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# Consumption Tax Policies in OECD Countries

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## Key Findings

- Consumption taxes are a significant source of revenue for governments across the world, making up 32.3 percent of tax revenues in OECD countries in 2019.
- Despite the potential of consumption taxes as a neutral and efficient source of tax revenues, many governments have implemented policies that are unduly complex and have poorly designed tax bases that exclude many goods or services from taxation, or tax them at reduced rates.
- Value-added taxes and sales taxes are ripe for reform to avoid distorting consumption patterns and raise revenue in a stable manner.
- Excise tax revenues tend to be volatile and should be specifically designed to target the societal costs associated with certain products and the revenue used to mitigate negative impacts of taxed activities like smoking and pollution.
- Policymakers should ensure that consumption taxes only apply to final purchases of goods and services and that business inputs are untaxed.

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## Introduction

Consumption taxes are a major source of revenue for governments around the world. If you purchase something from a grocery store or another retailer it is likely that you will pay tax on that purchase. As with many tax policies, consumption taxes are not uniform across the globe. While they make up one-third or more of the revenue for many of the 37 countries in the Organisation for Economic Co-operation and Development (OECD), this is not true across the board. The United States is a clear outlier by not having a federal consumption tax and consumption tax revenues making up less than 20 percent of total tax revenues across all levels of government.

Because consumption tax policies play a big role in raising revenue, it is important to understand their design, their impacts, and where governments are choosing better or worse options for raising revenue from purchases.

Policymakers should always be looking to raise revenue in ways that keep compliance costs down and minimize distortions in economic decisions. While consumption tax policy is a natural area for reaching those goals from a theoretical standpoint, this report shows that many governments have made choices that undermine the efficiency of a consumption tax system driven by economic principles.

## Consumption Taxes in Brief

Consumption taxes apply to sales of goods or services. There are three main types of consumption taxes: sales taxes, value-added Taxes (VAT), and excise taxes. While sales taxes and VATs usually apply to a broad set of goods and services, excise taxes are targeted at specific products.

### Why tax consumption?

Taxes can apply to what people earn, what they save, what they own, and what they buy. Taxes on each activity create distortions that can hurt the productivity of the economy. However, not all taxes create the same distortions. Taxes on labor influence decisions on whether to work or not. The tax burden on savings and investment reduces productive investment.

Consumption taxes also influence decisions and change economic outcomes, but they are less likely to influence decisions to work or invest. Consumption taxes that apply to all purchases result in consumers paying taxes regardless of their income or their work status. A wealthy heir would pay the same taxes on their purchases of a haircut, milk, and eggs as a barber, farmer, or grocery store worker.

Even if the tax rate is set at the same level for all purchases, however, individuals who buy more (or more expensive) goods do pay more in consumption taxes than those who buy fewer (or less expensive) goods. If the wealthy heir buys a yacht, a plane, and a sports car while the barber buys a sedan, the farmer a truck, and the grocery store worker a minivan, then the total consumption taxes paid by the heir would be much greater than the other three.

In this way, the progressivity or regressivity of consumption taxes is connected to purchasing activity rather than the incomes of those who are consuming the goods and services.<sup>1</sup>

From a revenue perspective, consumption taxes can provide a significant and stable source of financing for governments. In economic downturns, consumption activity tends to decline less than incomes, so governments that rely more on revenue from consumption taxes are under less pressure to run significant deficits.<sup>2</sup>

Because consumption taxes do not generally influence business investment decisions and individual decisions to work, they can raise significant revenue without damaging a country's long-term growth prospects. This does not mean that other consequences do not come along with consumption tax policy decisions. A consumption tax that captures all (or most) final consumption will affect consumer behavior less, and can raise more revenue at lower rates, but governments often provide exemptions that influence consumer behavior. Also, sharp increases in consumption tax rates can lead to price hikes, and excise taxes are specifically designed to influence behavior.

## Principles for Designing Good Consumption Taxes

Typically, governments will tax consumption using sales taxes, VATs, or excise taxes. While all three policy tools fall under the consumption tax umbrella, there are several differences in policy design and application among the three.

A few principles can be used to determine whether a sales tax, VAT, or excise tax is well-designed.

Four principles for sales taxes and VAT:

1. Only final consumption should be taxed. Business inputs should either be exempt or, as with a VAT, taxes paid on inputs should be credited back to businesses along supply chains.
2. All final consumption should be taxed. Exemptions and special rates for certain goods unnecessarily complicate compliance efforts, can distort consumption patterns in unintended ways, and often result in higher tax rates.
3. Consumption taxes should only be levied by the jurisdiction where the good or service is consumed.
4. Broad-based consumption tax revenues are generally more stable than revenue from income taxes on individuals or businesses.

1 Many VAT systems are proportional to consumption and regressive relative to income. For comparable measures of progressivity for VATs, see Alastair Thomas, "Reassessing the Regressivity of the VAT," OECD Taxation Working Papers No. 49, Aug. 10, 2020, <https://doi.org/10.1787/b76ced82-en>.








2 For comparisons of tax revenues during the recession of 2008-09, see Daniel Bunn, "Tax Policy and Economic Downturns" Tax Foundation, Mar. 18, 2020, <https://taxfoundation.org/government-revenue-most-hit-recession/>, and Jared Walczak, "Income Taxes Are More Volatile Than Sales Taxes During an Economic Contraction" Tax Foundation, Mar. 17, 2020, <https://taxfoundation.org/income-taxes-are-more-volatile-than-sales-taxes-during-recession/>.

Three principles for excise taxes:

1. The tax should be calibrated to the relative harm or cost of the product being taxed rather than the product's price, whether that is wear and tear on public roads, pollution, or health.
2. Revenue from excise taxes should be appropriated to mitigate the effects of consuming excised goods and services. A tax on road use should be used to fund road maintenance.
3. Revenue from excise taxes tends to be volatile since the tax base is very narrow and they are often designed to change consumer behavior.

A well-designed consumption tax would apply to all final consumption. It would apply whether someone buys a haircut, a vehicle, or groceries. Also, the ideal consumption tax would not apply (or there would be an offset mechanism) if a restaurant bought groceries. Since the groceries are an input for the restaurant, the restaurant's purchase is not final consumption. However, someone who buys the meal in the restaurant would represent a final consumer.

**FIGURE 1.**  
**Examples of a VAT and a Sales Tax**

Transaction	Base cost	Value-added tax	Sales tax
1 A Lumber company sells \$100 of wood to a furniture maker.	 \$100	 \$10 The furniture maker pays the lumber company \$110, and the lumber company remits \$10 to the government.	
2 A furniture maker makes a chair and sells it to a retailer for \$300.	 \$300	 \$20 The retailer pays \$330 for the chair. Instead of sending the full \$30 to the government, the retailer gets to subtract the \$10 of taxes they already paid to the lumber company.	
3 The retailer sells the chair for \$500 to a shopper.	 \$500	 \$20 The shopper pays \$550 but because \$30 in taxes have already been paid by the furniture maker and the lumber yard, the retailer only pays the government \$20.	 \$50 Under a sales tax, the shopper would pay \$550, and the retailer would remit \$50 to the government.

The example in Figure 1 provides an ideal scenario for both VAT and sales tax. The lumber company sells wood to the furniture maker, who then sells the furniture to a retailer. Finally, a shopper buys the furniture. In both cases, the total consumption tax paid is \$50.

The example in Figure 1 is the ideal scenario for sales taxes. Unfortunately, many sales taxes apply to both final consumption and business inputs, resulting in what is called "tax pyramiding." Tax pyramiding is an economically harmful phenomenon where the tax burden stacks up throughout the production chain. Imagine if the furniture maker and the retailer had to pay sales tax in addition to the shopper. There would be additional 10 percent sales tax at each stage and the total sales tax paid would be \$30 higher than in the VAT scenario.

Among U.S. states there are some that have well-designed sales taxes with low rates, relatively little tax pyramiding, and broad bases.<sup>3</sup> These include Wyoming and Wisconsin. However, many U.S. state sales taxes include business inputs and exclude many goods for final consumption. Alabama and Louisiana fare particularly poor when it comes to sales tax design.<sup>4</sup>

VAT are designed to avoid the tax pyramiding problem by providing businesses with tax relief for the VAT they pay on the inputs to their products. In the example in Figure 1, the lumber company remits \$10 to the government. However, at the next stage, the furniture maker only remits an additional \$20 to the government. The \$10 difference is kept by the furniture maker to offset the VAT paid on the first transaction. This sort of arrangement, through the whole supply chain, ensures that at each stage only the additional VAT is remitted to the government.

Among countries in the OECD, some stand out as examples for good VAT policies that have relatively low rates, broad tax bases, and low compliance costs. These include countries like Switzerland, South Korea, Luxembourg, and Japan. However, many countries exempt or provide special, lower rates to many goods and undermine the efficiency of their VAT or have high administrative burdens. These countries include Poland, Hungary, the Czech Republic, and the Slovak Republic.<sup>5</sup>

Excise taxes are taxes on the sale or use of specific goods, but they have a different policy justification. They are most often levied because some activity (smoking, polluting, drinking) has negative impacts on health, the environment, or public safety. These negative impacts are called externalities, and they can have real costs to society.

Excise taxes should be designed according to those costs or risks as a way to account for the negative externality. Thus, a good excise tax accounts not for the value of a product, but for the costs of the externality. For alcohol products, this means that the alcohol content determines the tax. This, fortunately, is common practice across the OECD where alcohol is taxed according to potency and content. An excise tax aimed at reducing vehicle emissions should be targeted at heavier pollutants—a practice which is not common for taxation of motor fuel. And an excise tax designed to mitigate the health risks of smoking should be tailored to those risks and tobacco products that have higher health risks should be taxed heavier. This principle is well-established in some countries where cigarettes are taxed at higher rates while other less harmful products are taxed at lower rates. Some governments, however, tax all tobacco products at equal rates despite their different harm profiles.<sup>6</sup>

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3 Jared Walczak and Janelle Cammenga, *2021 State Business Tax Climate Index*, Tax Foundation, Oct. 21, 2020, <https://taxfoundation.org/2021-state-business-tax-climate-index/>.

4 Ibid.

5 Daniel Bunn and Elke Asen, *International Tax Competitiveness Index*, Tax Foundation, Oct. 14, 2020, <https://taxfoundation.org/publications/international-tax-competitiveness-index/>.

6 See the section on excise taxes in this report for more details.

## Consumption Tax Revenues in OECD Countries

Consumption taxes provide a major source of revenue in OECD countries. On average in 2019, consumption taxes made up 32.3 percent of total revenues in OECD countries. In Chile, 53.1 percent of total revenues were from consumption taxes while in the United States, consumption taxes accounted for just 17.6 percent of total tax revenue.

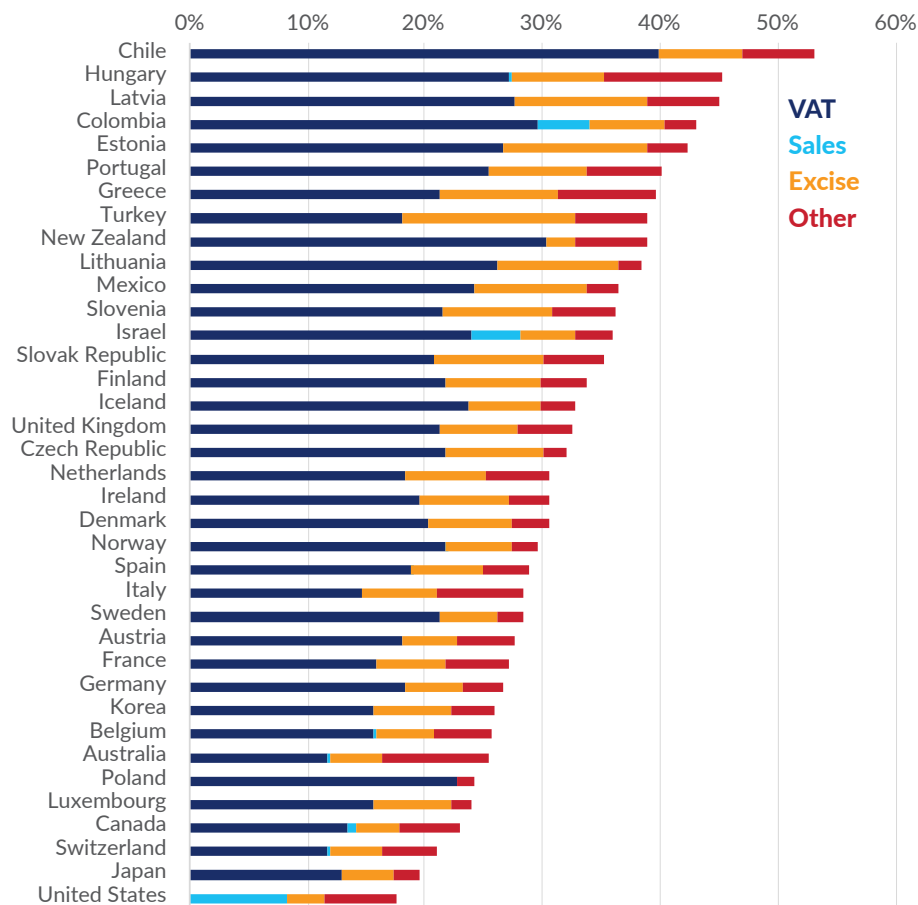
When measured as a share of GDP, Hungary leads OECD countries with consumption taxes measuring 16.2 percent of GDP. The United States is again at the low end with consumption taxes raising 4.3 percent of GDP.

However, countries vary in the proportion of the consumption tax revenues made up by VAT, sales taxes, or excise taxes as seen in Figure 2.

**FIGURE 2.**

### Consumption Tax Revenues Account for more than 30 percent of Total Revenues in 21 OECD Countries

*Consumption tax revenues as a percent of total tax revenue split into VAT, sales, excise, and other, 2019*



Note: Data is from 2019 except in the case of Australia, Japan, and Mexico, for which 2018 values are used.  
Source: OECD, "Revenue Statistics - OECD countries: Comparative tables," <https://stats.oecd.org/Index.aspx?DataSetCode=REV>.

## Sales Tax Revenues

Only 10 of the 37 OECD countries raise revenues from general sales taxes, and the U.S. leads with both the highest share of total revenue (8.2 percent) and revenues as a percent of GDP (2 percent). At the other end of the spectrum Spain collects less than 0.1 percent in sales taxes either as a share of total revenue or as a percent of GDP.

## VAT Revenues

OECD countries raise most of their consumption tax revenue through VAT. New Zealand raises the most revenue as a share of GDP (9.8 percent) while Chile raises the largest share of total revenue (39.9 percent). Of the countries that levy a VAT, Australia raises both the least as a share of total revenue (11.7 percent) and GDP (3.3 percent).

## Excise Tax Revenues

Excise tax revenues make up a somewhat smaller portion of tax revenue in OECD countries relative to VAT. Turkey raises the most from excise taxes as a share of revenue (14.8 percent) while Estonia takes in the highest as a share of GDP (4 percent). New Zealand raises the lowest share of revenue (2.5 percent) and the United States raises the lowest as a share of GDP (0.8 percent).

## Consumption Tax Revenue Trends, 2000-2019

Over the period of 2000-2019, average consumption tax revenues as a share of GDP were relatively stable, ranging between 10 and 11 percent of GDP during the entire period. As a share of revenues, consumption taxes ranged between 32 and 34 percent.

As a share of GDP, sales tax revenues were 0.05 percentage points lower in 2019 than in 2000, VAT revenues were 0.5 percentage points higher, and excise taxes 0.6 percentage points lower.

Throughout this period there were various changes in the underlying tax policies. The average VAT rate in the OECD increased by 1.6 points. Excise tax revenues were impacted by consumer responses to excises on energy sources.

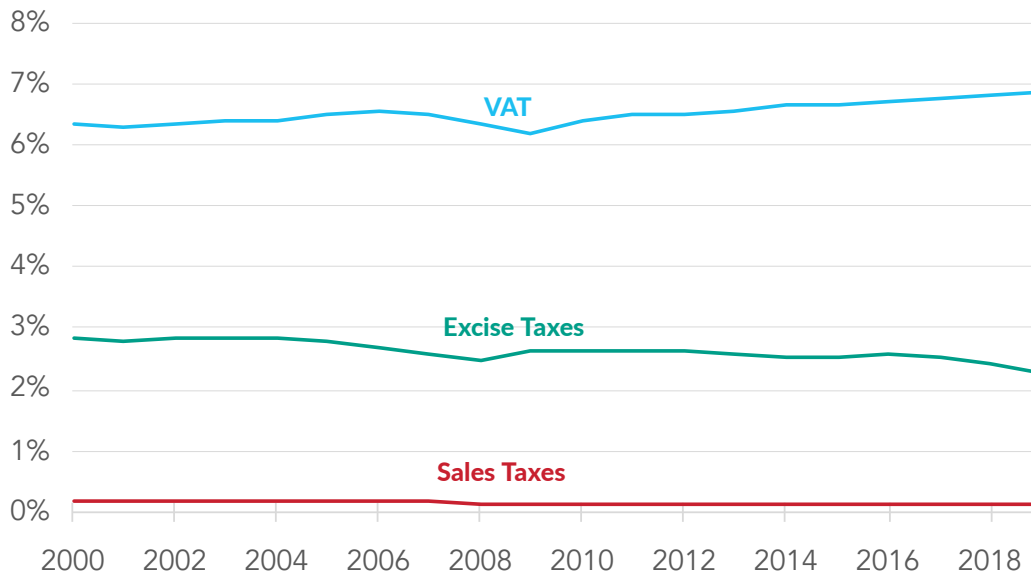
Revenue trends can also be impacted in that VAT often applies to the price, which includes excise taxes. If the VAT rate is increased, the goods subject to both VAT and excise may see lower sales due to price effects. Though a higher VAT rate would result in more consumption tax revenues overall, there could be slightly lower excise tax revenues.

This is not a fixed rule, however. Between 2000 and 2019, Greece and Portugal both increased their VAT rates by 6 points. In both countries, consumption tax revenue as a percent of GDP increased (3.55 points in Greece, 1.28 points in Portugal). In Portugal, this was driven mainly by VAT revenues which increased 1.29 points as a share of GDP, while excise tax revenue fell by 0.6 points. In Greece, however, both VAT revenues and excise tax revenues increased (1.96 points for VAT and 0.98 points for excise).<sup>7</sup>

<sup>7</sup> The different experiences could also be explained by differing excise tax policies. However, we have limited historical data on excise tax rates that would be needed to answer this question.

**FIGURE 3.**  
**As a Share of GDP, VAT Revenues Rose from 2000-2019 while Excise and Sales Tax Revenues Fell Slightly**

*Average VAT, sales, and excise tax revenues as a share of GDP among OECD countries*



Source: OECD, "Revenue Statistics - OECD countries: Comparative tables," <https://stats.oecd.org/Index.aspx?DataSetCode=REV>.

## Value-added Tax

In 1965 consumption tax revenue in OECD countries mainly came from excise and sales taxes. However, the VAT has since become the main consumption tax policy among OECD countries.<sup>8</sup> The trend of VAT adoption began in Europe in the 1960s and has since spread to the extent that 170 jurisdictions across the world levy a VAT,<sup>9</sup> which is now the leading consumption tax not only in terms of revenue but also in terms of geographical coverage. The number of OECD countries that have implemented VAT increased from 13 in 1975 to 36 in 2020 (see Appendix Table 1). The United States is the only country in the OECD that does not levy a VAT.

## Standard VAT Rates

The average standard VAT rate in the OECD is 19.3 percent. Hungary has the highest standard VAT rate at 27 percent, while Canada has the lowest at 5 percent, which is the federal Goods and Services Tax (GST) rate. Some provinces in Canada apply a Harmonized Sales Tax (HST) in addition to the 5 percent federal GST that together sum to 15 percent in New Brunswick, Nova Scotia, Newfoundland and Labrador, and Prince Edward Island, and 13 percent in Ontario.<sup>10</sup>

<sup>8</sup> In some countries the VAT is referred to as the Goods and Services Tax (GST). This includes countries like Australia, Canada, and New Zealand.

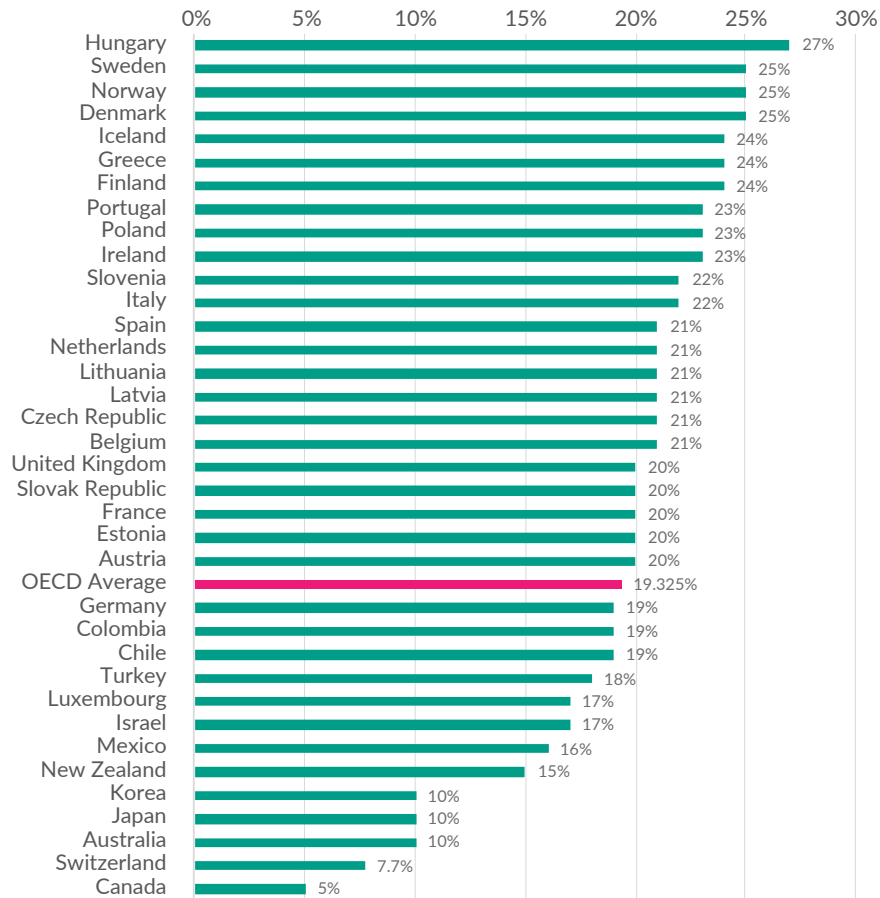
<sup>9</sup> OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, November 2020), <https://doi.org/10.1787/152def2d-en>.

<sup>10</sup> British Columbia, Manitoba, and Saskatchewan apply a provincial retail sales tax (PST) in addition to the 5 percent federal GST. See the section on sales taxes for more information.



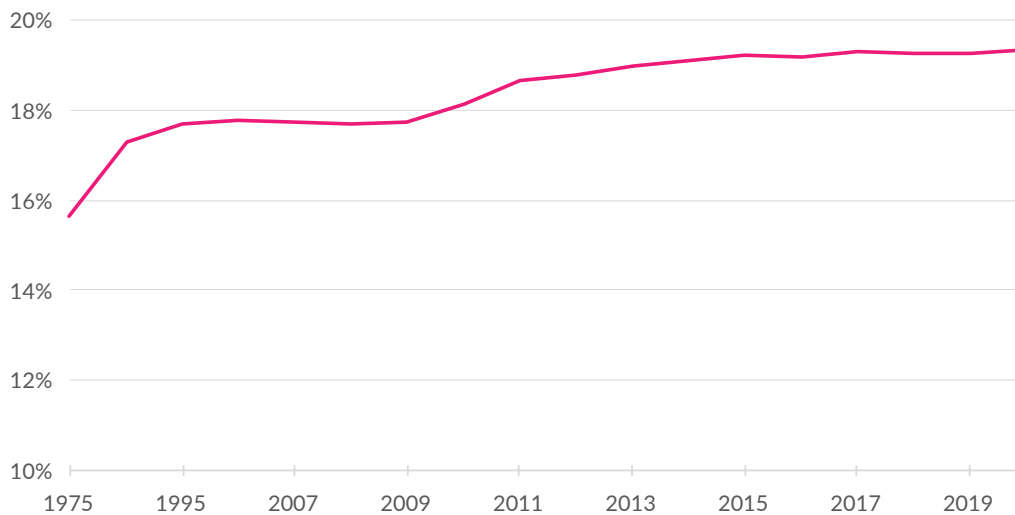
**FIGURE 4.**  
**Almost Two-thirds of OECD Countries**  
**Have VAT Rates of 20 Percent or Higher**

Standard VAT Rates, 2020



Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020), <https://doi.org/10.1787/152def2d-en>.

**FIGURE 5.**  
**OECD Average Standard VAT Rate**  
**Increased by 24% over the Past 45 Years**



Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020), <https://doi.org/10.1787/152def2d-en>.

The average VAT rate in the OECD increased from 15.6 percent in 1975 to 19.3 percent in 2020. The average VAT standard rate was relatively stable between 2000 and 2009, and from 2015 to 2020. However, the OECD average rose from 17.7 percent in 2009 to a record level of 19.2 percent in 2015 as many countries raised their standard VAT rates in response to the financial and economic crisis and maintained those higher rates up until today.

## Reduced Rates

Except for Chile, all OECD countries apply one or several reduced VAT rates.

Most countries apply VAT reduced rates to goods and services considered necessities like food and water, but also to medicine, health care, education, or housing.

EU member states have a common framework<sup>11</sup> that allows them to apply one or two reduced rates<sup>12</sup> not lower than 5 percent to a number of goods and services<sup>13</sup> and one super reduced rate below 5 percent. However, only Ireland, France, Spain, Italy, and Luxemburg are currently applying reduced rates below 5 percent.

Apart from reduced rates, all OECD countries make extensive use of exemptions.<sup>14</sup> Public services or activities that serve a social interest like education, health care, postal services, or charities are generally exempted from VAT. Other VAT exemptions refer to financial or insurance services whose tax bases are difficult to determine. However, these activities are normally subject to other specific taxes.

Policymakers will justify reduced rates with arguments that they promote the consumption of certain goods such as cultural products and local labor-intensive sectors like tourism, support low-income households, or address environmental externalities.

However, recent research shows that reduced rates and exemptions are not an effective way of achieving such objectives.<sup>15</sup> They can even be regressive if higher-income individuals consume more of the products that have reduced rates or if it causes increases to the general VAT rate to achieve revenue goals.

Although a reduced VAT rate for food may provide support to the poor, the VAT system is a very poor tool to use for that purpose. Even if the intention is to support those who earn little income, individuals across the income distribution will also benefit from the reduced rates. Therefore, a

11 VAT Directive 2006/112/EC.

12 A number of states which, on January 1, 1991, were applying reduced rates to goods and services not included in the VAT Directive list, may still apply the reduced rates, also called parking rates, as long as the rates are not lower than 12 percent.

13 Annex III of the VAT directive lists 21 categories of goods and services that reduced rates could be applied to. The list includes foodstuff, water supply, pharmaceutical products, medical equipment, transport of passengers, supply of books and newspapers, admission to cultural services and amusement parks, radio and television broadcasting services, services offered by writers or artists, social housing, agricultural inputs, accommodations, restaurant and catering services, admission to sporting events and use of sporting facilities, social services, supplies by undertakers and cremation services, medical and dental care, collection of domestic waste, minor repairing of bicycles, shoes and clothing, domestic care services, and hairdressing.

14 OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues*.

15 Rita de la Feria and Michael Walpole, "The Impact of Public Perceptions on General Consumption Taxes," *British Tax Review* 67:5 (Dec. 4, 2020), 637-669, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3723750](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3723750).

refundable food tax credit or other targeted policies would be more effective than the untargeted reduced VAT rates that have proved to be a poor policy tool for addressing income disparities.<sup>16</sup>

A list of the reduced rates and specific regional rates applied in the OECD is presented in Appendix Table 4.

## Registration and Collection Thresholds

As with other taxes, VAT impose compliance costs that can be especially burdensome for small and medium size businesses. For this reason, most OECD countries set exemption thresholds below which small businesses are not required to charge and collect VAT. This means that, unlike businesses above that threshold, they do not collect VAT on their outputs sold to customers but also cannot receive a refund for VAT paid on business inputs.

Although exempting very small businesses saves administrative and compliance costs, unnecessarily large thresholds create a distortion by favoring smaller businesses over larger ones. Also, a low threshold may act as a disincentive for businesses to grow or as an incentive to avoid VAT by artificially splitting activities. A recent study of VAT in the UK found significant bunching of businesses just below the VAT registration threshold.<sup>17</sup>

Five countries in the OECD (Chile, Mexico, Spain, Turkey, and Colombia) have no exemption threshold. However, in Colombia and Turkey, the exemption only applies to individuals and not to businesses. On the other hand, the United Kingdom has a VAT threshold of \$124,935 that is almost twice the average VAT threshold for OECD countries (approximately \$57,020).<sup>18</sup> France, Poland, Lithuania, Slovak Republic, Japan, Italy, and Ireland also have particularly high thresholds of more than \$90,000.

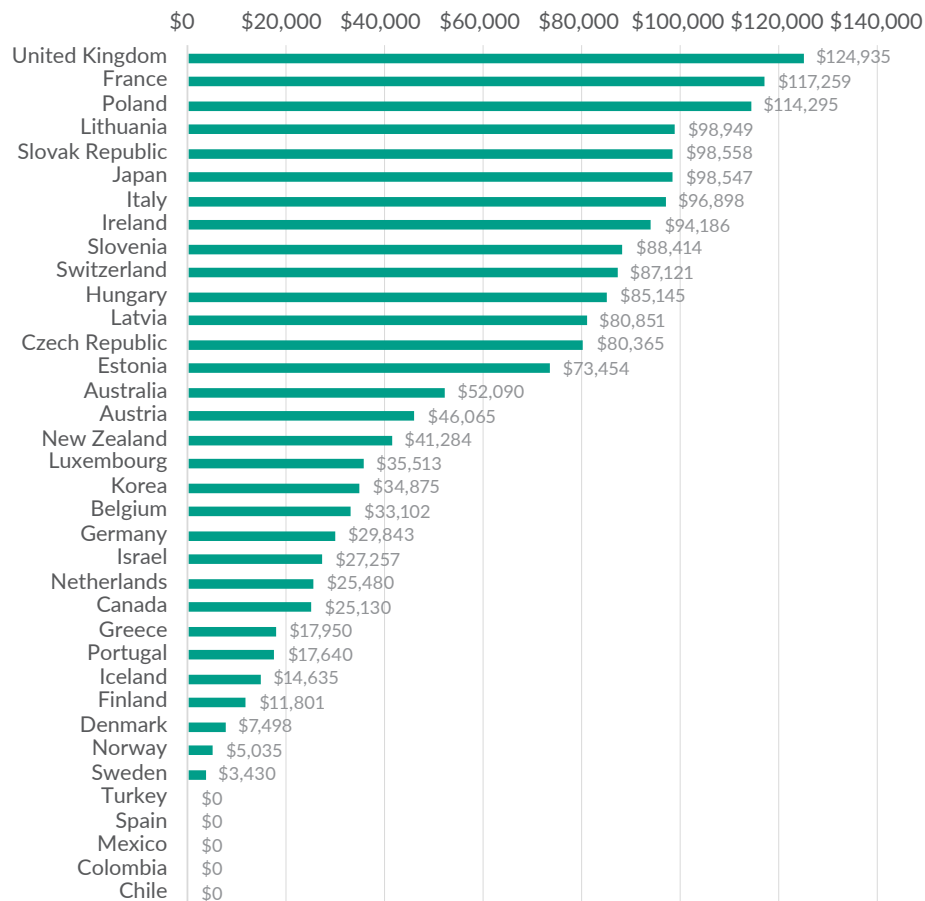
16 Modeling of VAT exemptions and reduced rates compared to universal cash transfer policies in Ethiopia, Ghana, Senegal, and Zambia show that a system of general cash transfers paired with a broad-based VAT is more effective for redistribution purposes than VAT reduced rates or exemptions. Refundable VAT for lower-income individuals or a credit for groceries could see similar impacts. See David Phillips et al., "Redistribution Via VAT and Cash Transfers: An Assessment in Four Low and Middle Income Countries" CEQ Institute Working Paper 78, March 2018, <http://repec.tulane.edu/RePEc/ceq/ceq78.pdf>.

17 Li Liu et al., "VAT Notches, Voluntary Registration, and Bunching: Theory and UK Evidence," IMF, Sept. 27, 2019, <https://www.imf.org/en/Publications/WP/Issues/2019/09/27/VAT-Notches-Voluntary-Registration-and-Bunching-Theory-and-UK-Evidence-48669>.

18 Local currency amounts are converted to U.S. dollars using OECD purchasing power parity conversions from the OECD. See OECD, "Purchasing power parities (PPP)," accessed Dec. 22, 2020, <https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm>.

## FIGURE 6. VAT/GST Registration and Collection Thresholds in OECD Countries in 2020

In USD, purchasing power parities



Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020). <https://doi.org/10.1787/152def2d-en>.

## VAT Performance: VAT Revenue Ratio

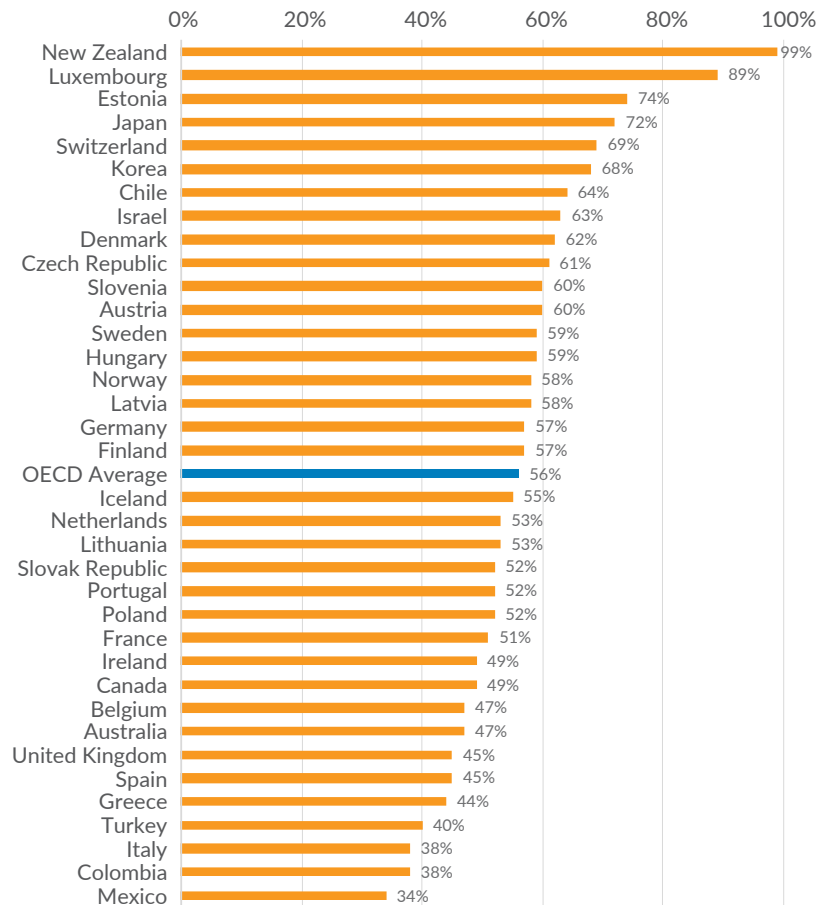
The OECD measures the efficiency of VAT using the VAT Revenue Ratio (VRR). VRR assesses the loss in VAT revenue as a consequence of exemptions and reduced rates, fraud, evasion, and tax planning. To do this, the VRR measures the difference between the VAT revenue actually collected and what would be raised if the standard VAT rate were applied to the entire tax base. Therefore, VRR is the ratio of the actual tax revenue to the maximum possible tax revenue.  $VRR = \text{VAT Revenue} / [(\text{Final Consumption Expenditure} - \text{VAT Revenue}) \times \text{standard VAT rate}]$ .

Since 2010 the OECD average VRR has remained relatively stable at around 0.55. In 2018 the average VRR in the OECD was 0.56, suggesting that, on average, 44 percent of the maximum potential VAT revenue is not collected. The VRR varies considerably from one OECD country to another. The lowest VRR level, and least efficient, was registered in Mexico (0.34), and Colombia and Italy (both 0.38). The highest VRR level, and most efficient, was in Luxembourg (0.89) and New Zealand (0.99). The differences in the VRR levels reflect the disparities in the application of reduced rates and exemptions among the OECD countries. VRR levels are also influenced by VAT evasion and avoidance.

FIGURE 7.

## On Average, 44% of the Potential VAT Revenue Is Not Collected

VAT Revenue Ratio, 2018



Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020), <https://doi.org/10.1787/152def2d-en>.

There is no direct correlation between the level of the standard VAT rate and the VRR estimates. Australia and Ireland, for example, have VAT standard rates of 10 percent and 23 percent respectively, while they register a similar VRR of 0.47 and 0.49, respectively.

The level of the VRR depends on several factors that can be classified into two main categories. The first includes factors related to the VAT policy design such as the tax base and the coverage of the standard, reduced rate, and exemptions. This is also called the “Policy Gap” because it is directly influenced by policy decisions. The second category includes factors influenced by the level of compliance level and the efficiency of the tax collection. This is called the “Compliance Gap” or “VAT Gap.”

### VAT Gap in the EU

The “Compliance Gap” or the “VAT Gap” is estimated for the EU member countries by the Center for Social and Economic Research.<sup>19</sup> The VAT Gap is defined as the difference between the tax collected and the tax that should be collected if all taxpayers, consumers, and businesses fully complied with

19 Center for Social and Economic Research (CASE), Economisti Associati, European Commission: DG Taxation and Customs Union, “Study and Reports on the VAT Gap in the EU-28 Member States: 2020 Final Report,” 2020.

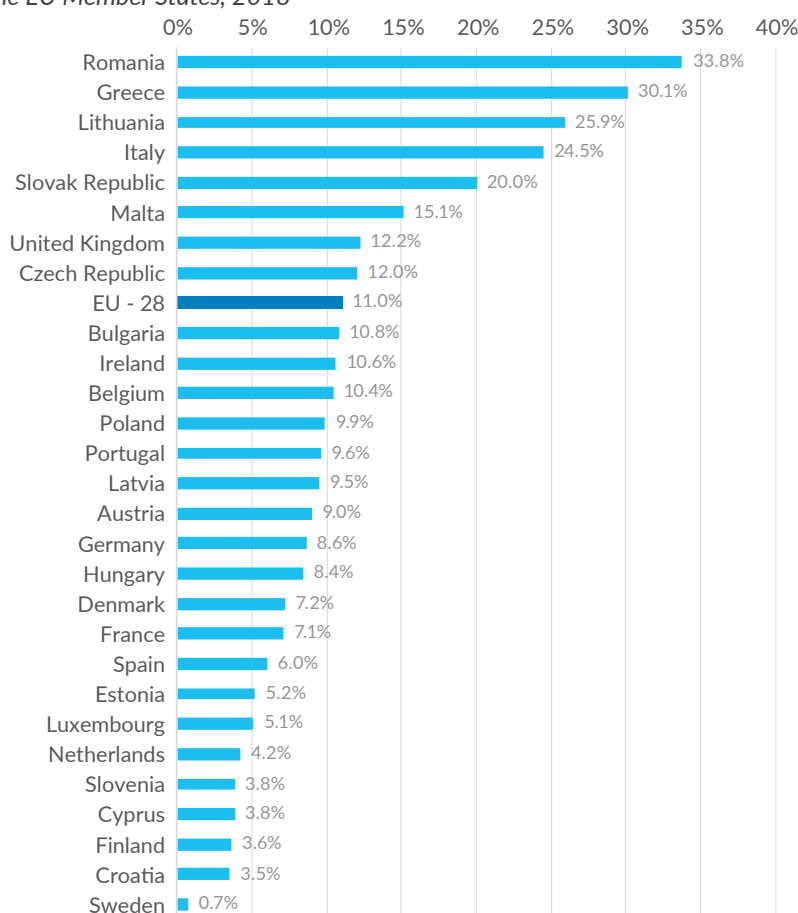
the VAT rules. The VAT Gap includes not only VAT avoidance or gaps in enforcement but also unpaid VAT due to bankruptcies, insolvencies, or legal tax optimization. It is calculated as the difference between the VAT collected and the theoretical tax liability according to tax law, the VAT total tax liability (VTTL). The indicator is then expressed in relative terms as a percentage of VTTL.

Although the VAT Gap remains relatively high at the EU level, it has dropped during the past four years from 14.3 percent in 2014 to 11 percent in 2018. The smallest VAT gaps occurred in Sweden (0.7 percent), Croatia (3.5 percent), and Finland (3.6 percent). On the other hand, the EU member states with the greatest percentage of VAT left unpaid are Romania (33.8 percent), Greece (30.1 percent), and Lithuania (25.9 percent).

**FIGURE 8.**

### Romania and Greece Are Losing One-third of Their VAT Revenue Due to Non-compliance

VAT Gap in the EU Member States, 2018



Note: EU-28 includes the United Kingdom.

Source: Center for Social and Economic Research (CASE), Economisti Associati, European Commission: DG Taxation and Customs Union, "Study and Reports on the VAT Gap in the EU-28 Member States: 2020 Final Report," 2020.

## VAT Policy Gap in the EU

The other factor determining the VAT Revenue Ratio is the Policy Gap. The Policy Gap is an indicator of the additional VAT revenue that could theoretically be generated if a uniform VAT rate is applied to the final domestic use of all goods and services. The Policy Gap has two components: the Rate Gap and the Exemption Gap. The Rate Gap represents the loss in VAT revenue due to reduced VAT rates, and the Exemption Gap is connected to the implementation of exemptions.

The average Policy Gap registered in the EU was 44.24 percent in 2018 (see Appendix Table 3). This means that under full compliance the VAT only generates 44.24 percent of what could have been collected if reduced rates and exemptions were abolished and all final goods and services were taxed. However, the largest part of the Exemption Gap, and therefore of the Policy Gap, is composed of exemptions on services that are often excluded from VAT systems. These include imputed rents, the provision of public goods, and financial services.

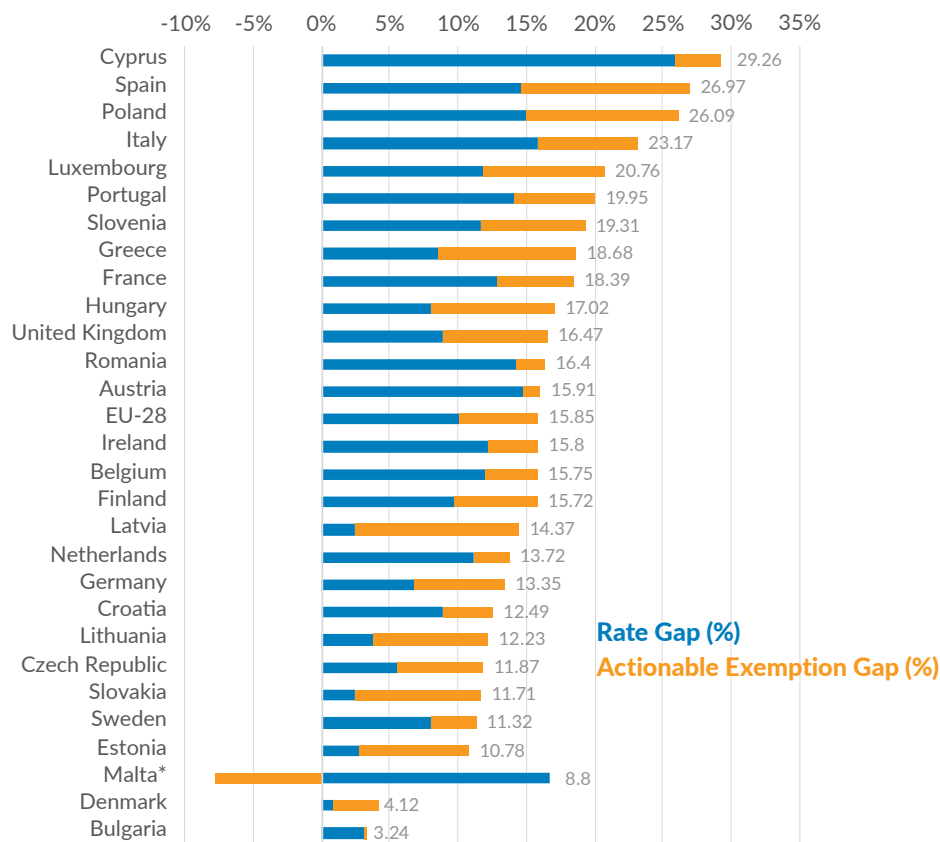
Therefore, the average actionable Policy Gap for the EU is 15.84 percent, from which 10.07 percentage points are due to reduced rates (Rate Gap) and 5.77 percentage points to the actionable portion of the Exemption GAP.

The Rate Gap is smallest in countries that rely on reduced rates less, such as Denmark (0.77 percent), Latvia (2.37 percent), and Estonia (2.68 percent). On the other hand, the Rate Gap in Cyprus (25.97 percent) and Italy (15.86 percent) show the significant revenue forgone because of reduced rates.

The highest actionable Exemptions Gaps are observed in Spain (12.4 percent), Latvia (12 percent), Poland (11.18), and Greece (10.28). Spain's Exemption Gap is due to the application of reduced rates of indirect taxes in the Canary Islands, Ceuta, and Melilla.

**FIGURE 9.**

### Rate and Actionable Exemption VAT Gap in EU Countries, 2018



Notes: \* Although the Exemption Gap could become negative in periods when input VAT exceeds potential output VAT, like periods of increased investment or when losses are incurred, the negative value might be due to a measurement error that results from difficulties to decompose the components of the base, such as sectorial Gross Fixed Capital Formation and net adjustments, and inaccuracies in the underlying data and parameters. EU-28 includes the United Kingdom.  
Source: Center for Social and Economic Research (CASE), Economisti Associati, European Commission: DG Taxation and Customs Union, "Study and Reports on the VAT Gap in the EU-28 Member States: 2020 Final Report," 2020.

## Sales Taxes

While VAT is a levy that applies to the net value added at each stage of production or distribution, a sales tax is generally a levy on the gross value of a good or service at final sale in the supply chain. In principle, only the final consumer should be charged the sales tax. If this is the case, the outcomes of VAT and sales tax should be identical. The retailers are therefore exempt as they are not the end-users of the products and are normally required to provide the seller with a “resale certificate,” which states that they are purchasing an item to resell it.

However, it is common for businesses to pay sales taxes even if they are not the final consumers of a product or service.

While no OECD country levies a national sales tax, subnational sales taxes are applied in Canada and the United States.

### Canada’s Provincial Sales Tax

The federal Goods and Services Tax (GST) and the Harmonized Sales Tax (HST) applied in Canada and its provinces discussed in the previous chapter operate as a VAT, but the Provincial Sales Tax (PST) is a sales tax.

Three provinces in Canada levy PST. The rate is 7 percent in Colombia and Manitoba and 6 percent in Saskatchewan. PST is applied to most purchases of tangible personal property, software, and certain services. PST does not apply to purchases of goods and services acquired for resale, but PST could apply to business inputs that are not acquired for resale and cannot be claimed as a credit.

The sales tax in these provinces is not restricted to local vendors. Saskatchewan expanded its registration requirements for certain out-of-province sellers and British Columbia plans to do the same, starting from April 2021.<sup>20</sup> Online platforms that facilitate and collect the payment or sell in the province of Saskatchewan the products or services taxed under the PST are required to register and collect the PST. Also, sellers of taxable goods located in Canada and sellers of software and telecommunications services located outside Canada will be required to register in British Columbia for PST if their sales in the province exceed CAD 10,000.

**TABLE 1.**  
**Three Provinces in Canada Apply Sales Taxes**

Province	Tax Rate
British Columbia	7.00%
Manitoba	7.00%
Saskatchewan	6.00%

Source: PwC, “Worldwide Tax Summaries,” last updated Dec. 10, 2020, <https://taxsummaries.pwc.com/canada/corporate/other-taxes>.



## How Sales Taxes Work in the United States

In the United States consumers face state-level and local sales taxes in most states. Alaska, Delaware, Montana, New Hampshire, and Oregon do not have statewide sales taxes. Of these, Alaska allows localities to charge local sales taxes. In total, 38 states apply local sales taxes.

Appendix Table 5 provides the state-by-state listing of state and local sales tax rates. The average local rate for each state is a population-weighted average of local sales taxes as of July 1, 2020.

State-level tax rates range from 2.9 percent in Colorado to 7.25 percent in California. The average local sales tax rates range from 0.03 percent in Idaho to 5.22 percent in Alabama. Tennessee has the highest state and local combined tax rates of 9.55 percent, followed by Louisiana with a 9.52 percent rate.

### *Sales Tax Base*

A well-designed sales tax should apply to all final retail sales of goods and services but not intermediate business-to-business transactions in the production chain, as this might result in double taxation or tax pyramiding. However, the application of most state sales taxes in the United States is far from this ideal. The structure of sales taxes, defining what is taxable and non-taxable, varies greatly from one state to another. For example, while most states exempt groceries from the sales tax, others tax groceries at a limited rate, and still others tax groceries at the same rate as all other products. Some states exempt clothing or tax it at a reduced rate.

States tend to include most goods, but relatively few services, in their sales tax bases. All this translates into most state sales tax bases being smaller than ideal. Exemptions result in several negative consequences. First, a small tax base often means that the tax rate on taxed goods must be higher to raise sufficient revenue. Second, exempting services from the sales tax base contributes to the regressivity of the sales tax. Since consumption of personal services tends to be more discretionary than consumption of goods, higher-income individuals spend a greater share of income on services. The national median sales tax base reaches 34.25 percent of personal income.<sup>21</sup> Sales tax breadth, calculated as the ratio of the implicit sales tax base to state personal income, ranges between 22 percent in Massachusetts and 62 percent in South Dakota.

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21 Janelle Cammenga, "State and Local Sales Tax Rates, Midyear 2020," Tax Foundation, July 8, 2020, <https://taxfoundation.org/state-and-local-sales-tax-rates-2020/>.

## Excise Taxes

This section presents tax rates, structure, and historical comparison of excise taxes in three categories: alcohol, gas, and tobacco. Every OECD member levies an excise tax on one or more of these three products. The subsequent section examines two developing excise tax trends, marijuana taxes and nicotine product taxes, in the OECD.

Unlike general consumption taxes, excise taxes are levied on specific products or transactions, and normally only once early in the value chain. They have a long history that can be traced back to Ancient Egypt, where a tax on cooking oil was levied.<sup>22</sup> In modern times, they have commonly been levied on, among other things, alcohol and tobacco products. Traditionally, excise taxes are levied by quantity, weight, volume, or potency (specific), but some countries include price-based elements (*ad valorem*) in their excise tax design. Specific tax design may be preferable as they generally deliver a more stable revenue return for governments as price developments do not affect revenue generation. Choice of tax base may also affect product availability: a price-based tax could encourage manufacturers to make cheaper products to limit liability, whereas a specific tax may favor premium and more expensive products.

Appendix Tables 7 and following, tax rates are shown as a percentage of price or in U.S. dollars to allow comparison. Individual countries may, however, utilize both specific and *ad valorem* components in their design. The differences in tax design are not reflected in the tables.

Large discrepancies in excise tax level between neighboring countries or regions can result in increased border traffic and smuggling.<sup>23</sup> Such tax avoidance can undermine governments' ability to achieve public health and revenue goals connected to excise taxation of products like alcohol or tobacco.

### Alcohol

Alcohol is most often taxed by volume based on categories determined by alcohol content. As such, beer, wine, and spirits are generally taxed at different rates, but certain countries have additional subcategories. All OECD countries tax alcohol products with a specific tax except for Mexico, which taxes exclusively based on value.

Beer is taxed at a relatively low level across the OECD. Israel has the highest rate at \$66 per hectoliter (3,380 fluid ounces), which equals just below 25 U.S. cents in taxes for a 12-ounce can of beer. Most other OECD members tax at lower rates. In addition, three-quarters of OECD countries (29 of 37) levy a lower rate on small breweries.<sup>24</sup>

In the wine category, levels vary from U.S. \$0 to more than U.S. \$6 per liter. Most countries, which use different rates, levy a higher rate for sparkling wine than non-sparkling wine, with Turkey having

22 OECD, *Consumption Tax Trends 2012: VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, November 2020), 120, [https://read.oecd-ilibrary.org/taxation/consumption-tax-trends-2012\\_ctt-2012-en#page120](https://read.oecd-ilibrary.org/taxation/consumption-tax-trends-2012_ctt-2012-en#page120).

23 Ulrik Boesen, "Cigarette Taxes and Cigarette Smuggling by State, 2018," Tax Foundation, Nov. 24, 2020, <https://taxfoundation.org/cigarette-taxes-cigarette-smuggling-2020/>.

24 Ibid., 138

the highest rate of \$1,197.66 per hectoliter of sparkling wine. Four countries (Australia, Chile, Korea, and Mexico) levy an *ad valorem* tax on wine.<sup>25</sup>

In accordance with Pigouvian principles of internalizing externalities, spirits are taxed at higher rates than beer and wine.<sup>26</sup> Because these products contain a higher percentage of alcohol by volume, it is assumed that they cause greater negative externalities. Iceland levies the highest tax at \$12,633 per hectoliter of absolute alcohol, which equals approximately \$38 for a 750 ml bottle of 80 proof spirit. Levels have been relatively stable between 2012 and 2020 as an average of OECD countries—2012: \$2,836, 2020: \$2,951.

## Gasoline

All OECD members tax gasoline. For the majority of countries, tax as a percentage of price decreased between 2015 and 2019 (2012 data not available). The price of oil increased between 2015 and 2019 (US \$48.66 per barrel in 2015 and US \$56.99 in 2019<sup>27</sup>), and since most countries levy a specific tax, the effective rate would have slightly decreased. This effect was largely, but not entirely, offset by VAT, which are levied on retail prices. Finland levied the highest tax as a percentage of price at a rate of 65.4 percent and Mexico levied the lowest effective tax of 13.8 percent. (Mexico levies an *ad valorem* wholesale-level tax in addition to its VAT.)

## Cigarettes

Cigarettes are some of the highest taxed consumer products in the world. Across the OECD, Australia levies the highest excise tax at US \$13 per pack of 20 cigarettes. That level is roughly 500 percent of the average, which is US \$2.62 per pack of 20 cigarettes.

Excise taxes on cigarettes have generally increased over time. The average was US \$1.86 in 2012. Most countries levy a combination of *ad valorem* and specific taxes on cigarettes (this is a requirement in the EU).<sup>28</sup> To ease comparison, total tax as percentage of retail selling price (RSP) is illustrated for 2020 in Table 6.

The dramatic differences in taxation levels of tobacco between countries and regions have resulted in a significant amount of smuggling. According to KPMG, almost 39 billion smuggled cigarettes were consumed in the EU in 2019, which resulted in lost tax revenue of US \$11.5 billion.<sup>29</sup> The UK alone is losing US \$6.7 billion.<sup>30</sup>

25 OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues*.

26 Tax Foundation, "Tax Basics: Pigouvian Tax," accessed Dec. 15, 2020, <https://taxfoundation.org/tax-basics/pigouvian-tax/>.

27 Macrotrends, "Crude Oil Prices - 70 Year Historical Chart," accessed Dec. 15, 2020, <https://www.macrotrends.net/1369/crude-oil-price-history-chart>.

28 European Commission, "Excise Duties on Tobacco," accessed Dec. 15, 2020, [https://ec.europa.eu/taxation\\_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco\\_en](https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco_en).

29 KPMG, *Illicit cigarette consumption in the EU, UK, Norway and Switzerland: 2019 Results*, June 18, 2020, 7, 10, <https://www.stopillegal.com/docs/default-source/external-docs/kpmg-report---2019-results/kpmg-report-illicit-cigarette-consumption-in-the-eu-uk-norway-and-switzerland-2019-results.pdf>.

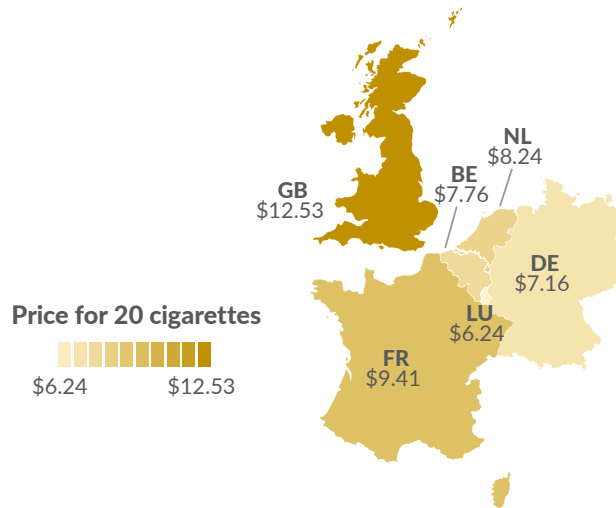
30 *Ibid.*, 13.

The small nation of Luxembourg is a good example of what happens when differences in price grow large but distances remain small. In 2018, more than 3 billion cigarettes were sold in Luxembourg—a country with 613,000 residents. If all those were consumed in the country, that would equal almost 5,000 cigarettes per resident per year. More likely, those cigarettes were flowing to the rest of Europe, where prices are higher. In 2018, a pack of 20 cigarettes was US \$6.24 in Luxembourg versus US \$9.41 in France, US \$8.24 in the Netherlands, and US \$12.53 in the UK.<sup>31</sup>

**FIGURE 10.**

## Large Differences in Cigarette Prices Result in Increased Smuggling

Price for a pack of 20 cigarettes in USD in 2018



Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020), <https://doi.org/10.1787/152def2d-en>.

In the U.S., states with high state or local taxation have a similar experience. New York state is missing out on \$1.2 billion every year due to smuggling rates above 50 percent.<sup>32</sup>

31 OECD, *Consumption Tax Trends 2018: VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, December 2018), 150-151, [https://www.oecd-ilibrary.org/taxation/consumption-tax-trends-2018\\_ctt-2018-en](https://www.oecd-ilibrary.org/taxation/consumption-tax-trends-2018_ctt-2018-en).

32 Ulrik Boesen, "Cigarette Taxes and Cigarette Smuggling by State, 2018."

## Excise Tax Trends

### Vapor Products and Heated Tobacco Products

One of the growing trends in excise taxes across the OECD is taxation of vapor products (also known as electronic cigarettes). Taxation of these products is still relatively new and design varies widely across OECD countries.

#### Europe

In mid-2020, European Union (EU) member states asked the European Commission (EC) to include novel nicotine products such as heated tobacco products and vapor products in the EU Tobacco Excise Directive.<sup>33</sup> Novel products are currently regulated under the EU Tobacco Products Directive but are not included in the Tobacco Excise Directive, which has not been updated since 2011.

Currently, both heated tobacco and vapor products are taxed (or not taxed) under varying definitions with different bases, but, according to an evaluation, the majority of member states would prefer a harmonized definition and a minimum tax rate.<sup>34</sup> Harmonizing definitions could be a positive step for streamlining taxation regimes across member states. All member states with existing taxes on vapor products have specific taxes per milliliter—though a few member states have added an unfortunate nicotine base to the tax structure (see Table 2). The EC should build on these structures and tax vapor products based on volume.

While most member states tax heated tobacco specifically, several states simply apply existing tobacco products taxes to the product. That has resulted in a variety of bases and rates, including price-based (*ad valorem*) taxation and high rates.

Norway and Turkey, which are not members of the EU, do not allow import or sale of novel tobacco products. In Switzerland, heated tobacco is taxed at 12 percent of value and vapor products do not yet carry a tax.<sup>35</sup> In Israel, heated tobacco is taxed at 86 percent of value, equal to cigarettes.<sup>36</sup> In Iceland, vapor products are taxed at 0.9 percent of retail value.<sup>37</sup>

33 Sarantis Michalopoulos, "EXCLUSIVE: EU countries to propose excise tax for e-cigarettes and heated tobacco products," EURACTIV, May 26, 2020, <https://www.euractiv.com/section/health-consumers/news/exclusive-eu-countries-to-propose-excise-tax-for-e-cigarettes-and-heated-tobacco-products/>.

34 European Commission, "Evaluation of the Council Directive 2011/64/EU of 21 June 2011 on the structure and rates of excise duty applied to manufactured tobacco," Feb. 10, 2020, [https://ec.europa.eu/taxation\\_customs/sites/taxation/files/10-02-2020-tobacco-taxation-report.pdf](https://ec.europa.eu/taxation_customs/sites/taxation/files/10-02-2020-tobacco-taxation-report.pdf).

35 Arbeitsgemeinschaft Tabakprävention Schweiz, "Heated Tobacco Products: Deep Dive Switzerland: A Policy Brief," July 31, 2020, 6, 8, [https://portal.at-schweiz.ch/images/pdf/wissenschaftliche\\_factsheets/htp\\_deep\\_dive\\_26\\_08\\_2020.pdf](https://portal.at-schweiz.ch/images/pdf/wissenschaftliche_factsheets/htp_deep_dive_26_08_2020.pdf).

36 L. Rosen, S. Kislev, Y. Bar-Zeev, and H. Levine, "Historic tobacco legislation in Israel: a moment to celebrate," *Israel Journal of Health Policy Research* 9:22 (May 4, 2020), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7199353/>.

37 Victoria, "The World's First Law Specific to Vaping Has Just Passed in Iceland," Blog Vape, July 2, 2018, <https://blog-vape.com/2018/07/02/the-worlds-first-law-specific-to-vaping-has-just-passed-in-iceland/>.

**TABLE 2.****EU Member States' Excise Tax on Vapor Products***Local Currency and U.S. Dollars as of July 1, 2020*

Member State	Tax per Milliliter	Additional Base	Tax in \$ per Milliliter
Cyprus	€0.12	-	\$0.13
Denmark	DKK 2.00	-	\$0.30
Estonia	€0.20	-	\$0.22
Finland	€0.30	-	\$0.34
Greece	€0.10	-	\$0.11
Hungary	HUF 55.00	-	\$0.18
Italy	€0.08	€0.04 for liquid without nicotine	\$0.09
Latvia	€0.01	plus €0.005 per mg of nicotine	\$0.01
Lithuania	€0.12	plus €0.05 per mg of nicotine	\$0.13
Poland	PLN 0.50	-	\$0.13
Portugal	€0.30	-	\$0.34
Romania	RON 0.50	-	\$0.12
Slovenia	€0.18	-	\$0.20
Sweden	SEK2.00	-	\$0.21

Note: Member states not mentioned do not have a specific tax category or rate for vapor products. VAT is not included above.

Source: European Commission, World Bank, and Vaporproductstax.com.

## Americas

Currently, the U.S. states and federal government define vapor products and heated tobacco in different ways, which affects how the tax is imposed. In some states, vapor products are defined as tobacco products and, in others, they have their own definition. The U.S. federal government does not impose a tax on vapor products.

Heated tobacco is commonly taxed as cigarettes (only Virginia has a separate definition).

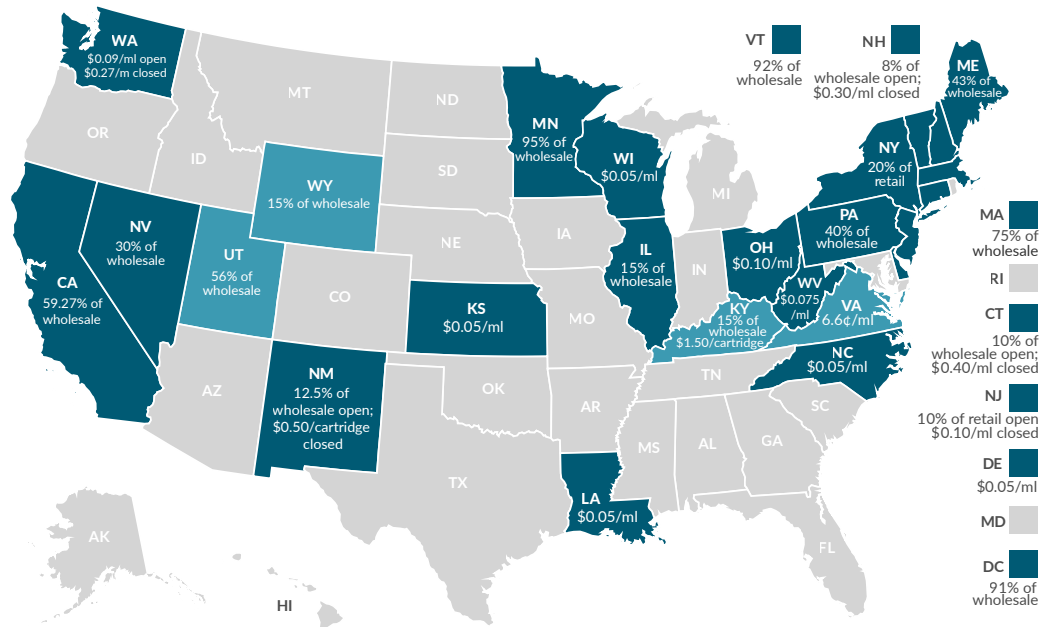
Several provinces in Canada levy a vapor tax. In British Columbia, Alberta, and Newfoundland and Labrador the tax is 20 percent of retail price. The Canadian federal government does not impose a tax on vapor products.

In Canada, heated tobacco is taxed by weight which, at the federal level, is set at C \$7.76 per 50 grams. Even though packs of heated tobacco rarely contain 50 grams, the tax level remains the same. In other words, because of how the tax is structured, the C \$7.76 functions as a minimum price. In addition to the federal tax, provinces also levy taxes as well as general sales taxes on the products.<sup>38</sup>

38 Physicians for a Smoke-Free Canada, "Taxes on heat not burn cigarettes in Canadian jurisdictions," August 2020, <http://www.smoke-free.ca/SUAP/2020/taxrates-heatnotburn.pdf>.

Although use is permitted, imports and sale of vaping products and heated tobacco products is illegal in Mexico.<sup>39</sup> In both Chile and Colombia, sale of vapor products is illegal (vapor products can be sold as medicinal products in Chile).<sup>40</sup>

**FIGURE 11.**  
**State Vapor Excise Tax Rates, as of June 2020**



Note: Several states levy general sales taxes in addition to the excise tax. Those are not included on the map. CA's rate will change to 56.93% on July 1. Vapor taxes in UT, VA, and WY take effect on July 1. KY's tax goes into effect on August 1.

**Open:** An open tank allows the consumer to refill the liquid and allows more freedom in voltage and nicotine levels.

**Closed:** Normally sold as pods or cartridges. Closed systems typically have higher nicotine levels to allow for consumption of the desired amount of nicotine in shorter sessions.

Source: State Statutes & Bloomberg Tax

- Has a Statewide Vapor Excise Tax
- Planned Statewide Vapor Excise Tax
- No Vapor Excise Tax

## Asia and Oceania

In Asia and Oceania, two (Australia and Japan) out of four OECD countries have banned the use of vapor products. Australia only allows nicotine consumption for recreational consumption in products for smoking, effectively banning both heated tobacco products and vapor products. The same used to be the case in New Zealand, but that changed in 2017 when vapor products were legalized to support smokers' switch to less harmful products.<sup>41</sup> South Korea levies a number of excise taxes on both heated tobacco and vapor products.

39 Campaign for Tobacco-Free Kids, "Mexico Bans Import of E-cigarettes and Heated Tobacco Products to Protect Kids and Public Health," Feb. 27, 2020, [https://www.tobaccofreekids.org/press-releases/2020\\_02\\_27\\_mexico\\_bans\\_ecig\\_imports](https://www.tobaccofreekids.org/press-releases/2020_02_27_mexico_bans_ecig_imports).

40 Jim McDonald, "Vape Bans in the United States and Around the World," Vaping360, Nov. 12, 2020, <https://vaping360.com/learn/countries-where-vaping-is-banned-illegal/>.

41 Stacey Kirk, "Government legalises e-cigarettes in effort to make New Zealand smokefree by 2025," Stuff.nz, Mar. 29, 2017, <https://www.stuff.co.nz/national/politics/90962129/government-legalises-e-cigarettes-in-effort-to-make-new-zealand-smokefree-by-2025>.

TABLE 3.

**Heated Tobacco Excise Tax Rates in Asia and Oceania***As of July 1, 2020*

Country	Excise Tax Rate (USD)	Additional Taxes	Category
Australia	Banned	Banned	Banned
Japan	159 per kilogram	30 percent of retail price before VAT	Heat-not-burn
New Zealand	Banned	Banned	Banned
South Korea	0.081 per gram	Education tax: \$0.034 per gram	Inhaling tobacco products using electronic devices

Source: Vaporproductstax.com; "International Tobacco Control (ITC) Survey"; Japan Customs.

TABLE 4.

**Vapor Products Excise Tax Rates in Asia and Oceania***As of July 1, 2020*

Country	Excise Tax Rate (USD)	Additional Taxes	Category
Australia	Banned	Banned	Banned
Japan	Banned	Banned	Banned
New Zealand	Not levied	NA	NA
South Korea	0.58 per ml	National Health Promotion Fund: \$0.48 per ml; individual consumption tax: \$0.34 per ml; local education tax: \$0.25 per ml; Green Fund tax: \$0.022 per 20 cartridges	Vapor liquid

Source: Vaporproductstax.com; "International Tobacco Control (ITC) Survey."

**Recreational Marijuana**

Another developing tax issue across the OECD is marijuana taxes. So far, 15 states in the U.S., Canada, and the Netherlands allow (or tolerate) sale and consumption of recreational marijuana. Moreover, several nations are considering legalizing: New Zealand recently voted against a ballot measure to legalize, and Mexico's and Israel's legislatures are moving legislation which would legalize. Additionally, several other OECD members have decriminalized possession.

In the Netherlands, excise taxes are not levied as the product is technically illegal. However, general taxes are imposed on marijuana businesses (coffee shops). In the U.S., excise taxes on recreational marijuana are, so far, in a developmental stage. Most states in the U.S. impose price-based taxes as they are considered simpler.<sup>42</sup>

42 For a more detailed discussion of marijuana taxation in the U.S. see: Ulrik Boesen, "A Road Map to Recreational Marijuana Taxation," Tax Foundation, June 9, 2020, <https://taxfoundation.org/recreational-marijuana-tax/>.



TABLE 5.

## U.S. State Taxes on Recreational Marijuana

State	Structure	Excise Tax Rate
Alaska	Specific	\$50/oz. mature flower; \$25/oz. immature flower; \$15/oz. trim; \$1 per clone
Arizona	Ad valorem	16% excise tax (retail price)
California	Mixed	15% retail excise tax; \$9.65/oz. flower; \$2.87/oz. leaves cultivation tax; \$1.35/oz cannabis plant
Colorado	Ad valorem	15% excise tax (levied at wholesale by weight at average market rate); 15% excise tax (retail price)
Illinois	Potency ( <i>ad valorem</i> )	7% excise tax of value at wholesale level; 10% tax on cannabis flower or products with less than 35% THC; 20% tax on products infused with cannabis, such as edible products; 25% tax on any product with a THC concentration higher than 35%
Maine	Mixed	10% excise tax (retail price); \$335/lb. flower; \$94/lb. trim; \$1.50 per immature plant or seedling; \$0.30 per seed
Massachusetts	Ad valorem	10.75% excise tax (retail price)
Michigan	Ad valorem	10% excise tax (retail price)
Montana	Ad valorem	20% excise tax (retail price)
Nevada	Ad valorem	15% excise tax (levied at wholesale by weight at Fair Market Value); 10% excise tax (retail price)
New Jersey	TBD	TBD
Oregon	Ad valorem	17% excise tax (retail price)
South Dakota	Ad valorem	15% excise tax (retail price)
Vermont	Ad valorem	14% excise tax (retail price)
Washington	Ad valorem	37% excise tax (retail price)

Note: District of Columbia voters approved legalization and purchase of marijuana in 2014 but federal law prohibits any action to implement it. In 2018, the New Hampshire legislature voted to legalize the possession and growing of marijuana, but sales are not permitted. Alabama, Connecticut, Georgia, Idaho, Illinois, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Minnesota, Nebraska, North Carolina, Oklahoma, Rhode Island, South Carolina, and Tennessee impose a controlled substance tax on the purchase of illegal products (the tax is normally levied on a person in possession of controlled substances). Several states allow local taxes as well as general sales taxes on marijuana products. Those are not included here.  
Sources: State statutes; Bloomberg Tax.

In Canada, marijuana is taxed at either a flat rate or by price depending on which is greater. Infused products are taxed by THC content.

TABLE 6.

## Marijuana Taxes in Canada

Product type	Flat-rate Tax (USD)	Price-based Tax (Ad Valorem)	Additional Flat-rate Tax (USD)	Additional Price-based Tax (Ad Valorem)
Flower material	0.20 per gram	2.5%	0.59 per gram	7.5%
Non-flower material	0.59 per gram	2.5%	0.59 per gram	7.5%
Seed	0.20 per seed	2.5%	0.59 per seed	7.5%
Vegetative plant	0.20 per plant	2.5%	0.59 per plant	7.5%
Cannabis oil, edibles, extracts, and topicals	0.0020 per milligram of total THC		0.0059 per milligram of total THC	

Note: The additional rate payable is determined by which province the product is sold in. A full explanation of calculation methods can be found at [https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/edn55/calculation-cannabis-duty-additional-cannabis-duty-cannabis-products.html#\\_Toc523301215](https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/edn55/calculation-cannabis-duty-additional-cannabis-duty-cannabis-products.html#_Toc523301215).  
Source: Canada Revenue Agency.

More OECD members are likely to establish legal markets for recreational marijuana in the years to come and designing excise taxes will be crucial to those markets' success or failure. The tax burden must account for the fact that licensed recreational marijuana growers and retailers must compete with illicit operators. At the same time, lawmakers may be tempted to try to maximize revenue from this new source. In addition, there will be some cost associated with establishing a regulatory framework for a legal market which tax revenue and fees should cover.

## Conclusion

Because consumption taxes are such significant contributors to government revenues, policymakers should pay particular attention to how efficiently (or not) those revenues are being raised. Governments should work to ensure that VAT policies apply to broad bases and reduced rates and exemptions are minimized if not eliminated. The same is true in areas where sales taxes are in operation, but, additionally, laws should be changed to ensure that business inputs are excluded from the tax base. Finally, excise taxes should be calibrated to harm and revenues used to mitigate those harms. Consumption taxes are a powerful tool for raising revenue and governments should steward that tool to avoid undermining its potential or creating unnecessary compliance costs and distorting behavior.

## APPENDIX TABLE 1.

## Consumption Tax Revenues, 2019

Country	VAT		Sales		Excise	
	Percent of GDP	Percent of Total Revenue	Percent of GDP	Percent of Total Revenue	Percent of GDP	Percent of Total Revenue
Australia	3.3	11.7	0.09	0.30	1.3	4.4
Austria	7.6	18.0	NA	NA	2.1	4.9
Belgium	6.7	15.6	0.08	0.19	2.1	4.9
Canada	4.5	13.4	0.21	0.64	1.3	3.7
Chile	8.2	39.9	NA	NA	1.4	7.0
Colombia	5.8	29.6	0.88	4.45	1.2	6.2
Czechia	7.6	21.7	NA	NA	2.9	8.4
Denmark	9.4	20.3	NA	NA	3.3	7.1
Estonia	8.8	26.7	NA	NA	4.0	12.1
Finland	9.1	21.7	NA	NA	3.4	8.1
France	7.2	15.9	NA	NA	2.7	5.9
Germany	7.1	18.3	NA	NA	1.9	4.9
Greece	8.3	21.3	NA	NA	3.9	9.9
Hungary	9.7	27.1	0.11	0.32	2.8	7.8
Iceland	8.5	23.6	NA	NA	2.3	6.3
Ireland	4.4	19.4	NA	NA	1.7	7.6
Israel	7.3	23.9	1.29	4.22	1.4	4.6
Italy	6.3	14.7	0.03	0.08	2.6	6.2
Japan	4.4	12.8	NA	NA	1.5	4.6
Latvia	8.6	27.7	NA	NA	3.5	11.2
Lithuania	8.0	26.2	NA	NA	3.1	10.2
Luxembourg	6.1	15.5	NA	NA	2.6	6.7
Mexico	3.9	24.3	NA	NA	1.5	9.4
Netherlands	7.2	18.2	NA	NA	2.7	6.9
New Zealand	9.8	30.4	NA	NA	0.8	2.5
Norway	8.6	21.7	NA	NA	2.3	5.6
Poland	8.0	22.6	NA	NA	0.0	0.0
Portugal	8.9	25.4	NA	NA	2.9	8.4
Republic of Korea	4.3	15.7	NA	NA	1.8	6.6
Slovakia	7.2	20.9	NA	NA	3.2	9.2
Slovenia	8.1	21.5	NA	NA	3.5	9.2
Spain	6.5	18.8	0.02	0.05	2.1	6.1
Sweden	9.2	21.3	NA	NA	2.1	4.8
Switzerland	3.4	11.8	0.06	0.21	1.3	4.4
Turkey	4.2	18.1	NA	NA	3.4	14.8
United Kingdom	7.0	21.2	NA	NA	2.2	6.7
United States	NA	NA	2.01	8.23	0.8	3.1

Note: Data is from 2019 except in the case of Australia, Mexico, and Japan, for which 2018 values are used. It is unclear why Poland's value for excise tax revenue is zero in the OECD's dataset.

Source: OECD, "Revenue Statistics - OECD countries: Comparative tables," <https://stats.oecd.org/Index.aspx?DataSetCode=REV>.

## APPENDIX TABLE 2.

## Standard VAT Rates and Implementation Dates in OECD Countries

Country	Implemented	1975	1985	1995	2005	2010	2015	2016	2017	2018	2019	2020
Australia	2000	-	-	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Austria	1973	16.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Belgium	1971	18.0	19.0	20.5	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Canada	1991	-	-	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Chile	1975	20.0	20.0	18.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Colombia	1983	-	-	-	16.0	16.0	16.0	16.0	19.0	19.0	19.0	19.0
Czech Republic	1993	-	-	22.0	19.0	20.0	21.0	21.0	21.0	21.0	21.0	21.0
Denmark	1967	15.0	22.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Estonia	1991	-	-	18.0	18.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Finland	1994	-	-	22.0	22.0	22.0	24.0	24.0	24.0	24.0	24.0	24.0
France	1968	20.0	18.6	20.6	19.6	19.6	20.0	20.0	20.0	20.0	20.0	20.0
Germany	1968	11.0	14.0	15.0	16.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Greece	1987	-	-	18.0	18.0	19.0	23.0	23.0	24.0	24.0	24.0	24.0
Hungary	1988	-	-	25.0	25.0	25.0	27.0	27.0	27.0	27.0	27.0	27.0
Iceland	1990	-	-	24.5	24.5	25.5	24.0	24.0	24.0	24.0	24.0	24.0
Ireland	1972	19.5	23.0	21.0	21.0	21.0	23.0	23.0	23.0	23.0	23.0	23.0
Israel	1976	-	15.0	17.0	17.0	16.0	18.0	17.0	17.0	17.0	17.0	17.0
Italy	1973	12.0	18.0	19.0	20.0	20.0	22.0	22.0	22.0	22.0	22.0	22.0
Japan	1989	-	-	3.0	5.0	5.0	8.0	8.0	8.0	8.0	8.0	10.0
Korea	1977	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Latvia	1995	-	-	-	18.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Lithuania	1994	-	-	18.0	18.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Luxembourg	1970	10.0	12.0	15.0	15.0	15.0	17.0	17.0	17.0	17.0	17.0	17.0
Mexico	1980	-	15.0	10.0	15.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Netherlands	1969	16.0	19.0	17.5	19.0	19.0	21.0	21.0	21.0	21.0	21.0	21.0
New Zealand	1986	-	-	12.5	12.5	12.5	15.0	15.0	15.0	15.0	15.0	15.0
Norway	1970	20.0	20	23.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Poland	1993	-	-	22.0	22.0	22.0	23.0	23.0	23.0	23.0	23.0	23.0
Portugal	1986	-	-	17.0	19.0	20.0	23.0	23.0	23.0	23.0	23.0	23.0
Slovak Republic	1993	-	-	25.0	19.0	19.0	20.0	20.0	20.0	20.0	20.0	20.0
Slovenia	1999	-	-	-	20.0	20.0	22.0	22.0	22.0	22.0	22.0	22.0
Spain	1986	-	-	16.0	16.0	16.0	21.0	21.0	21.0	21.0	21.0	21.0
Sweden	1969	17.7	23.5	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Switzerland	1995	-	-	6.5	7.6	7.6	8.0	8.0	8.0	7.7	7.7	7.7
Turkey	1985	-	10	15.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
United Kingdom	1973	8.0	15.0	17.5	17.5	17.5	20.0	20.0	20.0	20.0	20.0	20.0
OECD average		15.6	17.3	17.7	17.8	18.1	19.2	19.2	19.3	19.3	19.3	19.3

Notes: The rates shown in the table are rates applicable on January 1 of each year.

See country notes in Consumption Tax Trends 2020.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020), <https://doi.org/10.1787/152def2d-en>.

APPENDIX TABLE 3.

## Policy Gap, Rate Gap, Exemption Gap, and Actionable Gaps, 2018

	Policy Gap (%)	Rate Gap (%)	Exemption Gap (%)	o/w Imputed Rents (%)	o/w Public Services (%)	o/w Financial Services (%)	Actionable Exemption Gap (c-e-d-f)(%)	Actionable Policy Gap (b+g) (%)
	a	b	c	d	e	f	g	h
Austria	45.07	14.76	30.32	7.66	18.76	2.74	1.15	15.91
Belgium	52.32	11.91	40.42	7.39	25.49	3.69	3.84	15.75
Bulgaria	29.74	3.18	26.56	10.13	14.61	1.75	0.06	3.24
Croatia	34.3	8.82	25.48	7.61	11.9	2.29	3.68	12.49
Cyprus	44.55	25.97	18.58	6.93	13.84	-5.49	3.29	29.26
Czech Republic	39.21	5.57	33.64	8.22	17.02	2.1	6.31	11.87
Denmark	40.9	0.77	40.13	7.54	24.27	4.98	3.35	4.12
Estonia	35.27	2.68	32.59	6.86	15.69	1.94	8.1	10.78
Finland	50.29	9.73	40.57	10.1	21.27	3.2	6	15.72
France	52.92	12.93	39.99	9.37	22.01	3.14	5.47	18.39
Germany	44.15	6.76	37.39	6.72	21.3	2.78	6.58	13.35
Greece	45.84	8.44	37.39	9.22	16.65	1.28	10.24	18.68
Hungary	45.31	8.01	37.3	7.06	17.91	3.32	9.01	17.02
Ireland	48.63	12.23	36.4	10.44	23.58	-1.2	3.57	15.8
Italy	53.79	15.86	37.93	10.82	18.45	1.34	7.31	23.17
Latvia	42.12	2.37	39.75	10	15.61	2.14	12	14.37
Lithuania	32.97	3.83	29.14	4.49	14.52	1.73	8.4	12.23
Luxembourg	35.84	11.86	23.98	8.65	3.72	2.71	8.9	20.76
Malta*	32.39	16.6	15.79	4.24	16.98	2.36	-7.8	8.8
Netherlands	52.46	11.16	41.3	7.3	25.44	5.99	2.56	13.72
Poland	48.06	14.91	33.15	3.84	14.49	3.64	11.18	26.09
Portugal	50.75	14.11	36.64	8.22	19.33	3.25	5.84	19.95
Romania	36.49	14.23	22.27	8.79	11.21	0.1	2.17	16.4
Slovakia	41.6	2.34	39.26	10.06	17.01	2.82	9.37	11.71
Slovenia	46.94	11.71	35.23	7.66	17.27	2.7	7.6	19.31
Spain	58.17	14.57	43.59	9.67	18.74	2.78	12.4	26.97
Sweden	46.67	7.9	38.77	5.47	26.69	3.19	3.42	11.32
United Kingdom	51.97	8.78	43.18	11.7	19.79	4	7.68	16.47
EU-28	44.24	10.07	34.17	8.08	17.98	2.33	5.77	15.85

Note: \* Although the Exemption Gap could become negative in periods when input VAT exceeds potential output VAT, like periods of increased investment or when losses are incurred, the negative value might be due to a measurement error that results from difficulties to decompose the components of the base, such as sectorial Gross Fixed Capital Formation and net adjustments, and inaccuracies in the underlying data and parameters.

Source: Center for Social and Economic Research (CASE), Economisti Associati, European Commission: DG Taxation and Customs Union, "Study and Reports on the VAT Gap in the EU-28 Member States: 2020 Final Report," Sept. 10, 2020.

**APPENDIX TABLE 4.**  
**Reduced VAT Rates**

Country	2020 Standard Rate	Reduced Rates	Specific Regional Rates
Australia	10.0	0	-
Austria	20.0	10/13	19.00
Belgium	21.0	0/6/12	-
Canada	5.0	0	13.0/14.0/15.0
Chile	19.0	-	-
Colombia	19.0	0/5	-
Czech Republic	21.0	10/15	-
Denmark	25.0	0	-
Estonia	20.0	0/9	-
Finland	24.0	0/10/14	-
France	20.0	2.1/5.5/10	0.9/2.1/10.0/13.0 & 1.05/1.75/2.1/8.5
Germany	19.0	0/7	-
Greece	24.0	6/13	4.0/ 9.0/17.0
Hungary	27.0	5/18	-
Iceland	24.0	0/11	-
Ireland	23.0	0/4.8/9/13.5	-
Israel	17.0	0	0.0
Italy	22.0	4/5/10	-
Japan	10.0	8	-
Korea	10.0	0	-
Latvia	21.0	5/12	-
Lithuania	21.0	5/9	-
Luxembourg	17.0	3/8/14	-
Mexico	16.0	0	8.0
Netherlands	21.0	9	-
New Zealand	15.0	0	-
Norway	25.0	0/12/15	-
Poland	23.0	5/8	-
Portugal	23.0	6/13	4/9/18 & 5/12/22
Slovak Republic	20.0	10	-
Slovenia	22.0	5/9.5	-
Spain	21.0	4/10	0/2.75/3/7/9.5/13.5/20.0 & 0.5/10
Sweden	25.0	0/6/12	-
Switzerland	7.7	0/2.5/3.7	-
Turkey	18.0	1/8	-
United Kingdom	20.0	0/5	-

Notes: Reduced rates and specific regional rates are those applicable as of January 1, 2020. Reduced rates include zero-rates applicable to domestic supplies (i.e., an exemption with right to deduct input tax). They do not include zero-rated exports or other supplies subject to similar treatment such as international transport or supplies to embassies, international organizations, and diplomatic missions.

See country notes in Consumption Tax Trends 2020.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, 2020), <https://doi.org/10.1787/152def2d-en>.

## APPENDIX TABLE 5.

## State and Local Sales Tax Rates in the U.S., 2020

State	State Tax Rate	Avg. Local Tax Rate (a)	Combined Rate	Max Local Tax Rate
Alabama	4.00%	5.22%	9.22%	7.50%
Alaska	0.00%	1.76%	1.76%	7.50%
Arizona	5.60%	2.80%	8.40%	5.60%
Arkansas	6.50%	3.03%	9.53%	5.13%
California (b)	7.25%	1.43%	8.68%	2.50%
Colorado	2.90%	4.75%	7.65%	8.30%
Connecticut	6.35%	0.00%	6.35%	0.00%
Delaware	0.00%	0.00%	0.00%	0.00%
D.C.	6.00%	0.00%	6.00%	0.00%
Florida	6.00%	1.05%	7.05%	2.50%
Georgia	4.00%	3.31%	7.31%	4.90%
Hawaii (c)	4.00%	0.44%	4.44%	0.50%
Idaho	6.00%	0.03%	6.03%	3.00%
Illinois	6.25%	2.55%	8.80%	4.75%
Indiana	7.00%	0.00%	7.00%	0.00%
Iowa	6.00%	0.94%	6.94%	1.00%
Kansas	6.50%	2.18%	8.68%	4.00%
Kentucky	6.00%	0.00%	6.00%	0.00%
Louisiana	4.45%	5.07%	9.52%	7.00%
Maine	5.50%	0.00%	5.50%	0.00%
Maryland	6.00%	0.00%	6.00%	0.00%
Massachusetts	6.25%	0.00%	6.25%	0.00%
Michigan	6.00%	0.00%	6.00%	0.00%
Minnesota	6.88%	0.58%	7.46%	2.00%
Mississippi	7.00%	0.07%	7.07%	1.00%
Missouri	4.23%	3.98%	8.20%	5.63%
Montana (d)	0.00%	0.00%	0.00%	0.00%
Nebraska	5.50%	1.43%	6.93%	2.50%
Nevada	6.85%	1.38%	8.23%	1.53%
New Hampshire	0.00%	0.00%	0.00%	0.00%
New Jersey(e)	6.63%	-0.03%	6.60%	3.31%
New Mexico (c)	5.13%	2.70%	7.83%	4.31%
New York	4.00%	4.52%	8.52%	4.88%
North Carolina	4.75%	2.23%	6.98%	2.75%
North Dakota	5.00%	1.94%	6.94%	3.50%
Ohio	5.75%	1.42%	7.17%	2.25%
Oklahoma	4.50%	4.45%	8.95%	7.00%
Oregon	0.00%	0.00%	0.00%	0.00%
Pennsylvania	6.00%	0.34%	6.34%	2.00%
Rhode Island	7.00%	0.00%	7.00%	0.00%
South Carolina	6.00%	1.46%	7.46%	3.00%
South Dakota (c)	4.50%	1.90%	6.40%	4.50%
Tennessee	7.00%	2.55%	9.55%	2.75%
Texas	6.25%	1.94%	8.19%	2.00%
Utah (b)	6.10%	1.08%	7.18%	2.95%
Vermont	6.00%	0.22%	6.22%	1.00%
Virginia (b)	5.30%	0.35%	5.65%	0.70%
Washington	6.50%	2.73%	9.23%	4.00%
West Virginia	6.00%	0.50%	6.50%	1.00%
Wisconsin	5.00%	0.43%	5.43%	1.75%
Wyoming	4.00%	1.34%	5.34%	2.00%

(a) City, county, and municipal rates vary. These rates are weighted by population to compute an average local tax rate.

(b) Three states levy mandatory, statewide, local add-on sales taxes at the state level: California (1%), Utah (1.25%), and Virginia (1%). We include these in their state sales tax.

(c) The sales taxes in Hawaii, New Mexico, and South Dakota have broad bases that include many business-to-business services.

(d) Special taxes in local resort areas are not counted here.

(e) Salem County, N.J., is not subject to the statewide sales tax rate and collects a local rate of 3.3125%. New Jersey's local score is represented as a negative.

Source: Janelle Cammenga, "State and Local Sales Tax Rates, Midyear 2020," Tax Foundation, July 8, 2020, <https://taxfoundation.org/state-and-local-sales-tax-rates-2020/>.

## APPENDIX TABLE 6.

## State Sales Tax Breadth, 2017

State	Sales Tax Breadth	State	Sales Tax Breadth
Alabama	36%	Montana	--
Alaska	--	Nebraska	34%
Arizona	37%	Nevada	54%
Arkansas	42%	New Hampshire	--
California	24%	New Jersey	25%
Colorado	34%	New Mexico (a)	58%
Connecticut	27%	New York	27%
Delaware	--	North Carolina	36%
Florida	43%	North Dakota (a)	48%
Georgia	32%	Ohio	39%
Hawaii (a)	105%	Oklahoma	32%
Idaho	40%	Oregon	--
Illinois	28%	Pennsylvania	26%
Indiana	39%	Rhode Island	26%
Iowa	37%	South Carolina	27%
Kansas	36%	South Dakota (a)	62%
Kentucky	38%	Tennessee	35%
Louisiana	41%	Texas	41%
Maine	44%	Utah	41%
Maryland	26%	Vermont	25%
Massachusetts	22%	Virginia	27%
Michigan	34%	Washington	39%
Minnesota	33%	West Virginia	37%
Mississippi	46%	Wisconsin	38%
Missouri	32%	Wyoming	45%

(a) The sales taxes in Hawaii, New Mexico, North Dakota, and South Dakota have broad bases that include many business-to-business services.

Note: Sales tax breadth is defined as the ratio of the implicit sales tax base to state personal income.

Source: Janelle Cammenga, *Facts and Figures 2020: How Does Your State Compare?* Tax Foundation, Feb. 13, 2020, <https://taxfoundation.org/publications/facts-and-figures/>.



## APPENDIX TABLE 7.

**Beer Excise Tax Rates by Country***Nominal Rates*

Country	Tax per Hectoliter, (2012 USD)	Tax per Hectoliter, (2020 USD)
Australia	NA	NA
Austria	5.88	5.62
Belgium	4.94	5.63
Canada	25.39	NA
Chile	NA	NA
Colombia	NA	NA
Czech Republic	2.30	3.49
Denmark	6.51	7.31
Estonia	10.21	14.27
Finland	31.60	41.01
France	3.17	8.42
Germany	2.47	2.21
Greece	9.19	14.04
Hungary (a)	11.32	5.57
Iceland	NA	NA
Ireland	18.76	25.34
Israel	58.79	66.01
Italy	7.36	8.40
Japan	NA	NA
Korea	NA	NA
Latvia	NA	NA
Lithuania	NA	NA
Luxembourg	2.12	2.22
Mexico	NA	NA
Netherlands	NA	NA
New Zealand	17.86	19.11
Norway	NA	NA
Poland (a)	10.39	5.58
Portugal	NA	NA
Slovak Republic	6.90	4.03
Slovenia	15.87	13.60
Spain	NA	NA
Sweden	18.62	21.35
Switzerland	NA	NA
Turkey	NA	3.59
United Kingdom	28.17	24.46
United States	NA	NA

Note: Tax rates applicable as of January 1, 2012 and January 1, 2020. Missing data is either a result of lacking data—Colombia, Latvia, and Lithuania were not OECD members in 2012—or a tax design that does not allow for comparison: tax levied by value or at multiple rates based on alcohol by volume. More details on each country can be found at <https://dx.doi.org/10.1787/ctt-2012-en>.

(a) Decline between 2012 and 2020 is related to currency developments and not policy changes.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, November 2020), <https://doi.org/10.1787/152def2d-en>; OECD, *Consumption Tax Trends 2012, VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, November 2012), <https://doi.org/10.1787/152def2d-en>.

## APPENDIX TABLE 8.

## Wine Excise Tax Rates by Country

## Nominal Rates

Country	Still Wine, Tax per Hectoliter, (2012) USD	Still Wine, Tax per Hectoliter, (2020) USD	Sparkling Wine, Tax per Hectoliter, (2012) USD	Sparkling Wine, Tax per Hectoliter, (2020) USD	Low-alcohol Wine, Tax per Hectoliter, (2012) USD	Low-alcohol Wine, Tax per Hectoliter, (2020) USD
Australia	NA	NA	NA	NA	NA	NA
Austria	0	0	0	112.36	0	0
Belgium	54.39	84.17	186.06	288	17.17	26.87
Canada	50.43	49.10	50.43	49.10	NA	NA
Chile	NA	NA	NA	NA	NA	NA
Colombia	NA	NA	NA	NA	NA	NA
Czech Republic	0	0	168.11	100.04	0	0
Denmark	78.57	168.82	117.73	219.04	49.91	77.66
Estonia	137.43	166.09	137.43	166.09	59.59	71.18
Finland	329.71	446.07	329.71	446.07	NA	NA
France	4.15	4.29	10.28	10.60	4.15	4.29
Germany	0	0	170.40	152.81	0	0
Greece	0	0	0	0	0	0
Hungary	0	0	115.17	56.63	0	0
Iceland	NA	NA	NA	NA	NA	NA
Ireland	313.22	477.35	626.43	954.70	104.38	159.07
Israel	0	0	NA	NA	0	0
Italy	0	0	0	0	0	0
Japan	74.85	73.33	74.85	73.33	74.85	73.33
Korea	NA	NA	NA	NA	NA	NA
Latvia	NA	113.48	NA	113.48	NA	NA
Lithuania	NA	185.02	NA	185.02	NA	73.55
Luxembourg	0	0	0	0	0	0
Mexico	NA	NA	NA	NA	NA	NA
Netherlands	84.80	99.21	289.12	99.21	42.40	49.71
New Zealand	NA	191.14	NA	191.14	NA	191.14
Norway	546.22	696.82	546.22	696.82	546.22	NA
Poland (a)	84.28	45.31	84.28	45.31	84.28	45.31
Portugal	0	0	0	0	0	0
Slovak Republic	0	0	153.33	89.49	0	0
Slovenia	0	0	0	0	0	0
Spain	0	0	0	0	0	0
Sweden	242.09	NA	242.09	NA	0	NA
Switzerland	0	0	0	0	0	0
Turkey	NA	177.27	NA	1197.66	NA	117.04
United Kingdom	365.96	370.06	468.75	474	112.75	114.01
United States	47	37	115	110	NA	NA

Note: Tax rates applicable as of January 1, 2012 and January 1, 2020. Missing data is either a result of lacking data—Colombia, Latvia, and Lithuania were not OECD members in 2012—or a tax design that does not allow for comparison: tax levied by value or at multiple rates based on alcohol by volume. More details on each country can be found at <https://doi.org/10.1787/152def2d-en>.

(a) Decline between 2012 and 2020 is related to currency developments and not policy changes.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, November 2020), <https://doi.org/10.1787/152def2d-en>; OECD, *Consumption Tax Trends 2012, VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, November 2012), <https://dx.doi.org/10.1787/ctt-2012-en>.

## APPENDIX TABLE 9.

## Spirits Excise Tax Rates by Country

### Nominal Rates

Country	Tax per Hectoliter of Absolute Alcohol (2012 USD)	Tax per Hectoliter of Absolute Alcohol (2020 USD)
Australia	4437.62	5628.47
Austria	1176.96	1348.32
Belgium	2023.29	3362.69
Canada	951.35	930.45
Chile	NA	NA
Colombia	NA	NA
Czech Republic	2047.45	1406.45
Denmark	1919.56	2248.88
Estonia	2665.42	2113.48
Finland	4586.37	5483.15
France	1914.72	1975.89
Germany	1632.62	1464.05
Greece	3462.62	2752.81
Hungary (a)	2231.86	1146.99
Iceland	7766.22	12633.55
Ireland	3718.14	4783.15
Israel	NA	2401.97
Italy	1002.00	1160.14
Japan	NA	NA
Korea	NA	NA
Latvia	NA	1757.30
Lithuania	NA	2058.43
Luxembourg	1116.06	1169.83
Mexico	NA	NA
Netherlands	1807.45	1894.38
New Zealand	NA	NA
Norway	6983.59	8909.09
Poland (a)	2645.79	1634.12
Portugal	1755.01	1558.35
Slovak Republic	2078.73	1213.48
Slovenia	1587.41	1483.15
Spain	1169.48	1077.46
Sweden	5625.03	5451.27
Switzerland	1938.13	2929.29
Turkey (b)	6337.68	4925.75
United Kingdom	3871.49	3684.62
United States	974	909

(a) Decline between 2012 and 2020 is related to currency developments and not policy changes.

(b) Shown here in USD, which shows decline, but in Turkish Lira, the rate actually increased by over 400 percent.

Note: Tax rates applicable as of January 1, 2012 and January 1, 2020. Missing data is either a result of lacking data—Colombia, Latvia, and Lithuania were not OECD members in 2012—or a tax design that does not allow for comparison: tax levied by value or at multiple rates based on alcohol by volume. More details on each country can be found at <https://doi.org/10.1787/152def2d-en>.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, November 2020), <https://doi.org/10.1787/152def2d-en>; OECD, *Consumption Tax Trends 2012, VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, November 2012), <https://dx.doi.org/10.1787/ctt-2012-en>.

## APPENDIX TABLE 10.

### Cigarette Excise Tax Rates by Country

#### Nominal Rates per 1,000 cigarettes and of Retail Sales Price (RSP)

Country	Specific Excise Tax per 1,000 cigarettes (2012 USD)	Ad valorem Tax of RSP (2012)	Specific Excise Tax per 1,000 Cigarettes (2020 USD)	Ad Valorem Tax of RSP (2020)	Total Tax as Percentage of RSP (2018)
Australia	221.20	0	650.37	0	77.52
Austria	41.19	42	65.17	37.5	75.26
Belgium	18.39	52.41	72.58	40.04	76.98
Canada	69.14	NA	91.65	0	64.05
Chile	NA	62.30	65.90	30	82.36
Colombia	NA	NA	37.03	10	78.43
Czech Republic	80.46	28	70.21	30	82.69
Denmark	81.47	13.61	260.55	1	74.15
Estonia	79.29	34.72	92.078	30	79.38
Finland	23.78	52	78.37	52	87.41
France	31.90	64.25	69.66	52.7	82.45
Germany	116.03	21.87	110.34	21.69	69.92
Greece	27.79	52.45	92.70	26	81.22
Hungary	81.22	28.40	70.53	23	72.28
Iceland	132.78	36.50	210.40	0	55.49
Ireland	229.85	18.03	388.81	9.04	78.40
Israel	60.68	NA	112.62	NA	79.10
Italy	11.37	58.50	21.75	59.1	76.04
Japan	114.56	0	121.49	0	63.06
Korea	38.95	0	125.03	64.76	73.85
Latvia	NA	NA	88.43	20	79.99
Lithuania	NA	NA	69.94	25	73.83
Luxembourg	18.11	47.84	21.22	46.65	68.31
Mexico	0	53.05	25.67	39.07	68.55
Netherlands	163.03	8.59	246.35	5	71.81
New Zealand	NA	NA	NA	0	82.21
Norway	240.06	0	304.55	0	63.97
Poland	91.20	31.41	59.40	32.05	76.79
Portugal	124.03	20	108	15	71.66
Slovak Republic	111.64	23	72.02	23	76.90
Slovenia	33.57	45.31	82.74	21.88	79.19
Spain	17.89	57	27.75	51	78.24
Sweden	142.47	1	169.13	1	68.38
Switzerland	76.82	25	119.52	25	60.27
Turkey	127.23	63	85.56	67	81.37
United Kingdom	235.07	16.50	292.68	16.5	79.39
United States	129	NA	141	NA	39.47

Note: Tax rates applicable as of January 1, 2012 and January 1, 2020. Missing data is either a result of lacking data—Colombia, Latvia, and Lithuania were not OECD members in 2012—or a tax design that does not allow for comparison. More details on each country can be found at <https://doi.org/10.1787/152def2d-en>.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, November 2020), <https://doi.org/10.1787/152def2d-en>; OECD, *Consumption Tax Trends 2012, VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, November 2012), <https://dx.doi.org/10.1787/ctt-2012-en>.

## APPENDIX TABLE 11.

## Excise Tax Rates on Premium Gasoline by Country

### Nominal Rates

Country	Tax per Liter of Gasoline (2015 USD)	Total Tax as Percentage of Total Price (2015)	Tax per Liter of Gasoline (2019 USD)	Total Tax as Percentage of Total Price (2019)
Australia	0.295	37.8	0.290	35.9
Austria	0.535	59.8	0.540	56.0
Belgium	0.687	59.2	0.672	58.1
Canada	0.264	36.7	0.191	32.0
Chile	0.484	53.4	0.449	48.9
Colombia	NA	NA	0.126	22.0
Czech Republic	0.522	60.5	0.560	57.9
Denmark	0.615	61.4	0.701	59.3
Estonia	0.469	57.1	0.630	63.9
Finland	0.756	67.9	0.787	65.4
France	0.693	65.6	0.774	62.5
Germany	0.727	65.3	0.733	61.3
Greece	0.744	66.8	0.784	63.7
Hungary	0.430	57.2	0.422	53.3
Iceland	0.530	54.1	0.671	59.7
Ireland	0.653	63.8	0.663	62.3
Israel	0.786	65.4	0.863	64.3
Italy	0.808	67.9	0.816	64.3
Japan	0.465	50.5	0.519	47.0
Korea	0.691	51.8	0.640	50.8
Latvia	0.457	56.9	0.570	57.0
Lithuania	NA	NA	0.486	55.1
Luxembourg	0.513	57.7	0.529	51.4
Mexico	0	13.8	0	13.8
Netherlands	0.859	69.3	0.882	64.9
New Zealand	0.468	46.9	0.496	46.4
Norway	0.722	63.3	0.731	60.7
Poland	0.443	56.9	0.436	52.1
Portugal	0.686	64.0	0.720	61.8
Slovak Republic	0.572	58.4	0.576	55.9
Slovenia	0.605	63.8	0.599	60.1
Spain	0.513	57.2	0.530	53.8
Sweden	0.661	64.8	0.695	61.8
Switzerland	0.764	58.5	0.759	54.5
Turkey	0.799	65.3	0.419	50.0
United Kingdom	0.887	71.0	0.739	63.1
United States	0.143	22.5	0.121	18.6

Note: 2015 rates as of 4th quarter 2015; 2019 rates as of October 1, 2019. Missing data is either a result of lacking data—Colombia and Lithuania were not OECD members in 2015—or a tax design that does not allow for comparison: tax levied by value or at multiple rates. More details on each country can be found at <https://doi.org/10.1787/152def2d-en>.

Source: OECD, *Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues* (Paris: OECD Publishing, November 2019), <https://doi.org/10.1787/152def2d-en>; OECD, *Consumption Tax Trends 2016, VAT/GST and Excise Rates, Trends and Administration Issues* (Paris: OECD Publishing, November 2016), <https://dx.doi.org/10.1787/ctt-2016-en>.

## APPENDIX TABLE 12.

**EU Member States' Excise Tax on Heated Tobacco Products in Local Currency and U.S. Dollars***In Local Currency and U.S. Dollars as of July 1, 2020*

Member state	Rate per Kilo	Other Bases	Tax in \$ per Kilo	Category
Austria	€110.00	–	\$123.50	Heated tobacco
Bulgaria	BGN 233	–	\$133.90	Smokeless tobacco
Croatia	HRK600	–	\$89.00	Heated tobacco
Cyprus	€150.00	–	\$168.50	Heated tobacco
Czech Republic	CZK 2,236	–	\$94.40	Heated tobacco
Denmark	DKK 1,300.90	–	\$196.10	Tobacco intended for inhalation without combustion
France	€29.10	Plus 50.7% <i>ad valorem</i> at retail level	\$32.70	Other tobacco product
Germany	€15.66	Plus 13.13% <i>ad valorem</i> at retail level	\$17.50	Pipe tobacco
Greece	€156.70	–	\$176.00	Electrically heated tobacco product
Hungary (a)	Not applicable	Heated tobacco product: HUF 10 per stick; Hybrid: HUF 70 per ml	Not applicable	Novel tobacco product
Italy (b)	Not applicable	50% of cigarettes based on consumption time	Not applicable	Inhalation product without combustion
Latvia	€70.00	–	\$78.60	Heated tobacco
Lithuania	€68.60	–	\$77.00	Heated tobacco
Netherlands	€114.65	–	\$128.80	Other tobacco products
Poland	PLN 141.29	Plus 31.41% of weighted average value at retail level	\$36.00	Novel product
Portugal	€80.00	Plus 15% <i>ad valorem</i> at retail level	\$90.00	Heated tobacco
Romania	RON396.10	–	\$92.10	Heated tobacco
Slovakia	€76.70	–	\$86.10	Smokeless tobacco
Slovenia	€88.00	–	\$98.90	Manufactured tobacco intended for heating
Sweden	SEK 1,957.00	–	\$211.00	Smoking tobacco

(a) Hungary taxes heated tobacco products based on number of sticks—a design similar to cigarette taxes. For hybrid products using both liquid and tobacco, a rate for liquid is applied.

(b) Italy taxes heated tobacco products specifically based on the average consumption of each product. A laboratory process has been established in Italy to determine the consumption times.

Note: Member states not mentioned do not have a specific tax category for heated tobacco products, or the products are not yet available. VAT is not included above.

Source: European Commission, Vaporproductstax.com, authors' research.