# HB 2270: PROJECTED EFFECTS OF A \$2-PER-PACK CIGARETTE TAX INCREASE 

Prepared for
Oregon Neighborhood Store Association

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## Executive summary

Oregon House Bill 2270 would, among other things, increase the state tax on cigarettes by $\$ 2.00$ a pack, from $\$ 1.33$ to $\$ 3.33$ per pack. The governor's budget and the Oregon Health Authority project the increased taxes on cigarettes and other nicotine containing products would raise approximately $\$ 199$ million a year in additional tax revenue - with $\$ 173$ million a year associated with the increased tax on cigarettes. A portion of the additional revenues is earmarked to fund the Oregon Health Plan and a public health modernization program.

The estimates presented by the governor and OHA to date suggest the increased taxes would increase tobacco tax revenues in the state by approximately 87 percent. Our estimate indicates these projections are substantially overstated as they do not accurately reflect the loss of revenues associated with out-of-state purchases of cigarettes.

We estimate the cigarette tax increase will provide less than $\$ 115$ million a year in additional revenue to Oregon. However, because of the loss of sales to neighboring states, the states bordering Oregon are expected to see their cigarette revenues increase by $\$ 90-100$ million. By reducing exports of cigarettes out of Oregon, the proposed tax increase will shift a greater burden of funding OHA from out-of-state cigarette buyers to Oregon residents.

The loss of cigarette sales in Oregon will have significant impacts on state businesses, especially retailers. Not only will retailers experience reduced sales of cigarettes, but also they will see a reduction in ancillary sales, such as groceries and motor fuel. An accurate assessment of HB 2270 from Oregon's Legislative Revenue Office should include the effects of the tax increases on reduced personal and business income taxes associated with reduced retail activity in Oregon.

# HB 2270: PROJECTED EFFECTS OF A \$2-PER-PACK CIGARETTE TAX INCREASE 

Eric Fruits, Ph.D.

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Oregon House Bill 2270 would, among other things, increase the state tax on cigarettes by $\$ 2.00$ a pack, from $\$ 1.33$ to $\$ 3.33$ per pack. In addition, the bill would:

- Expand the definition of "tobacco products" to include inhalant delivery systems (e.g., vaping products). The stated purpose for expanding the definition is to impose the existing tax on "other tobacco products" to ecigarettes and other vaping products.
- Remove the tax limit on higher-priced cigars.
- Prohibit the distribution or sale of cigarettes or certain cigars in packages containing fewer than 20 .

The governor's budget and the Oregon Health Authority project the increased taxes on cigarettes and other nicotine containing products would raise approximately $\$ 199$ million a year in additional tax revenue-with $\$ 173$ million associated with the increased tax on cigarettes. A portion of the additional revenues is earmarked to fund the Oregon Health Plan and a public health modernization program.

Our analysis is focused on the effects of the proposed cigarette tax increase and concludes the revenue projections presented by the governor and OHA are substantially overstated as they do not accurately reflect the loss of revenues associated with out-of-state purchases of cigarettes.

We estimate the cigarette tax increase will provide less than $\$ 115$ million a year in additional revenue to Oregon.

## 1 The increased tax will cause Oregon to lose significant tax revenues to bordering states

There is a wide disparity among Oregon's cigarette tax rate and bordering states. Currently Oregon's cigarette tax is about $\$ 1.70$ lower than Washington's and the average price per pack (including taxes) is about $\$ 2.06$ lower. ${ }^{1}$ Idaho's tax is $\$ 0.76$ lower the Oregon's and the price per pack is $\$ 0.72$ lower. Washington has one of the highest cigarette taxes in the country, while Idaho has one of the lowest.

|  | Tax Rate | Average Price |
| :--- | ---: | ---: |
| Oregon | $\$ 1.330$ | $\$ 6.12$ |
| Washington | 3.025 | 8.18 |
| California | 2.870 | 7.66 |
| Idaho | 0.570 | 5.40 |
| Average, weighed by taxed sales | $\$ 2.537$ | $\$ 7.37$ |

The wide range in taxes-and prices - across bordering states, produces a substantial amount of cross-border sales of cigarettes. These sales can be divided into two categories: casual and commercial. Casual activity refers to cross-border shopping, such as when a Washington resident buys a carton of cigarettes while shopping for groceries in Oregon, or when a Washington resident buys a pack of cigarettes while buying gas in Oregon. Commercial activity includes the legal bulk purchase of cigarettes in low-tax states which are then shipped to higher-tax

[^0]states, where the cigarettes receive counterfeit stamps and illicitly enter the market.

Core Mark International (letter attached), a company that delivers and services the convenience retail industry in Oregon, concludes:

As the tax differential flattens, Oregon risks not only losing these packs that are already a source of revenue to the state but will lose even more packs to surrounding states with lower tax rates.

The Washington Department of Revenue reports (attached) that, after accounting for legal sales by tribal and military sources, 33.8 percent of all packs consumed in the state are "illegally untaxed packs." ${ }^{2}$ The Mackinac Center estimates about half of non-taxed packs sold in Washington are associated with casual sales and half are associated with illicit commercial activity. ${ }^{3}$ As an indication of the scale of commercial smuggling of cigarettes in Washington, in 2015, the legislature approved about $\$ 1.3$ million per year so the Liquor and Cannabis Board could create a unit of 12 officers dedicated to tobacco tax enforcement. ${ }^{4}$

The Oregon Office of Economic Analysis concludes differences in-and changes to - cigarette tax rates in Oregon and Washington have significant and noticeable effects on cigarette sales in each state (emphasis added, figure in original): ${ }^{5}$

Both states have seen the downward trend in cigarette packs sold, however the movement around these trends is the interesting part. When Washington raises their tax (the red line goes up), sales in Washington decline more sharply while sales in Oregon level off or hold relatively steady. The opposite is true when Oregon raises

[^1]taxes. This implies quite a bit of cross border activity in sales (primarily Washingtonians buying in Oregon). Our colleagues at the Washington Economic and Revenue Forecast Council find that roughly half of the change in sales following an Oregon tax increase is accounted for in cross border sales-that is about half of the decline in sales is due to less Oregonians purchasing and half due to less Washingtonians buying in Oregon.


Figure 1: Cigarette tax and cigarette sales, Oregon vs. Washington


Source: Orzechowski and Walker, The Tax Burden on Tobacco, 1970-2017

Figure 1 is an updated version of OEA's graph. Through the mid-1990s, when there was little difference between the Oregon and Washington cigarette tax, Oregon's sales were much lower than Washington's reflecting Oregon's smaller population. As Washington increased its cigarette tax relative to Oregon, Oregon began picking up a larger share of the two states' sales. In the face of the last steep increase in Washington, from $\$ 2.03$ per pack in 2005 to $\$ 3.03$ per pack in 2010, Oregon now sells more taxed cigarettes than Washington, despite having only 56 percent of its population and an only-slightly-higher smoking rate.

Figure 2: Relationship between differences between Oregon and Washington cigarette tax and per capita sales


Source: Orzechowski and Walker, The Tax Burden on Tobacco, 1970-2017

Figure 2 plots the percent difference in Oregon and Washington's tax rate against the percent difference in Oregon and Washington in taxed packs sold per person. For example, in 2017, Oregon's tax was 56 percent lower than Washington's and per capita sales were 125 percent higher.

Figure 2 shows that when Oregon and Washington have similar cigarette tax rates, per capita sales are similar. As, the gap widens between the tax rates, the gap in per capita sales widen, too.

## Oregon's \$2-per-pack tax increase would make Oregon's cigarette tax 10

 percent higher than Washington's. Based on the trendline in Figure 2, Oregon's per capita sales would be approximately five percent lower than Washington's per capita sales. This would be mostly due to a loss in Oregon sales to Washington residents and would also reflect an increase in Washington sales toOregon residents. Regardless, the result is a substantial loss of Oregon tax revenues from out-of-state residents.

Figure 3 shows taxed cigarette sales per adult in each county in Oregon and Washington. The information comes from Management Science Associates Inc., also known as MSAi (data attached). The data is outbound from a wholesaler to a retail store. Every wholesaler that sells cigarettes supplies data weekly to MSAi, who then compiles the data and sells it to manufacturers. Because of differences in the data and the ways in which the data is collected and reported, the MSAi data are not directly comparable to other sources such as Orzechowski and Walker (2018).

Figure 3 confirms the findings of the OEA and the Washington Department of Revenue that, in general, "high tax" border counties tend to have lower sales per adult than "low tax" border counties. For example, "high tax" Clark County in Washington sells only 19 packs per adult, while "low tax" Multnomah County in Oregon sells more than 50 packs per adult.

On first impression, observations from Idaho counties seem counterintuitive. Oregon has three counties bordering Idaho. Wallowa borders both "high tax" Washington and "low tax" Idaho and has sales below the statewide average. Malheur borders "low tax" Idaho and Nevada and has sales below the statewide average. Baker county borders only Idaho and has sales above the state average.

Combined, the three counties bordering Idaho sell about seven fewer packs per adult than the statewide average. These counties comprise less than 1.5 percent of Oregon's adult population. In Washington, every county bordering Idaho has fewer sales than the statewide average. These counties comprise more than eight percent of Washington's population.

In summary because of differences in cigarette taxes, Washington loses sales to lower tax Oregon and Idaho. Oregon loses sales to lower tax Idaho, while gaining sales from higher tax Washington.

Figure 3: Cigarette sales per adult, Oregon and Washington counties


|  | Average <br> Packs per <br> Adult | Difference <br> from State <br> Average |
| :--- | ---: | ---: |
| Oregon statewide | 45.7 |  |
| WA border | 58.4 | $28 \%$ |
| WA \& ID border | 36.6 | $-20 \%$ |
| ID border | 53.2 | $16 \%$ |
| ID \& NV border | 31.5 | $-31 \%$ |
| CA border | 54.9 | $20 \%$ |
| NV border | 48.2 | $6 \%$ |
| CA \& NV border | 45.5 | $0 \%$ |
| No border | 39.3 | $-14 \%$ |
| Washington statewide | 25.2 |  |
| OR border | 19.5 | $-23 \%$ |
| OR \& ID border | 5.1 | $-80 \%$ |
| ID border | 18.1 | $-28 \%$ |
| ID \& BC border | 5.5 | $-78 \%$ |
| BC border | 27.6 | $10 \%$ |
| No border | 26.8 | $6 \%$ |

Table 1: Estimated effect of \$2-per-pack increase in Oregon cigarette tax
$\left.\begin{array}{lrrr} & & \begin{array}{c}\text { Economics } \\ \text { International }\end{array} \\ & & & \\ \text { Governor /OHA }\end{array}\right)$

Note: Revenues and packs rounded to nearest thousand. Totals may differ due to rounding.

## 2 Estimated effect of \$2-per-pack increase in Oregon cigarette tax

Table 1 compares our estimates of the effect of HB 2270's \$2-a-pack increase on Oregon cigarette sales and tax revenues with the estimates provided by the governor's budget and OHA.

We assume HB 2270 would increase the price paid by consumers by 33 percent (from an average of $\$ 6.12$ a pack to $\$ 8.12$ a pack, including taxes). This likely underestimates the price increase, as research has shown that for every
additional $\$ 1.00$ per pack cigarette excise tax, the price of a pack of cigarettes increases by $\$ 1.11 .^{6}$

Our estimates indicate:

- The number of cigarettes consumed by Oregonians will decline by 13 percent. This is consistent with the widely used consumption elasticity of -0.4 (also used by Oregon's Legislative Revenue Office), which means a 10 percent increase in the price of cigarettes would be associated with a four percent decline in consumption. Approximately half of the decline in consumption is from smokers quitting. ${ }^{7}$
- The number of taxed cigarette packs sold in Oregon will decline by 37 percent. This reflects the observation that many of the packs currently sold in Oregon are consumed out-of-state. In contrast, the estimates from the governor's budget and OHA project the number of taxed sales will decline by 25 percent. We estimate the elasticity of taxed packs with respect to price is -1.14 . The estimated elasticity from the governor's budget and OHA is -0.78 , which is in line with OEA's observation that "roughly half" of the change in sales following an Oregon tax increase is accounted for by changes in Washington sales. Thus, it seems likely that the governor's budget and OHA are not accounting for the change in sales to and from California and, to a lesser extent, Idaho.
- Oregon cigarette tax revenues will increase by $\$ 114$ million, an increase of 57 percent, rather than the 88 percent projected by the governor's budget and OHA.
- Much of the decline in Oregon cigarette sales will be picked up by neighboring states, increasing bordering states' tax revenues by \$90-100 million. This is largely because non-Oregon residents will reduce

[^2]their purchases of cigarettes in Oregon. To a lesser extent, Oregon residents will increase their purchases in Idaho, California, and other states that will have a lower cigarette tax and lower cigarette prices than Oregon after the tax goes into effect. The Mackinac Center for Public Policy estimates under HB 2270, non-taxed sales would rise from 9.1 percent of cigarettes consumed to 39.5 percent.

## 3 Additional economic impacts

The effects of reduced retail sales in Oregon, including sales diverted to other states, will have a significant effect on Oregon's retail and related sectors. For example, in 2016, Philadelphia imposed a soda tax that raised $\$ 137$ million in less than two years. The Wall Street Journal reports the tax forced one supermarket to close and another to reduce its employment:

On Jan. 2, Brown's Super Stores announced the closure of a ShopRite on Haverford Avenue. The supermarket is close to the city limit, and customers discovered they could avoid the soda tax by shopping outside Philly.

Sales at the Haverford ShopRite are down $23 \%$ since the tax took effect, CEO Jeff Brown says, and the once-profitable store began losing about $\$ 1$ million a year. Mr. Brown owns 12 other supermarkets, including six in Philadelphia besides the Haverford store. Overall sales at the locations within Philadelphia are down by more than $15 \%$ since the soda tax took effect. Mr. Brown has shrunk his workforce by 200 by not filling jobs when they go empty, and the Haverford ShopRite closure will eliminate 111 more jobs through attrition.

The Philadelphia stores found that not only did they lose soda sales after the tax went into effect, they lost sales of other grocery products. In written testimony on HB 2270, the Korean-American Grocers Association of Oregon concludes:

Not only will our members see a dramatic decrease in legal sales on cigarettes, we would also lose additional sales on things like water, gas, pop, candy, etc. that our customers buy in addition to their cigarette purchases.

A complete analysis from Oregon's Legislative Revenue Office should include the effects of HB 2270 on reduced personal and business income taxes associated with reduced retail activity in Oregon.

## 4 Conclusion

Our analysis of HB 2270 indicate that the governor's budget and OHA substantially overstate the revenues the state will receive from a $\$ 2$-a-pack increase in Oregon's cigarette tax. The projections do not accurately reflect the loss of revenues associated with out-of-state purchases of cigarettes.

We estimate the cigarette tax increase will provide less than $\$ 115$ million a year in additional revenue to Oregon. However, because of the loss of sales to neighboring states, the states bordering Oregon are expected to see their cigarette revenues increase by $\$ 90-100$ million.

The loss of cigarette sales in Oregon will have significant impacts on state businesses, especially retailers. Not only will retailers experience reduced sales of cigarettes, but also they will see a reduction in ancillary sales, such as groceries and motor fuel and will have a noticeable impact on employment and incomes.

# House Committee on Revenue re: HB 2270 

Dear Chair Nathanson, Vice-Chairs Marsh and Findley, Committee Members:

Core Mark International delivers and services the convenience retail industry of Oregon. Out of our Milwaukie, Oregon warehouse we employ over 230 Oregonians. During the course of 2018, our division collected well over $\$ 65,000,000$ in Oregon cigarette taxes from our customer base. This represents over a third of the cigarette taxes collected for the entire state. Our business, and our industry as a whole, is dependent on a level playing field when it comes to cigarette taxation. Core Mark is opposed to HB 2270 which calls for Oregon's cigarette tax to increase by $150 \%$. This unprecedented increase to cigarette taxation will be a losing proposition for us all.

As we witnessed with Oregon's last round of tobacco and cigarette stamp tax increase, higher cigarette and tobacco taxation do not reduce usage. Consumers seeking lower costs participate in "casual smuggling" to seek out the lowest cost for their own personal use. Currently, Washington loses over 40 million packs of cigarettes annually to Oregon retailers due to the tax base difference of $\$ 1.695$ per pack. As the tax differential flattens, Oregon risks not only losing these packs that are already a source of revenue to the state but will lose even more packs to surrounding states with lower tax rates.

A more severe consequence of increased cigarette taxes and the impact to tax differentials is the reality of commercial cigarette smuggling. On a small criminal scale, a Chevy Malibu can hold 3000 packs of cigarettes; if the opportunity dollars are high enough a casual smuggler may turn criminal smuggler in order to profit from this criminal act. As the truck scale increases, the crime worsens as does the negative impact to Oregon's base of legal, taxable packs. A criminal driving a class B parcel truck could smuggle 111,000 packs of non-Oregon stamped cigarettes into Oregon. A 53' trailer, which is a common sight on our interstate highways and freeways every day, could contain more than 560,000 packs of cigarettes. Based on our current tax rate, this would represent a revenue loss of $\$ 744,800$ to Oregon. With the proposed increase of $\$ 2.00 /$ pack from HB 2270, this truckload would now be worth $\$ 1,864,800$. If Oregon's tax rate were to increase, we will see ever-decreasing legal packs subject to Oregon tax, as is so dramatically evident in Washington. Additionally, the frequency of commercial smuggling and criminal activities associated with this smuggling will also increase proportionately.

As the cost of packs increase in street value, safety for all drivers transporting legally taxed and paid product becomes a greater concern. The proposed huge escalation of these costs, as

HB 2270 is proposing, will put Oregonians in greater danger as criminal smugglers will seek out all opportunities to capture these items that have grown in cost.

As a responsible, tax abiding wholesaler of cigarette products, Core Mark strongly opposes HB 2270. This bill's planned increase to cigarette taxation will have a negative impact to Oregon's long term revenue streams and will create an environment which rewards smuggling and other criminal activities.

Respectfully,


Mike Hannon
President, Portland Division of Core Mark International, Inc

## CIGARETTE TAX EVASION ESTIMATE - FY 2017

 CIGARETTE TAX RATE - \$3.025 PER PACKWashington State cigarette tax evasion is derived by comparing the state's per capita consumption of all cigarettes with per capita sales of state taxed cigarettes.

This yields 19 untaxed packs per capita, which equals 138.6 million untaxed packs in total.

After accounting for legal sales by tribal and military sources, 88.8 million illegally untaxed packs remain representing $33.8 \%$ of all packs consumed.

The data is not detailed enough to quantify sources of evasion or enforcement efforts.

| Per Capita Estimates: |  |
| :--- | ---: |
| U.S. Per Capita Consumption | 45.5 packs |
|  |  |
| Washington Per Capita Consumption * | 35.9 packs |
| Washington Taxable Consumption ** | 17.0 packs |
| Washington Per Capita Gap Estimate | 19.0 packs |


| Washington Population | 7.3 million |
| :--- | :--- |
|  |  |
| Total Washington Loss |  |
| Less: Military Sales *** | 138.6 million packs |
| Less: Indian Sales | (13.5) million packs |
|  |  |
|  | a. Compact and contract cigarettes |
|  | b. Indian allotments not included above |
| Loss from Evasion | $(36.2)$ million packs |
| Loss as a percent of total packs purchased | $(0.1)$ million packs |


| Revenue Losses: | \$8.18 Cost Per Pack |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | State Revenue Losses: |  | Tax Per Pack in Cents | Revenues in \$ Millions |
|  | State Cigarette Tax: |  | 302.5 | \$268.5 |
|  |  |  | 302.5 | \$268.5 |
|  | Other State Excise Tax: |  |  |  |
|  | Sales Tax | 6.5\% | 53.2 | 47.2 |
|  |  | Total | 355.7 | \$315.7 |
|  | Local Revenue Loss: |  |  |  |
|  | Local Sales Tax | 2.50\% | 20.4 | 18.1 |
|  | Total |  | 376.1 | \$333.8 |

* Assumes that Washington residents per capita consumption is 79\% of the U.S. rate.
** Taxable per capita consumption is based on the actual Fiscal Year 2017 sale of cigarette stamps.
*** Assumes 375,525 military and dependents consuming at the Washington per capita rate of 35.9 packs.


## WA and OR Industry Volume By County 2018

Carton Volume Source: Management Science Associates Inc.

| Total | OR | 14,937,576 | 149,375,758 | 3,269,157 | 45.7 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Total | WA | 14,531,416 | 145,314,165 | 5,759,927 | 25.2 |
| Total | OR + WA | 29,468,992 | 294,689,923 | 9,029,084 | 32.6 |
| State | County | 2018 Total Cartons | 2018 Total Packs | Population Over 18 | Packs per Adult |
| OR | SHERMAN | 22,708 | 227,079 | 1,422 | 159.7 |
| OR | COLUMBIA | 495,441 | 4,954,411 | 40,672 | 121.8 |
| OR | UMATILLA | 498,751 | 4,987,511 | 57,412 | 86.9 |
| OR | CLATSOP | 272,189 | 2,721,890 | 31,687 | 85.9 |
| OR | CURRY | 136,198 | 1,361,978 | 19,353 | 70.4 |
| OR | LINCOLN | 284,934 | 2,849,341 | 40,521 | 70.3 |
| OR | DOUGLAS | 599,032 | 5,990,318 | 88,199 | 67.9 |
| OR | COOS | 346,395 | 3,463,948 | 52,025 | 66.6 |
| OR | MORROW | 53,485 | 534,853 | 8,125 | 65.8 |
| OR | JOSEPHINE | 448,680 | 4,486,801 | 69,425 | 64.6 |
| OR | TILLAMOOK | 133,786 | 1,337,863 | 21,613 | 61.9 |
| OR | WASCO | 125,646 | 1,256,456 | 20,504 | 61.3 |
| OR | KLAMATH | 295,647 | 2,956,471 | 52,477 | 56.3 |
| OR | GILLIAM | 8,187 | 81,870 | 1,491 | 54.9 |
| OR | BAKER | 68,659 | 686,593 | 12,914 | 53.2 |
| OR | MULTNOMAH | 3,302,827 | 33,028,273 | 653,238 | 50.6 |
| OR | LINN | 476,763 | 4,767,633 | 96,518 | 49.4 |
| OR | JACKSON | 842,283 | 8,422,825 | 172,439 | 48.8 |
| OR | HARNEY | 27,716 | 277,160 | 5,745 | 48.2 |
| OR | CROOK | 89,437 | 894,366 | 18,586 | 48.1 |
| OR | HOOD RIVER | 83,436 | 834,359 | 17,666 | 47.2 |
| OR | LAKE | 28,740 | 287,399 | 6,318 | 45.5 |
| OR | UNION | 87,454 | 874,538 | 20,308 | 43.1 |
| OR | LANE | 1,290,765 | 12,907,651 | 304,658 | 42.4 |
| OR | GRANT | 24,707 | 247,065 | 5,897 | 41.9 |
| OR | MARION | 1,042,732 | 10,427,319 | 256,499 | 40.7 |
| OR | JEFFERSON | 73,607 | 736,072 | 18,155 | 40.5 |
| OR | YAMHILL | 325,824 | 3,258,240 | 81,945 | 39.8 |
| OR | CLACKAMAS | 1,182,412 | 11,824,118 | 322,940 | 36.6 |
| OR | WALLOWA | 20,982 | 209,820 | 5,737 | 36.6 |


| OR | DESCHUTES | 534,314 | $5,343,143$ | 148,590 | 36.0 |
| :--- | :--- | ---: | ---: | ---: | ---: |
| OR | POLK | 226,874 | $2,268,742$ | 64,438 | 35.2 |
| OR | MALHEUR | 71,328 | 713,281 | 22,670 | 31.5 |
| OR | WASHINGTON | $1,270,842$ | $12,708,420$ | 451,910 | 28.1 |
| OR | WHEELER | 2,990 | 29,900 | 1,153 | 25.9 |
| OR | BENTON | 141,805 | $1,418,049$ | 75,907 | 18.7 |


| WA | ADAMS | 28,696 | 286,958 | 12,602 | 22.8 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| WA | ASOTIN | 9,061 | 90,610 | 17,922 | 5.1 |
| WA | BENTON | 335,998 | 3,359,976 | 145,082 | 23.2 |
| WA | CHELAN | 176,598 | 1,765,980 | 58,256 | 30.3 |
| WA | CLALLAM | 249,007 | 2,490,069 | 62,380 | 39.9 |
| WA | CLARK | 682,560 | 6,825,597 | 359,223 | 19.0 |
| WA | COLUMBIA | 10,214 | 102,140 | 3,285 | 31.1 |
| WA | COWLITZ | 187,244 | 1,872,443 | 82,404 | 22.7 |
| WA | DOUGLAS | 82,951 | 829,510 | 31,082 | 26.7 |
| WA | FERRY | 13,187 | 131,874 | 6,281 | 21.0 |
| WA | FRANKLIN | 104,891 | 1,048,908 | 62,157 | 16.9 |
| WA | GARFIELD | 2,148 | 21,480 | 1,764 | 12.2 |
| WA | GRANT | 201,644 | 2,016,437 | 66,907 | 30.1 |
| WA | GRAYS HARBOR | 237,562 | 2,375,616 | 57,758 | 41.1 |
| WA | ISLAND | 131,450 | 1,314,503 | 67,934 | 19.3 |
| WA | JEFFERSON | 57,376 | 573,764 | 27,401 | 20.9 |
| WA | KING | 3,638,406 | 36,384,055 | 1,741,299 | 20.9 |
| WA | KITSAP | 669,617 | 6,696,173 | 211,480 | 31.7 |
| WA | KITTITAS | 89,566 | 895,656 | 38,257 | 23.4 |
| WA | KLICKITAT | 20,224 | 202,243 | 17,583 | 11.5 |
| WA | LEWIS | 235,258 | 2,352,576 | 61,337 | 38.4 |
| WA | LINCOLN | 15,588 | 155,877 | 8,285 | 18.8 |
| WA | MASON | 211,402 | 2,114,016 | 51,368 | 41.2 |
| WA | OKANOGAN | 157,900 | 1,578,997 | 32,046 | 49.3 |
| WA | PACIFIC | 56,595 | 565,947 | 18,077 | 31.3 |
| WA | PEND OREILLE | 5,945 | 59,450 | 10,792 | 5.5 |
| WA | PIERCE | 2,258,842 | 22,588,424 | 669,833 | 33.7 |
| WA | SAN JUAN | 29,396 | 293,957 | 14,525 | 20.2 |
| WA | SKAGIT | 476,499 | 4,764,994 | 98,111 | 48.6 |
| WA | SKAMANIA | 10,780 | 107,799 | 9,614 | 11.2 |


| WA | SNOHOMISH | $1,978,661$ | $19,786,613$ | 619,396 | 31.9 |
| :--- | :--- | ---: | ---: | ---: | ---: |
| WA | SPOKANE | 765,951 | $7,659,507$ | 393,761 | 19.5 |
| WA | STEVENS | 107,714 | $1,077,139$ | 35,002 | 30.8 |
| WA | THURSTON | 616,433 | $6,164,334$ | 219,864 | 28.0 |
| WA | WAHKIAKUM | 4,779 | 47,790 | 3,520 | 13.6 |
| WA | WALLA WALLA | 53,288 | 532,880 | 47,759 | 11.2 |
| WA | WHATCOM | 416,155 | $4,161,545$ | 178,148 | 23.4 |
| WA | WHITMAN | 21,012 | 210,119 | 41,653 | 5.0 |
| WA | YAKIMA | 180,821 | $1,808,208$ | 175,779 | 10.3 |


[^0]:    ${ }^{1}$ Tax rates are from state's revenue departments. Average price per pack is from Orzechowski and Walker (2018), The Tax Burden on Tobacco, 1970-2017, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

[^1]:    ${ }^{2}$ State of Washington Department of Revenue (2018). Cigarette tax evasion estimate - FY 2017. https://dor.wa.gov/sites/default/files/legacy/Docs/Reports/Cig Tax Evasion FY17.pdf.
    ${ }^{3}$ LaFaive, M. D., Nesbit, T., and Drenkard, S. (2017). Cigarette Taxes and Smuggling: A 2016 Update. Mackinac Center for Public Policy. https://www.mackinac.org/archives/2016/s2016-09.pdf.
    ${ }^{4}$ Editorial board (2018). Cigarette smuggling robs Washington state of revenue. Seattle Times. May 16. https://www.seattletimes.com/opinion/editorials/cigarette-smuggling-robs-washington-state-of-revenue/.
    ${ }^{5}$ Lehner, J. Tobacco and taxes. Oregon Office of Economic Analysis. March 20, 2014.
    https://oregoneconomicanalysis.com/2014/03/20/tobacco-and-taxes/, retrieved February 8, 2019.

[^2]:    ${ }^{6}$ Keeler T. E., Hu T. W., Barnett P. G., Manning W. G. , and Sung H. Y. (1996) Do cigarette producers price-discriminate by state? An empirical analysis of local cigarette pricing and taxation. Journal of Health Economics, 15: 499-512.
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