

Alternative Funding Sources for a Non-motorized Trails Fund
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The following material is provided as support documentation for the 2019-2023 Oregon Statewide Comprehensive Outdoor Recreation Plan. Based on input from the non-motorized trails funding advisory committee, this planning effort has identified a list of seven potential funding sources for a new non-motorized trails fund for Oregon including:

1. Expanding the state cell phone tax.
2. Expanding the cigarette tax to include e-cigarettes.
3. Expanding the state lodging tax.
4. Establishing a state rental car tax.
5. Establishing a sugary drink excise tax.
6. Establishing an employee payroll tax.
7. Reallocating gas tax revenues for roads not maintained by ODOT.

A description of each of these potential funding sources follows.

1. EXPAND THE STATE CELL PHONE TAX

Overview of tax

Oregon currently taxes cell phones with the Emergency Communications Tax, commonly known as the 9-1-1 tax¹. This tax is 75 cents per month for devices capable of reaching 9-1-1, meaning cell phones are not the only devices subject to the tax. As the name implies, the tax revenue is used to pay for the infrastructure of the 9-1-1 system across the state. In recent years, the revenue from this tax has totaled about \$43 million annually².

At first glance there is not a clear connection between a cell phone tax and trail funding. Nonetheless, expansion of this tax may be a means of achieving the benefits of non-motorized trail development and maintenance that offset negative impacts associated with increased “screen time.” More and more often, health professionals warn that overuse of technology is likely to decrease physical activity. Meanwhile, the potential benefits of trail development include increased physical activity, leading to better overall health.

Across the U.S., Oregon has the lowest tax rate on cell phones and wireless devices³. Oregon’s monthly charge is less than 2% of the U.S. average monthly bill of \$41.50. The states bordering Oregon have tax rates both on the high and low ends of the spectrum: Washington has the highest rate in the U.S. (19.24%), California has the 15th highest rate (12.82%), Idaho has the 48th highest rate (2.41%), and Nevada has the 49th highest rate (2.35%). (Note: these rates include local and states sales tax, as well as utility taxes applied to telecommunication devices.)

Potential revenue

¹ Oregon Office of Emergency Management, <https://www.oregon.gov/OEM/911/Pages/911-Tax-Distribution.aspx>

² Oregon Office of Emergency Management, <https://www.oregon.gov/OEM/911/Pages/911-Tax-Distribution.aspx>

³ Tax Foundation, “Wireless Taxes and Fees in 2017,” <https://taxfoundation.org/cell-phone-taxes-2017/>

The potential revenue from expanding the state cell phone tax is calculated under a number of scenarios. The appendix contains a detailed explanation of these calculations. From April 2017 through March 2018, the Emergency Communications Tax receipts totaled \$43.9 million⁴. This amount implies that there are approximately 4.9 million devices subject to the \$0.75 per month (\$9 per year) tax. Using this base, the following chart shows additional revenue that could be raised at different tax rates. The tax rates in the chart are selected to show the potential revenue from relatively small increases (\$0.25 per month increase) and relatively larger increases (\$2.25 per month increase) in the tax. Under the largest tax in the chart (\$3 per month), Oregon's total sales tax on cell phones would be 47th highest across U.S. states⁵.

Potential revenue from cell phone tax expansion

Tax increase (\$)		Total tax (\$)		Approximate tax rate [^]	Additional revenue*
Annual	Monthly	Annual	Monthly		
1.20	0.10	10.20	0.85	2.0%	\$5.8 to \$5.9 million
3	0.25	12	1.00	2.4%	\$14.5 to \$14.6 million
6	0.50	15	1.25	3.0%	\$28.5 to \$29.3 million
9	0.75	18	1.50	3.6%	\$42.3 to \$43.9 million
12	1.00	21	1.75	4.2%	\$55.6 to \$58.6 million
18	1.50	27	2.25	5.4%	\$81.3 to \$87.8 million
27	2.25	36	3.00	7.2%	\$116.9 to \$131.8 million

[^]Based on average monthly bill of \$41.50.

*Additional revenue is calculated by subtracting revenue raised by the current \$0.75 tax from the total tax revenue at the new tax rate.

In the chart above, there is a range of potential revenue associated with each tax rate. These ranges reflect different levels of consumer responsiveness to tax changes (see appendix for more details). It is estimated that a \$0.10 increase in the monthly tax would generate an additional \$5.8 to \$5.9 million in revenue. Slightly higher increases of \$0.25 and \$0.50 per month are estimated to increase revenue by \$14.5-\$14.6 million and \$28.5-\$29.3 million. Revenue estimates continue to increase steadily at higher tax rates, topping out at \$116.9 to \$131.8 million with a \$2.25 per month increase.

Discussion

Expanding the cell phone tax has the potential to finance non-motorized trail development and maintenance, which may increase physical activity and offset some of the negative health impacts linked to the use of wireless devices. This tax has the potential to generate a large amount of revenue without a large tax hike because there is a large tax base (nearly 5 million devices) and because Oregon currently has the lowest sales tax on wireless devices in the country. For instance, increasing the tax from \$0.75 to \$0.85 per month could raise almost \$6 million per year in revenue and raising the tax to \$1.00 per month could raise \$14.5-14.6 million. Oregon would still have one of the lowest wireless taxes in the U.S. under these tax increases. In addition, the tax base is likely to be stable in the future as wireless devices remain prevalent, providing steady and predictable revenue flow.

⁴ Oregon Office of Emergency Management, <https://www.oregon.gov/OEM/911/Pages/911-Tax-Distribution.aspx>

⁵ Tax Foundation, <https://taxfoundation.org/cell-phone-taxes-2017/>

Appendix

Calculating potential tax revenue

From April 2017 through March 2018, the Emergency Communications Tax receipts totaled \$43.9 million⁶. This amount implies that there are approximately 4.9 million devices that are subject to the \$0.75 per month (\$9 per year) tax. Tax revenue under different tax rates can be calculated using this tax base.

Annual Tax (\$/device)	2017-18 Tax Revenue (\$)	Implied 2018 Tax Base (devices)
9	43,919,835	4,879,982

Cell phone taxes increase the price that consumers pay for cell phone use. This price increase is likely to decrease cell phone purchases to some extent (theory of demand). In order to account for consumer price responsiveness, revenue is estimated under a number of different scenarios. Each scenario is defined by an elasticity of demand value, a measure of consumer responsiveness. For a particular good, the elasticity of demand equals the percentage change in quantity demanded resulting from a 1% change in price. For example, an elasticity of cell phone demand equaling 0.5 implies that the quantity of cell phones demanded decreases by 0.5% when the cell phone service price increases by 1%. Unfortunately, the true elasticity of cell phone demand is unknown in this case. As a result, cell phone tax revenue is calculated under the following elasticity values to capture a range of possibilities:

- elasticity = 0 (perfectly inelastic)
- elasticity = 0.5
- elasticity = 1 (unit elastic)
- elasticity = 2

The pre-tax base is represented by the number of devices that would be purchased if the tax did not exist. This value is calculated under each elasticity scenario to account for consumer responsiveness to the current tax rate. The following formula shows how this tax base is calculated.

$$\text{Pre-tax base} = \frac{\text{Tax base at \$9 per year tax}}{[1 - (\text{elasticity} * \text{current tax rate})]}$$

For example, if cell phone demand is perfectly inelastic, then the tax base calculated at \$0.75 per month is the same across all tax rates. However, if the elasticity is greater than 0, the tax base decreases as the tax rate increases. The chart below shows the pre-tax base for each elasticity scenario.

Pre-tax base (devices) under each scenario			
Elasticity = 0	Elasticity = 0.5	Elasticity = 1	Elasticity = 2
4,879,982	4,924,480	4,969,797	5,062,981

Under each elasticity scenario, potential cell phone tax revenue is calculated for multiple tax increases, ranging from \$0.10 to \$2.25 per month. The tax fee must be converted to a percentage of the retail price in order to estimate revenue using different elasticities. The percentage tax rate is approximated

⁶ Oregon Office of Emergency Management, <https://www.oregon.gov/OEM/911/Pages/911-Tax-Distribution.aspx>

by dividing the tax fee by \$41.50, the U.S. average monthly bill⁷. The following table shows the tax rate for various monthly fees.

Annual Tax (\$)	Monthly Tax (\$)	Proportion of price (%)*
9	0.75	1.8%
10.20	0.85	2.0%
12	1	2.4%
15	1.25	3.0%
18	1.50	3.6%
21	1.75	4.2%
27	2.25	5.4%
36	3	7.2%

*Based on average monthly bill of \$41.50

The next step is to calculate the tax base corresponding to each tax rate and elasticity.

$$\text{Tax base} = [1 - (\text{elasticity} * \text{tax rate})] * \text{Pre-tax base}$$

Then total tax revenue is calculated by multiplying the tax fee by the tax base. The added tax revenue from the tax increase is calculated as the total revenue minus the revenue generated from the current \$0.75 tax. The tables below show details for these calculations.

Potential revenue from different cell phone tax rates

Tax increase (\$)		Total tax (\$)		Elasticity = 0*		Elasticity = 0.5		
Annual	Monthly	Annual	Monthly	Total Tax revenue	Added revenue	Tax base	Total Tax revenue	Added revenue
1.20	0.10	10.20	0.85	49,776	5,856	4,874	49,715	5,849
3	0.25	12	1.00	58,560	14,640	4,865	58,382	14,595
6	0.50	15	1.25	73,200	29,280	4,850	72,755	29,102
9	0.75	18	1.50	87,840	43,920	4,835	87,039	43,519
12	1.00	21	1.75	102,480	58,560	4,821	101,234	57,848
18	1.50	27	2.25	131,760	87,840	4,791	129,357	86,238
27	2.25	36	3.00	175,679	131,760	4,746	170,874	128,155

All revenue values shown in 1000s. Added revenue is calculated by subtracting revenue from the current tax from the total tax revenue at the new tax rate.

* - tax base does not change across tax rates

⁷ Tax Foundation, "Wireless Taxes and Fees in 2017," <https://taxfoundation.org/cell-phone-taxes-2017/>

Potential revenue from different cell phone tax rates

Tax increase (\$)		Total tax (\$)		Elasticity = 1			Elasticity = 2		
Annual	Monthly	Annual	Monthly	Tax base	Total Tax revenue	Added revenue	Tax base	Total Tax revenue	Added revenue
1.20	0.10	10.20	0.85	4,868	49,654	5,842	4,856	49,527	5,827
3	0.25	12	1.00	4,850	58,201	14,550	4,819	57,828	14,457
6	0.50	15	1.25	4,820	72,302	28,921	4,758	71,370	28,548
9	0.75	18	1.50	4,790	86,223	43,111	4,697	84,546	42,273
12	1.00	21	1.75	4,760	99,965	57,123	4,636	97,356	55,632
18	1.50	27	2.25	4,700	126,909	84,606	4,514	121,878	81,252
27	2.25	36	3.00	4,611	165,979	124,484	4,331	155,915	116,937

All revenue values shown in 1000s. Added revenue is calculated by subtracting revenue from the current tax from the total tax revenue at the new tax rate.

For each tax rate (rows in table), the tax base and tax revenue decrease as the elasticity increases, illustrating different levels of consumer responsiveness to the tax. Within each elasticity scenario (columns in table), the tax base decreases and tax revenue increases as the tax increases from \$0.85 per month to \$3 per month. It is estimated that a \$0.10 monthly increase in the tax would generate an additional \$5.8-5.9 million in revenue. A slightly higher increase of \$0.25 per month is estimated to increase revenue by \$14.5 to \$14.6 million. The increase in revenue continues to grow steadily at higher tax rates, going from \$42.3-43.9 million with a \$0.75 monthly increase to \$116.9-131.8 million with a \$2.25 monthly increase.

2. EXPANDING THE CIGARETTE TAX TO INCLUDE E-CIGARETTES

Overview of tax

An e-cigarette is a device used for inhaling nicotine vapor. Unlike traditional cigarettes, there is no flame or burning in an e-cigarette. As of 2018, eight states, the District of Columbia, and a number of smaller municipalities levy an excise tax on e-cigarettes and e-cigarette products⁸. In some locations, the tax is charged per unit of vapor liquid. For example, Kansas, Louisiana, North Carolina, and Delaware each have a \$0.05 per ml tax. In other cases, the tax is charged as a percentage of the e-cigarette wholesale price, which may include both the e-cigarette device and vapor fluid. This type of tax is levied by California (65.08%), Minnesota (95%), Pennsylvania (40%), and D.C. (60%). Oregon does not currently have a tax on e-cigarettes; however, an e-cigarette tax (65% of wholesale price) was proposed in 2015⁹.

Scientists are still discovering the long-term health effects of e-cigarettes¹⁰. These vapor products are not as detrimental to health as traditional cigarettes and may serve as a cigarette substitute for those looking to quit. Nonetheless, e-cigarettes contain nicotine which is highly addictive, toxic to developing fetuses, and can harm adolescent brain development. In addition, there can be harmful substances in e-

⁸ "Vapor Taxes by State, 2018," by Scott Drenkard at the Tax Foundation (March 28, 2018), <https://taxfoundation.org/vapor-taxes-2018/>

⁹ "Vapor Products and Tax Policy," by Scott Drenkard at the Tax Foundation (March 22, 2016), <https://taxfoundation.org/vapor-products-and-tax-policy/>

¹⁰ Electronic Cigarettes, Centers for Disease Control and Prevention, https://www.cdc.gov/tobacco/basic_information/e-cigarettes/index.htm

cigarette aerosol. A tax on these products can be used to fund other efforts aimed at further improving public health, such as non-motorized trail development and maintenance, which can increase physical activity.

Potential revenue

The potential revenue from establishing a statewide e-cigarette tax is calculated under a number of scenarios. The appendix contains a detailed explanation of these calculations. Since this tax does not currently exist, there is no readily-available data on the amount of e-cigarette sales that would be subject to the tax (i.e. the tax base). However, the tax collections from Pennsylvania are available and can be used to approximate the potential revenue in Oregon. Pennsylvania's tax (40% of wholesale price) generated \$7 million during the first 9 months of the 2017 fiscal year¹¹. In order to apply Pennsylvania's outcome to Oregon, the amount of e-cigarette usage in each state must be approximated. State-specific e-cigarette use is not available but the National Health Interview Survey includes information on e-cigarette use across the US¹². Based on this survey, it is estimated that 3.2% of adults in the US regularly use e-cigarettes. This value, along with census data, is used to estimate Oregon tax collections based on Pennsylvania data by assuming that tax collections are proportional to the number of e-cigarette users in each state. This approach also accounts for different levels of responsiveness to price changes resulting from a tax. The table below shows revenue projections for tax rates of 20-70% of the e-cigarette wholesale price, which mostly covers the range of tax rates levied by other states.

Potential revenue from e-cigarette tax

Tax rate (% wholesale price)	Potential Revenue (Annual)
20%	\$1.5 to \$2 million
30%	\$2.2 to \$2.6 million
40%	\$3 million
50%	\$3.1 to \$3.8 million
60%	\$3 to \$4.5 million
70%	\$2.6 to \$5.3 million

At a tax rate of 20%, revenue is predicted to be \$1.5 to \$2 million annually. Revenue estimates rise steadily up to the 50% tax rate (\$3.1 to \$3.8 million). At the two highest tax rates in this analysis (60% and 70%), the revenue ranges become relatively large and illustrate that revenue is highly dependent on consumer response to large price increases. Revenue is projected to be \$3 to \$4.5 million at a tax of 60%, while the range is \$2.6 to \$5.3 million at a 70% tax rate. It's possible that e-cigarette use becomes more common since these products are still fairly new to the market. In that case, an e-cigarette tax would generate more revenue than shown in the chart above.

¹¹ "After a rough 2016, vape shops fight back against new e-cigarette tax," by Wallace McKelvey at Penn Live (April 27, 2017), https://www.pennlive.com/politics/index.ssf/2017/04/pa_vape_tax_law_e-cigarettes.html

¹² QuickStats: Percentage of Adults Who Ever Used an E-cigarette and Percentage Who Currently Use E-cigarettes, by Age Group, National Health Interview, United States, 2016, Morbidity and Mortality Weekly Report, <https://www.cdc.gov/mmwr/volumes/66/wr/mm6633a6.htm>

Discussion

E-cigarettes contain nicotine and aerosol that can negatively impact health. Taxing these products could lower their consumption and raise revenue for health improvement efforts. Non-motorized trail development and maintenance is one area where funding could be applied to achieve better health as trail access may increase physical activity. A tax of 20% of the e-cigarette wholesale price could raise \$1.5 to \$2 million per year in Oregon. At a tax rate of 70%, revenue is projected between \$2.6 and \$5.3 million. Revenue projections vary greatly based on the tax rate and consumer responsiveness to higher prices.

There are some notable issues with an e-cigarette tax. The tax may lead to a large reduction in e-cigarette use because there are many tobacco substitutes. This outcome could actually have a negative impact on health because e-cigarettes may be helpful for smokers looking for a substitute for traditional cigarettes¹³. Furthermore, there does not appear to be a large tax base currently. A small tax base can lead to a more volatile revenue source (especially given the aforementioned substitutes). Pennsylvania ran into this issue: revenue was expected to be \$13.3 million in fiscal year 2017 (\$1.1 million per month), but the state only collected \$7 million in the first 9 months (\$778k per month)¹⁴.

Appendix

Calculating potential tax revenue

Since this tax does not currently exist in Oregon, there is no readily-available data on the amount of e-cigarette sales that would be subject to the tax (i.e. the tax base). However, tax collections from Pennsylvania can be used to approximate the potential revenue in Oregon. Pennsylvania's tax (40% of wholesale price) generated \$7 million from July 2016 to March 2017 (9 months)¹⁵. The number of e-cigarette users in Pennsylvania and Oregon is estimated as 3.2 percent of each state's adult population. This percentage is based on a National Health Interview Survey that estimated 3.2% of U.S. adults use e-cigarettes¹⁶. The adult (age 18 and over) population of Pennsylvania in 2017 was about 10.1 million¹⁷, leading to an estimate of 324,544 e-cigarette users in the state. Meanwhile, it is estimated that 104,597 of Oregon's 3.3 million adults¹⁸ use e-cigarettes. It is assumed that Oregon's tax revenue compared to Pennsylvania's is equal to the ratio of Oregon e-cigarette users to Pennsylvania e-cigarette users (about one-third). Under this assumption, Pennsylvania's monthly tax revenue of \$778k implies that Oregon could generate \$251k per month with a 40% tax on the wholesale price of e-cigarettes. The chart below details this calculation.

¹³ Electronic Cigarettes, Centers for Disease Control and Prevention, https://www.cdc.gov/tobacco/basic_information/e-cigarettes/index.htm

¹⁴ "After a rough 2016, vape shops fight back against new e-cigarette tax," by Wallace McKelvey at Penn Live (April 27, 2017), https://www.pennlive.com/politics/index.ssf/2017/04/pa_vape_tax_law_e-cigarettes.html

¹⁵ "After a rough 2016, vape shops fight back against new e-cigarette tax," by Wallace McKelvey at Penn Live (April 27, 2017), https://www.pennlive.com/politics/index.ssf/2017/04/pa_vape_tax_law_e-cigarettes.html

¹⁶ QuickStats: Percentage of Adults Who Ever Used an E-cigarette and Percentage Who Currently Use E-cigarettes, by Age Group, National Health Interview, United States, 2016, Morbidity and Mortality Weekly Report, <https://www.cdc.gov/mmwr/volumes/66/wr/mm6633a6.htm>

¹⁷ US Census, <https://www.census.gov/quickfacts/fact/table/pa,or/PST045217>

¹⁸ US Census, <https://www.census.gov/quickfacts/fact/table/pa,or/PST045217>

Location	Adult population	E-cigarette users [^]	Tax rate (% wholesale price)	Tax revenue (\$/month)
Pennsylvania	10,141,985	324,544	40%	777,778
Oregon	3,268,650	104,597	40%	250,669*

[^] - estimated as 3.2% of adults

* - estimated by multiplying the Pennsylvania tax revenue by the ratio of Oregon e-cigarette users to Pennsylvania e-cigarette users (0.322)

E-cigarette taxes increase the wholesale price that retailers pay for e-cigarettes, which leads to higher prices for e-cigarette consumers. This price increase is likely to decrease the amount of e-cigarettes purchased to some extent (theory of demand). In order to account for consumer price responsiveness, revenue is estimated under a number of different scenarios. Each scenario is defined by an elasticity of demand value, a measure of consumer responsiveness. For a particular good, the elasticity of demand equals the percentage change in quantity demanded resulting from a 1% change in price. For example, an elasticity of e-cigarette demand equaling 0.5 implies that the quantity of e-cigarettes demanded decreases by 0.5% when the e-cigarette price increases by 1%. Unfortunately, the true elasticity of e-cigarette demand is unknown. As a result, e-cigarette tax revenue is calculated under the following elasticity values to capture a range of possibilities:

- elasticity = 0 (perfectly inelastic)
- elasticity = 0.5
- elasticity = 1 (unit elastic)

E-cigarette wholesale sales that would occur without a tax represent the pre-tax base. This base is calculated under each elasticity scenario to account for consumer responsiveness to the 40% tax from above. The following formula shows how this tax base is calculated.

$$Pre - tax base = \frac{Tax base at 40\% tax}{[1 - (elasticity * 0.40)]}$$

For example, if e-cigarette demand is perfectly inelastic, then the tax base calculated at 40% is the same across all possible tax rates. However, if the elasticity is greater than 0, the tax base decreases as the tax rate increases; in other words, e-cigarette sales decrease as their price rises due to the tax. The chart below shows the pre-tax base for each elasticity scenario.

Pre-tax base under each scenario		
Elasticity = 0	Elasticity = 0.5	Elasticity = 1
7,520,077	9,400,096	12,533,461

Under each elasticity scenario, potential e-cigarette tax revenue is calculated for multiple tax rates, ranging from 20% to 70% of the wholesale price. The first step is to calculate the tax base corresponding to each tax rate and elasticity.

$$Tax base = [1 - (elasticity * tax rate)] * Pre - tax base$$

Next, tax revenue is calculated by multiplying the tax rate by the tax base. The table below shows details for these calculations.

Potential revenue from different e-cigarette tax rates

Tax rate	Elasticity = 0*	Elasticity = 0.5		Elasticity = 1	
	Tax revenue	Tax base	Tax revenue	Tax base	Tax revenue
20%	1,504,015	8,460,086	1,692,017	10,026,769	2,005,354
30%	2,256,023	7,990,081	2,397,024	8,773,423	2,632,027
40%	3,008,031	7,520,077	3,008,031	7,520,077	3,008,031
50%	3,760,038	7,050,072	3,525,036	6,266,730	3,133,365
60%	4,512,046	6,580,067	3,948,040	5,013,384	3,008,031
70%	5,264,054	6,110,062	4,277,044	3,760,038	2,632,027

* - tax base does not change across tax rates

At a tax rate of 20%, revenue is predicted to be \$1.5 to \$2 million annually. Revenue estimates rise steadily up to the 50% tax rate (\$3.1 to \$3.8 million), regardless of consumer responsiveness. At the two highest tax rates considered in this analysis (60% and 70%), the revenue ranges become relatively large and illustrate that revenue is highly dependent on consumer response to large price increases. Revenue is projected to be \$3 to \$4.5 million at a tax of 60%, while the range is \$2.6 to \$5.3 million at a 70% tax rate. At these tax rates, e-cigarette sales may decline to such an extent that tax revenue is actually lower than what would occur at lower tax rates.

3. EXPAND THE STATE LODGING TAX

Overview of tax

The lodging tax was established in 2003 to provide funding for Travel Oregon. Over the years, the tax has expanded to fund regional tourism programs and grants for improving communities through tourism. Transient lodging taxes are considered one of the most direct means for collecting revenues from visitors because the tax is paid by in-state and out-of-state travelers. It can be argued that well-developed trail systems contribute to outdoor recreation and tourism. As such, expanding the lodging tax to fund non-motorized trail development and maintenance is consistent with the goals of the tax.

As of July 1, 2016, the tax rate is 1.8%; but it will drop to 1.5% on July 1, 2020. The tax applies to stays of less than 30 consecutive days at the following:

- Hotels and motels
- Bed and breakfast facilities
- RV sites in RV parks or campgrounds
- Resorts and inns
- Lodges and guest ranches
- Cabins
- Condominiums
- Short-term rental apartments and duplexes
- Vacation rental houses
- Tent sites and yurts in private and public campgrounds

- Any other dwelling unit, or portion of a dwelling unit, used for temporary overnight stays

Across the United States (including D.C. and select territories), 30 states charge lodging taxes and Oregon has one of the lowest rates¹⁹. When sales tax is also considered, the total state tax on lodging in Oregon is 4th lowest in United States. The median total tax is 6%. Sales tax and lodging tax for each state are shown in the appendix. It is important to note that cities and counties in Oregon charge lodging taxes as well. During 2017, ninety-one cities and sixteen counties in Oregon levied a local lodging tax, ranging from 2% to 13.5%²⁰.

Potential revenue

The potential revenue from expanding the state lodging tax is calculated under a number of scenarios. The appendix contains a detailed explanation of these calculations. In FY 2018, lodging tax receipts totaled \$38.1 million²¹. This amount implies a lodging tax base of \$2.1 billion. Using this base, the following chart shows additional revenue that could be raised at different tax rates. The tax rates in the chart are selected to show the potential revenue from relatively small increases (0.1% to 0.5%) and relatively larger increases (1% to 4%) in the tax. It's worth pointing out that the larger increases still keep the Oregon total sales tax on lodging (sales tax plus lodging tax) below the median across U.S. states.

Potential revenue from lodging tax expansion

Tax rate increase	New tax rate	Additional revenue*
0.1%	1.9%	\$2.1 million
0.5%	2.3%	\$10.5 to \$10.6 million
1.0%	2.8%	\$20.7 to \$21.2 million
2.0%	3.8%	\$40.6 to \$42.4 million
3.0%	4.8%	\$59.6 to \$63.6 million
4.0%	5.8%	\$77.7 to \$84.7 million

*Additional revenue is calculated by subtracting 1.8% of the tax base (current tax rate) from the total tax revenue at the new tax rate.

In the chart above, there is a range of potential revenue associated with each tax rate. These ranges reflect different levels of consumer responsiveness to tax changes (see appendix for more details). It is estimated that a 0.1% increase in the tax rate would generate an additional \$2.1 million in revenue. A slightly higher increase of 0.5% is estimated to increase revenue by \$10.5 to \$10.6 million. Revenue estimates continue to increase steadily at higher tax rates.

Discussion

Expanding the state lodging tax may be a straightforward way to fund non-motorized trail development and maintenance. First, trail funding can contribute to tourism, the purpose of the tax, by increasing outdoor recreation opportunities throughout the state. Moreover, expanding the lodging tax can generate a considerable amount of revenue without a large tax hike because there is a large lodging tax base and because Oregon currently has one of the lowest state lodging tax rates. As such, a small tax increase can generate millions of dollars in revenue while keeping the total tax rate relatively low (e.g. 2.3%). However, local lodging taxes may be a barrier to further increases in the state lodging tax. For

¹⁹ National Conference of State Legislatures: <http://www.ncsl.org/research/fiscal-policy/state-lodging-taxes.aspx>

²⁰ Oregon Travel Impacts, 1992-2017. Prepared by Dean Runyan Associates for the Oregon Tourism Commission. <http://industry.traveloregon.com/content/uploads/2018/05/Dean-Runyan-FINAL-2018.pdf>

²¹ Information provided by Colleen Chrisinger, Senior Economist, Department of Revenue

example, the tax rates in jurisdictions with the highest 2017 tax receipts are 8% in Portland, 5.5% in Multnomah County, 9% in Washington County, 10.4% in Bend, and 9.5% in Lincoln City.

Appendix

Sales and lodging taxes across US states

State	Sales Tax	Lodging Tax	Total State Tax
Alaska	No state sales tax	N/A	None
California	N/A	N/A	None
Nevada	N/A	N/A	None
Oregon	No state sales tax	1.80%	1.80%
Colorado	2.90%	N/A	2.90%
Georgia	4.00%	5\$ fee per room	4.00%
New York	4.00%	N/A	4.00%
Wyoming	4%	N/A	4%
Missouri	4.23%	N/A	4.23%
Oklahoma	4.50%	N/A	4.50%
Utah	4.70%	N/A	4.70%
North Carolina	4.75%	N/A	4.75%
Alabama	N/A	4.00 to 5.00%	4.00 to 5.00%
Iowa	N/A	5.00%	5.00%
Louisiana	5.00%	N/A	5.00%
North Dakota	5.00%	N/A	5.00%
Wisconsin	5%	N/A	5%
New Mexico	5.13%	N/A	5.13%
Arizona	N/A	5.50%	5.50%
Massachusetts	N/A	5.70%	5.70%
Ohio	5.75%	N/A	5.75%
South Dakota	4.50%	0.0 to 1.5%	4.50 to 6.00%
Illinois	N/A	6.00%	6.00%
Pennsylvania	N/A	6.00%	6.00%
Texas	N/A	6.00%	6.00%
Florida	6.00%	N/A	6.00%
Maryland	6.00%	N/A	6.00%

* - no additional local tax on accommodations

Total state tax equals sum of sales tax and lodging tax. The table is shown in ascending order of total state tax. Source: National Conference of State Legislatures, <http://www.ncsl.org/research/fiscal-policy/state-lodging-taxes.aspx>

Sales and lodging taxes across US states (continued)

State	Sales Tax	Lodging Tax	Total State Tax
West Virginia	6%	N/A	6%
Virginia	4.30%	0.0 to 2.0%	4.30 to 6.30%
Nebraska	5.50%	1.00%	6.50%
Washington	6.50%	N/A	6.50%
Minnesota	6.88%	N/A	6.88%
Kentucky	6.00%	1.00%	7.00%
South Carolina	5.00%	2.00%	7.00%
Montana	3.00%	4.00%	7.00%
Indiana	7.00%	N/A	7.00%
Mississippi	7.00%	N/A	7.00%
Tennessee	7.00%	N/A	7.00%
Idaho	6.00%	2.00%	8.00%
*Delaware	No state sales tax	8.00%	8.00%
Arkansas	6.50%	2.00%	8.50%
*Maine	N/A	9.00%	9.00%
*New Hampshire	No state sales tax	9.00%	9.00%
Vermont	N/A	9.00%	9.00%
Puerto Rico	N/A	9%	9%
Kansas	6.50%	0.00 to 5.00%	6.50 to 11.50%
New Jersey	7.00%	5.00%	12.00%
Rhode Island	7.00%	5.00%	12.00%
Michigan	6.00%	1.50 to 6.00%	12.00%
Virgin Islands	N/A	12.50%	12.50%
*Hawaii	4.00%	9.25%	13.25%
District of Columbia	N/A	14.80%	14.80%
*Connecticut	N/A	15.00%	15.00%

* - no additional local tax on accommodations

Total state tax equals sum of sales tax and lodging tax. The table is shown in ascending order of total state tax. Source: National Conference of State Legislatures, <http://www.ncsl.org/research/fiscal-policy/state-lodging-taxes.aspx>

Calculating potential tax revenue

According to the Oregon Department of Revenue, 2018 lodging tax receipts equaled \$38,136,653. This value implies a tax base of \$2,118,702,944 at the 1.8% tax rate. Tax revenue under different tax rates can be calculated using this tax base.

Tax Rate	2018 Tax Revenue (\$)	Implied 2018 Tax Base (\$)
1.8%	38,136,653	2,118,702,944

Lodging taxes increase the price that consumers pay for lodging. This price increase is likely to decrease the amount of lodging purchased to some extent (theory of demand). In order to account for consumer price responsiveness, revenue is estimated under a number of different scenarios. Each scenario is

defined by an elasticity of demand value, a measure of consumer responsiveness. For a particular good, the elasticity of demand equals the percentage change in quantity demanded resulting from a 1% change in price. For example, an elasticity of lodging demand equaling 0.5 implies that the quantity of lodging demanded decreases by 0.5% when the lodging price increases by 1%. Unfortunately, the true elasticity of lodging demand is unknown. As a result, lodging tax revenue is calculated under the following elasticity values to capture a range of possibilities:

- elasticity = 0 (perfectly inelastic)
- elasticity = 0.5
- elasticity = 1 (unit elastic)
- elasticity = 2

The pre-tax base is represented by lodging sales that would occur if the tax did not exist. This value is calculated under each elasticity scenario to account for consumer responsiveness to the current tax rate. The following formula shows how this tax base is calculated.

$$Pre - tax base = \frac{Tax\ base\ at\ 1.8\% \ tax\ rate}{[1 - (elasticity * .018)]}$$

For example, if lodging demand is perfectly inelastic, then the tax base calculated at 1.8% is the same across all tax rates. However, if the elasticity is greater than 0, the tax base decreases as the tax rate increases. The chart below shows the pre-tax base for each elasticity scenario.

Elasticity = 0	Pre-tax base under each scenario		
	Elasticity = 0.5	Elasticity = 1	Elasticity = 2
2,118,702,944	2,137,944,444	2,157,538,640	2,197,824,631

Under each elasticity scenario, potential lodging tax revenue is calculated for multiple tax rate increases, ranging from 0.1% to 4%. The first step is to calculate the tax base corresponding to each tax rate and elasticity.

$$Tax\ base = [1 - (elasticity * tax\ rate)] * Pre - tax\ base$$

Next, total tax revenue is calculated by multiplying the tax rate by the tax base. The added tax revenue from the tax rate increase is then calculated as the total revenue minus the revenue generated from the current 1.8% rate. The tables below show details for these calculations.

Potential revenue from different lodging tax rates

Tax rate increase	Total tax rate	Elasticity = 0*		Elasticity = 0.5		
		Total Tax revenue	Added revenue	Tax base	Total Tax revenue	Added revenue
0.1%	1.9%	40,255	2,119	2,117,634	40,235	2,118
0.5%	2.3%	48,730	10,594	2,113,358	48,607	10,567
1.0%	2.8%	59,324	21,187	2,108,013	59,024	21,080
2.0%	3.8%	80,511	42,374	2,097,324	79,698	41,946
3.0%	4.8%	101,698	63,561	2,086,634	100,158	62,599
4.0%	5.8%	122,885	84,748	2,075,944	120,405	83,038

All values shown in \$000. Added revenue is calculated by subtracting 1.8% of the tax base (current tax rate) from the total tax revenue at the new tax rate.

*- tax base does not change across tax rates

Potential revenue from different lodging tax rates

Tax rate increase	Total tax rate	Elasticity = 1			Elasticity = 2		
		Tax base	Total Tax revenue	Added revenue	Tax base	Total Tax revenue	Added revenue
0.1%	1.9%	2,116,545	40,214	2,117	2,114,307	40,172	2,114
0.5%	2.3%	2,107,915	48,482	10,540	2,096,725	48,225	10,484
1.0%	2.8%	2,097,128	58,720	20,971	2,074,746	58,093	20,747
2.0%	3.8%	2,075,552	78,871	41,511	2,030,790	77,170	40,616
3.0%	4.8%	2,053,977	98,591	61,619	1,986,833	95,368	59,605
4.0%	5.8%	2,032,401	117,879	81,296	1,942,877	112,687	77,715

All values shown in \$000. Added revenue is calculated by subtracting 1.8% of the tax base (current tax rate) from the total tax revenue at the new tax rate.

For each tax rate (table rows), the tax base and tax revenue decrease as the elasticity increases, illustrating different levels of consumer responsiveness to the tax. Within each elasticity scenario (table columns), the tax base decreases and tax revenue increases as the tax rate increases from 1.9% to 5.8%. It is estimated that a 0.1% increase in the tax rate would generate an additional \$2.1 million in revenue. A slightly higher increase of 0.5% is estimated to increase revenue by \$10.5 to \$10.6 million. Increases in revenue continue to grow steadily at higher tax rates, going from \$20.7-21.2 million with a 1% increase to \$77.7-84.7 million with a 4% increase.

4. ESTABLISHING A STATE RENTAL CAR TAX

Overview of tax

Well-developed trail systems contribute to tourism by improving outdoor recreation opportunities. As such, a rental car tax may be suitable for funding non-motorized trail development and maintenance because rental car taxes are expected to primarily impact tourists. Currently, Oregon is one of seven states without a statewide rental car tax or fee in the US²². The chart below shows rental car taxes in a number of western states. Along with Oregon, neither California nor Idaho imposes a rental car tax. The other states charge tax rates between 2.5% and 10%.

Rental Car Taxes in Western US

State	Rental Car Tax Rate
Arizona	5%
California	None
Colorado	\$2 fee/day
Idaho	None
Montana	4%
Nevada	10%
New Mexico	5% + \$2/day
Oregon	None
Utah	2.50%
Washington	5.90%
Wyoming	4% surcharge

Source: National Conference of State Legislatures,
<http://www.ncsl.org/research/fiscal-policy/rental-car-taxes.aspx>

Oregon may not have a statewide rental car tax but Multnomah County and Lane County levy taxes on rental cars. These counties are notable in the rental car market because they contain the state's two largest airports. Multnomah County has a 17% tax and took in over \$28 million in 2017²³. In Lane County, the tax rate is 10% and 2017 tax receipts equaled \$1.9 million²⁴.

Potential revenue

The potential revenue from establishing a statewide rental car tax is calculated under a number of scenarios. The appendix contains a detailed explanation of these calculations. Since this tax does not currently exist, there is no readily-available data on the amount of rental car sales that would be subject to the tax (i.e. the tax base). However, the tax collections from county rental car taxes are available (as mentioned above). Based on county tax receipts, Multnomah County's implied tax base is about \$170 million and Lane County's implied tax base is about \$19 million. In the 2017 calendar year, Portland and Eugene airports, located in Multnomah and Lane counties, accounted for 92.3% of all boarding

²² National Conference of State Legislatures, <http://www.ncsl.org/research/fiscal-policy/rental-car-taxes.aspx>

²³ Multnomah County Comprehensive Financial Report, <https://multco.us/file/68536/download>

²⁴ Lane County Comprehensive Annual Financial Report, [https://www.lanecounty.org/UserFiles/Servers/Server_3585797/File/Government/County%20Departments/County%20Administration/Operations/Financial%20Services/FiscalYearEndReports/Lane%20County%20FY17%20CAFR%20Final%20-ALL%20Inserts%20\(Reduced%20size\).pdf](https://www.lanecounty.org/UserFiles/Servers/Server_3585797/File/Government/County%20Departments/County%20Administration/Operations/Financial%20Services/FiscalYearEndReports/Lane%20County%20FY17%20CAFR%20Final%20-ALL%20Inserts%20(Reduced%20size).pdf)

passengers in Oregon²⁵. Since air travelers are some of the most likely individuals to rent cars, it is assumed that the rental car sales in these two counties also make up 92.3% of statewide rental car sales. With this assumption, the approximate statewide rental car tax base is \$204.6 million. This value is used to calculate the potential revenue from a statewide rental car tax.

It is important to point out that this tax base is likely an underestimate of the true value for two reasons. First, air travel may not account for all car rentals such that tax collections would come from areas of the state that are not near an airport. Second, some travelers to Portland and Eugene airports may choose to rent cars outside of Multnomah and Lane counties in an effort to avoid the tax, thereby lowering the tax base calculated from county tax receipts.

Using the approximated tax base, the following chart shows the potential revenue that could be raised at different rental car tax rates. Tax rates of 1% to 5% are considered; rates above 5% may be untenable since the existing county tax rates are reasonably high. There is a range of potential revenue associated with each tax rate. These ranges reflect different levels of consumer responsiveness to tax changes (see appendix for more details). A rental car tax of 1% may raise about \$2 million per year. The potential revenue increases by about \$2 million for every percentage increase in the tax rate, topping out at \$9-10 million under a 5% rate.

Potential revenue from statewide rental car tax

Tax rate	Tax revenue
1%	\$2 million
2%	\$3.9 to \$4.1 million
3%	\$5.8 to \$6.1 million
4%	\$7.5 to \$8.2 million
5%	\$9.2 to \$10.2 million

Discussion

Non-motorized trail development and maintenance has the potential to increase tourism by bolstering outdoor recreation throughout Oregon. Due to this connection, a rental car tax, primarily paid by out-of-state travelers, may be a logical approach to fund trails. A considerable amount of funding could be devoted to trails without a high tax rate because Oregon does not currently have a rental car tax and the tax base is likely over \$200 million. However, there may be opposition to the tax because there are relatively high rental car taxes levied by Multnomah and Lane counties, which contain the state's two largest airports. Additionally, the tax revenue could be somewhat volatile if the economy fluctuates in the future. In Multnomah County, tax collections declined by about 14 percent from fiscal year 2008 to fiscal year 2010 (i.e. during the "great recession") but have steadily increased since²⁶. Lastly, there may be restrictions imposed on sources of the highway fund that would impact a on a tax on vehicles²⁷.

²⁵ FAA Passenger Boarding Data for U.S. Airports,

https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/

²⁶ Multnomah County Comprehensive Financial Report, <https://multco.us/file/68536/download>

²⁷ HB 2402 Joint Interim Task Force: Funding for Fish, Wildlife and Related Outdoor Recreation and Education, <https://www.dfw.state.or.us/agency/budget/docs/HB%202402%20TASK%20FORCE%20--%20%20FINAL%20REPORT.pdf>

Appendix

Calculating potential tax revenue

Since this tax does not currently exist, there is no readily-available data on the amount of rental car sales that would be subject to the tax (i.e. the tax base). However, the tax collections from county rental car taxes are available (as mentioned above). Based on county tax receipts, Multnomah County's implied tax base is about \$170 million and Lane County's implied tax base is about \$19 million. In the 2017 calendar year, Portland and Eugene airports, located in Multnomah and Lane counties, accounted for 92.3% of all boarding passengers in Oregon²⁸. Since air travelers are some of the most likely individuals to rent cars, it is assumed that the rental car sales in these two counties also make up 92.3% of statewide rental car sales. With this assumption, the approximate statewide rental car pre-tax base is \$204.6 million (\$189 million/0.923).

County	Rental car tax rate	2017 Tax revenue (\$)	Implied 2017 Tax Base (\$)	Airport	2017 proportion of total plane boarding in OR
Multnomah	17%	28,863,000	169,782,353	Portland	87.4%
Lane	10%	1,912,339	19,123,390	Eugene	4.9%
Statewide pre-tax base			204,633,264		

County revenues are reported by Multnomah and Lane County. Airport statistics are provided by Federal Aviation Administration.

Rental car taxes increase the price that consumers pay for rental cars. This price increase is likely to decrease the amount of rental car purchases to some extent (theory of demand). In order to account for consumer price responsiveness, revenue is estimated under a number of different scenarios. Each scenario is defined by an elasticity of demand value, a measure of consumer responsiveness. For a particular good, the elasticity of demand equals the percentage change in quantity demanded resulting from a 1% change in price. For example, an elasticity of rental car demand equaling 0.5 implies that the quantity of rental cars demanded decreases by 0.5% when the rental car price increases by 1%. Unfortunately, the true elasticity of rental car demand is unknown in this case. As a result, rental car tax revenue is calculated under the following elasticity values to capture a range of possibilities:

- elasticity = 0 (perfectly inelastic)
- elasticity = 0.5
- elasticity = 1 (unit elastic)
- elasticity = 2

Using the approximated pre-tax base, the following chart shows the potential revenue that could be raised at different rental car tax rates (1% to 5%) across elasticity scenarios. The first step is to calculate the tax base corresponding to each tax rate and elasticity.

$$\text{Tax base} = [1 - (\text{elasticity} * \text{tax rate})] * \text{Pre-tax base}$$

²⁸ FAA Passenger Boarding Data for U.S. Airports,
https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/

Next, total tax revenue is calculated by multiplying the tax rate by the tax base. The table below shows details for these calculations.

Potential revenue from different rental car tax rates

Tax rate	Elasticity = 0*	Elasticity = 0.5		Elasticity = 1		Elasticity = 2	
	Tax revenue	Tax base	Tax revenue	Tax base	Tax revenue	Tax base	Tax revenue
1%	2,046	203,610	2,036	202,587	2,026	200,541	2,005
2%	4,093	202,587	4,052	200,541	4,011	196,448	3,929
3%	6,139	201,564	6,047	198,494	5,955	192,355	5,771
4%	8,185	200,541	8,022	196,448	7,858	188,263	7,531
5%	10,232	199,517	9,976	194,402	9,720	184,170	9,208

All values shown in \$000.

*- tax base does not change across tax rates

For each tax rate (table rows), the tax base and tax revenue decrease as the elasticity increases, illustrating different levels of consumer responsiveness to the tax. Within each elasticity scenario (table columns), the tax base decreases and tax revenue increases as the tax rate increases from 1% to 5%. At a tax of 1%, potential revenue is about \$2 million across the elasticity scenario. The potential revenue increases by about \$2 million for every percentage increase in the tax rate, topping out at \$9-10 million under a 5% rate.

5. ESTABLISHING A SUGARY DRINK EXCISE TAX

Overview of tax

A sugary drink tax is a tax on beverages that are sweetened with sugar (e.g. soda, sports drinks, energy drinks). In general, the tax is charged per ounce of the beverage (e.g. \$0.01 per ounce). High sugar consumption is associated with a number of health issues, such as obesity, type 2 diabetes, and hypertension²⁹. Researchers and public health advocates have promoted these taxes as a means to decrease sugary drink consumption and improve public health³⁰. The generated tax revenue can be used to fund other efforts aimed at further improving public health, such as non-motorized trail development and maintenance. The potential benefits of trail funding include increased physical activity.

In the U.S., no states have passed a sugary drink tax but a number of smaller municipalities levy this type of tax. Berkeley (CA) has a \$0.01 per ounce tax which generated \$1.6 million in 2016³¹. It has been estimated that this tax lowered sugary drink consumption by 21% in low-income neighborhoods in Berkeley³². Philadelphia (PA) also has a sugary drink tax, charging \$0.015 per ounce. This tax generated

²⁹ "Soda Tax May Cut Sugary Drink Consumption, New Study Finds," by Jesse Hirsch at Consumer Reports (April 12, 2018), <https://www.consumerreports.org/soda/soda-tax-may-cut-sugary-drink-consumption-new-study-finds/>

³⁰ Roache and Gostin. The Untapped Power of Soda Taxes: Incentivizing Consumers, Generating Revenue, and Altering Corporate Behavior. International Journal of Health Policy and Management. 2017 Sep; 6(9): 489–493. doi: 10.15171/ijhpm.2017.69

³¹ City of Berkeley, Sugar Sweetened Beverage Tax Revenues, https://www.cityofberkeley.info/uploadedFiles/Clerk/Level_3_-_General/SSB%20Tax%20Revenues%20032917.pdf

³² Falbe et al. Impact of the Berkeley Excise Tax on Sugar-Sweetened Beverage Consumption. American Journal of Public Health. 2016 Oct;106(10):1865-71. doi: 10.2105/AJPH.2016.303362

over \$70 million from July 2017 to May 2018 (11 months)³³. The impact of the tax on consumption in Philadelphia is unclear: after the tax, bottlers' sales of sugary drinks declined by roughly 29% in Philadelphia and increased by about 26% in the region surrounding the city³⁴. Currently, there are no sugary drink taxes in Oregon. However, there has been a push for such a tax in Multnomah County, although efforts to get on the 2018 ballot have stalled³⁵.

Potential revenue

The potential revenue from establishing a statewide sugary drink tax is calculated under a number of scenarios. The appendix contains a detailed explanation of these calculations. Since this tax does not currently exist, there is no readily-available data on the amount of sugary drink consumption that would be subject to the tax (i.e. the tax base). However, the tax collections from Berkeley and Philadelphia are available (as mentioned above) and can be used to approximate the potential revenue in Oregon. Based on city tax receipts, the taxable per-capita consumption of sugary beverages is 110.9 ounces per month in Berkeley and 269.7 ounces per month in Philadelphia. The difference in per-capita consumption can be attributed to the Philadelphia tax covering more types of beverages (namely diet soda) and due to different preferences between citizens of these two cities. It is not clear if sugary drink consumption in Oregon is more similar to Berkeley or Philadelphia. As such, potential tax revenue in Oregon is calculated under a number of different per-capita consumption levels. This approach accounts for different levels of sugary drink preference and different levels of responsiveness to price changes resulting from a tax. The following chart shows potential revenue from tax rates of \$0.01 and \$0.015 per ounce.

Potential revenue from sugary drink tax

Tax Rate (\$/oz)	Potential Revenue (Annual)
0.01	\$49.7 to \$124.3 million
0.015	\$74.6 to \$186.4 million

Based on Oregon population of 4,142,776
(Source: US Census)

A tax rate of \$0.01 per ounce of sugary drink could raise \$49.7 to \$124.3 million per year. Revenue projections are higher under a tax rate of \$0.015, ranging from \$74.6 to \$186.4 million. The large ranges in revenue reflect how tax revenue is dependent on whether per-capita consumption in Oregon is more closely related to that of Berkeley (low) or Philadelphia (high).

Discussion

Frequent consumption of sugary drinks has potentially negative impacts on public health. Taxing these drinks could lower their consumption and raise revenue for health improvement efforts. Non-motorized trail development and maintenance is one area where funding could be applied to achieve better health

³³ City of Philadelphia, FY 2018 city monthly revenue collections, <https://beta.phila.gov/documents/fy-2018-city-monthly-revenue-collections/>

³⁴ Oxford Economics (December 2017), "The Economic Impact of Philadelphia's Beverage Tax." <https://www.ameribev.org/files/resources/oe-economic-impact-study.pdf>

³⁵ "Backers of Multnomah County Soda Tax Delay Again, Will Not Pursue November Ballot Spot," by Nigel Jaquiss at Willamette Week (February 23, 2018), <http://www.wweek.com/news/2018/02/23/backers-of-multnomah-county-soda-tax-delay-again-will-not-pursue-november-ballot-spot/>

as trail access is likely to increase physical activity. A sugary drink tax is expected to generate considerable revenue as well. Even at low levels of sugary drink consumption, a \$0.01 per ounce tax could generate about \$50 million and a tax of \$0.015 could generate about \$75 million per year. It is worth noting that revenue projections show wide variation across plausible per-capita consumption levels, indicating that the state may need more precise data on Oregonians sugary drink consumption before passing this type of tax.

There are a number of potential problems associated with levying a tax on sugary drinks³⁶. Evidence has indicated that this tax could be regressive, imposing a higher burden on those with lower income than those with higher income. In addition, the health benefits of this tax may be overstated due to beverage substitution and tax avoidance. Individuals may substitute other unhealthy beverages (e.g. alcohol) for sugary drinks and shop in untaxed jurisdictions to avoid the tax (e.g. leaving Portland area and shopping over in Washington). Sugary drink taxes tend to face strong political opposition from the beverage industry as well.

Appendix

Calculating potential tax revenue

Since this tax does not currently exist in Oregon, there is no readily-available data on the amount of sugary drink consumption that would be subject to the tax (i.e. the tax base). However, the tax collections from Berkeley and Philadelphia are available and can be used to approximate the potential revenue in Oregon. Philadelphia's tax generated \$70.3 million from July 2017 to May 2018 (11 months), charging \$0.015 per ounce³⁷. The population of Philadelphia in 2017 was about 1.6 million³⁸. These tax collections for Philadelphia's population imply that per-capita consumption of sugary drinks was 269.7 ounces per month. Meanwhile, collections for Berkeley's \$0.01 tax per ounce totaled \$1.6 million in 2016³⁹. During this time, about 122 thousand people lived in Berkeley⁴⁰, implying that per-capita sugary drink consumption was 110.9 ounces per month. The chart below details these calculations. The difference in per-capita consumption can be attributed to the Philadelphia tax covering more types of beverages (namely diet soda) and to different preferences between citizens of these two cities.

Location	Time period	Total Revenue in Time Period (\$)	Monthly Revenue (\$)	Tax Rate (\$/oz)	Total Consumption (oz/month)	Population	Per-capita Consumption (oz/month)
Philadelphia	July 2017 - May 2018	70,342,455	6,394,769	0.015	426,317,909	1,580,863	269.7
Berkeley	2016	1,618,716	134,893	0.01	13,489,300	121,672	110.9

Sources: City of Philadelphia, City of Berkeley, US Census

It is not clear if sugary drink consumption in Oregon is more similar to Berkeley or Philadelphia. As such, potential tax revenue in Oregon is calculated under a number of different per-capita consumption

³⁶ "The Case Against Soda Taxes," by John Buhl at the Tax Foundation (March 15, 2017), <https://taxfoundation.org/case-against-soda-taxes/>

³⁷ City of Philadelphia, FY 2018 city monthly revenue collections, <https://beta.phila.gov/documents/fy-2018-city-monthly-revenue-collections/>

³⁸ US Census, <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

³⁹ City of Berkeley, Sugar Sweetened Beverage Tax Revenues, https://www.cityofberkeley.info/uploadedFiles/Clerk/Level_3_-_General/SSB%20Tax%20Revenues%20032917.pdf

⁴⁰ US Census, <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

levels. This approach accounts for different levels of sugary drink preference and different levels of responsiveness to price changes resulting from a tax. In particular, tax revenue is calculated for per-capita consumption levels of 100, 150, 200, and 250 ounces per month. The lower end of this range resembles Berkeley and the higher end corresponds to Philadelphia. Revenue is approximated under two common tax rates: \$0.01 per ounce and \$0.015 per ounce. For each sugary drink consumption level and tax rate, per-capita consumption is used to approximate total monthly consumption by Oregon's 4.1 million residents⁴¹. Total consumption is then multiplied the tax rate to obtain monthly and annual tax revenue. The charts below show the details of these calculations.

Potential Revenue under Different Per-Capita Consumption Levels

Per-capita consumption (oz/month)	Population	Tax Rate (\$/oz)	Total consumption (oz/month)	Revenue per month (\$)	Annual revenue (\$)
100	4,142,776	0.01	414,277,600	4,142,776	49,713,312
150	4,142,776	0.01	621,416,400	6,214,164	74,569,968
200	4,142,776	0.01	828,555,200	8,285,552	99,426,624
250	4,142,776	0.01	1,035,694,000	10,356,940	124,283,280

Per-capita consumption (oz/month)	Population	Tax Rate (\$/oz)	Total consumption (oz/month)	Revenue per month (\$)	Annual revenue (\$)
100	4,142,776	0.015	414,277,600	6,214,164	74,569,968
150	4,142,776	0.015	621,416,400	9,321,246	111,854,952
200	4,142,776	0.015	828,555,200	12,428,328	149,139,936
250	4,142,776	0.015	1,035,694,000	15,535,410	186,424,920

In the case where Oregon sugary drink consumption is similar to that of Berkeley (100 ounces per month per-capita), a \$0.01 per ounce tax is projected to raise \$49.7 million and a \$0.015 tax is projected to raise \$74.6 million. If sugary drink consumption in Oregon more closely resembles that of Philadelphia (250 ounces per month per-capita), \$124.3 million could be generated by a \$0.01 tax and \$186.4 million could be generated by a \$0.015 tax. These revenue projections show wide variation across plausible per-capita consumption levels, indicating that the state may need more precise data on Oregonians sugary drink consumption before passing this type of tax.

⁴¹ US Census, <https://www.census.gov/quickfacts/fact/table/or/PST045217>

6. ESTABLISHING AN EMPLOYEE PAYROLL TAX

Overview of tax

An employee payroll tax is collected as a percentage of the salaries received by employees in the state. This type of tax has a large tax base (statewide payroll) and, as a result, large amounts of revenue can be raised with relatively low tax rates. This revenue could be used to fund non-motorized trail development and maintenance, which has the potential to increase physical activity and overall health for many Oregonians.

The Oregon Legislature recently passed an employee payroll tax as part of a transportation investment bill, HB 2017⁴². This large investment in transportation is projected to benefit Oregonians for decades to come. The payroll tax is 0.1% (\$1 for every \$1000 in payroll) and is allocated to improve public transportation service in rural and urban communities. This tax rate equates to less than \$1 per week for the average Oregon worker⁴³.

Potential revenue

The potential revenue from establishing a payroll tax to fund non-motorized trails is calculated under a number of tax rates. ODOT's revenue forecast for the HB 2017 payroll tax is used as a basis for these calculations⁴⁴. This forecast estimates fiscal year collections from 2019-23 for the 0.1% payroll tax. Forecasted tax collections are calculated by multiplying annual statewide payroll by the payroll tax rate. Payroll data come from the Oregon Department of Employment and annual payroll growth is projected using forecasted growth rates in wages and salaries from the Oregon Office of Economic Analysis. ODOT's forecast assumes the compliance rate is initially 75% and increases each quarter to a high of 90% by the third quarter of 2020. The table below shows ODOT's forecasted payroll tax collections from 2019-23. It is estimated the tax will raise \$81.6 million in 2019 and that collections will increase up to \$113.3 million in 2023.

ODOT HB 2017 Payroll Tax Revenue Forecast

ODOT Transit Tax	Collections by Fiscal Year (\$)				
	2019	2020	2021	2022	2023
0.1% of Payroll	81.6	95.0	102.9	107.9	113.3

Revenue collections are shown in millions.

The ODOT forecast is adapted to calculate potential revenue at different payroll tax rates. The next table shows the potential funding for non-motorized trails with a payroll tax between 0.01% and 0.05%.

⁴² Keep Oregon Moving (HB 2017), ODOT, <https://www.oregon.gov/odot/pages/hb2017.aspx>

⁴³ Keep Oregon Moving (HB 2017) Frequently Asked Questions, ODOT, <https://www.oregon.gov/ODOT/Documents/HB2017-FAQ.pdf>

⁴⁴ June 2018 Revenue Forecast- HB 2017 New Tax Programs, <https://www.oregon.gov/ODOT/Data/Documents/June-2018-Revenue-Forecast-New-HB2017-Tax-Programs.pdf>

Potential Revenue from Payroll Tax

Payroll tax rate for trails	Collections by Fiscal Year (\$)					How much payroll is required to raise \$1 in tax? (\$)
	2019	2020	2021	2022	2023	
0.01%	8.2	9.5	10.3	10.8	11.3	10000
0.015%	12.2	14.2	15.4	16.2	17.0	6667
0.02%	16.3	19.0	20.6	21.6	22.7	5000
0.025%	20.4	23.7	25.7	27.0	28.3	4000
0.03%	24.5	28.5	30.9	32.4	34.0	3333
0.035%	28.6	33.2	36.0	37.8	39.7	2857
0.04%	32.7	38.0	41.2	43.2	45.3	2500
0.045%	36.7	42.7	46.3	48.6	51.0	2222
0.05%	40.8	47.5	51.4	54.0	56.7	2000

Revenue collections are shown in millions.

The potential revenue varies widely across tax rates. With a 0.01% tax, collections are forecasted to start at \$8.2 million in 2019 and increase up to \$11.3 million in 2023. At that tax rate, \$1 in tax revenue is raised for every \$10,000 in payroll. Meanwhile, the highest tax rate in the table, 0.05%, is forecasted to raise \$40.8 to \$56.7 million annually during 2019-23. A 0.05% tax requires \$2000 in payroll to raise \$1 in tax revenue.

Discussion

Introducing a new payroll tax has the potential to finance non-motorized trail development and maintenance, which may increase physical activity for a large number of Oregonians. This tax has the potential to generate a large amount of revenue with a low tax rate because there is a large, stable tax base. For instance, a tax of 0.02% (\$1 tax for every \$5000 in payroll) could generate over \$16 million annually.

7. REALLOCATING GAS TAX REVENUES FOR ROADS NOT MAINTAINED BY ODOT

Overview of tax

In many instances, trail access requires the use of roads that are not maintained by a Department of Transportation (e.g. U.S. Forest Service and BLM roads) and are not constructed and maintained with gas tax revenue. A program could be established to fund non-motorized trail development and maintenance with gas tax revenue generated by the usage of these roads. The proportion of total gas used on these roads could represent the proportion of gas tax revenue dedicated to the program.

The State of Washington currently has this type of program, called the Nonhighway and Off-road Vehicle Activities (NOVA) program. NOVA is a grant program that provides funding to develop and manage recreation opportunities for such activities as cross-country skiing, hiking, horseback riding, mountain bicycling, hunting, fishing, sightseeing, motorcycling, and riding all-terrain and four-wheel drive vehicles⁴⁵. By statute, activities supported by the NOVA Program must be accessed via a "Non-highway

⁴⁵ Washington State Recreation and Conservation Office, <https://www.rco.wa.gov/grants/nova.shtml>

Road", a road open to the public but not constructed with gas tax revenue⁴⁶. NOVA funding comes from off-road vehicle permits and a portion of the state gasoline tax (about 1%) paid by users of off-road vehicles and non-highway roads. As of 2013, the program had about \$3.5 million per year in funding⁴⁷.

Potential revenue

In 2001-02, Washington surveyed state residents about miles driven and fuel used on public roads, back roads and off of roads, as well as recreational activities associated with use of the vehicle on back roads and off of roads. The goal of the study was to measure the proportion of gas tax generated by different types of vehicles operating off-road and on non-highway roads for various recreational purposes⁴⁸. The results of this study showed that an estimated 25.6 million gallons of fuel are used each year on back roads and off of roads, which represents approximately 1% of the gasoline sold in the State of Washington in 2002. This value is used to determine the amount of Washington gas tax revenue allocated to the NOVA program.

The amount of motor fuel tax revenue generated by non-highway use in Oregon can be estimated with a similar methodology. Oregon motor fuel tax revenue was \$546.6 million for the fiscal year ending June 30, 2017⁴⁹. Under a \$0.34 per gallon tax, this amount of tax revenue implies that motor fuel consumption was about 1.6 billion gallons. The U.S. Energy Information Administration reports a similar amount of motor fuel consumption for Oregon in 2016 (38 million barrels, or 1.6 billion gallons)⁵⁰. The next important piece of information is the amount of fuel consumption used on non-highway roads. According to the Federal Highway Administration, recreational non-highway gas usage in Oregon was estimated at 25.9 million gallons in 2015⁵¹ and 28.2 million gallons in 2016⁵². Considering all of these values, non-highway fuel use is estimated to account for roughly 1.75% of total fuel use in Oregon (28.2 million barrels on non-highway roads divided by 1.6 billion gallons of total use). An Oregon NOVA program would have about \$9.6 million in funding if this rate were to determine the amount of gas tax revenue dedicated to it. Since these values are not exact, the chart below shows potential NOVA funding at different proportions of total fuel tax revenue. If the program received as little as 0.5% of motor fuel tax revenue, annual funding would be about \$2.7 million. Meanwhile, funding could be as high as \$10.9 million with 2% of motor fuel tax revenue.

⁴⁶ Washington Department of Fish and Wildlife, <https://wdfw.wa.gov/grants/nova/>

⁴⁷ 2013-2018 Washington State Nonhighway and Off-road Vehicles Activities Plan, https://www.rco.wa.gov/documents/rcfb/nova/2013-2018NOVA_Plan&Appendices.pdf

⁴⁸ Washington State Nonhighway and Off-road Vehicle Activities Fuel Use Survey, https://www.rco.wa.gov/documents/rcfb/nova/NOVA_Fuel_Report.pdf

⁴⁹ ODOT Annual Financial Report, <https://www.oregon.gov/ODOT/About/Finance/2017AFR.pdf>

⁵⁰ US Energy Information Administration, State Profile and Energy Estimates, https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/sum_use_tot.html&sid=OR

⁵¹ Federal Highway Administration, Private and Commercial Nonhighway Use of Gasoline – 2015, <https://www.fhwa.dot.gov/policyinformation/statistics/2015/pdf/mf24.pdf>

⁵² Federal Highway Administration, Private and Commercial Nonhighway Use of Gasoline – 2016, <https://www.fhwa.dot.gov/policyinformation/statistics/2016/pdf/mf24.pdf>

Proportion of motor fuel revenue	Funding (\$)*
0.5%	\$2.7 million
1.0%	\$5.5 million
1.5%	\$8.2 million
2.0%	\$10.9 million

*- Based on 2017 total fuel tax revenue of \$546.6 million.

Discussion

A non-highway and off-road vehicle activities program, funded by gas tax revenue, may be a viable way to support non-motorized trail development and maintenance. Non-highway roads are important for trail access and their users generate motor fuel tax revenue. This relationship illustrates the connection between trail funding and motor fuel tax revenue. In addition, considerable funding could be available using a small proportion of gas tax revenue because this revenue source is so large (over half a billion dollars). For example, 1% of annual gas tax revenue would provide about \$5.5 million for trail funding (this is the proportion that Washington's program receives). Nonetheless, there are hurdles associated with developing a non-highway and off-road vehicle activities program. For example, a fuel use study may be necessary in order to determine how much of the gas tax revenue should be allocated to the program. In Washington, this type of study took place for a year and was administered by an outside contractor.