

The impact of imposing sales taxes on business inputs

Prepared for the State Tax Research Institute and the Council On State Taxation

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Executive summary

This study was prepared by Ernst & Young LLP for the Council On State Taxation (COST) and its affiliate, the State Tax Research Institute (STRI).¹ The study details the extensive state sales taxation of business purchases of intermediate goods and services and its negative implications for overall state tax policy. The study also analyzes the interrelationship between the state taxation of business inputs and the historic failure of states to significantly expand their sales and use tax bases to include a broad range of services, including business-to-business services.

Our findings include:

- ▶ Sales tax systems vary in structure from state to state, but they share a common characteristic: they differ significantly from a theoretically ideal retail sales tax. A true sales tax on consumption would impose a uniform tax on all goods and services sold to households, but would not tax business purchases of intermediate goods and services. Business inputs constitute intermediate goods and services because companies either resell these goods and services or utilize the materials, products, machinery and services to produce other goods or services that are sold to households. In the United States, the ideal consumption tax is turned upside down because virtually all state sales tax regimes under-tax household consumption and overtax business inputs.
- ▶ Current sales taxes on business inputs violate several tax policy principles (economic growth, efficiency, equity, simplicity and transparency) and cause a number of economic distortions due to tax pyramiding. Pyramiding results when a sales tax is imposed multiple times on the same value of business input purchases at multiple stages in the production and distribution process leading up to a final sale to consumers. With pyramiding, the effective sales tax rate exceeds the statutory rate and varies in hidden and arbitrary ways across different types of consumer purchases.

¹ This study is an update of an earlier Ernst & Young LLP study prepared for COST. See *What's wrong with taxing business services?* (June 2013).



- ▶ While most states strive to reduce pyramiding of their sales tax through specific exemptions, these efforts are far from complete. In fiscal year (FY) 2017, the current sales tax systems imposed \$157.4 billion of taxes on business-to-business sales of products, services and equipment representing 41.7% of total state and local sales taxes. Proposals to extend the sales tax to certain services (without exempting business purchases) would magnify the pyramiding problem because of the high percentage of additional sales tax revenue collected on business-to-business sales.
- ▶ A state sales tax on business inputs functions as a tax on in-state production. The economic response to such taxes varies depending on the characteristics of the taxpayer. Companies that sell into competitive national markets (e.g., durable goods) are less likely to pass these taxes forward to customers through higher prices. In contrast, companies selling into localized markets (e.g., locally supplied services) are more likely to pass these taxes forward to customers but may still face reduced demand. In either case, economic activity in the state levying the tax on business inputs may be impacted.
- ▶ Many states have proposed expansions of their sales tax bases in response to the growth in the overall proportion of services in the US relative to the sales of tangible goods, which was the original focus of state sales tax. However, virtually all of the significant efforts to revamp state sales tax bases to include a wide range of service categories have failed to exempt intermediate services purchased by businesses. Extending sales tax to additional business-to-business sales would exacerbate the economic distortions that already exist in the current system. There are many reasons for the failure of wide-scale sales tax base expansion initiatives, but the common denominator has been principled opposition to sales base expansion without an adequate exemption for business inputs to avoid the negative economic impact of sales tax base pyramiding.

Introduction

In 2017, state and local sales taxes, which are imposed by and represent major sources of state and local revenue in all but five states, raised \$377 billion of revenue for state and local governments. In total, in 2017, sales taxes made up 29.5% of the state tax collections and 22.3% of the combined state and local tax collections as shown in Figure 1 and Figure 2 below. Conceptually, and as originally intended, state and local sales taxes should be levied only on final household consumption. Nevertheless, despite a complex system of exemptions intended to exclude specific categories of business input purchases from the sales tax base, most state sales tax systems fall short of the goal of taxing only household consumption because they impose significant taxes on business-to-business transactions.

Figure 1 – Composition of state and local tax collections (2017)

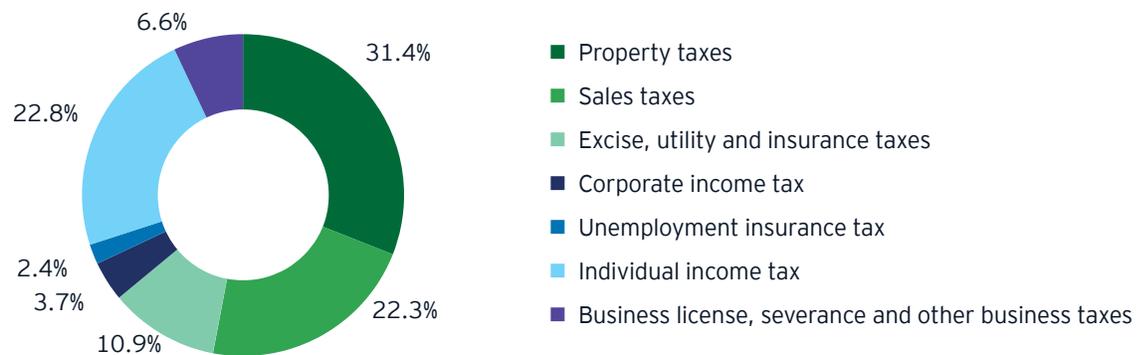
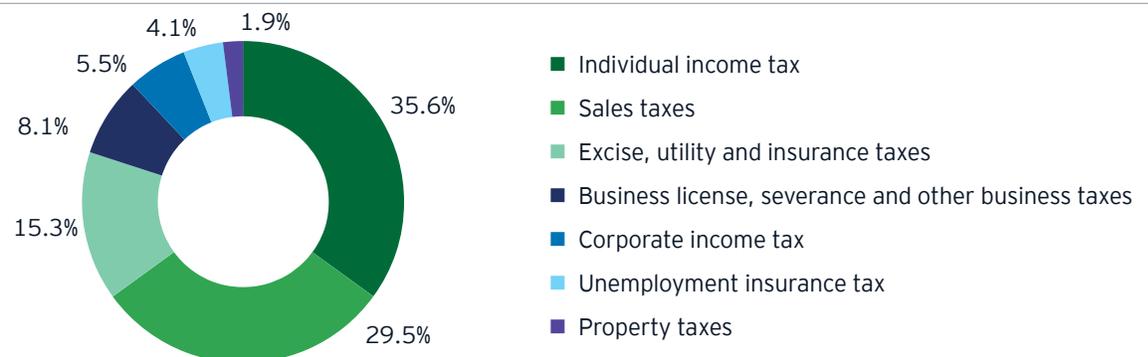


Figure 2 – Composition of state tax collections (2017)



² *Total State and Local Business Taxes: State-by-State Estimate for Fiscal Year 2017*, study prepared by Ernst & Young LLP in conjunction with the State Tax Research Institute and the Council On State Taxation (November 2018).



The current state of the retail sales tax

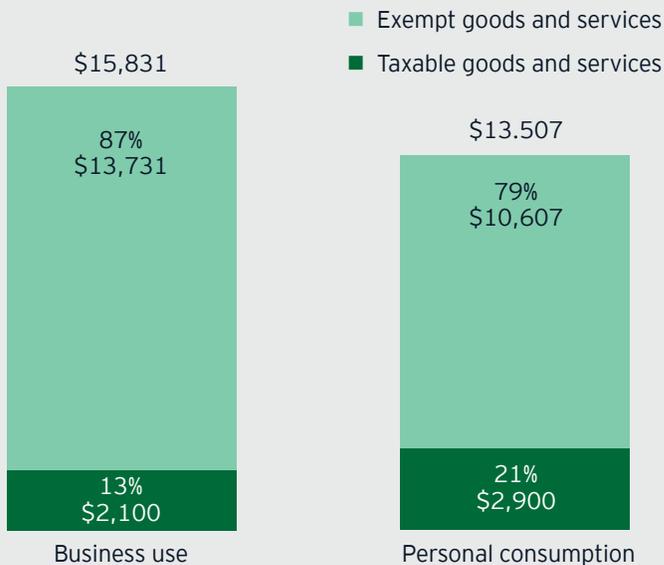
The state and local sales tax systems in most states are considered retail (end-user) sales taxes, yet in reality diverge significantly from a true consumption tax.³ The retail sales tax, in theory, is a tax on final consumption by households with little or no taxation of business purchases of operating or capital inputs. While a true consumption tax would tax most household consumption, the US sales and use tax base exempts 79% of personal consumption (see Figure 3). A true consumption tax would exempt inputs purchased by business; however, 42% of state and local sales taxes are derived from the taxation of business inputs (see Table 2). Business inputs constitute intermediate, not final, goods and services because companies either resell these goods and services or use the materials, products, machinery and services to produce other goods or services that subsequently are sold to households. These taxes on intermediate business inputs result in “pyramiding,” or multiple taxation of part or all of the same end transaction when finally purchased by the household consumer. The pyramiding of the sales tax on business inputs may constitute additional business costs, which may then be reflected in higher consumer prices and reduced state economic activity, including reduced employment and lower wages.

Figure 3 (based on 2016 data) shows that current US state and local sales and use tax systems fall far short of the ideal sales tax structure in two important ways:

- ▶ **Existing state sales tax systems tend to exempt a large number of household purchases of goods and services.** An estimated 21% of household personal consumption expenditures are subject to sales taxes. States typically exempt most medical and educational services, as well as most housing services consumed by households, which account for 42% of exempt household consumption. Of the total household consumption not related to educational, medical, or housing services, only 32% is taxable.
- ▶ **State sales tax systems tend to tax too many business input purchases.** Conversely, under an ideal final consumption sales tax system, business purchases of intermediate goods and services would not be taxed because the tax is designed to apply only to final sales to household consumers. Figure 3 shows that \$2.1 trillion of business input purchases (or 13%) are taxed under the sales tax.

³ On the principles of an ideal consumption tax, see John F. Due and John L. Mikesell, *Sales Taxation: State and Local Structure and Administration* (1994); John L. Mikesell, “Reversing 85 Years of Bad State Retail Sales Tax Policy,” *State Tax Notes*, February 4, 2019, p. 390. For earlier estimates of the business share of sales tax, see Ring, Raymond J. “Consumers’ Share and Producers’ Share of the General Sales Tax,” *National Tax Journal*, vol. 52, no. 1, 1999, pp. 79-90.

Figure 3 – Taxable and exempt business and household purchases (in billions USD)



In practice, sales taxes are imposed on many business input purchases of both services and products. This is because most states have inadequate sale-for-resale and direct business use exemptions that should, but do not, remove the sales tax from business-to-business sales.

The under-taxation of household consumption and overtaxation of business inputs can also be viewed by comparing three alternative tax bases for consumption-type tax bases: (1) a gross receipts tax base, (2) a final household consumption sales tax base and (3) the current US sales tax base.

Table 1 presents these alternative tax bases along with the estimated size of the nationwide tax base that corresponds to each type of tax base.

The broadest possible base is a gross receipts tax base, which applies to every domestic transaction, excluding sales to government and sale-for-resale transactions to wholesalers and retailers. These transactions total \$29.3 trillion annually. Such a system would impose tax on all sales whether sold to households or to other businesses and would impose tax regardless of whether the sale is a final or intermediate purchase. As shown in the last column, the gross receipts tax base is more than two times the size of a final household consumption sales tax.

Table 1 – Comparing alternative tax bases

Tax base	Amount (\$millions)	Relative to ideal sales tax
Gross receipts	\$29,338*	217%
Final household consumption sales tax	\$13,507	100%
Current US sales tax base	\$5,000	37%

*Does not include gross receipts from sales to government or sale-for-resale transactions with wholesalers/retailers

Because the gross receipts tax base includes all business-to-business sales, the base is much larger than the final consumption tax base. It also includes significant pyramiding of the tax, a problem discussed in some detail below.

The final consumption sales tax base in Table 1 is the tax base if all sales to household consumers are included and all business-to-business sales are excluded. The estimated base equals personal consumption expenditures, plus a portion of investment for residential housing. The current state and local sales tax base is shown in the last row of the table. It equals the sum of actual state sales tax collections across all states. The last column in the table shows that the current retail sales tax is approximately one-third of the theoretical base due to a wide range of exemptions for goods and services consumed by households. The gap between the final consumption sales tax base and the current sales tax base is actually understated because the latter includes a substantial level of taxes on business inputs, which would not be included in the final consumption sales tax base.

Virtually all nations, for political or social policy reasons, exempt health and educational services from the consumption tax base. The value-added tax (VAT) levied in many Organisation for Economic Co-operation and Development (OECD) countries collects an amount equal to 56% of final consumption.⁴ By comparison, the state and local tax system in the US (which collects an amount equal to 37% of final consumption) is an outlier among consumption taxes because of how extensively it exempts many household purchases, particularly personal services, from the sales tax base.

The US state sales tax system is also an outlier among the world's consumption taxes for the substantial degree to which it includes business inputs in its tax base. Value-added taxes are the most common form of consumption tax outside the US, and these have nearly universal credits for taxes paid by businesses on their purchases of operating inputs and capital assets, at least to the extent the final sales of goods and services to households are subject to VAT. As a result, VAT systems impose far smaller tax liabilities on business intermediate inputs than the US state and local sales tax system.

⁴ See VAT revenue ratio: Organisation of Economic Co-operation and Development, *Consumption Tax Trends 2018: VAT/GST and Excise Rates, Trends and Policy Issues*, OECD 2018, Table 2.A.7, p. 90.

The business share of state and local sales taxes



In fiscal year 2017, state and local sales taxes on business inputs totaled an estimated \$157.4 billion, which is 41.7% of total state and local sales taxes. The business share of sales tax varies by state, from 32% in Indiana to 60% in New Mexico, and it exceeds 50% in five states.

To put these estimates in perspective, aggregate state and local corporate and business entity income tax collections in fiscal year 2017 for all states were \$62.7 billion. Thus, sales tax collections on business inputs were 2.5 times larger than state corporate income tax collections.⁵ While a pure sales tax would not apply to business-to-business purchases, state and local sales taxes in practice impose substantial tax burdens on business purchases. This increases the operating and capital costs of doing business in a state. Moreover, this business tax burden has been virtually unchanged during the last 15 years despite a substantial growth in sales tax revenues. The first COST study of the sales taxation of business inputs for fiscal year 2003 found that sales tax collections on business inputs totaled 42.8% of total state and local sales taxes, similar to the 41.7% estimated for fiscal year 2017.⁶

The extent to which state sales taxes are paid by business is shown in Figure 4, which presents state-by-state estimates of the percentage of total state and local sales taxes resulting from business-to-

business purchases.⁷ Table 2 shows a comparison of the estimated dollar amount of sales taxes collected from business purchases and household consumption. These shares are determined by several factors. The structure of the sales tax system in each state is clearly a major factor in determining the share of sales taxes paid by business. Important sales tax system characteristics include the comprehensiveness of the manufacturing exemption and the degree to which business services are taxed. Certain states also impose tax on specific types of transactions, such as real estate leasing or construction labor.

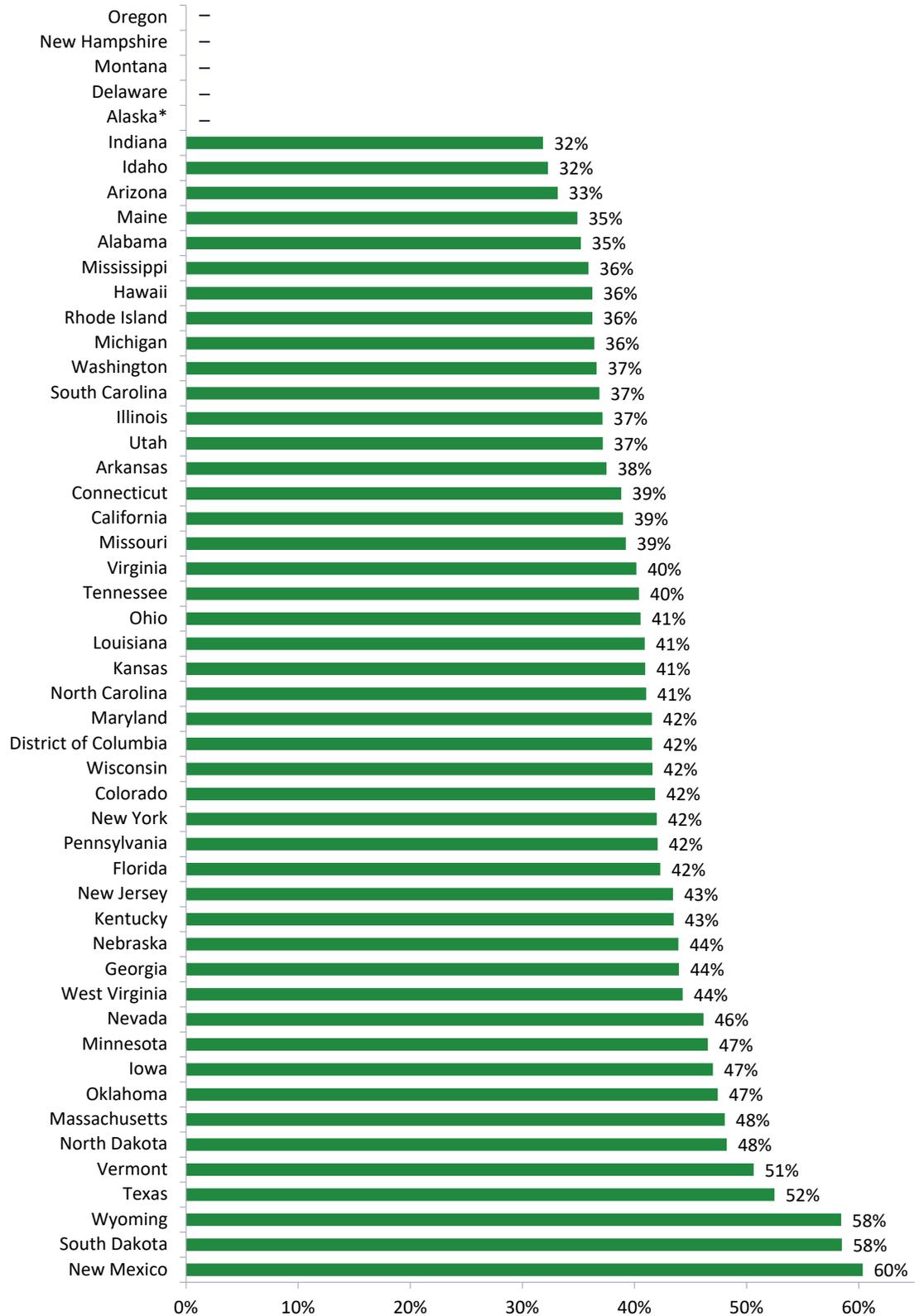
In addition to the characteristics of the sales tax system, the economic characteristics of the states are also significant in determining the share of sales taxes paid by business. States with a high concentration of manufacturing or agricultural activity are likely to have lower shares of the sales tax paid by business due to the generally broad exemptions provided to these activities. States with high levels of tourism activity are likely to have lower business shares, because sales taxes paid by nonresident visitors to a state are considered a household tax burden. As a consequence, tourism-dependent states such as Florida and Hawaii, which actually tax a high proportion of business input purchases, as a percentage of their base, still derive a relatively low share of overall sales tax revenues from business.

⁵ Estimates of business taxes by tax type are from *Total State and Local Business Taxes: State-by-State Estimate for Fiscal Year 2017*, study prepared by Ernst & Young LLP in conjunction with the STRI and COST. (November 2018). The sales taxes imposed on business purchases do not include sales taxes collected by business on sales to households.

⁶ *Sales Taxation of Business Inputs: Existing Tax Distortions and the Consequences of Extending the Sales Tax to Business Services*, study prepared by Robert Cline, John Mikesell, Tom Neubig and Andrew Phillips (COST 2005).

⁷ The estimates of sales taxes paid by business on their purchases are derived from the Ernst & Young LLP 50-state sales tax model. The model includes state-specific, industry-by-industry flows of business intermediate input and investment purchases based on national input-output relationships and state output estimates. The model also includes estimates of household purchases by category of spending. A separate sales tax matrix was developed for each state to reflect the current sales tax treatment of business and household purchases by detailed categories of commodities and services. Applying the tax matrix to levels of transactions produces estimates of total sales and use taxes on business intermediate inputs, business investment purchases and household expenditures. The general sales tax figures include retail sales and use taxes and the gross receipts taxes in New Mexico and Hawaii.

Figure 4 – Estimated business share of state and local sales taxes†



† Some states levy other specific excise taxes that are not included in this analysis.

*Alaska does not impose a statewide sales tax although local sales taxes exist. The Alaska local sales taxes are not included in this analysis.

Source: Ernst & Young LLP calculations

Table 2 – Business share of total state and local sales tax collections, FY 2017 (\$m)

State	Business	Household	Total	Business share
Alabama	\$1,716	\$3,158	\$4,874	35%
Alaska	-	-	-	-
Arizona	\$3,124	\$6,299	\$9,423	33%
Arkansas	\$1,700	\$2,832	\$4,532	38%
California	\$18,194	\$28,490	\$46,685	39%
Colorado	\$2,847	\$3,958	\$6,805	42%
Connecticut	\$1,644	\$2,592	\$4,237	39%
Delaware	-	-	-	-
District of Columbia	\$590	\$829	\$1,418	42%
Florida	\$11,732	\$16,003	\$27,735	42%
Georgia	\$4,405	\$5,613	\$10,018	44%
Hawaii	\$1,262	\$2,220	\$3,481	36%
Idaho	\$534	\$1,120	\$1,654	32%
Illinois	\$5,199	\$8,797	\$13,996	37%
Indiana	\$2,406	\$5,150	\$7,556	32%
Iowa	\$1,664	\$1,877	\$3,540	47%
Kansas	\$1,712	\$2,468	\$4,180	41%
Kentucky	\$1,518	\$1,972	\$3,491	43%
Louisiana	\$3,693	\$5,333	\$9,026	41%
Maine	\$504	\$941	\$1,445	35%
Maryland	\$1,916	\$2,694	\$4,610	42%
Massachusetts	\$2,999	\$3,242	\$6,241	48%
Michigan	\$3,359	\$5,865	\$9,224	36%
Minnesota	\$2,816	\$3,234	\$6,051	47%
Mississippi	\$1,266	\$2,261	\$3,527	36%
Missouri	\$2,447	\$3,790	\$6,237	39%
Montana	-	-	-	-
Nebraska	\$974	\$1,243	\$2,217	44%
Nevada	\$2,533	\$2,955	\$5,488	46%
New Hampshire	-	-	-	-
New Jersey	\$4,166	\$5,426	\$9,592	43%
New Mexico	\$1,958	\$1,286	\$3,244	60%
New York	\$13,056	\$18,039	\$31,095	42%
North Carolina	\$4,330	\$6,221	\$10,551	41%
North Dakota	\$495	\$531	\$1,026	48%
Ohio	\$5,735	\$8,412	\$14,148	41%
Oklahoma	\$2,080	\$2,306	\$4,387	47%
Oregon	-	-	-	-
Pennsylvania	\$4,767	\$6,566	\$11,333	42%
Rhode Island	\$361	\$635	\$996	36%
South Carolina	\$1,375	\$2,354	\$3,729	37%
South Dakota	\$829	\$588	\$1,418	58%
Tennessee	\$3,936	\$5,807	\$9,743	40%
Texas	\$19,267	\$17,440	\$36,708	52%
Utah	\$1,320	\$2,231	\$3,551	37%
Vermont	\$197	\$192	\$388	51%
Virginia	\$2,161	\$3,219	\$5,379	40%
Washington	\$5,256	\$9,098	\$14,355	37%
West Virginia	\$599	\$753	\$1,351	44%
Wisconsin	\$2,346	\$3,293	\$5,640	42%
Wyoming	\$446	\$317	\$763	58%
Total	\$157,434	\$219,652	\$377,086	42%

Note: Amounts may not sum due to rounding.

Source: Ernst & Young LLP calculations



Tax policy issues arising from the taxation of business inputs

Imposing sales tax on business inputs results in a number of undesirable effects. It creates arbitrary and often unobservable differences in the total effective sales tax rates levied on different goods and services, which distort consumer choices. Sales taxes on business inputs can also distort the way businesses are organized, such that a business may prefer to be vertically integrated to avoid transaction taxes on certain intra-business transactions. Additionally, sales taxes on business inputs that vary from state to state may impact the overall competitiveness of those states with taxes on significant categories of business inputs. Proposals to expand the sales tax base to include services purchased by businesses compound the pyramiding problems already present in the current sales tax system, which imposes tax on a large number of business purchases of services. Given that purchases of services account for 31% of the total input purchases made by businesses, the scale of this issue is significant.

The tax policy issues arising from the taxation of business inputs include:

- ▶ Taxing business inputs is inconsistent with the rationale for a sales tax designed to operate as a tax on final household consumption. Because businesses are not the final consumers of business input purchases, the sales tax should not apply to their purchases. Ignoring this tax policy principle creates a hybrid tax system that is a mix of a sales tax on final household consumers and a gross receipts tax on a large portion of business-to-business sales. It is difficult for legislators to understand what should or should not be taxed under a retail sales tax if a retail sales tax on final consumption is mixed with a gross receipts tax that, at best, is an indirect and arbitrary way to tax final household consumption.
- ▶ Sales taxes on business inputs have the same negative effects on a state's competitiveness as other "origin-based" taxes, such as the property tax. Some firms cannot pass the relatively high sales taxes on their purchases forward through higher prices because, for example, they may sell into competitive national or international markets. Thus, sales taxes on business inputs may reduce the profitability of operating in a state, leading to less investment and employment in that state.

- ▶ Sales taxes on business purchases of goods and services result in multiple instances of taxation on the costs of inputs as the goods and services are resold in multiple steps of the production and distribution process. This imposition of sales tax at different steps of the production and distribution process is referred to as the pyramiding of the sales tax, which results in the total sales tax embedded in the final sale price of goods and services to households being a multiple of the sales tax that should be imposed on the final household consumer (discussed in greater detail, below).
- ▶ The sales tax imposed on business-to-business transactions encourages businesses to vertically integrate, providing goods and services internally to avoid taxable transactions, even if it results in additional business costs that reduce the value of a state's economic output. This often favors large business enterprises over smaller businesses that often do not have the means to vertically integrate and internalize transactions. It also has the effect of reducing the demand for these services from independent, small businesses, further encouraging the growth of larger business enterprises at the expense of smaller, specialized businesses rendering business-to-business services.
- ▶ For the portion of the sales tax on business inputs that is passed forward through higher prices to final consumers, the hidden variation in effective sales tax rates due to pyramiding of the sales tax imposed on business purchases makes it impossible to determine who bears the burden of the sales tax and how the tax burdens vary by household income levels (the issue of vertical equity) and by different types of consumers at the same income level (the issue of horizontal equity). This type of hidden tax is contrary to the goal of greater tax transparency.
- ▶ Taxing business inputs increases administrative and compliance costs for both tax administrators and taxpayers alike. For example, large companies purchasing significant inputs from outside vendors will normally calculate and remit the “use” tax on their purchases, as contrasted with the vendor collecting the sales tax. Smaller businesses need to implement complex use tax compliance practices that are unnecessary if the intermediate goods are not taxable. Use tax compliance and auditing costs can be significant, especially for businesses engaged in multistate operations given the difficulties of identifying exactly where services are consumed and, therefore, potentially taxable. Often, in many business services, a multistate business as a whole benefits from the provision of a service, and it is unrealistic to imagine that such services can be allocated wholly to a single jurisdiction. This leads to long, complex audit issues of determining which jurisdiction has the ability to impose its tax on such services.

Pyramiding

One of the least desirable consequences of imposing sales tax on business purchases of inputs is the multiple taxation of the same good or service and the accumulation of “tax on tax” during successive business transactions. Sales tax pyramiding refers to the situation where, due to the multiple taxation of the same good or service as it moves through the production process, multiple rounds of tax are imposed and tax is levied on the tax from prior transactions. This phenomenon occurs when the value of the purchase of an input by a business upstream in the production chain is subject to the sales tax.



This upstream business pays the tax and embeds some or all of the tax amount in the value of its sale to a downstream business purchaser. The purchaser from the downstream business is then subject to tax on the full value of its purchase, meaning that the amount subject to tax includes not only the value added of the downstream business, but also the initial value of the input purchased and previously taxed during the transaction with the upstream business. Multiple taxation of the same business input can occur at each stage of production and distribution prior to the final retail sale to a household consumer. In effect, the value of the good or service embedded in sales prices of multiple businesses is taxed multiple times. As a consequence of the multiple rounds of taxation in which sales tax is embedded, tax is levied on tax-inclusive amounts, resulting in tax levied on tax.

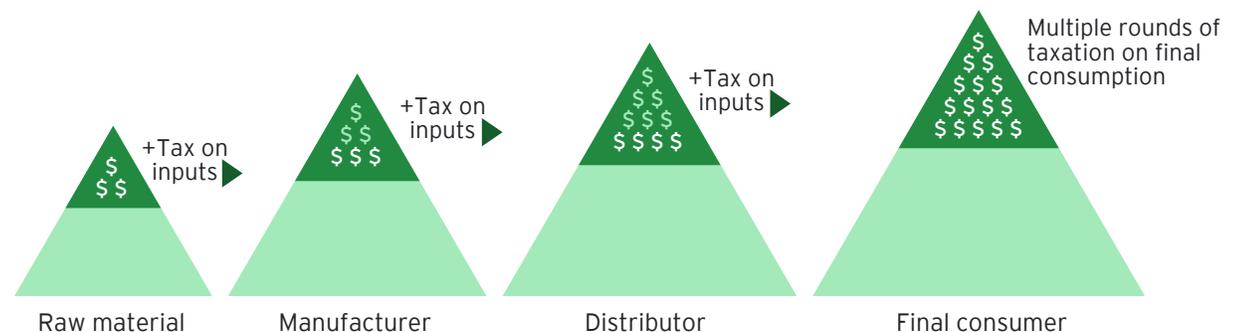
Figure 5 below illustrates the pyramiding problem. The example shows how tax is added at each stage of the production process, assuming business input exemptions are not in place. When the raw materials are sold to the manufacturer, an embedded tax is included in the price. Similarly, under the current tax system, the manufacturer may pay taxes on other intermediate inputs necessary for production of the final good. This additional level of tax, in most cases, causes the manufacturer to charge a higher price to the distributor. Thus, the price of the

final good purchased by the consumer includes the embedded tax from each stage of the production process in addition to the sales tax imposed on final consumption.

Multiple taxation is an undesirable outcome of sales tax being imposed on business-to-business transactions because it affects business choices of input purchases, location of jobs and investments, and organization of business structures. It favors larger organizations over smaller businesses because they can internalize certain costs without incurring sales tax, putting the smaller businesses at a significant cost disadvantage purely because of a distortive sales tax policy. With such multiple layers of taxation along the production chain, different products and services purchased by households from different sources would be subject to varying effective tax rates. This distorts consumer choices by penalizing the purchase of goods and services subject to higher effective tax rates.

Although all taxes have some distortive effects, the taxation of business-to-business transactions creates large and widespread distortions that affect all sectors of a state's economy. While public finance economists may worry about these economic "inefficiencies" more than legislators, the distortions have real economic consequences that the states' policy-makers need to consider.

Figure 5 – Tracking sales tax at different stages of production



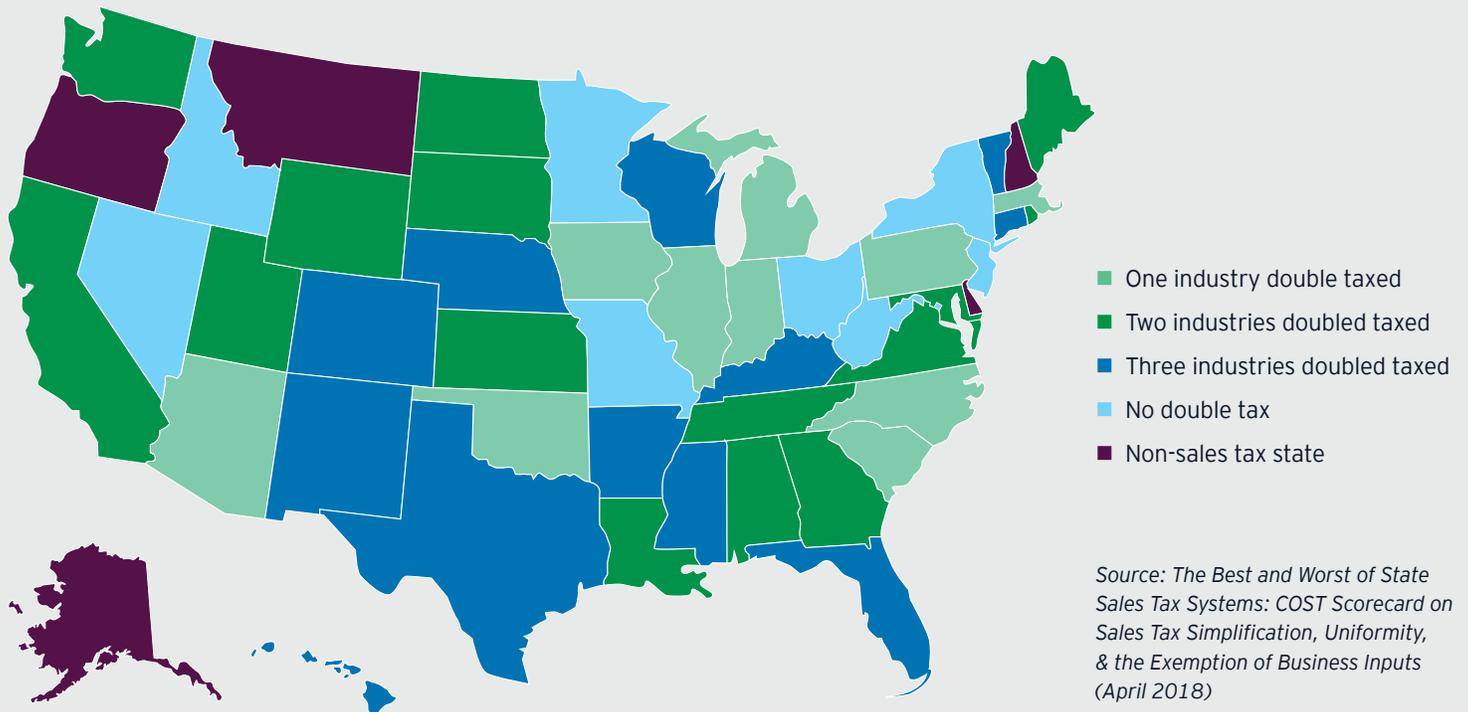


Case study: Pyramiding in the information and electric/gas utility industries

The information sector, which comprises telecommunications, cable, internet services, software and publishing, in many states is subject to sales tax on a large share of its business inputs. The information sector is the second most heavily taxed sector in terms of its input purchases, with an estimated 24% of purchased inputs subject to tax. Due to the significant tax on telecommunications companies' operating inputs, telecommunications services are subject to multiple layers of tax, including taxes on business inputs, sales taxes on the final sale of the telecommunication service, and industry-specific excise taxes and fees. The electric and gas utility industries operate in a similarly

negative sales tax environment with extensive pyramiding of sales taxes on inputs and outputs. Figure 6 illustrates the extensive pyramiding that results from the sales taxation of both inputs and outputs in the telecommunications, cable, and electric and natural gas utility sectors. Nearly one-quarter of all sales tax states (11) impose two layers of tax on all three of these very large industry sectors. Over one-third of all sales tax states (16) impose two layers of tax on two of these industry sectors. Finally, over one-fifth of these states (10) impose two layers of tax on one of these industry sectors.

Figure 6 – Taxation of telecommunications, cable, and electric and natural gas utilities





How significant are “embedded taxes”?

As goods move through the production process, sales tax on business inputs accumulates. Businesses will attempt to pass as much tax forward to consumers as possible by raising prices. Figure 7 below shows the embedded tax rate paid as part of the overall estimated effective sales tax rate on final purchases for the largest 20 industries by volume of input purchases.

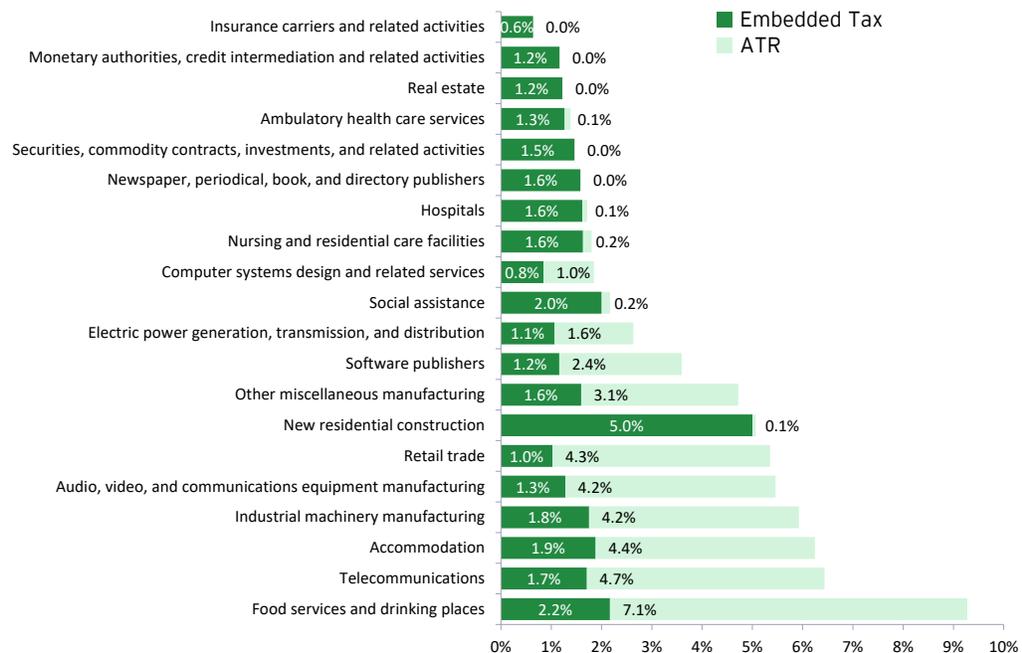
The rates shown in Figure 7 reflect two values: the advertised tax rate (ATR) on commodities sold by each industry as well as the estimated embedded tax rate paid on the inputs of each of these industries. The figure shows how the tax rate on final sales does not necessarily reflect the stated sales tax rate.

The cost of some business and personal services, some of which are not taxed on their final output, contains a significant amount of sales tax. Between

1% and 2% of the final sales price of most services is attributable to sales tax embedded in the cost of the service from prior stages of production. For example, embedded taxes on business inputs – assuming the embedded taxes will be passed fully to final consumers – increase the final price of hospital services by as much as the 1.6% embedded tax.

Of greater concern are industries such as telecommunications, electric utilities, accommodations, food and beverage, wholesale trade, and retail trade where the tax is pyramided because both inputs and outputs are subject to tax. As illustrated in Figure 7, for these industries, the effective tax rate can be 20% to 50% higher than the stated tax rate of the final products because of embedded taxes.

Figure 7 – Estimated ATR and embedded tax rate on final purchases for the top 20 industries by amount of industry sales



Source: Ernst & Young LLP calculations

Note: Some percentages have been rounded to zero



Lack of transparency

Pyramiding results in hidden variations in the effective sales tax rate imposed on different goods and services ultimately purchased by consumers. While the multiple levels of sales taxes on intermediate steps in the production and distribution chain may be passed along in higher prices to household consumers, only the sales tax imposed on the final sale is transparent to the buyer. The amount of pyramiding at each earlier stage is “invisible.” To the extent that this occurs due to pyramiding of the sales tax, the actual level of government services may exceed the level that would be demanded if households were aware of the full amount of sales taxes they are paying.

A final important point is that pyramiding of the sales tax creates unintended and often unknown distributional impacts. Because pyramiding results in a wide range of unknown ratios of sales taxes per dollar of final sales, the overall sales tax rate (final and embedded sales tax) is difficult to observe, and the distribution of sales tax burdens by household income levels is very difficult to determine. This creates a challenge, for example, in determining how to structure tax credits to mitigate the regressive impacts of sales taxes on lower-income households if sales taxes are passed through in higher prices to final consumers. If the tax is reflected in fewer jobs and lower wages to a state’s residents, the negative impacts will be even more difficult to identify and offset with state policies.

Competitiveness considerations

Taxing business inputs under the sales tax transforms a destination-based tax on household consumption into a tax that imposes origin-based burdens on business. In state corporate income tax systems, destination-based taxes are increasing in prevalence because they reduce the marginal tax rate on new business investment, which many states see as benefiting economic development.⁸ As of 2018, 26 states and the District of Columbia calculate taxable corporate income based solely on a destination basis (single sales factor with market-based sourcing for all sales, including sales of services and intangibles) rather than on origin factors of production (i.e., payroll and property factors as well as a sales factor sourced based on origin or, more likely, where the costs of performing the services or the development of the intangible property occurred). Another 15 states triple- or double-weight their sales factors, tilting their apportionment formulas to a destination-oriented approach.⁹ While destination-based tax systems may have certain disadvantages such as the lack of connection between tax location and economic activity, states have recognized the economic development value of using consumption-based destination principles for apportioning their corporate income tax, but largely ignored these very same principles when imposing sales taxes on business inputs.

⁸ While destination-based taxes undesirably result in a disconnect between the location of the factors that produce income and the taxation of that income, at the state level such taxes reduce the marginal effective tax rate on new investment for businesses with non-local markets, which makes states more competitive for attracting economic activity.

⁹ Federation of Tax Administrators (FTA), 2018 State Apportionment of Corporate Income for manufacturers. According to the Federation of Tax Administrators’ *2018 State Apportionment of Corporate Income summary*, 26 states and the District of Columbia allowed factor apportionment (either solely or electively), while 15 other states apply more than a one-third weight to the sales factor.

The historic failure of broad-based efforts to extend the sales tax to services without exempting business inputs



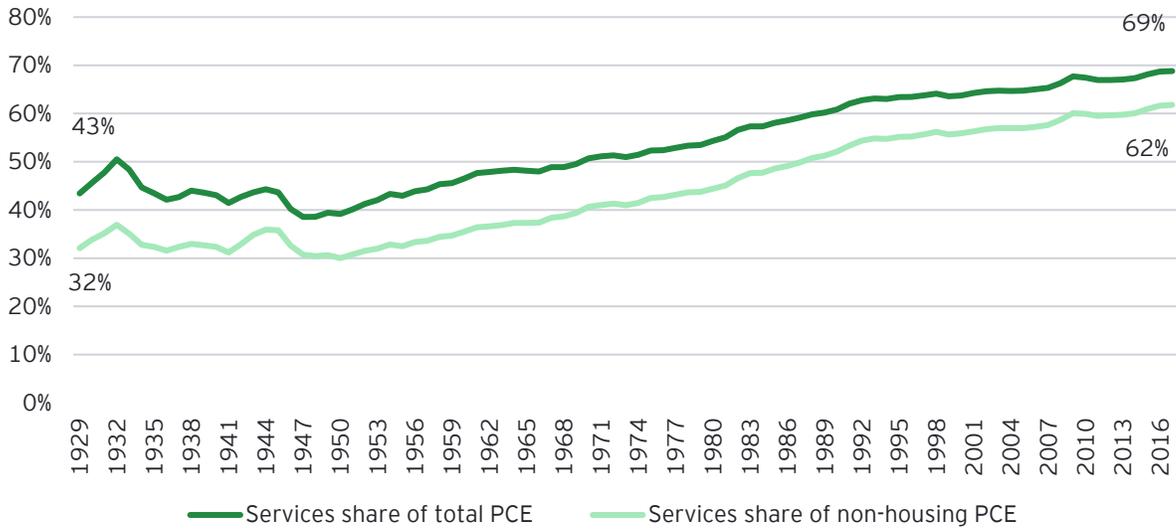
Over the last three decades, states have repeatedly sought to extend the sales tax base to cover a wide range of services. The state and local political landscape has many examples of states that failed to enact (or sustain) major sales tax base expansion even with significant gubernatorial or legislative support. Among the most prominent examples of this trend are Florida (1987), Massachusetts (1991), Michigan (2007), Nebraska (2013), Ohio (2013), Louisiana (2013), Minnesota (2013), Pennsylvania (2015) and Maine (2015).¹⁰ There are virtually no success stories to balance this trail of legislative failures. Several factors are responsible for the failure of wide-scale sales tax base expansion, including the difficulty of enacting large-scale tax reform, the objection of impacted service providers, general public resistance to new taxes, and opposition to sales tax base expansion without an adequate exemption for business tax inputs.

It is not difficult to understand why states and localities want to modernize their sales tax base and include an increasing number of services in the sales tax base to reflect shifts in household consumption toward services. As shown in Figure 8, when sales taxes were adopted in many states in the early 1930s, non-housing services accounted for roughly one-third of total personal consumption expenditures (PCEs).¹¹ By 2017, that share had increased to nearly two-thirds of total non-housing personal consumption expenditures, a transition that has eroded the state and local sales tax base over recent decades. Some of the potential household sales tax base has been protected from the sales tax due to policy preferences. For example, near universal opposition appears to exist to impose sales tax on “necessary services” such as education, health care and housing, which continue to account for a significant share of household services. Even excluding those services, however, the remaining household services account for approximately one-third of household consumption, and these household services are generally excluded from the sales tax base.

¹⁰ In 2018, California proposed legislation placing a state sales tax specifically on “high-end business services” including law, consulting and accounting services provided to corporations.

¹¹ Bureau of Economic Analysis, *National Income and Product Accounts*, Table 2.3.5.

Figure 8 – Services as a share of total personal consumption expenditures, 1929-2017



Nonetheless, extending the sales tax base to include additional services presents a challenge for states due to the significant consumption of services (as intermediate inputs) by businesses. Table 3 shows purchases of services by business and household customers in 2016. While some services are predominantly purchased by business (e.g., administrative support, computer systems design, legal services and management of companies), many other services are significantly consumed by both households and businesses. If services used by business are included in the sales tax base, a means of exempting the business portion of the sales tax would be required to avoid taxing these business inputs.





Table 3 – Share of services purchased by business and personal consumption, 2016

Industry	Business share	Personal consumption share
Administrative and support services	93%	7%
Broadcasting and telecommunications	50%	50%
Computer systems design and related services	100%	0%
Data processing, internet publishing and other information services	77%	23%
Federal Reserve banks, credit intermediation and related activities	67%	33%
Food services and drinking places	23%	77%
Insurance carriers and related activities	67%	33%
Legal services	68%	32%
Management of companies and enterprises	100%	0%
Publishing industries, except internet (includes software)	37%	63%
Rental and leasing services and lessors of intangible assets	73%	27%
Securities, commodity contracts and investments	54%	46%
Waste management and remediation services	78%	22%

Source: Bureau of Economic Analysis, 2016

2013 was a watershed year for the introduction of sweeping legislation to expand the sales tax base to include a wide array of services.¹² Generally, these proposals included other sweeping changes in state tax policy, including significant income or sales tax rate reductions to make the proposals more revenue neutral. Each of the four primary legislative proposals in 2013 had the political support of the state’s governor. Nonetheless, each of these proposals failed, in large part due to opposition from the business community. Generally, the policy objections were not to the expansion and modernization of the sales tax base to include the growing services sector, but to doing so without limiting the base expansion to household services.

As a result, the business portion of the sales tax base expansion accounted for as much as 80% of the total sales tax revenue increase, resulting in additional sales taxes on business input purchases that ranged from \$1 billion to \$2 billion a year in each state. Notably, business opposition emerged even where the proposals included sharp reductions in or elimination of the corporate income tax because the sales tax base expansion (without business inputs exemptions) still increased the overall state and local tax burden on businesses. A closer review of the primary 2013 base expansion legislation illustrates both the breadth of the base expansion proposals and the significant reliance on revenue from the taxation of business inputs.

¹² 2015 was another year where sweeping sales tax broadening legislation was introduced in two states, Pennsylvania and Maine, as part of a broader tax reform package, only to be rejected in the legislative session.



Louisiana (2013)

In March 2013 Governor Bobby Jindal (R) introduced a tax reform plan that included a restructuring of all the state's major taxes. The overall proposal was designed to be revenue neutral. The proposal included:

- ▶ Eliminating the individual income tax and the corporate income and franchise tax.
- ▶ Expanding the sales tax base by including a broad range of services purchased by both businesses and households and reducing existing sales tax exemptions. Under the proposal, all services would be taxable unless specifically exempted by law or constitutionally protected. Initial service exemptions included health care, education, construction, real estate, financial services, legal services, advertising, oil and gas field services, and funeral services.
- ▶ Increasing the state general sales tax rate (from 4% to 5.89%) and the cigarette tax rate (by \$1.05 per pack).
- ▶ Increasing severance taxes by eliminating a number of current exemptions.
- ▶ Expanding tax relief for low-income households and the elderly to offset the regressivity of the sales tax increase.
- ▶ Eliminating a number of current law sales tax exemptions.



Minnesota (2013)

In 2013, Governor Mark Dayton (D) proposed a significant restructuring of the state's retail sales tax as part of a tax reform package that included individual income tax rate increases, adjustments in the corporate income tax and expanded property tax relief for homeowners. The sales tax component combined an expansion of the sales tax base to services purchased primarily by business and a 23% reduction in the sales tax rate. The expansion of the sales tax base to a number of services was described as "sales tax reform."¹³ The proposed additions to the sales tax base included:

- ▶ Professional and technical services, such as accounting and bookkeeping, advertising, architectural, engineering, design, computer systems design, management consulting, research and development, logistics, and legal services
- ▶ Office administration, business support, computer and data processing services
- ▶ Travel agent, repair, and warehousing and storage services
- ▶ Personal services
- ▶ Selected products consumed primarily by households

The expansion of the sales tax base was estimated to raise \$2.6 billion in additional revenue in FY 2015. Based on the revenue estimates for the governor's tax reform proposal, \$1.9 billion (80%) of the total increase would be paid on business purchases of services.¹⁴ By contrast, businesses would only receive 44% of the reduction in taxes on currently taxable goods and services due to a lower state sales tax rate. The net sales tax change for households (as final consumers) would be a small reduction in sales taxes paid.

¹³ See Minnesota Department of Revenue, *Budget for a Better Minnesota: Sales Tax Reform*, February 2013.

¹⁴ The revenue estimates are from Minnesota Department of Revenue, Analysis of H.F. 677, the Governor's Tax Bill, February 26, 2013. The business share of sales tax base broadening revenue includes a portion of new sales taxes on vehicle repairs and warehousing and storage.



The original sales tax proposal encountered stiff opposition from Minnesota business taxpayers. Less than two months after the original budget proposal was submitted, Governor Dayton introduced a revised budget proposal that eliminated the proposal to expand the sales tax base to include additional services purchased by businesses and households; it also eliminated the planned reduction in the sales tax rate.¹⁵

Ohio (2013)

The 2013 tax reform proposal (H.B. 59) offered by Governor John Kasich (R) expanded the sales tax base to include most services and dedicated the additional revenue to a 20% across-the-board reduction in individual income tax rates. The bill took a very broad approach to taxing services by stating that all services are taxable under the sales tax unless specifically exempted. Features of the Ohio proposal included:

- ▶ An annual \$1.8 billion reduction in individual income taxes for households (by FY 2016) due to the 20% rate reduction
- ▶ An additional \$900 million reduction in individual income taxes on business income due to the rate reduction and a new deduction for 50% of business income (up to a maximum deduction of \$325,000) from pass through entities
- ▶ A reduction of \$900 million in sales taxes due to a rate reduction from 5.5% to 5% for currently taxable goods and services

The individual income tax and sales tax rate reductions were partly paid for by a \$2.8 billion increase in sales taxes from an expansion of the base to most services.

Netting out the sales tax rate reduction benefits on currently taxable goods and services, the net sales tax increases on business purchases was an estimated \$1.7 billion. To put this in perspective, the \$1.7 billion is equivalent to the revenue generated by Ohio's business tax, the commercial activity tax (CAT).

Nebraska (2013)

A bill introduced in the 2013 Nebraska legislature (LB 405) and supported by Nebraska Governor Dave Heineman (R) would have increased sales taxes to pay for the elimination of all state income and franchise taxes. The additional sales tax revenue would have come from taxing substantially more business-to-business sales of tangible personal property. Thus, unlike the sales tax base expansion proposals discussed above, the Nebraska legislation would have expanded the sales tax base primarily by removing existing exemptions for business purchases of tangible personal property (and some services). The following describes the magnitude (for fiscal year 2016 when the changes would have been fully effective)¹⁶ of the tax redistributions in the bill:

- ▶ The bill would eliminate the individual income tax, a tax decrease of \$2.2 billion in FY 2016.
- ▶ The elimination of the corporate income and financial institutions tax would reduce state taxes by \$275 million a year in FY 2016.
- ▶ The total income tax reduction, \$2.5 billion, would be mostly offset by a \$2.3 billion increase in sales taxes due to the elimination of sales tax "exemptions." The bill would have raised sales tax revenues by eliminating a number of exemptions, including exemptions for property shipped outside of Nebraska, business purchases of agriculture and manufacturing machinery and equipment, purchases of ingredients and component parts, purchases of seeds and chemicals used in agriculture, and energy and fuel used in agriculture and industry. In addition, other changes would impose sales taxes on purchases and selected sales by health care, education and nonprofit institutions.

¹⁵ The revised budget also reflected an improved revenue outlook that reduced the estimated general fund budget deficit in fiscal year 2015 by \$500 million.

¹⁶ Nebraska Legislative Fiscal Analyst Estimate, Fiscal Note LB 405, February 4, 2013. The revenue estimates are the Legislative Fiscal Office estimates of the bill's general fund tax revenue impacts. They do not include local sales tax option tax increases due to eliminating exemptions.

Governor Heineman described the need for sales tax reform by pointing out that the sales tax exempts more in sales taxes each year (\$5 billion) than it collects (\$1.5 billion).¹⁷ The implication was that the \$5 billion of exemptions represented erosion of the sales tax base over time relative to the base of a comprehensive retail sales tax, and eliminating the exemptions would be a tax policy improvement. The \$5 billion exemption figure appeared to have been taken from estimates of specific exemptions reported in the Nebraska Department of Revenue's 2012 *Tax Expenditure Report*.

In fact, many of the exemptions listed in the *Tax Expenditure Report* were not loopholes that represented base erosion; instead, they were business-to-business transactions that should be excluded from a sales tax because they are not final purchases by households. In other words, the business-to-business sales tax exemptions are fundamental features in the design of a sales tax, not deviations from the ideal.¹⁸

The largest tax increases from eliminating sales tax exemptions would be paid by businesses on their purchases of capital and operating inputs from other businesses. The largest single increase came from imposing the retail sales and use tax on purchases of property by manufacturers that is incorporated into final products ultimately sold at retail. Eliminating this necessary exemption would increase business taxes by \$1.3 billion annually, 57% of the estimated total sales tax increase.¹⁹ Imposing the sales tax on other business input purchases, including machinery and equipment, seeds, and energy, accounted for an additional 20% of the estimated total sales tax increase.

Businesses would also lose exemptions for products shipped outside of Nebraska, a necessary feature of a retail sales tax designed to ensure that the tax operates as a "destination" tax that assigns the taxable sale to the state where final consumption occurs.

Based on information accompanying the introduction of LB 405, businesses would have paid almost 90% of the total Nebraska sales tax increase through taxes imposed on their input purchases of tangible personal property and energy services. In contrast to other base-broadening legislation, most of the increased taxes on business purchases in the Nebraska legislation would have resulted from eliminating exemptions that apply to tangible property, not services. These exemptions are common features found in most state retail sales tax systems. Eliminating them is consistent with the design of a gross receipts tax, not a retail sales tax.

After business groups in agriculture and other industries expressed strong opposition to the proposal to expand the sales tax base by eliminating business-to-business sales tax exemptions, the governor withdrew his support for the proposal. Subsequently, the Nebraska Legislative Revenue Committee voted to indefinitely postpone debate on LB 405.

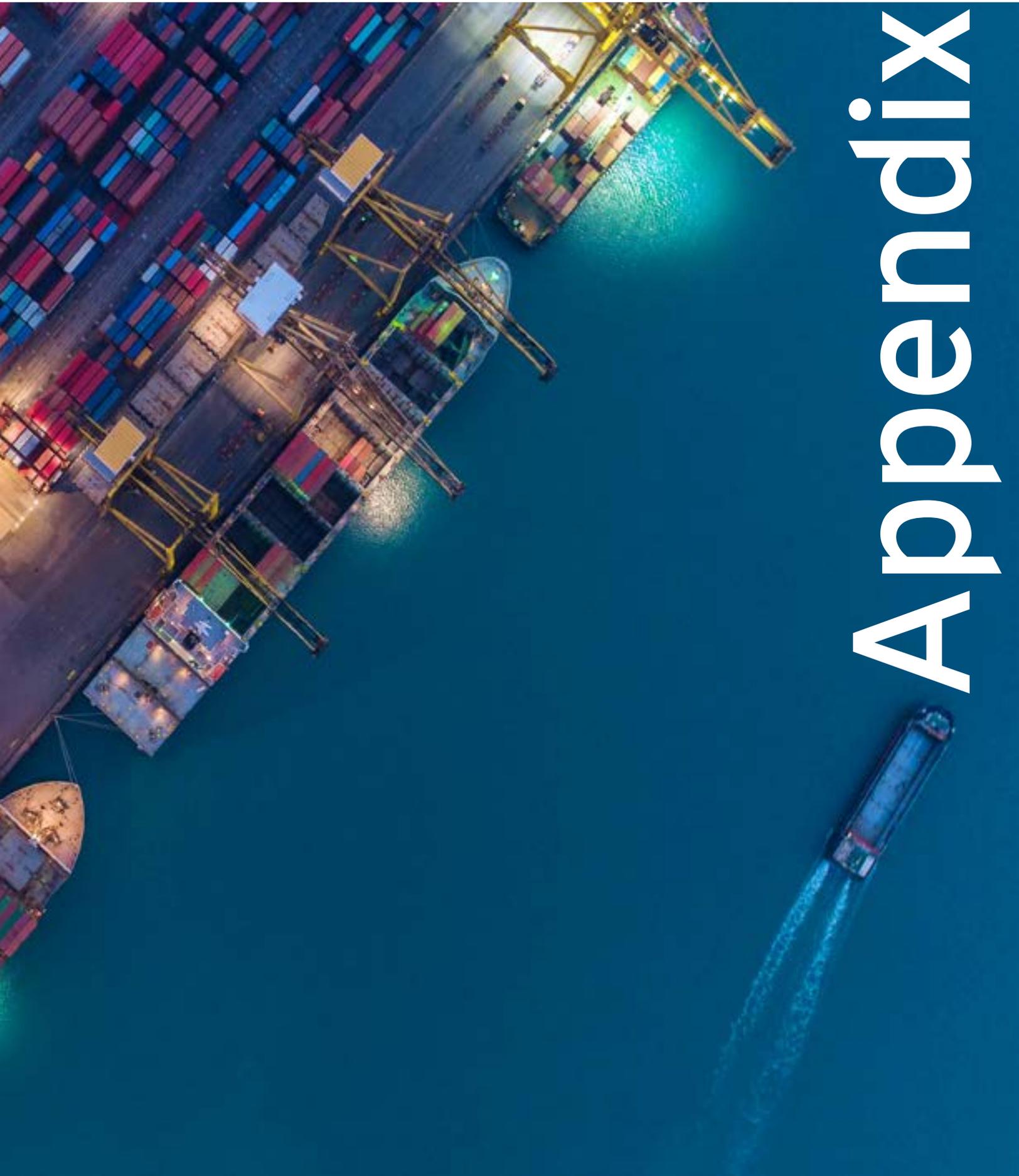
¹⁷ Governor Dave Heineman, 2013 *Tax Reform*, January 2013.

¹⁸ The Nebraska *Tax Expenditure Report* defines "tax expenditure" as "a revenue reduction that occurs ... as a result of an exemption, deduction, exclusion, tax deferral, credit or preferential rate introduced into the tax structure." Nebraska Department of Revenue, 2012 *Nebraska Tax Expenditure Report* (p. ii). This is a standard description found in state tax expenditure reports but it does not differentiate between adjustments that are features of a tax's design and loopholes that are deviations from the basic structure.

¹⁹ The dollar estimates of the increased sales tax revenue from eliminating business exemptions are from the 2012 *Nebraska Tax Expenditure Report*.

Conclusion

The trend toward expanding and modernizing the sales tax base to include more services is not likely to abate. Nonetheless, until states recognize the political imperative and economic efficiency of exempting business inputs from future base broadening efforts, such reforms are likely to fail to achieve their goals. By now, the historic lesson should be clear: the extension of the sales tax base to include household services is consistent with creating a more efficient and modern sales tax system. However, states that include business purchases in sales tax base expansion not only diverge from theoretical norms of an ideal sales tax system, but also risk near-certain defeat of comprehensive base-expansion legislation. Exempting business inputs may lead to other policy tradeoffs, as less revenue can be raised from just taxing household services. However, states must recognize that if their goal is to modernize and broaden the sales tax base, expansion to include more services purchased by households, but not businesses, may be better than no reform at all. An improved understanding of the extent and negative impact of sales taxes imposed on business inputs will enhance the potential for future sales tax reform to better comply with the principles of taxing final consumption of household goods and services while exempting intermediate business inputs.



Appendix

The differential taxation of business inputs by type of input, industry and share in state



Taxability of different industries and business inputs

State and local sales taxes paid by businesses vary by type of business input and by industry, both of which will be analyzed in this appendix. The share of business inputs subject to sales taxes also varies by state, the reasons for which will also be evaluated in this appendix.

Variations by type of business input

The amount of sales taxes paid by business results from several factors, including the general taxability of each type of good and service, the amount of these goods and services purchased by business, and the degree to which goods and services that are generally taxable are purchased by industries receiving specific exemptions. Table 4 shows the share of each major type of business input purchased and the degree to which that type of input purchased by businesses is subject to sales tax. The amount shown in the column is calculated as the taxable purchases of the given input, divided by total purchases of that input.

The results in Table 4 indicate that utility services purchased by businesses are the most frequently taxed type of input. Industrial use of electricity and natural gas is taxed to some degree in 36 states.²⁰ Despite relatively common exemptions for utilities purchased by manufacturers, the significant majority (67%) of electricity and natural gas is purchased by commercial users who often receive no exemption.

The next largest business input subject to sales tax when purchased by businesses is information services. Approximately 36% of information services purchased by businesses are subject to tax, with telecommunications and software constituting commonly taxed items in this category.

The definition of the sales tax base in all states includes tangible personal property, which refers to tangible goods such as manufactured products. While these manufactured goods are generally included in the sales tax bases of most states, manufacturers themselves purchase a large portion of manufactured products for further processing and ultimate resale, which is an exempt activity in nearly every state. As shown in Table 4, 20% of manufactured products sold to other businesses are subject to sales tax, many of which are sales of tangible products sold to manufacturers that are not directly used in the production process and do not become a component part of the final good produced by the manufacturer, as well as sales of goods to commercial enterprises such as service providers.

²⁰ Source: 2017 Services Taxation Survey, FTA



Table 4 – Taxability of business-to-business sales of selected goods and services

Type of input purchased	Share of business-to-business sales of the input type that are subject to tax
Utility services	47%
Information services	36%
Manufactured goods	20%
Other services	13%
Real estate, rental and leasing	6%
Mining products	4%
Agricultural products	3%
Transportation services	2%
Construction	1%
Financial services	1%

Source: Ernst & Young LLP calculations. Note: Percentages shown in this table indicate the amount of the business purchases of the various types of items that would be subject to tax. For example, 47% of utility services that are purchased by businesses are subject to sales tax.

Variations by industry

The variation in the taxability of different types of goods and services as well as the availability of exemptions for certain industries (e.g., manufacturing) and transaction types (e.g., sale for resale) results in significantly different shares of each industry’s input purchases that are subject to tax.

Table 5 shows that construction, information and mining industries have the largest share of their inputs subject to sales tax under the current system. Construction contractors tend to pay tax on the tangible materials and merchandise incorporated into real property, which in most states is the only sales tax that will be paid on those materials and merchandise. Conversely, in the case of the information, mining, and wholesale and retail industries, relatively high taxation of inputs typically results in a pyramiding of taxes, since the outputs of these industries are generally subject to sales tax when purchased by the ultimate consumer.

Table 5 – The percentage of the total inputs purchased by each industry that is subject to tax

(Percentages represent the dollar value of taxable inputs divided by the dollar value of total inputs purchased by each industry)

Industry purchasing inputs	Percentage of industry’s input purchases subject to tax
Construction	70%
Information	24%
Mining	21%
Wholesale and retail	21%
Real estate, rental and leasing	21%
Services	21%
Utilities	12%
Transportation	12%
Finance	12%
Agriculture	5%
Manufacturing	4%

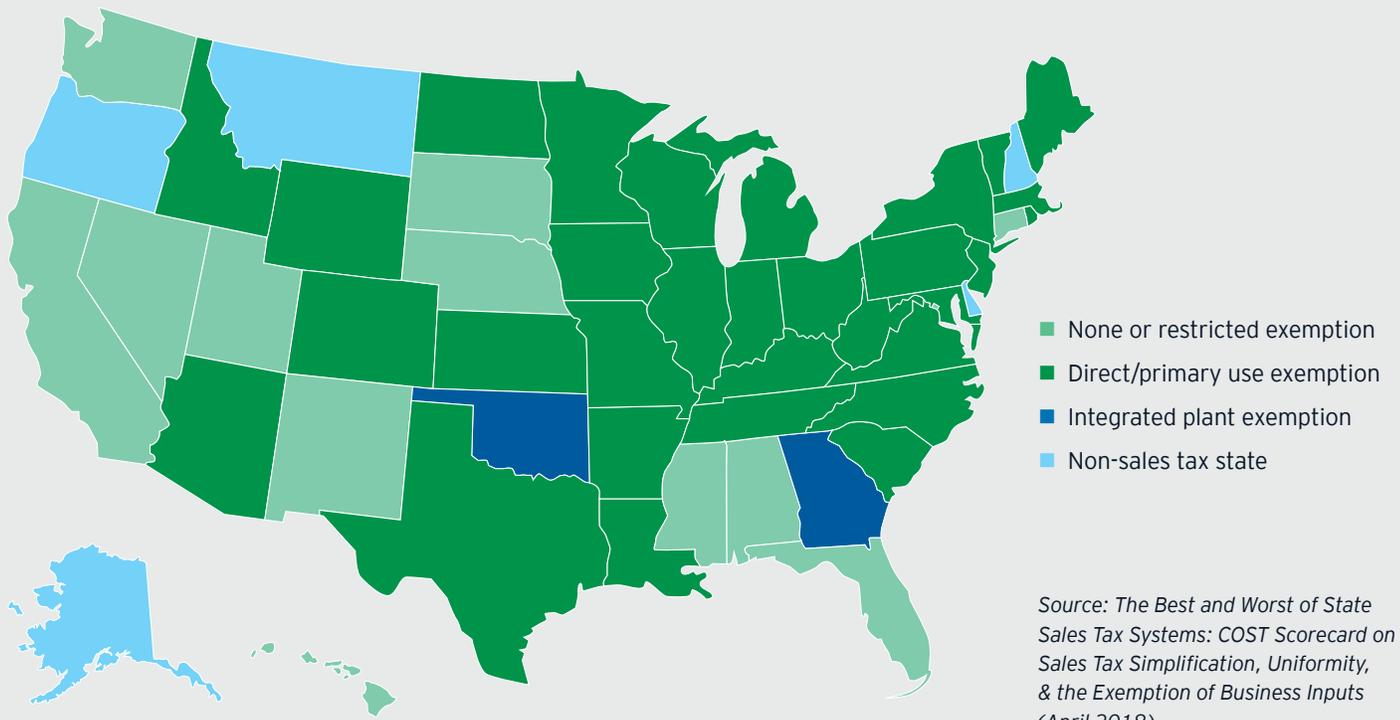
Source: Ernst & Young LLP calculations



While other industries tend to pay sales tax on between 12% and 24% of their input purchases, Table 5 shows that the agriculture and manufacturing industries incur sales tax on 4%-5% of their input purchases. Relatively broad yet incomplete exemptions are generally provided to both sectors in most states. Manufacturing industries are generally exempted on their purchases of tangible inputs (including machinery) that are used directly in the production process or become a component of the finished product, with some states providing a broader exemption for goods that are

used in an integrated production process (see Figure 9). However, very few states have no or very restricted exemptions for the purchase of manufacturing inputs (see Figure 9). Similarly, agricultural inputs are exempted in many states. While the taxable share of inputs purchased by these sectors is lower than many other industries, these sectors use purchased inputs more intensively than most others. Manufacturers purchase \$0.66 of operating inputs for every dollar of output they produce, twice the level of other sectors.

Figure 9 – Manufacturing input sales tax exemptions by state

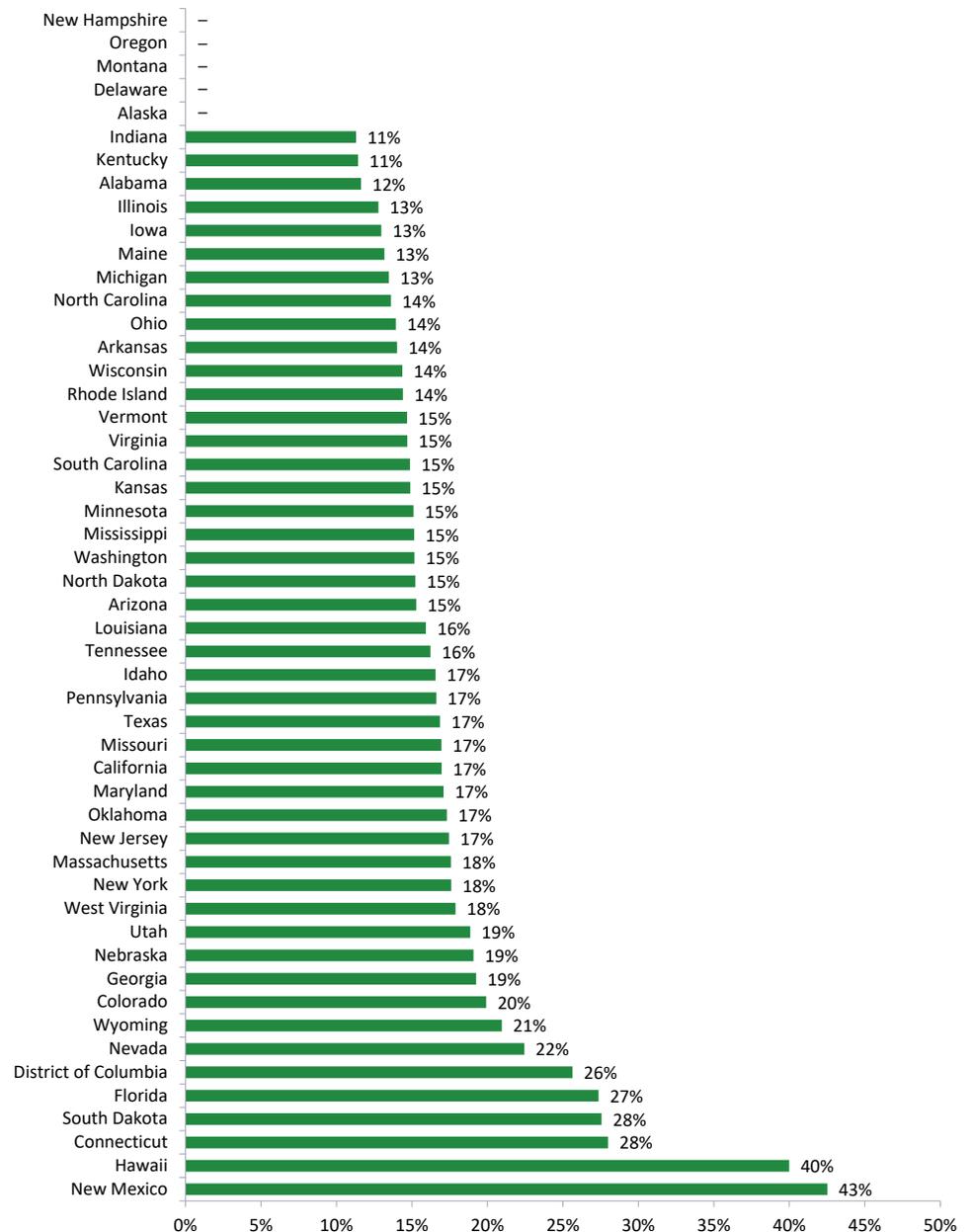


Variations in the share of business inputs subject to tax by state

The variations in sales tax exemptions by type of business input and by industry result in differential shares of business inputs subject to tax in each state. Figure 10 shows the overall share of business input purchases subject to sales tax in each state. The percentages vary due to the composition of industries in each state, as well as the structure of each state's sales tax system.

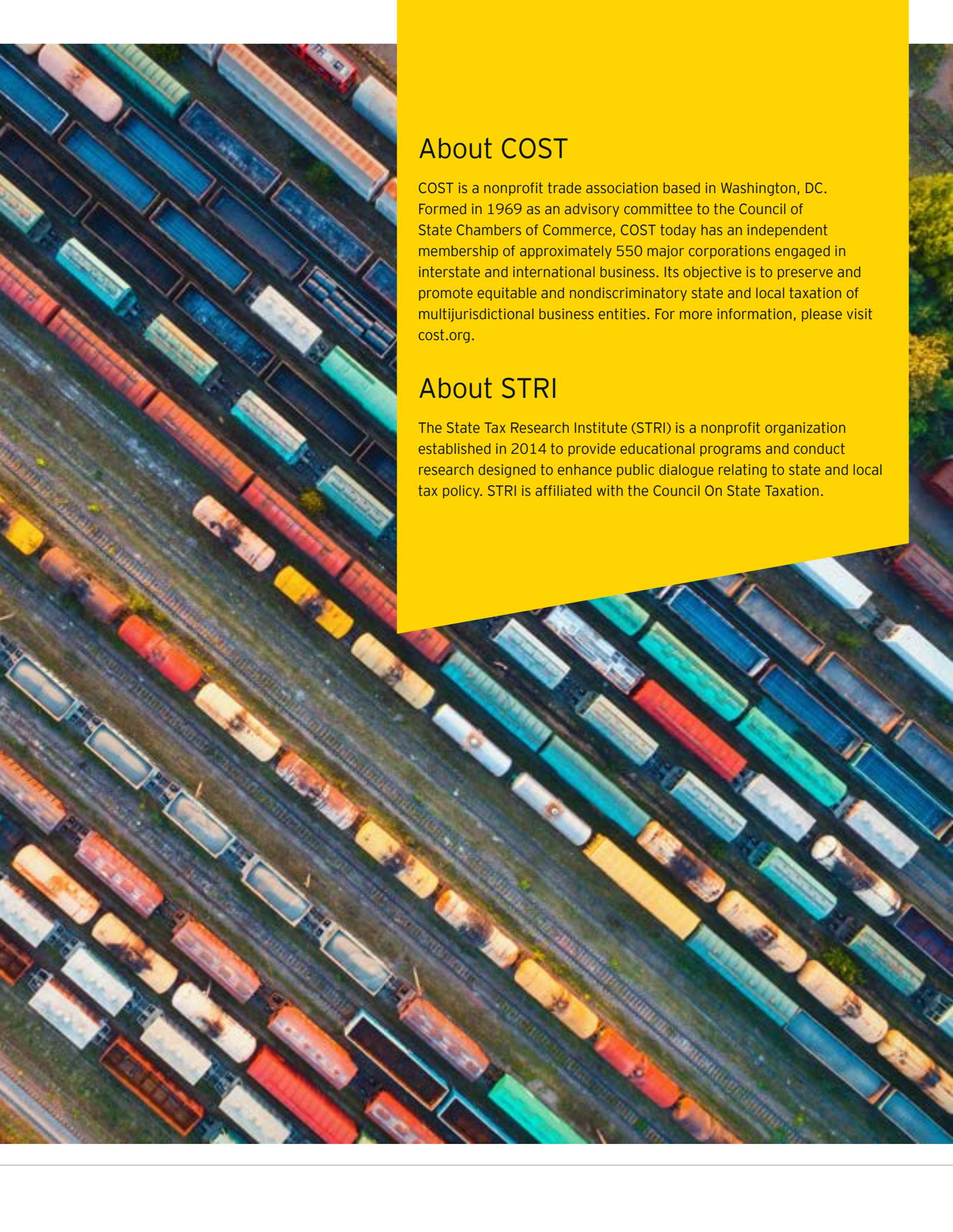
In states such as Indiana, Kentucky and Alabama, manufacturing accounts for a large share of the overall economy and results in a lower share of overall business inputs subject to tax due to the generally broad exemptions for raw materials and equipment purchased by this sector. On the other end of the spectrum are states that tax a large number of services under a sales tax (e.g., Florida, Connecticut) or impose a gross receipts tax, which taxes all services that sellers are not specifically permitted to exempt or deduct (e.g., New Mexico, Hawaii). Connecticut, for example, taxes 62% of business services tracked by the FTA's sales tax survey, which is significantly larger than the average of 30% in all other states.²¹

Figure 10 – Share of business inputs subject to sales tax, by state



Source: Ernst & Young LLP calculations

²¹ Source: 2017 Services Taxation Survey, FTA.

An aerial photograph of a large freight train yard. The image shows numerous train cars of various colors, including blue, red, yellow, and white, arranged in long, parallel rows on multiple tracks. The perspective is from a high angle, looking down at the tracks. The background shows some greenery and a clear sky.

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