The Economic Impacts of a Gross Receipt Tax for Oregon with Implications for Initiative Petition 28

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NeRC
Northwest Economic Research Center
College of Urban and Public Affairs

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This report was researched and produced by the Northwest Economic Research Center (NERC) with support from Our Oregon.

NERC is based at Portland State University in the College of Urban and Public Affairs. The Center focuses on economic research that supports public-policy decision-making and private sector analysis that relates to issues important to the Pacific Northwest and the Portland Metropolitan Area. NERC serves the public, nonprofit, and private sector with unbiased and independent economic analysis. Dr. Tom Potiowsky is the Director of NERC, and also serves as the Chair of the Department of Economics at Portland State University. Dr. Jenny H. Liu is NERC’s Assistant Director and Assistant Professor in the Toulan School of Urban Studies and Planning. The report was researched and written by Michael Paruszkewicz, NERC Senior Economist, and Tom Potiowsky. Research support was provided by Eric Hoffman and Emma Willingham, NERC Research Assistants.

Our Oregon is a 501(c)(4) organization dedicated to fighting for economic and social fairness for all Oregonians. Their coalition represents organizations and individuals who care about a range of issues, from preserving funding for schools and critical services, to protecting the environment. This report was completed with assistance and input from Daniel Morris, Our Oregon Research Director.
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Executive Summary

Our Oregon, an Oregon-based 501(c)(4) organization, asked the Northwest Economic Research Center (NERC) at Portland State University to examine the macroeconomic effects related to possible initiative petitions that would replace part of the minimum corporate income tax with a gross receipts tax. We look at the macroeconomic effects from both sides: the implementation of the tax and the government’s expenditures of the tax revenues.

After our analysis commenced, the leading proposition to likely be placed on the ballot was IP 28. This report utilizes the tax implementation of IP 28 but uses the state government spending of these taxes as described in IP 22, which is a more broad-based spending pattern than the more narrowed spending focus of IP 28. While our government spending analysis will not be directly comparable to IP 28, it is intended to reflect the dynamic impacts from the proposed tax change and subsequent spending by government. We make this clear throughout the analysis and provide commentary as to implications for IP 28.

The tax side of IP 28 would revise the minimum corporate income tax for C corporations making over $25 million in Oregon sales. The new minimum proposed by the measures are $30,001 plus a 2.5% gross receipts tax on Oregon sales of C corporations in excess of $25 million. Oregon Department of Revenue estimates that 997 C corporations (as of 2012) would be directly impacted by IP 28. Estimated tax revenues from IP 28 are $3.38 billion in fiscal 2017 using a gross sales projection from our economic impact (REMI) model.

Modeling utilizes the REMI model that has been customized for the Oregon economy. We use data from Oregon Department of Revenue (DOR), Oregon general fund budgeting from the Legislative Revenue Office (LRO) and analyze impacts from 2017 to 2027. For the approximately 1,000 C corporations impacted by the tax measure, below is a summary of broad findings highlighting years 2017 and 2027. Scenarios are compared to a baseline projection of the economy with existing tax structures and economic growth, thus the numbers in Table 1 are changes to this baseline.

---

1 The definition of in-state sales for tax purposes is not straightforward for firms providing services or “intangible” personal property. For such firms, sales are considered Oregon sales if the majority of business costs associated with the sales occur in Oregon. Many states are reviewing this “cost-of-performance” approach versus “market basis”. See Gallager, Evan (2014) [http://www.marcumllp.com/publications-1/state-tax-update-the-shift-from-cost-of-performance-to-market-based-sourcing](http://www.marcumllp.com/publications-1/state-tax-update-the-shift-from-cost-of-performance-to-market-based-sourcing) and Oregon Department of Revenue (2016) [https://olis.leg.state.or.us/liz/2015I1/Downloads/CommitteeMeetingDocument/82546](https://olis.leg.state.or.us/liz/2015I1/Downloads/CommitteeMeetingDocument/82546).

2 Initial estimates by the Oregon Legislative Revenue Office (LRO) of the additional tax revenues have been estimated around $6.1 billion per biennium. Our estimate of $3.38 billion per fiscal year 2017 is higher. Our estimate employs a projection of sales for 2017 that may differ from LRO. See Initiative Petition 28 Description and Analysis, May 2016, [https://www.oregonlegislature.gov/lro/Documents/IP%2028%20-%20RR%2016.pdf](https://www.oregonlegislature.gov/lro/Documents/IP%2028%20-%20RR%2016.pdf)
Table 1 – Results Summary

<table>
<thead>
<tr>
<th>Type of Effect</th>
<th>No Federal Deduction</th>
<th>With Federal Deduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
<td>2027</td>
</tr>
<tr>
<td>GRT Revenue (Billions 2015$)</td>
<td>+$3.37</td>
<td>+$4.31</td>
</tr>
<tr>
<td>Private Sector Employment</td>
<td>+1,100</td>
<td>-23,000</td>
</tr>
<tr>
<td>Public Sector Employment</td>
<td>+29,300</td>
<td>+32,200</td>
</tr>
<tr>
<td>Private Sector Output (Billions 2015$)</td>
<td>-$0.11</td>
<td>-$5.918</td>
</tr>
<tr>
<td>Public Sector Output (Billions 2015$)</td>
<td>+$3.74</td>
<td>+$4.48</td>
</tr>
<tr>
<td>Real Personal Income (Billions 2015$)</td>
<td>-$0.61</td>
<td>-$2.614</td>
</tr>
</tbody>
</table>

These estimates are dynamically derived, meaning that tax revenues and economic effects take into account the feedback effects due to taxation and government spending. The analysis in the report breaks these results down into 65 sectors where impacted corporations reside based on NAICS classifications. Industries that are most sensitive to business costs and industries most exposed to supply chain effects of IP28 would experience the largest negative employment and output effects, while those industries with substantial interface with the public sector would experience the largest positive effects. The scenario assumption that had the largest impact on the results that we modeled was the deductibility of the new state taxes from Federal taxes. The change in employment relative to baseline in 2017 under the “no federal tax deduction” scenario represents around an 11% increase for public employment and a decrease of 1% for private employment, while with the assumption of federal tax deductibility, the public employment increase is around 11.4% while the private employment reduction is around 0.4%. For output measures, the no federal tax deduction shows that the lost value of the private sector is greater than the additional value of output from the public sector. The federal tax deduction scenario has the additional public sector output value slightly higher than the private sector output value. The REMI model blends in real personal income from both private and public sources and essentially shows that as the output of the public sector is lower than that of the private sector, personal income falls across all scenarios.

The methodological approach used utilizes the historical linkages between industrial sectors such as input purchases, sales within and outside Oregon, and the degree to which increases in costs of doing business are passed on through higher prices. Ideally, one would like to model the entire supply chain
and final consumer relationships for the C-corporation impacted by IP28 in granular detail. REMI does not analyze the behavior of any individual business but does so with different business or industry sectors. So in order to create the model we have to approximate the tax as a tax on gross sales paid by different business sectors which will each respond differently to the tax; the behavior of any particular individual business within those sectors is unknown. There are reasonable arguments for and against this approach, but ultimately it was the most practical way to model economic impacts using the tools available.

The report also highlights a number of characteristics associated with a GRT but which could not be directly modeled. While IP28 is a very specific GRT with initial impacts on a narrow set of C-corporations, policy makers should be aware of these GRT characteristics in their discussions. The report discusses the following GRT characteristics:

- Tax Pyramiding. To the extent that businesses making sales in Oregon are along the supply-chain of an affected business, intermediate products will add the tax at each stage of production resulting in a higher effective tax rate than the stated tax rate.
- Tax Impact versus Tax Incidence. Since the increased tax is essentially an increased cost of doing business, the statutory tax that is collected from a business (tax impact) may be shifted either backward or forward and paid by another party (tax incidence), i.e., another business or final consumer.
- More Stable Tax Source. GRTs are broader based and generally associated with a more stable base. Since IP28 is narrow as to the firms impacted, the degree of this characteristic is in question.
- Regressivity. GRTs share many characteristics with sales taxes, and thus a greater burden on lower income households. The degree of regressivity will depend on other issues such as tax pyramiding and tax shifting.
- Bonding Capacity. Since the GRT will increase the total amount of state tax revenues, this will also increase the bonding capacity of state government. While this possibility exists, the study does not model the possibility that the state will utilize this capacity.
- Longer Run Changes in Organizational Structure and Industrial Mix. Businesses may change their organizational structure in attempts to avoid the tax, moving away from being C-corporations. Cross-border competitiveness may change the industrial mix in the state through vertical integration, and sourcing of inputs, and location decisions, particularly for service-providing firms.
- Impacts on other tax revenues. Through the dynamic macroeconomic impacts, changes in firm’s revenues and household’s personal income can impact other business and personal tax revenues, e.g., through reduced income, hiring, or spending
- Economic Growth. The analysis assumes a relatively smooth and moderate growth rate for the economy and does not use other economic cycle scenarios like booms and recessions, which would substantially impact results.

In summary, the very broad macroeconomic impacts that are likely to be associated with IP28 are an expanded public sector relative to a slightly smaller private sector in Oregon. This should not be a

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surprise given the amount of taxes collected and the expanded budget of state government, along with the additional government spending of these additional taxes. It is beyond this study to make any claims that this outcome is either bad or good for Oregon - that expanded government services are either more or less valuable than privately provided goods and services.

This report is broken down into the following main sections: Executive Summary, Background Information, Economic Impact Analysis and Results, and Limitations and Additional Considerations. The last section is a postscript on a quick comparison of this study to the May 2016 release of “Initiative Petition 28: Description and Analysis” from the Oregon Legislative Revenue Office.
Part I: Background
This section starts with the experience of other states that have implemented some form of a GRT and then discusses various properties associated with GRTs that leads into the modeling approach taken in this study.

Gross Receipts Taxes in Other US States
The fiscal challenges of US states raised by lingering effects of the great recession, the need to fund infrastructure projects, and faltering school funding, have renewed interest in broad-based business taxes, such as those on the gross receipts of firms using a state’s markets. As a revenue source, the use of gross receipts taxes (GRTs) has increased, from only three states—Washington, Delaware, and New Mexico—after the end of the twentieth century, to multiple states implementing various versions of the GRT since 2001.

Several US states have implemented some version of a gross receipts tax. Given the complications discussed above, all have modified the tax’s base and/or rate according to industry or location. The following examples provide a brief snapshot of the revenue generation experienced by states that have implemented such a tax.

The comparison of states’ GRTs in Table 2 is difficult due to unique features implemented by each state. Where possible, we present comparisons from published data.

Table 2: Summary of Gross Receipts Tax Policies in Other States

<table>
<thead>
<tr>
<th>State</th>
<th>Tax rate</th>
<th>Exemptions</th>
<th>% of businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington</td>
<td>0.14% to 1.5% depending on industry</td>
<td>Less than $28,000 in gross income</td>
<td>close to 100%</td>
</tr>
<tr>
<td>New Mexico</td>
<td>5.125% to 8.9375% depending on business activity and county</td>
<td>Many, including supply chain sales to manufacturers, sales of services for resale, and sales in interstate commerce</td>
<td>Difficult to say based on published data</td>
</tr>
<tr>
<td>Delaware</td>
<td>0.077% and 1.536% depending on business activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>0.26%</td>
<td>Non-profits and businesses with less than $150,000 in sales are exempt from the tax</td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>Most businesses are taxed at a 1% rate, while retailers and wholesalers are taxed at 0.5%</td>
<td>Deductions for compensations or cost of goods sold</td>
<td></td>
</tr>
</tbody>
</table>
Nevada

| Nevada | 0.051% to 0.331% depending on industry | Businesses with gross receipts of less than $4 million or more generated within the state are exempt | About 9.2% of the businesses in the state |

West Virginia

| West Virginia | 0.2% to 0.4% depending on industry | | |

Oregon

| Oregon | Proposed 2.5% on sales in excess of $25 million | Applied to C corporations, other business organizations exempt | About 3% of C corporations |

Washington

Washington State’s Business & Occupation (B&O) tax was first enacted in 1933 and is the oldest broad-based Gross Receipts Tax in the nation. Rates vary from 0.14% to 1.5% depending on industry, and in FY2014 the tax raised $3.25 billion in revenue. Entities with less than $28,000 in gross income are exempt, but there are no general deductions for costs or labor. Credits are available for hiring in rural areas and spending on R&D.

In 2002 a tax reform commission appointed by the WA state legislature found that the B&O tax caused significant tax pyramiding and is non-neutral across industries. On average the tax was estimated to pyramid 2.5 times, but this figure varies considerably from industry to industry, with the tax pyramiding about 1.5 times in service industries and up to 6.7 times in some types of manufacturing. Pyramiding caused the total tax base to be $474 billion in 2005 even though total state production was only $286 billion, indicating that the tax base was actually 177% of total production. The commission cited lack of tax neutrality (i.e. the tax affecting industries equally) and differences in the effective tax rate between industries as potentially causing distortions in the state’s economy.

New Mexico

Implemented in 1935 as an “emergency school tax”, New Mexico’s GRT was originally applied to all sales of goods and services. The current rate ranges from 5.125% to 8.9375% depending on business activity and county. Due to the wide variety of deductions and exemptions that are allowed, this GRT is widely considered to functionally be similar to a retail sales tax.

Delaware

Enacted in 1913, the Delaware GRT has consistently raised a moderate amount of revenue with a modest tax rate. Currently, the tax rate is between 0.077% and 1.536% depending on business activity, with an additional “place of business fee” of $25 to $75 per location. Delaware has raised between 4% and 8% of general fund revenue per year using this tax; the GRT raised $226.5 million in revenue in 2014.

3 For examples: supply chain sales to manufacturers, sales of services for resale, and sales in interstate commerce.

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Ohio

In 2005 Ohio implemented HB 66, which included a series of tax reforms. Part of this reform included replacing the personal property tax and corporate franchise tax with the Commercial Activity Tax (CAT) which taxes all gross receipts from economic activity at a rate of 0.26%. Non-profits and businesses with less than $150,000 in sales are exempt from the tax. The Ohio CAT was phased in over 5 years and raised $1.3 billion in revenue in 2010. This value was less than half the estimated revenue lost due to eliminations of the personal property tax and corporate franchise tax.

Several studies of the Ohio CAT have been conducted, including a study in 2011 conducted by the Ohio Education Tax Policy Institute (OETPI), an organization that focuses on tax revenues for education within the state. The OETPI study found that HB 66 reduced the progressivity of the state tax system while improving the efficiency, compliance, and administration. The report noted that a variety of factors made it difficult to assess the impact of HB66 including implementation of new policies in a recession, several changes to business taxes being applied simultaneously, and lags in data releases. The authors comments that one’s view of HB 66 “depends on one’s view of the proper scale and scope of state government services.”

Texas

After a 2005 Texas Supreme Court ruling that declared the state’s school finance system to be unconstitutional, lawmakers substantially altered the Texas Franchise Tax to become a hybrid business profits tax and a GRT, which is commonly referred to as the Texas Margin Tax. This tax is based on the total revenue of the business but allows for deductions for compensations or cost of goods sold. Most businesses are taxed at a 1% rate, while retailers and wholesalers are taxed at 0.5%. Implemented in 2008, the tax raised $4.45 billion in the first year and slightly less than $4 billion in 2009.

Since the Margin Tax is a hybrid tax, this allows for the taxpayer to choose between one of four different tax base calculations. The use of multiple possible tax bases increases the complexity of the tax as well as the compliance costs. The legislature added a permanent feature, a $1 million revenue exemption, to the tax code in an effort to reduce complexity of tax compliance for small businesses. The difficulty of interpreting and applying the provisions of the law has also resulted in several major lawsuits being filed against the tax.

Nevada

Nevada’s Commerce Tax became effective on July 1st, 2015 as part of the “Nevada Revenue Plan” an omnibus tax package passed earlier that year that included a variety of tax changes with the goal of education funding. Modeled after the gross receipts taxes of Washington, Ohio, and Texas, the Commerce Tax is imposed on businesses with gross receipts of $4 million or more generated within the state. The tax splits businesses into 26 different categories, each including one or more classifications used by the North American Industry Classification system (NAICS) and paying a tax rate that ranges from 0.051% to 0.331%. Although data on total gross receipts in the state of Nevada is limited, Ekay Economic Consultants worked with the Center for Regional Studies at the University of Nevada, Reno, to analyze the scope and revenue generated from the Commerce Tax. They concluded that roughly 9.2% of businesses in Nevada would be impacted by the tax, and it would raise at least $142 million in 2016.
West Virginia

West Virginia implemented a B&O tax in 1921 and was the first state with a GRT that raised significant revenues\(^4\) from 1922 to 1930. Rates ranged from 0.2% to 0.4% depending on industry. The B&O tax was repealed in the late 1987 for most businesses, but municipalities were allowed to impose their own tax thereafter.

Oregon

As with other states, Oregon’s proposed GRT to be implemented in 2017 is specific to rate, who is taxed, and replacement of existing taxes. The new minimum proposed by the measures are $30,001 plus a 2.5% gross receipts tax on Oregon sales of C corporations in excess of $25 million.

Introduction to Properties of Gross Receipts Taxes

A broad-based gross receipts tax is mechanically similar to more familiar sales taxes, but instead of applying only the sale of final goods to end consumers, a gross receipts tax generally applies to all business transactions, both intermediate (business-to-business) and final (business to consumer). For example, in the production of a bicycle, the sale of steel, aluminum and other raw materials to parts manufacturers would be taxed. The tax would apply again when those parts are sold to an assembly plant or distributor, once again when the assembled bike is sold to a wholesaler, and yet again when a wholesaler sells the bike to a retailer. Finally, the sale of the bike from the retail store to the final consumer would also be taxed (as in the case of a sales tax on a final sale to the consumer).

Since a GRT is applied throughout the supply chain the tax can be largely invisible to the end consumer as it becomes embedded in the price of the good or service along the supply chain, unlike a sales tax that is often explicitly and entirely listed on a sales receipt. While IP 28 is not applied across all businesses and is targeted to a portion of C corporations with more than $25 million in Oregon sales, within this group the GRT is applied throughout the supply chain. Later in this report we also discuss that businesses involved in transactions with IP 28 C corporations will also be impacted by the GRT.

A GRT tax is sometimes thought to have several advantages over other business taxes, such as having a broader base compared to a retail sales tax or corporate income tax. A broad base allows relatively low statutory tax rate to raise a considerable amount of revenue, and a GRT potentially offers a more stable government revenue source compared to corporate income taxes. The comparative simplicity of the tax raises its appeal to policymakers, and is difficult for companies to avoid (particularly relative to corporate income taxes), which will increase tax compliance. For IP 28, you have a narrow initial leveling of the tax on a portion of C corporations, but within this group of businesses, the GRT is broad based.

Perhaps the most significant disadvantage of a GRT is that it, like other sales taxes, can be markedly regressive. Since lower and middle income households spend a higher percentage of their income on consumption as compared to high-income households, those households are disproportionately burdened by taxes on transactions that they participate in. Similarly, many GRTs do not take into account the profitability of businesses, and can disproportionally burden low margin/high volume businesses as

\(^4\) This accounted for a third to half of state revenue during the period.
compared to high margin/low volume businesses. Another commonly cited disadvantage of a GRT with respect to businesses is so called “tax pyramiding”, which arises as the tax is applied at each business transaction (as described above), resulting in an effective tax rate often significantly higher than the statutory rate. Additionally, tax pyramiding, as well as the non-selective nature of most gross receipts taxes, result in a tax that is “non-neutral”. That is, the tax affects each industry differently, rather than affecting them uniformly. This phenomena creates unintended advantages and disadvantages across industries, and thus distorts market outcomes. It is likely that IP 28 shares many of these disadvantages but it is difficult to know their relative degree of presence.

Revenue Stability of Gross Receipts Taxes

Given the wide applicability of a broad-based GRT, the tax base can actually be larger than the gross state product. This leads to a potentially more stable source of tax revenue as compared to traditional sales or corporate income taxes which have relatively smaller and variable bases. In a study for the Council on State Taxation (COST) and the Tax Foundation, Mikeselle\(^5\) examined the revenue stability of Washington’s Business and Occupation (B&O) Tax (a modified GRT) compared to the state’s sales tax revenue and Oregon’s personal and corporate income taxes for the years 1995 – 2005. The study found that the B&O tax base correlated strongly with Washington’s retail sales tax base, Oregon’s adjusted gross income tax base, and Oregon’s corporate income tax base, and concluded that the B&O tax was “slightly less stable than the retail sales tax but more stable than taxes on corporate profits or individual income”. When looking just at the revenues from IP 28, we would expect this revenue source to be more stable compared to taxes based on income sources and add an element of stability to the Oregon revenue system. But the degree to which IP 28 would make the entire Oregon revenue system more stable is uncertain.

Simplicity and Transparency Issues

Regardless of their desirability from firms, GRTs are comparatively simple to comply with as compared to corporate income taxes, and may not face the same type of avoidance activity that has been seen with corporate income taxes. IP 28 should also be simple to administer and reduce avoidance as C corporations are already reporting their Oregon sales. This simplicity, however, has the possible disadvantage of obfuscating the cost of the tax from downstream business and consumer taxpayers as the GRT becomes embedded in the price of the final goods or services.

Tax Pyramiding

Another commonly raised issue concerning GRTs is that, since such taxes are applied to all transactions regardless of whether they are intermediate sales between businesses or the sales of final products to consumers, the phenomena of “tax pyramiding” could arise. Tax pyramiding refers to a situation when a tax is applied at each transaction stage of production, resulting in the final product having been taxed at a much higher effective rate than the statutory rate of the tax. This issue does not affect every industry equally; those with more taxed stages along their supply chains will have higher levels of tax pyramiding. In Washington, it has been estimated that pyramiding of the B&O tax resulted in effective rates from 1.5 to 6% depending on industry. Many states (see following section) with GRTs have attempted to mitigate tax pyramiding through deductions, exemptions, and/or other credits to industries wherein pyramiding is especially problematic, or by setting different tax rates for different sectors of the economy. With regards to IP 28, one cannot say that tax pyramiding would be minimized because the initial tax only affects C

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\(^5\) Gross Receipts Taxes in State Government Finances: A Review of Their History and Performance, 2007
corporations with $25 million in Oregon sales. Our model results (discussed later) show that tax pyramiding is present, but the degree or intensity is difficult to measure without knowledge of individual firms within business sectors. A less-obvious complication that tax pyramiding introduces is its ability to magnify the differences that result across firms or across industries. In this way, such taxes can be described as “non-neutral” – they affect individual firms differently rather than equally. Further, because GRTs ripple through firms’ supply chains, these differences can be unexpected or unintended. It is widely accepted that non-corrective taxes should be designed to minimize this sort of unintended selectivity, or “distortion”, in the economy. Non-neutrality can give rise to incentives for firms to vertically integrate, meaning that companies within a supply chain will merge together to avoid some taxed transactions. It may further blur the intended effects of targeted corrective taxes, particularly if pyramiding in the production of “socially costly” goods is lower than less costly alternatives. The Washington State Tax Study notes that the variation in effective tax rates across industries to be substantial. This issue of “non-neutrality” would likely exist with IP 28.

Tax Impact and Incidence
The proposed tax would implement a GRT of 2.5% on in-state sales above $25 million for C Corporations. According to data from the Oregon Department of Revenue (DOR), there were just over 1000 such businesses operating in Oregon in 2012. As Table 3 summarizes, the concentration of these firms varies by industry, along with the aggregate size of their taxable sales. It should be noted that Table 3 is a comparison to total corporate sales for the industry sector, not total sales.

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6 http://dor.wa.gov/content/aboutus/statisticsandreports/wataxstudy/Final_Report.htm
7 Defined in Oregon ballot initiatives IP22, IP23, IP28, and IP29

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Table 3 – C Corporations with over $25 million in Oregon sales, by industry, 2012

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Number of Firms with &gt;$25 Million in-state sales</th>
<th>OR Sales (Thousands)</th>
<th>Affected sales (% of Corporate Sales)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing, and Hunting</td>
<td>12</td>
<td>$717,461</td>
<td>29%</td>
</tr>
<tr>
<td>Mining</td>
<td>*8</td>
<td>*8</td>
<td>*8</td>
</tr>
<tr>
<td>Utilities</td>
<td>6</td>
<td>$4,185,230</td>
<td>98%</td>
</tr>
<tr>
<td>Construction</td>
<td>27</td>
<td>$3,374,461</td>
<td>56%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>156</td>
<td>$12,793,845</td>
<td>67%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>211</td>
<td>$35,400,668</td>
<td>81%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>108</td>
<td>$23,270,600</td>
<td>85%</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>28</td>
<td>$3,310,691</td>
<td>70%</td>
</tr>
<tr>
<td>Information</td>
<td>39</td>
<td>$4,690,570</td>
<td>79%</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>153</td>
<td>$17,790,988</td>
<td>79%</td>
</tr>
<tr>
<td>Real Estate, Rental, and Leasing</td>
<td>19</td>
<td>$1,386,994</td>
<td>53%</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>35</td>
<td>$2,325,042</td>
<td>42%</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>113</td>
<td>$12,851,915</td>
<td>77%</td>
</tr>
<tr>
<td>Administrative, Support, and Waste Management</td>
<td>22</td>
<td>$1,460,315</td>
<td>57%</td>
</tr>
<tr>
<td>Education Services</td>
<td>*8</td>
<td>*8</td>
<td>*8</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>29</td>
<td>$4,311,899</td>
<td>68%</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>*8</td>
<td>*8</td>
<td>*8</td>
</tr>
<tr>
<td>Accommodation and Food Services</td>
<td>15</td>
<td>$1,037,206</td>
<td>53%</td>
</tr>
<tr>
<td>Other Services (except Public Administration)</td>
<td>11</td>
<td>$1,804,699</td>
<td>71%</td>
</tr>
</tbody>
</table>

An important feature of a gross receipts tax is that, however limited the initial scope of the tax (in this case, it is levied only on sizeable C corporations), the tax can affect all business with exposure to targeted corporations somewhere along their supply chains. In the bicycle production example above, consider the case where there is only one firm in the supply chain – a bicycle assembly plant that has the required $25 million in sales to become eligible for the new GRT. As this firm will respond to its new downstream cost of doing business, the effects of that response can be felt upstream by other firms that sell the plant its raw materials, and downstream to the wholesale and retail businesses that purchase the finished bicycle. Thus, as is the case with other business taxes, the impact of a gross receipts tax is not solely limited to its statutory base.

8 Some industry-specific data is non-disclosable; DOR provided aggregate totals, which were allocated according to known industry distributions. See below for discussion.
Very much related to the supply chain impacts is the concept of tax shifting. The term *tax impact* relates to the point where the initial burden of the tax rests, what we might call the legal or statutory point for the tax. The ultimate resting place of the tax burden is referred to as the *tax incidence*. If the tax impact differs from the tax incidence, then *tax shifting* has occurred. A business tax can be absorbed, fully shifted, or partially shifted. The shifting of the tax could be both forward, as in a high price for goods and services, or shifted backward, as in lower prices for resources. And as discussed above, tax pyramiding can amplify tax shifting across the supply chain. What determines the presence of tax shifting is very complicated with factors that include: market structure, unrealized gains, industry cost conditions, price elasticity, type of tax, and political jurisdiction criteria.\(^9\)

Empirical work on tax incidence report mixed results depending on the type of tax. Corporate income taxes are generally viewed in a general equilibrium approach and concentrate on changes in relative prices rather than absolute prices. The burden of the corporate income tax is concentrated on the *sources* side between capital and labor and largely ignored on the *uses* side of consumers and households. Although difficult to say there is a consensus, many studies find that capital assumes the majority of the tax burden.\(^11\) For empirical work concerning excise and sales taxes, the tax shifting to consumers runs from “…significantly less than 100%, and still others find significantly more than 100% shifting.”\(^12\) Gross receipts taxes resemble more closely excise and sales taxes, and although we did not come across studies explicitly addressing their tax incidence, we expect the results to be similar.

The GRT being proposed in Oregon has unique market conditions for the impacted businesses. Within industries, there are different degrees of competition, sensitivity to price changes (demand and supply elasticities), different cost structures, business organizational structures (degree of vertical integration), and across state-lines suppliers, competitors, and customers. All of these factors can have an influence on tax incidence. On top of all this, if we take a *budget incidence* view, we should also take into account the expenditure incidence of spending the taxes which is the benefit side of the symmetrical incidence to the cost side of the tax.

Given the findings of studies on tax incidence, and the lack of individual business behavior response data for the impacted businesses for the proposed GRT for Oregon, we do not believe we can make an assumption about tax incidence. Since the literature encourages a general equilibrium approach to this issue, we rely on the historical behavioral patterns of businesses facing production cost increases that are presented in the general equilibrium model in REMI (discussed below). The model works with changes in relative prices that impact resource allocation, and the complications of resultant tax shifting. We model the *budgetary incidence view* to look at the interactions of both the imposed gross receipts tax and government expenditures of these taxes. The analysis is fully described in Part II: Economic Impact Analysis.

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\(^9\) *Burden* is the common usage in public finance to signify who or what is paying the tax. There is no direct connotation to words such as *problem, difficult, challenging*, and so forth.


Part II: Economic Impact Analysis

The following sections detail the data and modeling methodology used for this analysis, as well as its results. All assumptions - both explicit and implicit - made during this process are noted.

Methodology – Oregon Sales Data and Estimated Gross Receipts Taxes

The analysis of the macroeconomic effects of the proposed tax began with industry-level data provided by Oregon Department of Revenue (DOR), detailing the Oregon sales of C Corporations within each industry in several sales brackets, as well as the number of such firms in each bracket.

In some cases, in-state sales data was not available from DOR due to private data disclosure issues (i.e. the limited number of firms in a particular industry and income bracket means that reporting the sales therein would reveal firm-specific information). The sales of C Corporations in the “Educational Services”, “Mining”, and “Arts, Entertainment, and Recreation” categories were non-disclosable for this reason. NERC requested a three-industry aggregate total for these industries from DOR, and allocated shares of the total to each of the three non-disclosable industries according to its share of all C Corporation Oregon sales (regardless of income bracket). This was based off the assumption that the sectoral distribution of C corporations with high in-state sales matches that of C Corporations operating in Oregon overall.

Further, DOR provided data for C Corporations with “Unknown” industries. Once again, the sectoral distribution of these firms was assumed to match the overall distribution of C Corporations, and the sales and number of firms in the category were allocated to each “known” industry. Once the 2012 data was allocated, the NAICS-based industry classifications of the DOR data was mapped to those of REMI, the dynamic forecasting and impact model used for this project (a full description of REMI follows this section). The industry scheme within REMI is designed to match NAICS industries.

The 2012 sales data provided by the DOR was then used to project estimated sales figures based on potential tax policy effects for each year between 2017 and 2027. The annual growth rates for each industry and year of REMI’s baseline forecast of the Oregon economy were applied to the DOR data, providing projections of Oregon sales by C Corps with greater than $25 million in-state sales in each industry. From these projections, the taxes levied on each industry’s corporations were calculated.

To calculate the taxes to be collected within each industry, the sales of C Corporations with greater than $25 million in Oregon sales were first summed. From this sum, $25 million was subtracted for each of the firms that were in the industry in 2012\(^{13}\), and the resulting tax base was multiplied by the proposed rate of 2.5%. Table 4 presents the forecasted taxes to be collected from each industry in 2017. Once again, firm-level data is not publicly available, and REMI estimates effects at the industry [rather than firm] level. Thus, in the results that follow, it is not possible to isolate firm-specific effects.

\(^{13}\) Although we were able to project relevant industry sales through the projection period, it was not possible to project the number of relevant firms in each industry during the period (i.e. the relationship between industry sales and number of firms in the industry is highly variable). The number of relevant firms in each industry in 2012 was thus assumed to remain constant through 2027. The potential impacts of this assumption are very small.
Table 4 – 2017 projected tax collections, by industry

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>2017 Gross Receipts Taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry, Fishing, and Hunting</td>
<td>$15,521,459</td>
</tr>
<tr>
<td>Mining</td>
<td>$2,028,080</td>
</tr>
<tr>
<td>Utilities</td>
<td>$114,135,999</td>
</tr>
<tr>
<td>Construction</td>
<td>$103,160,431</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>$283,042,105</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>$969,536,791</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>$659,362,358</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>$78,877,526</td>
</tr>
<tr>
<td>Information</td>
<td>$114,841,838</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>$448,048,027</td>
</tr>
<tr>
<td>Real Estate, Rental, and Leasing</td>
<td>$28,234,735</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>$48,360,839</td>
</tr>
<tr>
<td>Management of Companies and Enterprises</td>
<td>$311,610,228</td>
</tr>
<tr>
<td>Administrative, Support, and Waste</td>
<td>$28,901,990</td>
</tr>
<tr>
<td>Education Services</td>
<td>$4,958,811</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>$107,441,269</td>
</tr>
<tr>
<td>Arts, Entertainment, and Recreation</td>
<td>$2,333,898</td>
</tr>
<tr>
<td>Accommodation and Food Services</td>
<td>$21,473,662</td>
</tr>
<tr>
<td>Other Services (except Public Administration)</td>
<td>$43,587,681</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$3,385,463,727</strong></td>
</tr>
</tbody>
</table>

Methodology: Modeling
The sales and levied tax estimates provided for each industry over the observation period were then transformed into inputs to REMI, the economic model used for the remainder of the project. Below, a description of REMI is followed by the methods used to enter estimated taxes into the model.

The REMI PI+ Model
NERC used a detailed model of Oregon’s economy developed by Regional Economic Models, Inc. to analyze the dynamic effects of the proposed gross receipts tax. The REMI model is widely used for planning and policy analysis at the national, state, and local levels, and is considered state-of-the-art for such purposes. It integrates input-output, econometric, and general equilibrium approaches from economics to produce realistic simulations of the complicated channels through which economic shocks move through the economy. It is thus a dynamic forecasting tool; by first estimating the complex historical relationships between economic entities and activities, the model is able to project outcomes for virtually any set of user-defined policies and economic circumstances.
Data underlying the REMI model includes historical personal income, employment, and population at each geographic level from the Bureau of Economic Analysis, Bureau of Labor Statistics, and US Census Bureau. The responses of firms and households to any economic shock will vary across industries and regions, so this data was incorporated at a high level of disaggregation. The model also utilized historical fuel costs, housing prices, corporate tax rates and structures, and several other supplemental time series to estimate particular regional characteristics. Employment projections from the BEA and BLS are incorporated into REMI’s baseline forecast, to which alternative scenarios can be compared.

REMI is designed to capture interactions between industries and locations. For example, in the production process, a packaging manufacturer in Portland may require: wood fiber originating in the southern Willamette Valley, electronics manufactured in the western metro region, and transportation services based in central Oregon. A “shock” to any link in that chain will have both upstream and downstream effects in the model simultaneous with all of the effects happening in other supply chains. Household and population dynamics are similarly represented; households (like firms) respond to exogenous shocks by adjusting their purchases and labor decisions. This means, for example, that workers will tend to relocate towards better employment opportunities and away from higher living costs. This movement, in turn, interacts with labor and housing markets over time, creating a fully dynamic system akin to common representations of the macroeconomy. Figure 5 illustrates the basic structure of the model economy in REMI. The schematic represents a single geographic region. More complex links between regions including migration, inter-regional competition, and cross-border price effects were also modeled, but for simplicity, these linkages are not shown.

Figure 5 – The REMI PI+ Model
The magnitudes of supply-side and household demand effects (the arrows in Figure 5) depend on the responsiveness of numerous variables to economic signals and conditions. These response elasticities and multipliers are generated econometrically by REMI, using observed data to simulate shocks and expected responses in the economy. For this study, especially relevant elasticities include the price elasticity of supply and demand for goods and services, and the marginal propensities of households to consume different goods and services. In REMI, households of different income levels have appropriately different spending and saving habits. When a tax marginally increases production costs in a given industry, it is thus possible to track the demand and output impacts across individual industries\textsuperscript{14}, which then trigger additional effects in accordance with each industry’s estimated response to changes in input prices, market conditions, etc.

**Modeling Tax Inputs**

Taxes on sales, such as gross receipts taxes, marginally raise the costs to firms of delivering goods and services to other firms and consumers. Taxes for each industry thus enter the model as an increase in production costs (as seen in the lower right of Figure 5). Because all firms operating in Oregon’s economy - regardless of the location of their headquarters – are taxed for in-state sales, it was necessary to account for taxes levied upon both in-state and “out-of-state” firms selling inside Oregon. REMI’s underlying historical data provides the proportion of demand in the state met by Oregon sellers and the proportion met through imports\textsuperscript{15} from out-of-state firms within each industry. The “self-supplied” portion of the estimated tax was partitioned from the estimated taxes to be collected and entered as an increase in production costs for the appropriate Oregon industry. Considering the REMI model used here is Oregon-specific, it became necessary to assign the share of the collected taxes stemming from imports to the corresponding purchasers in those transactions. This means, for example, that when a fuel distributor in Oregon purchases imported production inputs, the Oregon firm’s production costs increase by the amount of the tax. This effectively assigns the tax to the correct industry within the Oregon model. For final consumption imports, a similar “handoff” is made to the prices of corresponding goods and services within Oregon.

**Relative Production Costs, Competitiveness, and Border Issues**

This version of REMI lacks the ability to automatically disentangle production costs arising from in-state supply chain sales from the production costs involved in selling exports to other states and nations. The default results of the in-state portion of the tax thus include both valid supply-chain effects discussed above as well as a potentially overstated disadvantage for Oregon firms exporting to other states within the model, where their final output would not be subject to the proposed tax. Unfortunately, the best available correction for this modeling idiosyncrasy involves effectively nullifying all changes (both valid and inadvertent) to Oregon firms’ competitiveness in export markets. NERC repeated the modeling, manually adding export sales equal to the loss of exports for each industry. The model results without the manual adjustment likely overstate the loss in competitiveness for Oregon firms due to in-state supply chain purchases, while the adjusted results

\textsuperscript{14} Once again, it is not possible to isolate impacts in individual firms within industries with available data.

\textsuperscript{15} Throughout this section, “imports” refers to goods and services from firms in other countries as well as other US states; “exports” refers to sales of Oregon firms to other countries as well as other US states.

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likely understate the effect. Fortunately, the discrepancy between the unadjusted and adjusted results is relatively small. In the following section, both are presented for illustration.

A gross receipts tax is levied on the sales of both intermediate and final goods and services. For final goods transactions, Oregon-based sellers and firms exporting to Oregon both face the same tax, leaving their relative production costs unchanged. However, it is important to note that a producer in Oregon with an Oregon-based supply chain would have a higher relative production cost than an identical firm making its supply chain purchases elsewhere if the producer, or any of its suppliers (or their suppliers, and so on) include an affected firm. For illustration, consider two firms, one with an Oregon-based supply chain that includes a C corporation with over $25 million in Oregon sales and one with an Idaho-based supply chain, producing the same widget for sale within Oregon. If production requires $100 in intermediate purchases for both firms, the Oregon supply based firm will have a higher production cost than the firm making its intermediate purchases in Idaho, regardless of the identical tax rate levied on both firms when they finally sell their widgets. In this case, the Oregon-supplied firm’s production costs rise once when the intermediate good is purchased, and then again when it’s final good is sold. The Idaho-supplied firm will have not paid the tax on its intermediate transaction, and would be taxed only once when its final good is sold in Oregon. The magnitude of this effect rises with the number of taxed intermediate purchases along a firm’s supply chain.

This effect similarly applies to out-of-state sales. Although neither Oregon-based sellers nor out-out-state sellers would be taxed for sales outside of Oregon (as proposed, this gross receipts tax will be “destination based”), those firms with taxable Oregon-based supply chains will face higher relative production costs than firms making their intermediate purchases elsewhere, even if both types of firms sell their final output in another state.

Production costs, such as business taxes, influence market shares within the REMI model. As the examples above illustrate, the increase in production costs for firms making intermediate purchases inside Oregon would be higher than similar firms doing so outside the state, given a destination-based sales tax. However, entering taxes into the model requires careful consideration of relative production costs. NERC partitioned industries’ in-state sales of firms operating within Oregon and the exports of out-of-state firms to Oregon. Imported sales were further decomposed into the intermediate imports of Oregon firms and the final goods imports of consumers.

State and Local Business Tax Deductibility from Federal Corporate Taxes
Accurate consideration to the changes in businesses’ overall tax burden due to an increase in state and local taxes need to take into account the deductibility of those taxes from firms’ federal income taxes. If a firm can deduct a normal state business tax\(^\text{16}\) as a business expense from its federal taxable income, then this deduction reduces the burden of the state tax in proportion to the effective federal tax rate paid by the firm. It appears\(^\text{17}\) that the proposed gross receipts tax could be deductible from

\(^{16}\) See IRS Publication 535 for more information
\(^{17}\) NERC has no expertise in tax law and claims no legal opinion on this matter; the assumption made in regards corporate tax deductibility here is intended to be illustrative and results are presented with and without this assumption.
firms’ federal taxable income, which presents a potentially substantial reduction in the new burden on Oregon industries, albeit at the expense of tax revenues at the federal level.

It is well established that—given deductions, loopholes, and strategic accounting practices—effective tax rates faced by large firms at the federal level are often significantly lower than their statutory rate. While the highest statutory marginal rate is currently 35%, several studies\textsuperscript{18} have noted effective rates as low as 2.9%. These rates vary by industry, year, and individual business. To account for state business tax deductibility from federal taxes, modeling was repeated with and without the assumption that affected Oregon businesses are able to deduct the new gross receipts taxes paid from their federally taxable income, and that they face an effective federal corporate rate of 20%. Unlike the trade adjustment described immediately above, side-by-side comparison of modeling results with and without this assumption show that model results are quite sensitive to this assumption. Given the variable nature of effective federal corporate tax rates, all results should be considered in context with each other.

**Modeling Government Expenditure Inputs**

Most of the ballot measures\textsuperscript{19} proposed at the time of writing include language that specifically earmarks the taxes collected from the proposed tax to programs such as K-12 education, health care, and senior services spending. In lieu of actual plans regarding these [currently hypothetical] revenues, expenditures from new tax revenues were modeled as general state government spending, according to historically estimated data underlying REMI\textsuperscript{20}. Generally speaking, much of a state’s budget is dedicated to the purposes outlined in the proposed ballot measures (Figure 7), but spending in this analysis also includes expenditures for infrastructure, public safety, administration, and other typical state budget items. This spending pattern more closely reflects the flavor of IP22 than IP28, and important distinction that impacts our results.

Sales figures, and thus revenue estimates are based on industry revenues in 2012; projected revenue growth was derived from REMI’s baseline forecast for the state of Oregon, and the resulting figures vary from those released by the Oregon Legislative Revenue Office (LRO)\textsuperscript{21}. Depending on the modeling inputs used below, the revenue projections based on REMI’s baseline forecast begin at $3.37 billion in 2017 and are roughly $4.3 billion in 2027 (Table 1).

For reference, total general fund and lottery revenues for the State of Oregon were approximately $8 billion per year over the 2013-15 biennium.\textsuperscript{22}

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\textsuperscript{18} For examples: GAO Publication GAO-13-520, Congressional Research Service publication R42726 and R41743, Center For Tax Justice’s “The Sorry State of Corporate Taxes”, 2014.

\textsuperscript{19} IP 22, IP23, IP28, and IP29

\textsuperscript{20} This data is provided by the US Census Bureau, and can be explored here: http://www.census.gov/govs/state/

\textsuperscript{21} See “Additional Considerations” and “Postscript” below for further discussion of LRO’s estimates. Our study assumes more general government spending, as does LRO, that includes high-impact activities such as public infrastructure investment and construction.

\textsuperscript{22} The 2013-15 biennium Legislatively Approved budget was $62.5 billion, of which $15.9 billion came from general fund and $0.84 billion was from lottery.

Northwest Economic Research Center
Table 6 – 2017-22 gross receipts tax revenue

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3,375,862</td>
<td>3,477,328</td>
<td>3,573,224</td>
<td>3,667,708</td>
<td>3,758,446</td>
<td>3,844,870</td>
</tr>
</tbody>
</table>

Figure 7 – 2013-15 biennium Oregon state government expenditures

Image source: Department of Administrative Services, Chief Financial Office

Modeling Taxes, Revenue, and Dynamic Feedback

Modeling the impact of a proposed tax (as opposed to calculating tax revenues after a tax has been collected) requires additional caution with regards to the dynamic responses of firms and consumers when faced with higher costs. Simply put, consumers and businesses respond to prices and costs in a similar fashion. If a tax or other factor marginally raises the cost of a transaction, some transactions may not occur at all, as consumers adjust their purchases and business adjust their production and sales decisions at the margin. Conversely, if additional government spending stimulates the economy, additional transactions may add to those already expected. This means that the estimated taxes and revenues calculated as model inputs above will, once entered into the model, continually need to be adjusted to reflect new economic conditions. NERC accounted for this dynamic feedback during the modeling process, allowing model inputs to inform model output, and vice versa.

Results

The results below begin with a base-case model run that reflects economic changes without the additional assumption regarding businesses’ federal tax filings or the imperfect adjustment for cross-border competitiveness issues discussed above. Results that incorporate these assumptions follow.

Employment

Broadly speaking, a measure that simultaneously levies a new tax on the state economy and increases government expenditure will have two opposing short-term effects. An increase in the cost of doing business reduces the incentive to sell a good or service, and to the extent that firms are able to recoup the new expense from their buyers via price increases, reduces the incentive of firms and consumers to purchase goods or services in Oregon. Conversely, a substantial increase in government
expenditures on infrastructure, education, health care, and administration has a stimulating effect on the state economy as public agencies and the private firms they contract with increase hiring and wages to meet the new government demand. These new and/or higher-paid employees in turn spend additional income in the private economy, and both tax and expenditure effects ripple through the multiplier processes in firms’ supply chains and households’ income and spending.

An advantage of REMI is that the economic “shocks” of higher taxes and higher spending can be modeled simultaneously, their effects interacting with each other as they alter the baseline of the economy. As previously stated, the cost of a tax will reduce economic activity, and the expenditure of tax revenues will increase economic activity. In the results below, the net macroeconomic effects of the proposed measure are presented as net deviations from the baseline forecast for the state of Oregon. In order to emphasize that a reduction in a baseline forecast does not imply an absolute decrease in say, employment or economic output, the first result below is presented in absolute terms, differences relative to the baseline, and percent change from the baseline. These graphs illustrate slower employment growth rather than an absolute reduction in employment.
Figure 8 – Oregon employment after a new gross receipts tax and concurrent increase in state government expenditure (starting 2017), thousands of jobs

[Graph showing employment trends from 2016 to 2027, comparing New Private Sector, Baseline Private Sector, New Government, and Baseline Government.]
Figure 9 – Oregon employment after a new gross receipts tax and concurrent increase in state government expenditure (starting 2017) without other adjustments, change relative to baseline

Figure 10 – Oregon employment after a new gross receipts tax and concurrent increase in state government expenditure (starting 2017), percent change relative to baseline
As expected, the tax tends to suppress employment growth in the private sector from which it is collected. This effect is offset by the considerable increase in public spending and public employment. In the last year of the estimation period, the net changes in employment are a 1 percent decrease in the private sector and 11 percent increase in the government sector relative to the baseline. Again, Figure 8 illustrates that employment in both private and public sectors continue to grow in absolute terms after the tax and new spending are implemented.

Prior discussion noted that a portion of the estimated slowdown in private sector employment growth due to the tax on in-state purchases can be traced to changes in Oregon firms’ competitiveness in export markets. A negative change due to taxes within firms’ in-state supply chains is expected; however, the model also perceives this modeling input as a change in Oregon firm’s relative production costs to sell final goods in export markets. NERC took several steps to minimize this effect in the results above. In order to eliminate this invalid interpretation, it was necessary to also nullify the valid supply chain effect. The results below therefore represent a potentially understated outcome of the tax for employment, income, and output, which when combined with the likely overstated result above provide a fuller, more balanced picture.

Figure 11 – Oregon employment after a new gross receipts tax and concurrent increase in state government expenditure (starting 2017), with adjustment for lost exports\(^23\), change relative to baseline

\(^{23}\) This adjustment results in figures that likely understate the downside effects of the measure. See text above.
The adjustment for lost exports translates into roughly 12,500 fewer foregone private sector jobs in the last year of the estimation period relative to model results without this adjustment. Many results below will be presented with this adjustment; given this significant difference in outcomes, all results are presented in an appendix following the report body.

The employment effects of the tax within an Oregon industry depends on its concentration of C Corporations with over $25 million in Oregon sales as well as the amount of intermediate output it purchases from affected firms. Similarly, the industry-specific effects of increased state government expenditures vary with industries’ interface with the public sector. As expected, industries that provide the most goods and services to the government (i.e., construction, administrative and waste services, and professional and business services) experience the largest employment increases, while industries with the largest concentration of taxable transactions and longest supply chains (i.e., retail and wholesale trades, financial services, and manufacturing) experience the largest employment decreases.

Figure 12 – Largest positive employment effects of the proposed measure, with adjustment for lost exports\(^\text{24}\), relative to baseline

\(^{24}\) This adjustment results in figures that likely understate the downside effects of the measure. See text above.
Figure 13 – Largest negative employment effects of the proposed measure, with adjustment for lost exports\textsuperscript{25}, relative to baseline

Economic Output
The effects of the tax and associated public spending on the state’s economic output correlate with changes to the level of employment as well as its industrial mix. As Figure 14 illustrates, the substantial increase in public employment translates into a smaller opposing effect with regards to private sector output. The net change to private annual output is a small initial increase, and declines over the estimation period. After ten years the annual difference is negative 1.49 percent, or $5.5 billion less, relative to the baseline forecast without adjustment for lost exports. With the export adjustment, the net change is a loss of $3.2 billion. It should be noted that this decline is accompanied by an increase in government output over the period.

\textsuperscript{25} This adjustment results in figures that likely understate the downside effects of the measure. See text above.
Figure 14 – Oregon private sector output after a new gross receipts tax and concurrent increase in state government expenditure, with and without adjustment for lost exports, percent change relative to baseline

Once again, those industries with the largest exposure to the gross receipts tax would experience the largest negative change in industrial output, while those with substantial interface with the public sector experience the largest positive change in industrial output. Figures 15 and 16 summarize the largest of these effects with the adjustment for lost exports.
Figure 15 – Largest negative changes to real output due to proposed measure, with adjustment for lost exports, relative to baseline

Figure 16 – Largest positive change to real output, with adjustment for lost exports, relative to baseline

Real Personal Income
Parallel to the changes to economic output seen above, real personal income in Oregon would decline in the presence of the proposed tax. This is seen in Figure 17, regardless of whether the adjustment for lost exports is included in the estimation or not. By the end of the estimation period, this amounts...
to a $2.4 billion decrease ($1.5 billion decrease with the export adjustment), or near 1.15% decrease relative to the baseline. (In the next section, we include the case of deductions of the GRT on federal taxes which will have an impact on real personal income (and other impact measures) that is different from the present analysis.)

Figure 17 – Oregon Personal Income, with and without adjustment for lost exports, percent change relative to baseline

Changes to personal income raise an important issue when analyzing the net impacts of a new tax. Because any new tax creates changes to output, employment, purchases, and other economic activities, it creates dynamic feedback that can affect public revenues from other sources. If a new tax has the initial effect of reducing payrolls relative to the baseline, the reduction in payrolls can in turn reduce payroll tax collections. This phenomena can affect most other sources of tax revenue; employment and production changes lead to changes in the transactions that produce more income, excise, property, and other tax revenues. While the dynamics between the employment, output, income, and revenue effects of this specific tax have been accounted for (see Methodology), the effects on other interrelated tax revenue streams are highly complex and not directly computable from these results.
State and Local Tax Deductibility

As previously discussed, if firms operating in Oregon are able to deduct the amount paid in gross receipts tax from their federal taxable income, then some portion of the burden of the tax could be shifted out of state. Assuming that the affected businesses face an effective federal corporate tax rate of 20% (see State and Local Business Tax Deductibility from Federal Corporate Taxes section), then this deduction will offset a significant amount of the burden of the proposed tax for firms that make it. This assumption significantly changes the results previously stated. Generally, removing a fifth of the burden from affected firms results in smaller negative changes to employment and industrial output. Since every firm faces a different effective tax rate, the following results should be interpreted with appropriate discretion and in context with those above.

**Figure 18 – Oregon employment after a new gross receipts tax and concurrent increase in state government expenditure (starting 2017), with 20% federal ETR assumption**

By itself, the change in results due to this assumption (Figure 18) is similar in magnitude to the adjustment made for lost exports due to in-state supply chain sales presented above. The combined adjustment calculations substantially change the model’s results, however. Below, Figure 19 illustrates that the combined effect of these two assumptions has little change in results in the large increase in the public sector employment, but decreases the reduction in private sector employment to just over 4,100 jobs (-0.65% relative to baseline).
Figure 19 – Oregon employment after a new gross receipts tax and concurrent increase in state government expenditure (starting 2015), with 20% federal ETR assumption and adjustment for lost exports

Likewise, assuming that firms deduct the gross receipts tax from their federal taxable income and that they face a 20% effective federal corporate tax rate, reduces the decrease in output growth seen in the results above. Combined with the adjustment for lost exports, the difference is again substantial. In 2027, the percent change relative to the baseline with both assumptions is -0.52%, or -$1.97 billion, versus -1.02% (-$3.86 billion) without either assumption.

26 This adjustment results in figures that likely understate the downside effects of the measure. See text above.
The results for personal income similarly change when both assumptions are made; personal income ends 0.22% (or $483 million) lower in the last year of the estimation, versus $2.47 billion lower with neither assumption.
Detailed results for industries are similarly affected by the federal tax deduction assumption with and without the adjustment for lost exports. Results reflecting all combinations of assumptions can be found in the attached appendix.

**Results Summary**

By increasing the cost of doing business in Oregon, the proposed tax will likely reduce employment and output growth in the state’s private industries, while the large concurrent increase in the state’s public budget could boost public employment by an even greater amount. The employment effects in the private and public sectors diverge over the estimation period, eventually leading to fewer private sector jobs and additional public sector jobs relative to the baseline. The gradual decline in economic output relative to the baseline stemming from a slowdown in private sector activity is not offset by public sector expansion regardless of assumptions or adjustments made in the modeling process. The estimates above show decreased private sector output relative to the baseline ranging from $1.97 billion to $5.6 billion despite an increase in public output and employment.
Additional Considerations

The technical analysis in this report is necessarily limited in scope; numerous complex policy issues, benefits, and costs involved in any policy change are not fully considered or captured by economic impact analyses. A complete examination of the tradeoffs involved with higher taxes and increased government revenue would also include, for example, the possible future benefits associated with higher funding for public resources like education, infrastructure, and safety. As this impact analysis only looks ahead to 2027, the well-documented economic effects of improved funding for K-12 education or safer neighborhoods would simply not be realized by the end of the forecast period.

Similarly, the public budget implications of the proposed tax may not be limited to its revenues alone. In Oregon, the state government’s capacity to borrow funds for capital improvements and other purposes is tied to its expected revenue generation. The sizeable revenue generated by the gross receipts tax would therefore significantly increase the state’s bonding capacity. Oregon’s Legislative Revenue Office has estimated that the proposed tax (as defined in ballot initiative IP28) would generate $2.6 billion in revenue in 2017 (which is less than the estimates used in this study and listed above). Assuming a market interest rate of 6% and a 20-year payoff horizon, LRO estimates that this would translate into an additional $2.7 billion in bonding capacity if other factors such as expected property tax revenues are held constant. The decision to actually utilize that capacity would ultimately be left to the state legislature, as would the manner in which borrowed funds would be spent.

On the other hand, there are potential costs associated with the proposed tax that are similarly missed by this impact analysis. For example, the reduction in private sector growth estimated above could have longer-term structural implications for Oregon’s industrial make-up. Particularly cost-sensitive and exposed industries, such as manufacturing, could experience persistent or non-linear effects associated with slower growth in the longer term. Of course, if increased infrastructure spending increases the productivity of these businesses, the net long-run effect is again ambiguous.

Also, as noted, lower-income households spend a larger portion of their incomes on consumer goods than higher-income households. Thus, taxes on the sales of consumer goods disproportionately affect lower-income consumers. While the aggregate employment and income effects of increased taxes are estimated by economic impact models such as REMI, the results do not describe how progressive or regressive the proposal may be. Any impacts to households near the bottom of the income distribution could have long-lasting effects, and should be carefully weighed against the similarly long-lasting benefits these households would reap from increased public funding.

Finally, it is worth explicitly noting that the projections generated by REMI draw from expected economic conditions in the future, and do not account for unexpected shocks to the economy. The end or beginning of a business cycle during the projection period, although possible, is not considered in this analysis. As a result, confidence in any projection decreases as the forecast moves further from the present.

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Conclusions

This report summarizes the results of NERC’s analysis of a proposed gross receipts tax in Oregon. If the tax were implemented, it would generate significant revenues and capacitate more than 30,000 additional government jobs by 2027. The costs of this tax to private businesses would be partially offset by the indirect effects of increased spending of government and new public employees, but would nevertheless reduce private sector hiring regardless of the various combinations of modeling assumptions made. Depending on assumptions regarding the federal income tax deductions made by affected firms and an adjustment for the competitive disadvantage for Oregon businesses stemming from the tax, the reduction in private sector employment relative to the baseline forecast ranges from little more than 4,000 jobs to more than 20,000 jobs by 2027. With each combination of assumptions, economic output and income likewise decline relative to the baseline.

Absent from these figures are costs and benefits associated with taxes and public spending that are not captured by economic impact models. The longer term benefits of improved education and infrastructure funding, and the longer term costs of state business taxes and their disproportionate burden on lower-income households (i.e. their regressivity) needs to be considered alongside relatively straightforward employment and output projections in any responsible discussion of tax policy.

Most of the public policy issues surrounding state revenue generation and budgeting are taken as given in NERC’s modeling – new tax revenues are assumed to be spent according to historical patterns for Oregon and potential adjustments to spending patterns are ignored, for instance. In reality, the ultimate impacts of new taxes and new spending depend strongly on their precise forms. These policy decisions warrant thorough analyses of their own; the results of this study are intended to inform those deeper examinations when they occur.
Postscript: Brief Comparison of LRO and NERC Studies

NERC began research for this project in summer 2015; in the interim before release of a final report, other notable analyses have been released to exceptional public attention and scrutiny. One study in particular, completed by the Oregon legislature’s Legislative Revenue Office (LRO), was completed using a generally similar approach to NERC’s report, but includes estimates that superficially may appear at odds with the results herein (Table 1). We felt it prudent to include a brief explanation of the differences in estimates below. A closer look at the assumed economic baseline used in both studies reveals that their results are in broad agreement.

Decrease in Private Sector Employment Growth:

-38 Thousand Jobs (LRO) vs. -8.4 to -17 Thousand Jobs (NERC)

Perhaps the most notable difference between the LRO’s impact estimate and ours involves the reduction of private sector employment relative to baseline due to a gross receipts tax. There are several factors that contribute to this point of divergence, including the historically-estimated supply and demand elasticities within the REMI model and LRO’s Oregon Tax Incidence (OTIM) model. Even more visible, however, is a clear difference in the economic baselines to which model estimates are compared. In its report, LRO indicates projected (baseline) private sector employment growth of 6.6% between 2017 and 2022, which aligns with current forecasts from the Oregon Office of Economic Analysis (and at a more local level, NERC’s own forecasts). REMI’s baseline forecast (released in 2014) shows substantially lower growth – a mere 1 to 2% over the period.

| Table – Baseline Private Sector Employment Growth in LRO and NERC Studies |
|--------------------------|--------------------------|--------------------------|
|                         | 2017 | 2022 | % Change |
| NERC (REMI)             | 2,070 | 2,109 | 2%        |
| LRO (OTIM)              | 2,251 | 2,390 | 6%        |

Both REMI and OTIM are intended to simulate changes in the economy due to “shocks”; results are naturally reported relative to an assumed baseline wherein no shock occurs. In short, differences in baseline greatly affect impact estimates. In this case, there is simply more economic growth at stake in OTIM’s baseline – a policy change like IP28 thus impacts a large and fast growing economy. In REMI’s tepid (and questionable) 0.4% annual growth, the lower baseline presents a lower opportunity cost to policy change.

Increase in Government Employment - +18 Thousand Jobs (LRO) vs. +30 Thousand Jobs (NERC)

The second notable point of divergence surrounds government hiring, which offsets the private employment reductions seen in both studies. NERC’s analysis of a gross receipts tax in Oregon began in summer 2015, at which point several variants of the proposal were being considered by its proponents.
These measures differed in language specifying how GRT revenues would be spent by the state. IP22 was the most general of the four potential measures, with no explicit earmarks for collected revenue, while IP23, IP28, and IP29 each earmarked revenue for different combinations of public education, healthcare, and senior services. In lieu of a definite choice, Our Oregon asked NERC to analyze the measure using the spending pattern implied by IP22, assumed to reflect historical budget patterns for the state. It turns out that LRO had essentially the same assumption and spread the state government expenditure along historical budget patterns. While LRO’s analysis specified similar government expenditures, we once again turning to the baselines of both studies. LRO’s public sector baseline calls for 6.1% growth over the period (roughly 18 thousand jobs), while the baseline in REMI calls for very little public sector expansion (a mere one thousand jobs over the period) (Table, below).

**Table – Baseline Public Sector Employment Growth in LRO and NERC Studies**

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2022</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERC (REMI)</td>
<td>286</td>
<td>287</td>
<td>0.35%</td>
</tr>
<tr>
<td>LRO (OTIM)</td>
<td>288</td>
<td>305</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

This difference in baselines again affects impact estimates in a predictable way. In REMI, new revenue spurs significant government hiring that was not expected in the business-as-usual case, while in LRO’s estimates, that hiring is expected to happen anyway, without any policy change. Thus the impact adjustment away from baseline is larger in the NERC study compared to the LRO study for public employment. This is essentially the opposite pattern as that regarding private sector impacts in the two studies.

While LRO finds net employment to be less than baseline and NERC finds net employment to be greater than baseline, these outcomes are not due to any dramatic differences in methodological approach. The LRO and NERC studies both show the same directional change from a baseline outlook for the Oregon economy. The private sector employment will still grow over time but by less than the baseline while public sector employment will grow by more than the baseline. Other impact measures move in the same directions, and differ mainly in size.
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