revenue Packages	1	2	3
Economic Impacts			
Personal Income(millions)	-$235	-$295	-$454
Employment(thousands)	+24	-12	+0.1
Population(thousands)	+16	-7	+0.2
Investment(millions)	+$58.9	-$19	-$80
Price Level(Percent Change)	+.22%	+.14%	+.14%
Revenue Impacts			
Static Impact(millions)	+$500	+$500	+$500
Dynamic Impact(millions)	+$32	-$4	-$133
Net Revenue Impact(millions)	+$532	+$496	+$367
Distribution Effects(millions)			
Households Less Than $20,587	-$37.6	+$4.5	+$74.4
Households Between $48,036 and $68,623	+$146.5	-$31.7	+13.2
Households Greater than $205,869	-$225.1	-$335.1	-$181.3
All Households	-$47	-$443.6	-$292.6

*2017 Levels

Package 1 combines a 0.65% commercial activity tax with personal income tax relief generated by a widening of the 5 and 7% tax brackets. The package is designed to produce a static revenue estimate of $500 million per year. The higher tax burden reduces private sector personal income and household income but the additional revenue to the public sector combines with lower personal income taxes to produce net gains in employment, population and investment. The result is a modest positive revenue feedback despite the higher static revenue estimate. Middle income households benefit more from increased employment and lower personal income taxes than they pay in commercial activity taxes resulting in a net gain of $146.5 million for the $48,000 to $68,000 income group. That is not the case for the highest and lowest income groups which experience losses in household income under this package.

Package 2, also designed for a static revenue increase of $500 million per year, combines an increase in the top marginal income tax brackets with a modest $10,000 homestead exemption. This package leads to larger personal and household income losses than package 1. Total household income drops by $443.6 million, with most of the loss accruing to households with income greater than $205,000. Lower income households experience a slight gain due to the homestead exemption. Under this scenario employment, population and investment all decline. This leads to a negative but modest revenue feedback.

Package 3 results in negligible employment impacts but the largest investment reduction. This is caused by the shift toward non-residential property taxes, much of which is business capital. The assumed sensitivity of investment to non-residential property taxes triggers the largest negative revenue feedback among revenue raising packages considered. The expansion of the earned income tax credit in this scenario is particularly beneficial to low income households.

Revenue Reduction Packages

Package 1
Establish Commercial Activity Tax at 0.25% Rate
Static Revenue Impact: $665 million
Widen 5 and 7% Personal Income Brackets to $6,500 and $13,000
Increase EITC to 24% of Federal
Static Revenue Impact: -$383 million
Repeal Corporate Income Tax
Static Revenue Impact: -$532 million
Package 1 Net Revenue Impact: -$250 million

Package 2
Establish Commercial Activity Tax at 0.25% Rate
Static Revenue Impact: $665 million
Create $30,000 Owner Occupied Homestead Exemption Based on Assessed Value
Static Revenue Impact: -$383 million
Repeal Corporate Income Tax
Static Revenue Impact: -$532 million
Package 2 Net Revenue Impact: -$250 million

Package 3
Reduce Top Personal Income Tax Rate to 9.6%, Increase EITC to 18% of Federal
Static Revenue Impact: -$115 million
Create $10,000 Owner Occupied Homestead Exemption Based on Assessed Value
Static Revenue Impact: -$135 million
Package 3 Net Revenue Impact: -$250 million

Table 7: Simulation Results-Revenue Reduction Packages*

Revenue Packages	1	2	3
Economic Impacts			
Personal Income(millions)	+$108	+$138	+$178
Employment(thousands)	+12	+13	+6
Population(thousands)	+9	+9	+5
Investment(millions)	+$60.3	+$61	+$15.6
Price Level(Percent Change)	-.04%	-.06%	-.05%
Revenue Impacts			
Static Impact(millions)	-$250	-$250	-$250
Dynamic Impact(millions)	+$21	+$43	+$27
Net Revenue Impact(millions)	-$229	-$207	-$223
Distribution Effects(millions)			
Households Less Than $20,587	+$74.2	+$1.9	+$61
Households Between $48,036 and $68,623	+$33.9	+$69.7	+$40.1
Households Greater than $205,869	-$93.0	-$88.8	+$40.9
All Households	+$100.4	+$64.2	+$299.8

*2017 Levels

Each of the three revenue reduction options is designed to reduce annual revenue by $250 million. Both packages 1 and 2 contain fundamental business tax reform by eliminating the corporate income tax and imposing a commercial activities tax. Package 1 provides personal income tax relief while package 2 provides property tax relief by establishing a $30,000 homestead exemption. Package 3 consists of personal income tax relief and a modest homestead exemption.

Stability Simulations

LRO developed a stability index to examine how the mix of state taxes affects the volatility of overall tax revenue. The index is based on national tax data from all 50 states collected by the U.S. Census Bureau. The Census Bureau collects data for 5 state tax categories. It is reported on a quarterly basis as a 12 month moving average and is available from 1989 through the second quarter of 2015.

Table 8: State Tax Growth and Stability

Tax Source	Percent of Total	Average Annual Growth	Standard Deviation
Personal Income Tax	35.8%	5.5%	9.1%
Corporate Income Tax	5.4%	3.1%	13.0%
Sales & Gross Receipts Taxes	31.2%	4.4%	4.4%
Excise Taxes	16.1%	3.7%	3.7%
Property and Other Taxes	11.5%	4.9%	4.9%
Total State Taxes	100%	4.7%	5.2%

Source: U.S. Census Bureau

Table 8 shows that over the past 26 years, state tax revenue has grown at an annual rate of 4.7%. The standard deviation for overall taxes during this period is 5.2%. Assuming a normal distribution, this means that tax revenue has grown between -0.5% and 9.9% about 2/3 of the time. It has declined more than 0.5% about 16.5% of the time—primarily during periods of recession. The individual tax components vary in their growth rates and stability. The personal income tax has grown faster than sales and gross receipts taxes (5.5% compared to 4.4%) but has demonstrated greater volatility (standard deviation of 9.1% compared to 4.4%). Corporate income taxes have shown the slowest average growth and the greatest volatility. The other taxes category tends to be volatile because it includes severance taxes much of which consists of revenue from oil and gas extraction.

Table 9: Impact of State Tax Mix on Growth and Stability

	Personal Income	Corporate Income	Sales and Gross Receipts	Excise	Other	Average Growth	Standard Deviation
State	Percent of Tax Taxes						
Oregon	68.7%	5.1%	0%	14.9%	11.1%	5.3%	8.2%
Washington	0%	0%	60.5%	17.7%	21.7%	4.4%	3.9%
California	49.2%	6.4%	27.0%	9.3%	8.1%	5.0%	6.6%
Idaho	36.4%	5.4%	31.2%	16.1%	11.5%	4.8%	5.7%
Oregon Simulations							
SIM 1	57.8%	5.1%	10.9%	14.9%	11.1%	5.2%	7.4%
SIM 2	46.9%	5.1%	21.8%	14.9%	11.1%	5.0%	6.6%
SIM 3	62.9%	0%	10.9%	14.9%	11.1%	5.2%	7.5%
SIM 4	52.0%	0%	21.8%	14.9%	11.1%	5.1%	6.7%

Table 9 shows the current tax mix for Oregon and surrounding states based on the 2013-14 fiscal year. The average growth and standard deviation are calculated based on national patterns. This in effect isolates the impact of state tax mix on growth and stability, abstracting from other factors such as the structure of the state economy and variations in how states design their individual taxes.

Oregon's reliance on personal income taxes implies relatively high growth over time with considerable volatility. Washington's tax mix suggests the opposite: low growth and greater stability. A series of simulations were run to calculate how a change in Oregon's tax mix would affect these general growth and stability measures:

- SIM 1 is based on a 0.5% commercial activity tax, which would have raised an estimated $1,055 million in 2013-14 and a corresponding reduction in personal income taxes. Personal income tax collections were $6.6 billion in 2013-14.
- SIM 2 is based on a 1.0% commercial activity tax, which would have raised an estimated $2.1 billion in 2013-14 and a corresponding reduction in personal income taxes.
- SIM 3 is based on a 0.5% commercial activity tax, combined with an elimination of the corporate income tax (which raised $494 million in 2013-14) and a $561 million reduction in personal income taxes.
- SIM 4 is based on a 1.0% commercial activity tax, combined with an elimination of the corporate income tax and a $1.6 billion reduction in personal income taxes.

All 4 simulations show significant stability gains but lower long term growth resulting from a shift in income taxes to a gross receipts based tax.

The stability index is a simple tool designed to show how the mix of state taxes affect long term stability and growth in revenue. It is important to recognize that it does not factor in the structure of a state economy (for example, Oregon's dependence on durable goods manufacturing) or the specifics of how states design their taxes (for example, California's use of high marginal tax rates on volatile income sources such as capital gains). Ultimately, the stability of a state tax system is linked to the degree of progressivity in the tax structure. More progressive tax systems are more sensitive to changes in income and therefore less stable.

Policy Implications

Three broad policy implications can be drawn from the analysis followed by recognition that results contained in this report are only one step in a series of considerations that should accompany any comprehensive revenue restructure plan.

1. Oregon's tax system can be restructured in ways that are likely to lead to broad economic gains in terms of household income, employment and investment. This is clearly the case for revenue neutral proposals but also occurs for net revenue raising proposals when consumption based taxes are strategically combined with income or property tax reductions.
2. A change in the mix of taxes towards consumption based taxes and away from income based taxes is likely to improve the cyclical stability of Oregon's state tax system. However, a more cyclically stable tax system is likely to lower revenue growth over the long term.

3. The base tax burden distribution for Oregon is essentially proportional, meaning that the tax burden is roughly constant as a percentage of household income as income rises. There are two notable exceptions. At the lowest end of household income (less than $20,587) the effective tax rate is 9.29% compared to 8.89% overall. The primary reason for the higher rate is the incidence of the residential property tax. Households with income over $205,869 pay the highest effective rate at 9.56%. Over the past 5 years the Legislature has enacted a new 9.9% rate bracket, phased out the federal tax subtraction and disallowed personal exemption credits for high income taxpayers. All have contributed to a higher effective tax rate for this group. It is important to note that the appropriate distribution of the tax burden is largely a societal question based on attitudes toward equity. These attitudes differ across states and countries and over time. Oregon's tax policy choices have led to a generally proportional system. This stands in contrast to most state and local tax systems which tend to be regressive overall. A key reason for this is the widespread use of retail sales taxes.
4. While we believe the analysis and simulations in this report provide important insights into the best way to restructure Oregon's tax system, additional considerations should also be an important part of any comprehensive restructuring plan. These include:
    a. Any fundamental change in the tax system will lead to a transition period that will be disruptive for some businesses and households. Providing adequate forewarning and taxpayer education along with phase-ins when appropriate should all be part of a final plan.
    b. The economic modeling in this report glosses over important governance and administrative issues associated with a state and local tax system, For example some scenarios looked at a homestead exemption combined with a commercial activity tax. Since property taxes are the basis for the local tax system, a reduction in this source should be combined with a compensating transfer of revenue to the taxing districts. The Department of Revenue administers the personal and corporate income tax and oversees the property tax system. They will generally bear the costs of administering a new system and ensuring tax compliance. These costs should be incorporated into a final revenue restructuring plan.
    c. OTIM requires that state and local budgets balance. This means budgets will either increase or decrease when a revenue package has a net static impact on revenue. The demand side effects of these changes in the overall public sector budget are captured in the simulations. However, there are many program areas where state and local governments spend their revenue. These include education, transportation, public safety and many other areas. Spending in these areas can have long term effects on the state economy beyond the simple demand effects of increasing or decreasing government spending. There are ways to capture some of these effects but they are complex and the empirical evidence on quantitative effects is very limited. However, long-term expenditure effects should be taken into account as much as possible.

Appendix A
HB 2171 Section 1

(1) The Legislative Revenue Officer, in consultation with the Department of Revenue and other relevant state agencies, shall prepare an analysis of options for restructuring Oregon's state and local revenue system.
(2) Options to be analyzed pursuant to this section shall include:
  (a) Alternatives for restructuring the property tax system.
  (b) Alternative methods of taxing consumption in the state.
  (c) Alternative methods for taxing business in the state including taxes based on net income, and commercial activity and value added taxes.
  (d) Alternatives for restructuring the personal income tax.
(3) Analysis for each option, or combination of options, examined pursuant to this section shall include the estimated impact on:
  (a) Oregon's economy.
  (b) State and local tax revenue.
  (c) Distribution of the state and local tax burden.
  (d) Stability of the state and local revenue system.
(4) Not later than December 1, 2015, the Legislative Revenue Officer shall submit a report to the interim committees of the Legislative Assembly related to revenue on the progress of the analysis required under this section.

Appendix B

OTIM Simulations

Revenue Neutral Simulation 1

(effective 1-1-2017)**:** 11/24/2015

(1) Create a 0.45% Commercial Activities Tax
(2) Increase the standard deduction for the Personal Income Tax to $9,100/$18,200 (S/J)
(3) Repeal the Corporation Excise Tax

2017 Levels

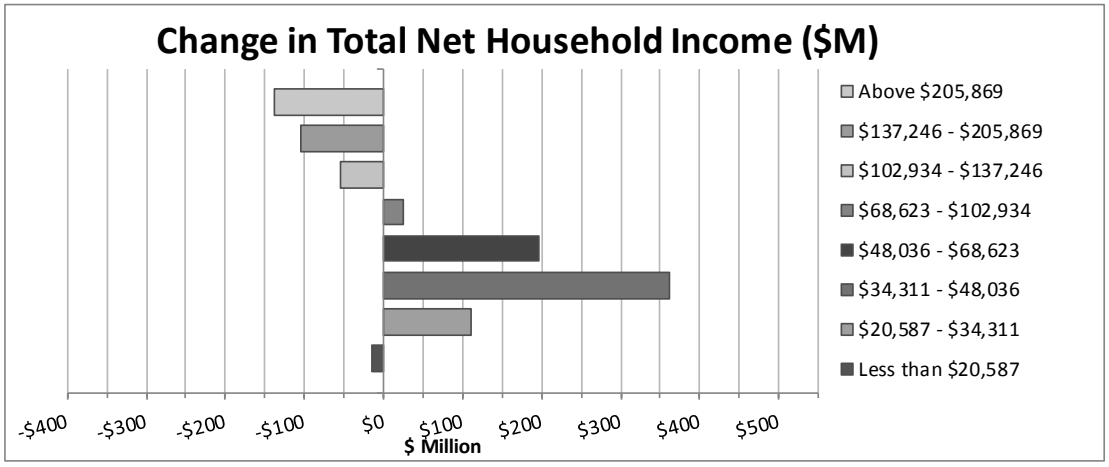
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$191,111	$469	0.25%
Employment (M)	2.556	2.584	0.028	1.11%
Population (M)	4.111	4.131	0.021	0.50%
Investment ($M)	$15,888	$15,979	$90.7	0.57%
Wage Index	100.0	99.00	-1.00	-1.00%
Return to Capital	100.0	100.13	0.13	0.13%
Price Levels	100.0	99.99	-0.01	-0.01%
Public Sector				
State Spending ($M)	$26,966	$26,997	$31	0.1%
GF Revenue ($M)	$8,446	$8,450	$4	0.1%
OF Revenue ($M)	$18,519	$18,546	$27	0.1%
Local Govt Revenue ($M)	$16,395	$16,443	$48	0.3%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,781.19	$152	0.4%

Static Revenue Impact ($ Millions)	$0
Dynamic Revenue Impact ($ Millions)	$79
Net Revenue Impact ($ Millions)	$79

General Fund Change ($ Millions)	$4
Other Funds Change ($ Millions)	$27
Local Revenue Change ($ Millions)	$48

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,500	**-$13.9**	-0.1%	86	-$75
$20,587 - $34,311	$11,295	$11,405	**$110.2**	1.0%	1,925	$34
$34,311 - $48,036	$12,904	$13,266	**$362.0**	2.8%	4,902	$273
$48,036 - $68,623	$19,068	$19,265	**$196.2**	1.0%	2,248	$148
$68,623 - $102,934	$28,902	$28,927	**$25.1**	0.1%	413	-$35
$102,934 - $137,246	$23,588	$23,534	**-$54.0**	-0.2%	-181	-$173
$137,246 - $205,869	$30,287	$30,183	**-$104.1**	-0.3%	-295	-$319
Above $205,869	$34,390	$34,252	**-$138.5**	-0.4%	-316	-$328
TOTAL	$169,949	$170,332	**$383.0**	0.2%	8,782	



Revenue Neutral Simulation 2

(effective 1-1-2017)**:** 11/24/2015

(1) Create a 0.5% Commercial Activities Tax
(2) Reduce the Personal Income Tax rates to 4% - 6% - 8.2% - 9.2%
(3) Repeal the Corporation Excise Tax

2017 Levels

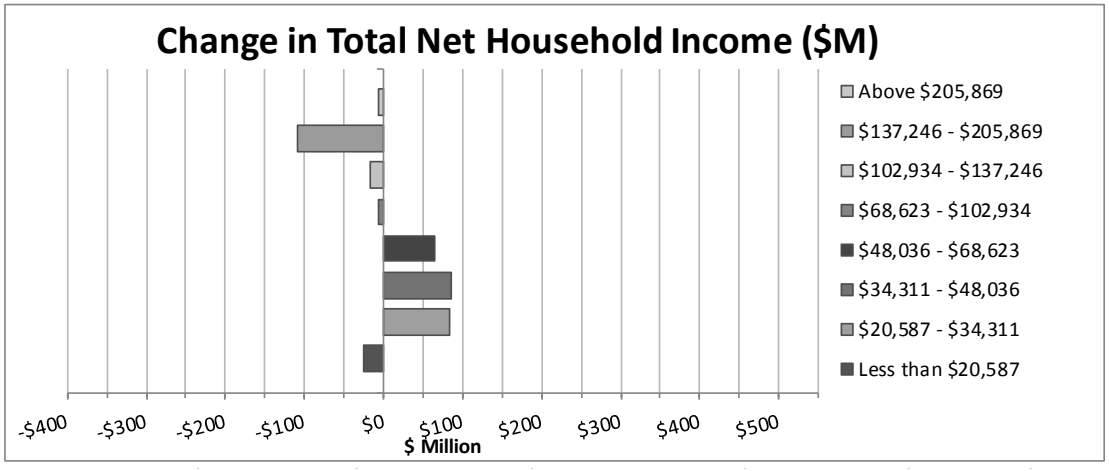
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,570	-$72	-0.04%
Employment (M)	2.556	2.577	0.021	0.84%
Population (M)	4.111	4.124	0.013	0.32%
Investment ($M)	$15,888	$15,946	$58.5	0.37%
Wage Index	100.0	98.99	-1.01	-1.01%
Return to Capital	100.0	100.08	0.08	0.08%
Price Levels	100.0	100.05	0.05	0.05%
Public Sector				
State Spending ($M)	$26,966	$26,956	-$9	0.0%
GF Revenue ($M)	$8,446	$8,428	-$18	-0.2%
OF Revenue ($M)	$18,519	$18,528	$9	0.0%
Local Govt Revenue ($M)	$16,395	$16,423	$28	0.2%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,752.65	$124	0.4%

Static Revenue Impact ($ Millions)	$0
Dynamic Revenue Impact ($ Millions)	$19
Net Revenue Impact ($ Millions)	$19

General Fund Change ($ Millions)	-$18
Other Funds Change ($ Millions)	$9
Local Revenue Change ($ Millions)	$28

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,490	**-$24.3**	-0.3%	41	-$113
$20,587 - $34,311	$11,295	$11,378	**$83.2**	0.7%	1,757	-$56
$34,311 - $48,036	$12,904	$12,989	**$85.5**	0.7%	1,665	-$97
$48,036 - $68,623	$19,068	$19,133	**$64.7**	0.3%	1,349	-$116
$68,623 - $102,934	$28,902	$28,896	**-$6.0**	0.0%	651	-$201
$102,934 - $137,246	$23,588	$23,572	**-$16.0**	-0.1%	272	-$252
$137,246 - $205,869	$30,287	$30,178	**-$109.7**	-0.4%	-107	-$525
Above $205,869	$34,390	$34,384	**-$6.4**	0.0%	5	-$85
TOTAL	$169,949	$170,019	**$70.9**	0.0%	5,632	



Revenue Neutral Simulation 3

(effective 1-1-2017)**:** 11/24/2015

(1) Create a 0.25% Commercial Activities Tax

(2) Create a $50K AV homestead exemption

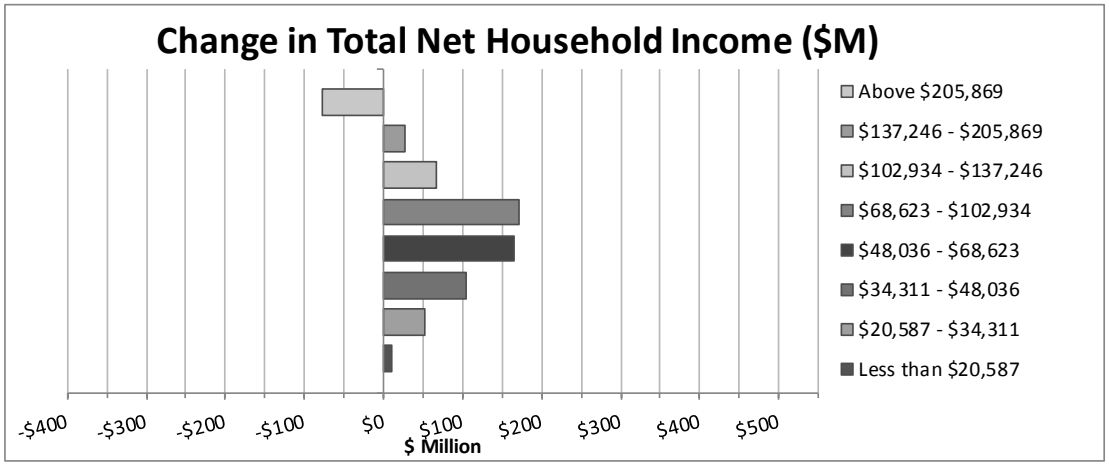
2017 Levels				
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,851	$209	0.11%
Employment (M)	2.556	2.577	0.021	0.83%
Population (M)	4.111	4.125	0.014	0.34%
Investment ($M)	$15,888	$15,924	$36.0	0.23%
Wage Index	100.0	99.32	-0.68	-0.68%
Return to Capital	100.0	100.04	0.04	0.04%
Price Levels	100.0	100.06	0.06	0.06%
Public Sector				
State Spending ($M)	$26,966	$27,679	$713	2.6%
GF Revenue ($M)	$8,446	$9,135	$689	8.2%
OF Revenue ($M)	$18,519	$18,543	$24	0.1%
Local Govt Revenue ($M)	$16,395	$15,778	-$616	-3.8%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,732.30	$104	0.3%

Static Revenue Impact ($ Millions)	$0
Dynamic Revenue Impact ($ Millions)	$97
Net Revenue Impact ($ Millions)	$97

General Fund Change ($ Millions)	$689
Other Funds Change ($ Millions)	$24
Local Revenue Change ($ Millions)	-$616

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,525	**$10.4**	0.1%	112	$26
$20,587 - $34,311	$11,295	$11,346	**$51.3**	0.5%	931	$6
$34,311 - $48,036	$12,904	$13,009	**$105.1**	0.8%	1,489	$60
$48,036 - $68,623	$19,068	$19,233	**$164.4**	0.9%	1,815	$143
$68,623 - $102,934	$28,902	$29,072	**$170.5**	0.6%	1,289	$184
$102,934 - $137,246	$23,588	$23,656	**$67.7**	0.3%	384	$119
$137,246 - $205,869	$30,287	$30,314	**$26.5**	0.1%	108	$51
Above $205,869	$34,390	$34,312	**-$77.8**	-0.2%	-183	-$165
TOTAL	$169,949	$170,467	**$518.1**	0.3%	5,945	



Revenue Increase Simulation 1

(effective 1-1-2017)**:** 11/30/2015

(1) Create a 0.65% Commercial Activities Tax
(2) Widen the 5% and 7% brackets for the Personal Income Tax
(3) Repeal the Corporation Excise Tax

2017 Levels

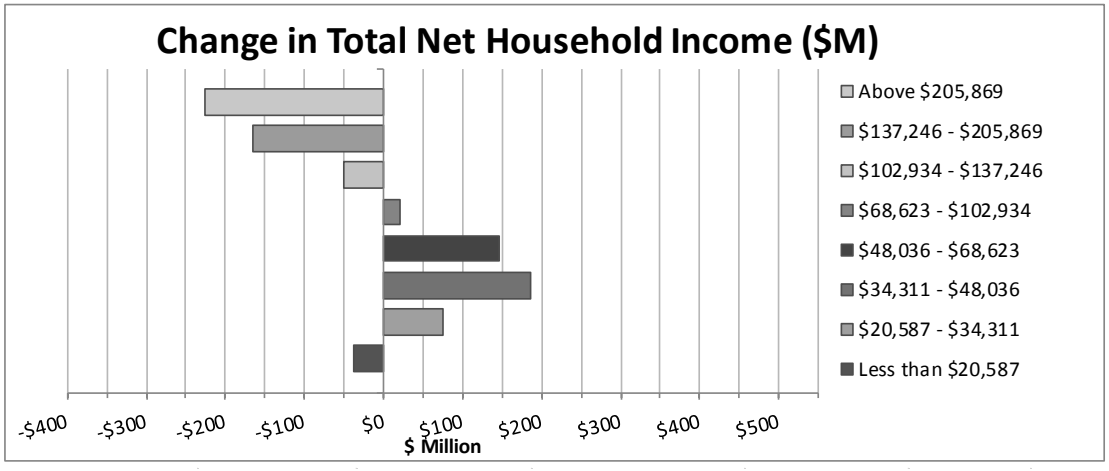
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,406	-$235	-0.12%
Employment (M)	2.556	2.580	0.024	0.94%
Population (M)	4.111	4.126	0.016	0.38%
Investment ($M)	$15,888	$15,947	$58.9	0.37%
Wage Index	100.0	98.97	-1.03	-1.03%
Return to Capital	100.0	100.08	0.08	0.08%
Price Levels	100.0	100.22	0.22	0.22%
Public Sector				
State Spending ($M)	$26,966	$27,467	$502	1.9%
GF Revenue ($M)	$8,446	$8,935	$489	5.8%
OF Revenue ($M)	$18,519	$18,533	$13	0.1%
Local Govt Revenue ($M)	$16,395	$16,425	$30	0.2%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,744.56	$116	0.3%

Static Revenue Impact ($ Millions)	$500
Dynamic Revenue Impact ($ Millions)	$32
Net Revenue Impact ($ Millions)	$532

General Fund Change ($ Millions)	$489
Other Funds Change ($ Millions)	$13
Local Revenue Change ($ Millions)	$30

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,477	**-$37.6**	-0.4%	-26	-$160
$20,587 - $34,311	$11,295	$11,371	**$76.1**	0.7%	1,761	-$93
$34,311 - $48,036	$12,904	$13,091	**$186.8**	1.4%	2,984	-$2
$48,036 - $68,623	$19,068	$19,215	**$146.5**	0.8%	2,122	-$10
$68,623 - $102,934	$28,902	$28,923	**$21.1**	0.1%	701	-$129
$102,934 - $137,246	$23,588	$23,538	**-$49.5**	-0.2%	-6	-$257
$137,246 - $205,869	$30,287	$30,122	**-$165.4**	-0.5%	-401	-$570
Above $205,869	$34,390	$34,165	**-$225.1**	-0.7%	-440	-$796
TOTAL	$169,949	$169,902	**-$47.0**	0.0%	6,694	



Revenue Increase Simulation 2

(effective 1-1-2017)**:** 11/30/2015

(1) Increase top Personal Income Tax rates to 9.7% and 12%

(2) Create a $10K AV homestead exemption

2017 Levels

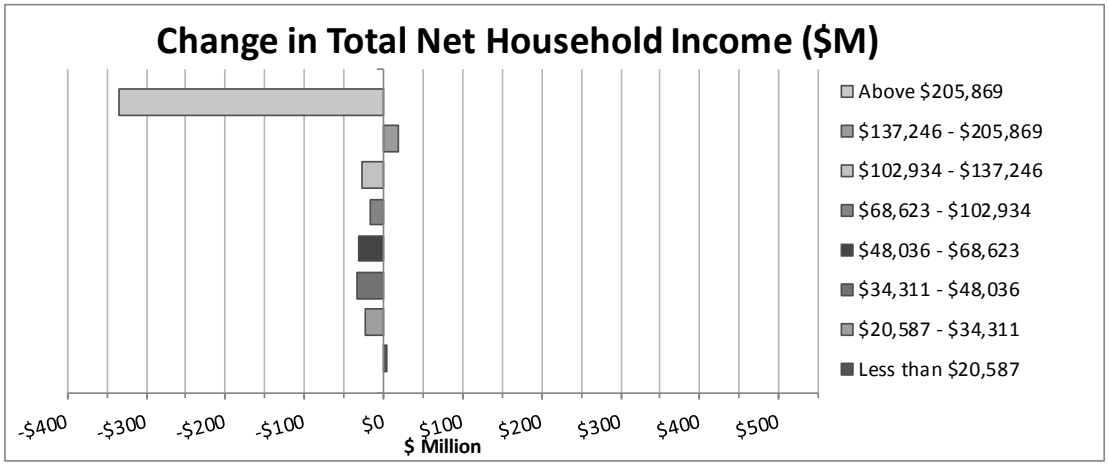
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,347	-$295	-0.15%
Employment (M)	2.556	2.544	-0.012	-0.46%
Population (M)	4.111	4.104	-0.007	-0.17%
Investment ($M)	$15,888	$15,869	-$19.0	-0.12%
Wage Index	100.0	100.50	0.50	0.50%
Return to Capital	100.0	99.97	-0.03	-0.03%
Price Levels	100.0	100.14	0.14	0.14%
Public Sector				
State Spending ($M)	$26,966	$27,605	$640	2.4%
GF Revenue ($M)	$8,446	$9,094	$648	7.7%
OF Revenue ($M)	$18,519	$18,511	-$8	0.0%
Local Govt Revenue ($M)	$16,395	$16,251	-$143	-0.9%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,536.95	-$92	-0.3%

Static Revenue Impact ($ Millions)	$500
Dynamic Revenue Impact ($ Millions)	-$4
Net Revenue Impact ($ Millions)	$496

General Fund Change ($ Millions)	$648
Other Funds Change ($ Millions)	-$8
Local Revenue Change ($ Millions)	-$143

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,519	**$4.5**	0.0%	-35	$26
$20,587 - $34,311	$11,295	$11,273	**-$22.5**	-0.2%	-391	-$8
$34,311 - $48,036	$12,904	$12,871	**-$32.6**	-0.3%	-528	$3
$48,036 - $68,623	$19,068	$19,037	**-$31.7**	-0.2%	-543	$25
$68,623 - $102,934	$28,902	$28,884	**-$17.8**	-0.1%	-428	$63
$102,934 - $137,246	$23,588	$23,561	**-$26.7**	-0.1%	-328	$62
$137,246 - $205,869	$30,287	$30,306	**$18.3**	0.1%	-113	$209
Above $205,869	$34,390	$34,055	**-$335.1**	-1.0%	-615	-$1,327
TOTAL	$169,949	$169,505	**-$443.6**	-0.3%	-2,982	



Revenue Increase Simulation 3

(effective 1-1-2017)**:** 11/30/2015

(1) Create a 0.30% Commercial Activities Tax
(2) Increase the Earned Income Tax Credit to 24% (of the Federal credit)
(3) Move the Property Tax system to an RMV base with a $100K homestead exemption
(4) Repeal the Corporation Excise Tax

2017 Levels

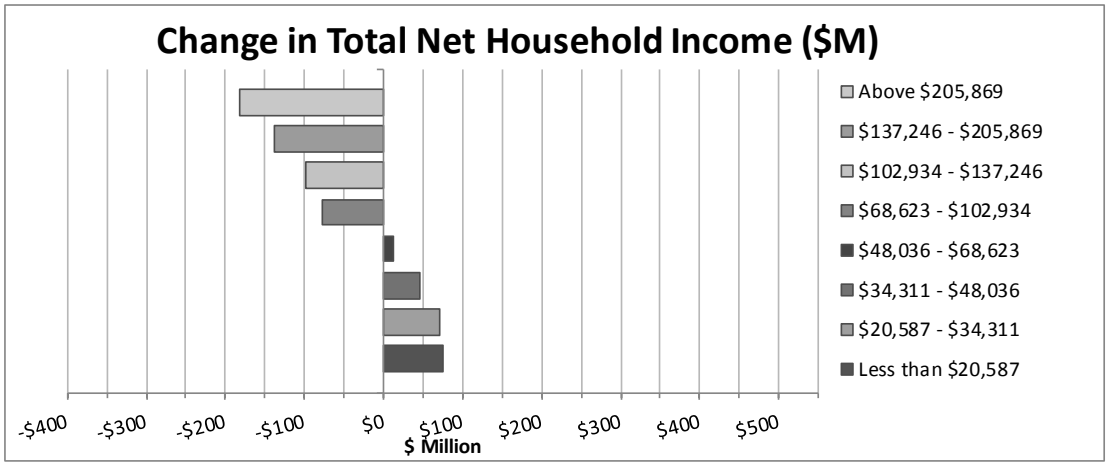
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,188	-$454	-0.24%
Employment (M)	2.556	2.557	0.001	0.05%
Population (M)	4.111	4.112	0.002	0.04%
Investment ($M)	$15,888	$15,808	-$80.0	-0.50%
Wage Index	100.0	99.75	-0.25	-0.25%
Return to Capital	100.0	99.98	-0.02	-0.02%
Price Levels	100.0	100.14	0.14	0.14%
Public Sector				
State Spending ($M)	$26,966	$26,920	-$45	-0.2%
GF Revenue ($M)	$8,446	$8,405	-$41	-0.5%
OF Revenue ($M)	$18,519	$18,515	-$4	0.0%
Local Govt Revenue ($M)	$16,395	$16,807	$412	2.5%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,612.88	-$16	0.0%

Static Revenue Impact ($ Millions)	$500
Dynamic Revenue Impact ($ Millions)	-$133
Net Revenue Impact ($ Millions)	$367

General Fund Change ($ Millions)	-$41
Other Funds Change ($ Millions)	-$4
Local Revenue Change ($ Millions)	$412

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,589	**$74.4**	0.8%	383	$259
$20,587 - $34,311	$11,295	$11,366	**$70.4**	0.6%	670	$172
$34,311 - $48,036	$12,904	$12,949	**$44.9**	0.3%	722	-$2
$48,036 - $68,623	$19,068	$19,082	**$13.2**	0.1%	385	-$54
$68,623 - $102,934	$28,902	$28,824	**-$77.6**	-0.3%	-300	-$165
$102,934 - $137,246	$23,588	$23,490	**-$98.0**	-0.4%	-385	-$278
$137,246 - $205,869	$30,287	$30,149	**-$138.5**	-0.5%	-397	-$420
Above $205,869	$34,390	$34,209	**-$181.3**	-0.5%	-315	-$780
TOTAL	$169,949	$169,656	**-$292.6**	-0.2%	762	



Revenue Decrease Simulation 1

(effective 1-1-2017)**:** 11/30/2015

(1) Create a 0.27% Commercial Activities Tax
(2) Widen the 5% & 7% Personal Income Tax brackets
(3) Increase the Earned Income Tax credit to 24% (of the Federal credit)
(4) Repeal the Corporation Excise Tax

2017 Levels

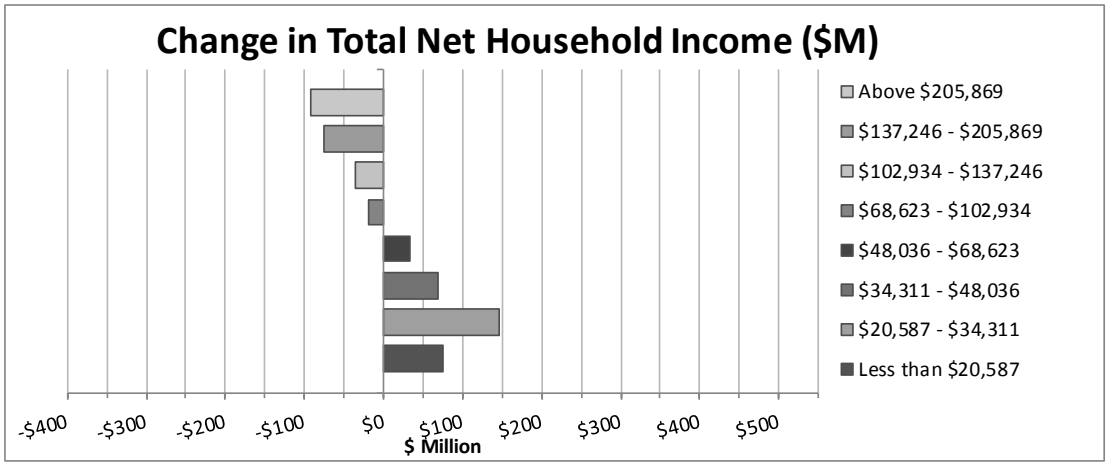
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,750	$108	0.06%
Employment (M)	2.556	2.568	0.012	0.49%
Population (M)	4.111	4.120	0.009	0.23%
Investment ($M)	$15,888	$15,948	$60.3	0.38%
Wage Index	100.0	99.41	-0.59	-0.59%
Return to Capital	100.0	100.09	0.09	0.09%
Price Levels	100.0	99.96	-0.04	-0.04%
Public Sector				
State Spending ($M)	$26,966	$26,713	-$253	-0.9%
GF Revenue ($M)	$8,446	$8,185	-$261	-3.1%
OF Revenue ($M)	$18,519	$18,527	$8	0.0%
Local Govt Revenue ($M)	$16,395	$16,418	$24	0.1%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,696.75	$68	0.2%

Static Revenue Impact ($ Millions)	-$250
Dynamic Revenue Impact ($ Millions)	$21
Net Revenue Impact ($ Millions)	-$229

General Fund Change ($ Millions)	-$261
Other Funds Change ($ Millions)	$8
Local Revenue Change ($ Millions)	$24

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,588	**$74.2**	0.8%	466	$243
$20,587 - $34,311	$11,295	$11,441	**$145.8**	1.3%	1,763	$255
$34,311 - $48,036	$12,904	$12,973	**$68.8**	0.5%	1,091	$2
$48,036 - $68,623	$19,068	$19,102	**$33.9**	0.2%	704	-$61
$68,623 - $102,934	$28,902	$28,883	**-$18.5**	-0.1%	247	-$128
$102,934 - $137,246	$23,588	$23,552	**-$35.5**	-0.2%	12	-$194
$137,246 - $205,869	$30,287	$30,212	**-$75.3**	-0.2%	-108	-$328
Above $205,869	$34,390	$34,297	**-$93.0**	-0.3%	-150	-$438
TOTAL	$169,949	$170,049	**$100.4**	0.1%	4,025	



Revenue Decrease Simulation 2

(effective 1-1-2017)**:** 11/30/2015

(1) Create a 0.27% Commercial Activities Tax
(2) Create a $30K AV homestead exemption
(3) Repeal the Corporation Excise Tax

2017 Levels

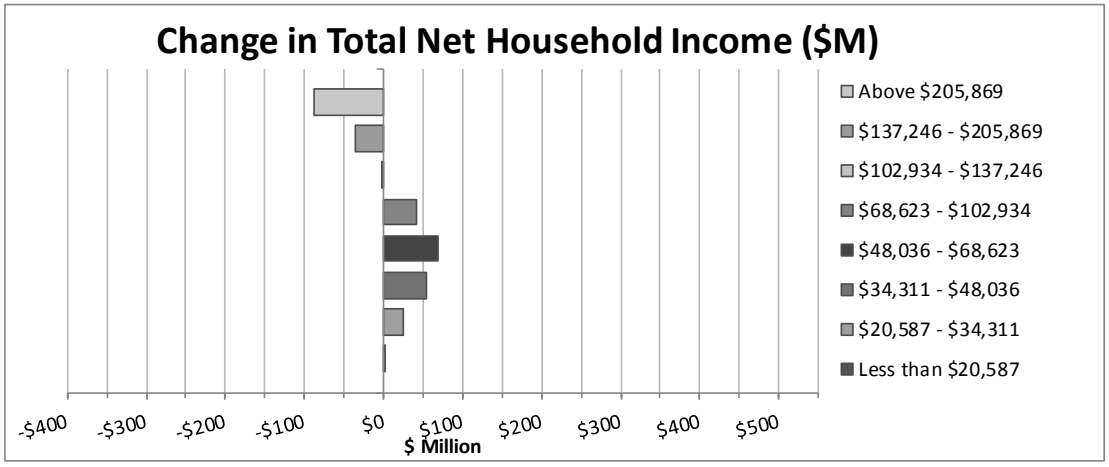
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,780	$138	0.07%
Employment (M)	2.556	2.569	0.013	0.52%
Population (M)	4.111	4.120	0.009	0.22%
Investment ($M)	$15,888	$15,949	$61.0	0.38%
Wage Index	100.0	99.37	-0.63	-0.63%
Return to Capital	100.0	100.10	0.10	0.10%
Price Levels	100.0	99.94	-0.06	-0.06%
Public Sector				
State Spending ($M)	$26,966	$27,120	$154	0.6%
GF Revenue ($M)	$8,446	$8,593	$147	1.7%
OF Revenue ($M)	$18,519	$18,527	$7	0.0%
Local Govt Revenue ($M)	$16,395	$16,034	-$361	-2.2%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,706.34	$78	0.2%

Static Revenue Impact ($ Millions)	-$250
Dynamic Revenue Impact ($ Millions)	$43
Net Revenue Impact ($ Millions)	-$207

General Fund Change ($ Millions)	$147
Other Funds Change ($ Millions)	$7
Local Revenue Change ($ Millions)	-$361

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,516	**$1.9**	0.0%	129	-$14
$20,587 - $34,311	$11,295	$11,321	**$25.7**	0.2%	698	-$59
$34,311 - $48,036	$12,904	$12,957	**$53.5**	0.4%	1,007	-$50
$48,036 - $68,623	$19,068	$19,138	**$69.7**	0.4%	1,112	-$32
$68,623 - $102,934	$28,902	$28,943	**$40.8**	0.1%	716	-$70
$102,934 - $137,246	$23,588	$23,585	**-$3.2**	0.0%	218	-$152
$137,246 - $205,869	$30,287	$30,252	**-$35.4**	-0.1%	63	-$259
Above $205,869	$34,390	$34,301	**-$88.8**	-0.3%	-119	-$505
TOTAL	$169,949	$170,013	**$64.2**	0.0%	3,823	



Revenue Decrease Simulation 3

(effective 1-1-2017)**:** 11/30/2015

(1) Reduce the top Personal Income Tax rate to 9.6%
(2) Increase the Earned Income Tax credit to 18% (of the Federal credit)
(3) Create a $10K AV homestead exemption

2017 Levels

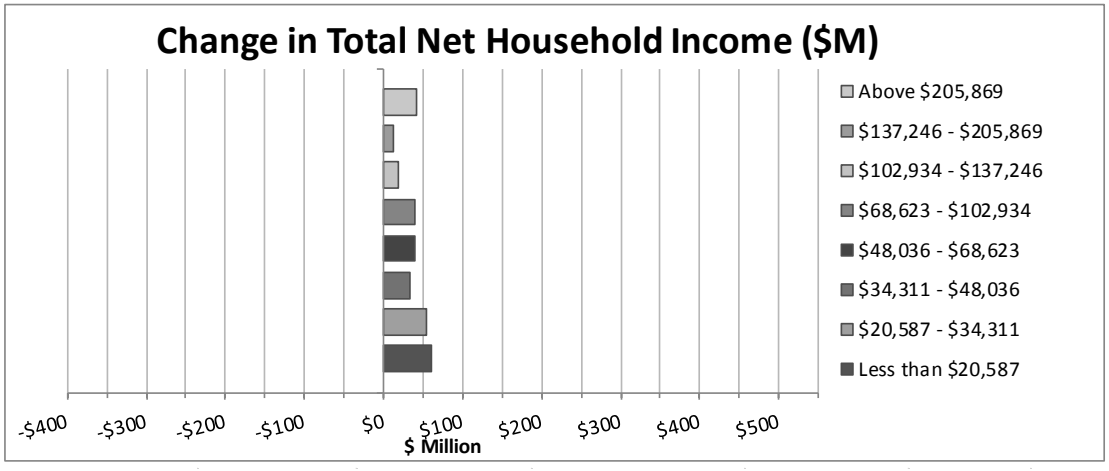
	Baseline	New Equilibrium	Change From Baseline	Percent Change
Private Sector				
Personal Income ($M)	$190,642	$190,819	$178	0.09%
Employment (M)	2.556	2.562	0.006	0.24%
Population (M)	4.111	4.115	0.005	0.12%
Investment ($M)	$15,888	$15,904	$15.6	0.10%
Wage Index	100.0	99.81	-0.19	-0.19%
Return to Capital	100.0	100.02	0.02	0.02%
Price Levels	100.0	99.95	-0.05	-0.05%
Public Sector				
State Spending ($M)	$26,966	$26,861	-$105	-0.4%
GF Revenue ($M)	$8,446	$8,333	-$114	-1.3%
OF Revenue ($M)	$18,519	$18,528	$9	0.0%
Local Govt Revenue ($M)	$16,395	$16,276	-$119	-0.7%
Federal Tax Paid by Oregonians ($M)	$34,628.70	$34,661.27	$33	0.1%

Static Revenue Impact ($ Millions)	-$250
Dynamic Revenue Impact ($ Millions)	$27
Net Revenue Impact ($ Millions)	-$224

General Fund Change ($ Millions)	-$114
Other Funds Change ($ Millions)	$9
Local Revenue Change ($ Millions)	-$119

Total Net Household Income

	Baseline ($M)	New Equilibrium ($M)	**Difference ($M)**	% Difference	Change in Number of Hholds	Mean Income Change per HH ($)
Less than $20,587	$9,514	$9,575	**$61.0**	0.6%	308	$213
$20,587 - $34,311	$11,295	$11,349	**$53.7**	0.5%	377	$168
$34,311 - $48,036	$12,904	$12,937	**$33.2**	0.3%	368	$52
$48,036 - $68,623	$19,068	$19,109	**$40.1**	0.2%	414	$43
$68,623 - $102,934	$28,902	$28,942	**$40.2**	0.1%	303	$44
$102,934 - $137,246	$23,588	$23,607	**$18.9**	0.1%	116	$28
$137,246 - $205,869	$30,287	$30,299	**$11.8**	0.0%	60	$11
Above $205,869	$34,390	$34,431	**$40.9**	0.1%	70	$178
TOTAL	$169,949	$170,248	**$299.8**	0.2%	2,017	



Appendix C

Estimated Effective Tax Rates (ETRs) under updated OTIM

Base Tax Year 2012

HH Income Group	Personal Income Tax	Corporate Income Tax	Residential Property Tax	Business Property Tax	Payroll Tax	Fuel Tax	Beer, Wine, Alcohol & Tobacco Tax	All Other Excise Taxes	Total
Less than $20,587	1.16%	0.02%	3.76%	1.03%	0.50%	0.69%	0.41%	1.72%	**9.29%**
$20,587 - $34,311	1.64%	0.05%	1.86%	0.39%	0.65%	0.41%	0.23%	1.09%	**6.32%**
$34,311 - $48,036	2.50%	0.06%	1.91%	0.61%	0.83%	0.37%	0.22%	1.01%	**7.52%**
$48,036 - $68,623	3.17%	0.08%	2.31%	0.75%	1.03%	0.33%	0.21%	0.91%	**8.79%**
$68,623 - $102,934	3.35%	0.10%	2.41%	0.78%	1.18%	0.29%	0.20%	0.83%	**9.13%**
$102,934 - $137,246	3.31%	0.09%	2.09%	1.03%	1.20%	0.26%	0.18%	0.76%	**8.93%**
$137,246 - $205,869	3.28%	0.08%	1.82%	1.33%	1.23%	0.24%	0.17%	0.72%	**8.87%**
Above $205,869	4.58%	0.04%	1.14%	2.01%	1.00%	0.16%	0.11%	0.51%	**9.56%**