AWB

MANUFACTURING COMPETITIVENESS STUDY

June 2021

PUBLISHED BY:

AWB

AND

HIGH PEAK STRATEGY

ASSOCIATION OF WASHINGTON BUSINESS

MANUFACTURING COMPETITIVENESS STUDY

FINAL REPORT

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WRITTEN BY:

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EXECUTIVE SUMMARY

Background

Manufacturing is a leading source of high wage jobs, innovation, and exports. Manufacturing businesses make significant contributions to the local tax base and have a large multiplier effect on other businesses and activities within a regional economy, notably through supply chain purchases and household expenditures by manufacturing workers.

For these reasons, states across the U.S. covet manufacturing investments, and in many cases craft policies and incentives to recruit, retain, and help expand manufacturing businesses in their communities. These policies and incentives range from reduced or eliminated tax obligations, discretionary investments, targeted labor force training programs, streamlined permitting, and land and energy subsidies. Washington displays both competitive strengths and weakness vis-à-vis other states in attracting these investments.

This report, commissioned by the Association of Washington Business, evaluates Washington's competitiveness compared with other states. Analysis includes a review of Washington's performance across a set of key indicators for manufacturing performance and competitiveness and an assessment of select competitor state policies to attract manufacturing investments.

Washington's Competitive Strengths

Among key inputs in manufacturing, Washington has long held strong competitive advantages in electricity costs and skilled workers and talent.

Labor and Talent

Approximately 12.4% of total workers in Washington's statewide manufacturing workforce were engaged in "computer and mathematical" or "architecture and engineering" occupations, ranking the state 7th, behind leaders Arizona and Connecticut, at 18.5% and 15.2%, respectively. This share will vary widely by subsector, however, with a much higher share in aerospace and lesser share in other industries such as food processing.

Washington's manufacturing labor costs are among the highest in the country. These costs in part reflect the specific industrial mix in Washington, which is skewed towards more high-tech, advanced manufacturing activities, and the high labor productivity of these workers. The cost differential nonetheless creates both a perceived and real disadvantage that must be addressed in recruiting new manufacturing investment to the state. Washington state manufacturing workers, across all subsectors, averaged $232,600 in real manufacturing value-added per worker in 2019, the sixth-highest in the U.S.

Energy Costs

Washington state is consistently among the lowest cost states for electricity, owing largely to the high percentage of electricity production sourced from hydroelectric dams. In 2019, the average retail price for electricity was 8 cents per kilowatt-hour (KWH), ranking Washington fourth in the nation However, this ranking is down from the cheapest nationwide from 2013 to 2015.

However, in terms of industrial sector electricity rates, Washington has ranked every year since 2009 as the lowest cost electricity rates for industrial users. Prices have, in inflation-adjusted terms, declined 0.9% since 2009, compared to a national price decline of 1.5%, ranking Washington 29th nationally for rate declines over this period. While Washington has remained the lowest cost state for industrial electricity, there has been greater convergence in average rates with other states over this period, potentially eroding the state's competitive advantage.

Innovation and Exports

While not directly tied to manufacturing, Washington is also among the nation's leading states for innovation across a range of variables. These include presence and supply of knowledge workers, invention patents, high tech jobs, industry investment in R&D, movement towards a green economy, and venture capital. Washington is also a leader in manufacturing exports, with nearly $47 billion in overseas sales in 2019.

Where Washington is Less Competitive

Washington has been less competitive vis-à-vis other states in areas of fiscal and tax policy, infrastructure, regulatory burdens, and workers' compensation insurance premiums.

Business Tax Burden

According to the Council on State Taxes (COST), Washington businesses (including manufacturing and services) paid, on average, $8,000 per employee, inclusive of state and local taxes, among the highest in the U.S. (43rd in the nation). Washington ranked better based on COST's computed total effective business tax rate, ranking 20th lowest in the union at 4.5% (based on total state and local business taxes divided by gross state product). Washington's total state and local business taxes increased 6.6% between FY 2018 and FY 2019, compared with a U.S. state and local business tax increase average of 5.7%.

Washington's tax structure is skewed to relying on business taxes to a greater extent over other forms of fiscal revenues. According to calculations by COST, in FY 2019 49.1% of Washington's state and local tax revenues came in the form of business taxes, ranking the state 36th for business tax share. The U.S. average for business share of state and local taxes in FY 2019 was 44%. Approximately 64.4% of Washington's total state and local

business taxes were from business property tax and business sales tax in FY 2019.

Infrastructure

The quality of roads, ports, bridges, waterways, and aviation assets all affect manufacturer and worker productivity and profitability. According to previous work by the AWB, Washington has a need for up to $222 billion in transportation, water, energy, and communications infrastructure investments in the coming years.

The American Society of Civil Engineers in 2019 gave Washington state a "C-" for overall infrastructure. Some of the lowest category grades were in stormwater systems (D+), roads (C-), and drinking water (C-). Washington was given a C+ for its bridges system, citing nearly 5% of all bridges as "structurally deficient."

In 2019 approximately 72.8% of Washington's roadway mileage (interstate, state, and local) were considered in "acceptable" condition, putting Washington 43rd among 50 states and the District of Columbia. This was down from a high of 98.1% in 2000.

In 2019, 6.1% of Washington's bridges measure by surface area was classified as in "poor condition" by the U.S. Department of Transportation, ranking the state 29th. Since at least 2011, Washington has consistently ranked among the lower half of U.S. states by this measure. Washington's road network is among the most congested in the country, ranking 43rd in terms of commute times spent in congestion.

Regulatory Barriers, Unemployment Insurance, and Workers' Comp

The cost and time required for complying with regulations can deter businesses investment, especially for large industrial projects. According to the Pacific Research Institute (PRI), in 2015 Washington state ranked 42nd for small businesses regulatory burden, with No. 1 representing the least burdensome.

According to the National Academy of Social Insurance Report, Washington state workers' compensation as a share of payroll was the highest in the U.S., at $0.81 per $100 covered wages in 2018. The unemployment insurance tax constitutes an additional cost of doing business for employers. In 2019, Washington ranked 43rd for unemployment tax per employee, across all sectors, at $490 per full-time equivalent worker, according to data published U.S. Department of Labor, Employment and Training Administration.

What are Other States Doing Better than Washington?

Manufacturing is a highly competitive space. States across the U.S. covet the wealth and fiscal revenue-generated benefits of manufacturing activities. This study examines policies in 10 competitor states to Washington, identified based on their manufacturing size and growth in recent years.

Tax incentives. Other states have greater latitude to offer reduced or exempt tax obligations for new manufacturing investments. Many of these incentives in other states are contingent on job creation. Washington state, due to constitutional prohibitions on gifting of public funds, cannot offer incentives based on new investments. For example, the states of Georgia, Florida, Tennessee, Wisconsin, and California, all reward new job creation with reduced or eliminated tax obligations for businesses for a period of time. Indiana and Georgia offered tax credits for capital investments; both credits are applied to a company's corporate income obligation.

Some states—South Carolina and Michigan—allow for property tax reductions for manufacturing investments. No such exemptions or reductions exist in Washington state.

Improved regulatory compliance. Regulatory compliance is a challenge across all states. However, there are examples of efforts in other states to ease business compliance. For example, the Texas Business Permit Office assists businesses with navigating Texas 'permitting licensing and regulatory environment and aids in resolving permitting issues that arise. Similar business assistance programs exist in South Carolina and Tennessee.

Some states also periodically revisit existing rules and regulations and make recommendations for improvements. The Texas Business Permit Office makes recommendations for eliminating, consolidating, simplifying, expediting, and improving permit procedures affecting business enterprises. In Ohio, administrative agencies must review their administrative rules every five years. If they ascertain that a rule has a harmful effect on businesses, there is a review process through the legislature to decide if the rule should be removed.

Recommendations

Manufacturing is a highly competitive space, and for good reasons. Washington state policymakers should consider the following approaches to improving the state's competitiveness for attracting and manufacturing investments:

- **Protect and continue to invest in Washington's core competitive advantages**. One of Washington's strongest competitive strengths has been energy costs, which have historically been among the lowest in the nation. Losing this competitive advantage would be detrimental to the state's long-term competitiveness. Policymakers should continue to ensure this low cost advantage while not compromising on clean energy and renewable energy objectives.
- **Prioritize infrastructure investments**. Washington has more than $222 billion in unaddressed infrastructure needs, ranging from transportation, energy, water, and communications systems. The state should focus on funding these projects to protect and preserve the manufacturing sector's long-term competitive strengths in Washington state.
- **Continually benchmark Washington's tax incentives to ensure the state is competitive relative to other states**. The state should periodically assess how it performs vis-à-vis other states in areas of tax rates and tax incentives in the manufacturing sector. Benchmark Washington's tax rates to make sure tax policies remain competitive relative to other states.
- **Review Washington's existing regulatory system and determine areas of improvement**. The 2015 State Auditor's report laid out areas where Washington can improve the ease by which businesses comply with state regulations. This report should be updated and followed with a strategy for implementing the report's recommendations. As part of this process, each year Washington should convene a panel of manufacturing businesses to understand the challenges and hurdles to new investment due to regulatory compliance and permitting processes.

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INTRODUCTION AND BACKGROUND

Manufacturing is a leading source of high wage jobs, innovation, and exports. Manufacturing businesses make significant contributions to the local tax base and have a large multiplier effect on other businesses and activities within a regional economy, notably through supply chain purchases and household expenditures by manufacturing workers.

The Association of Washington Business's *Manufacturing & Technology Study* (2021) found that there were twenty-three counties (23) in Washington state with at least 1,000 manufacturing jobs. Subsectors such as aerospace & space, other transportation equipment (including shipyards and trucks), agri-tech, biotech, and other durable and non-durable goods were both large employers and supported broad-based economic activities across the state economy.

For these reasons, states across the U.S. covet manufacturing investments, and in many cases craft policies and incentives to recruit, retain, and help expand manufacturing businesses in their communities. These policies and incentives range from reduced or eliminated tax obligations, discretionary investments, targeted labor force training programs, streamlined permitting, and land and energy subsidies.

The Association of Washington Business (AWB) desires an assessment of the competitive landscape for manufacturing investments across the U.S. This study looks at policies and initiatives in other states and how these compare with Washington's own efforts to recruit, retain, and help expand manufacturing businesses and investments.

This study specifically evaluates:

- Washington's overall performance in manufacturing and across several business climate measures.
- Policies being offered and used to support manufacturing in competitor states.
- Policies and initiatives that should be considered for use in Washington state.

Findings will support AWB's efforts to promote state legislation and policy designed to support robust growth of the manufacturing sector in Washington state.

Defining "Competitiveness"

In this study, we define competitiveness as the ability to present a compelling case for manufacturing investment vis-à-vis other state competitors. Manufacturing investment decisions depend on a variety of factors, ranging from input costs (e.g., labor, land, energy), regulatory hurdles, infrastructure, tax obligations, and availability to find and recruit qualified workers. Competitiveness is a net sum of these categories of relative strength and weakness.

The impact of each element will vary. For example, while labor force concerns may sometimes supersede other considerations, tax incentives and reduced fiscal obligations can be deal-closers that make or break a location decision. Likewise, the uncertainty over a permitting process can deter businesses from pursuing greenfield investments. In the case of labor costs, these will in part be a function of labor availability for specific, high demand trades and skills important to manufacturers, while also reflecting labor productivity. For the remainder of this report, we assess Washington's competitiveness using the following framework:

Exhibit 1. Competitiveness by Manufacturing Input and Consideration

Input Category	Measures and Comparators	Possible Advantages in Other States
Taxes and Fiscal Policy	Overall tax obligations; property, business, and sales tax rates; rates on intermediate purchases.	Reduced or exempt tax obligations.
Human Capital & Labor and Innovation	Talent availability, labor costs, government investments in R&D; university research.	Government investments in workforce training and credentials; state subsidies for research activities.
Energy and Land Costs	Retail and industrial electricity prices. Land price is also a function of regulation (see below).	Washington is a national leader, but other states can make investments to catch up to Washington's low costs.
Infrastructure	Investments and quality of existing infrastructure; spending on infrastructure.	Innovative infrastructure spending policies and programs.
Regulatory Costs and Certainty	Regulatory compliance burden, perceptions of business climate.	Streamlining regulatory systems, more (real or perceived) business-friendly climate.

Methods

This report uses multiple data sources and reports. These include (but are not limited to) federal and state datasets, studies comparing competitiveness across states, policy and incentive information published by states and national organizations, and state legislative and administrative code.

Organization of Report

The remainder of this report is organized as follows:

- **Overall manufacturing performance**. How Washington has performed as a manufacturing state over time.
- **Existing studies and indicators in state manufacturing competitiveness**. A review and evaluation of existing studies on competitiveness.
- **Leading manufacturing states**. A data-driven selection of leading states in manufacturing for subsequent competitiveness analysis.
- **Policies and incentives in support of manufacturing**. A review of leading policies and incentives designed to attract, retain, and/or support the expansion of manufacturing. In Washington state and across ten competitor states.
- **Discussion and Recommendations for Washington state**. Policies and incentives elsewhere Washington state should consider in support of manufacturing.

OVERALL MANUFACTURING PERFORMANCE COMPARED WITH OTHER STATES

Overall, Washington has historically been a national leader in manufacturing. Washington is among the nation's leading states for total manufacturing value-added, manufacturing value added per worker, and manufacturing exports, ranking No. 10, No. 6 and No. 8 respectively (**Exhibit 2**). In 2019, the average value added per manufacturing worker in Washington state was $232,600, compared with the U.S. average of $194,400. Washington manufacturing exports are primarily in the form of aircraft, but the state is also a major producer and exporter of processed foods, medical devices, advanced machinery, and many other physical goods.

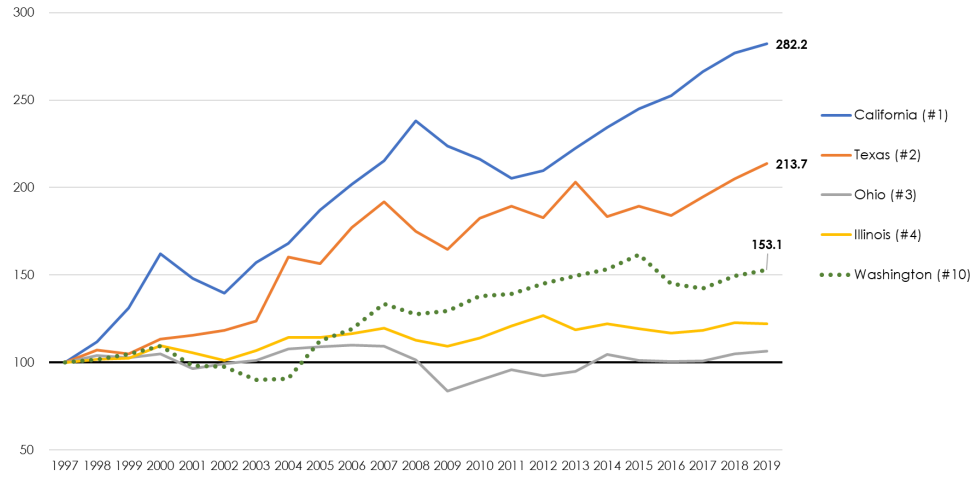
Among the largest states for manufacturing value-added, California (No.1) has seen its manufacturing real GDP grow more than 180% since 1997, far outpacing the growth of every other major state manufacturing economy. Washington state, which ranks 10th in manufacturing GDP, has seen its manufacturing GDP grow in real terms more than 50% since 1997 (**Exhibit 3**).

Exhibit 2. Washington Manufacturing Performance, 2019

	Value	Washington Rank
Manufacturing GDP, 2019 (bils $)	$68.3	10
Real compound annual growth rate, 2009-2019	1.7%	28
Manufacturing GDP per Worker	$232,600	6
Compound annual growth rate, 2009-2019	0.7%	28
Manufacturing Exports, 2019 (bils $)	$46.6	8

Sources: U.S. Bureau of Economic Analysis (2021); Federal Reserve Bank of St. Louis (2021).
CAGR = "compound annual growth rate."

Exhibit 3. Largest States for Manufacturing GDP in 2019 (#) and Growth Indexed to 1997



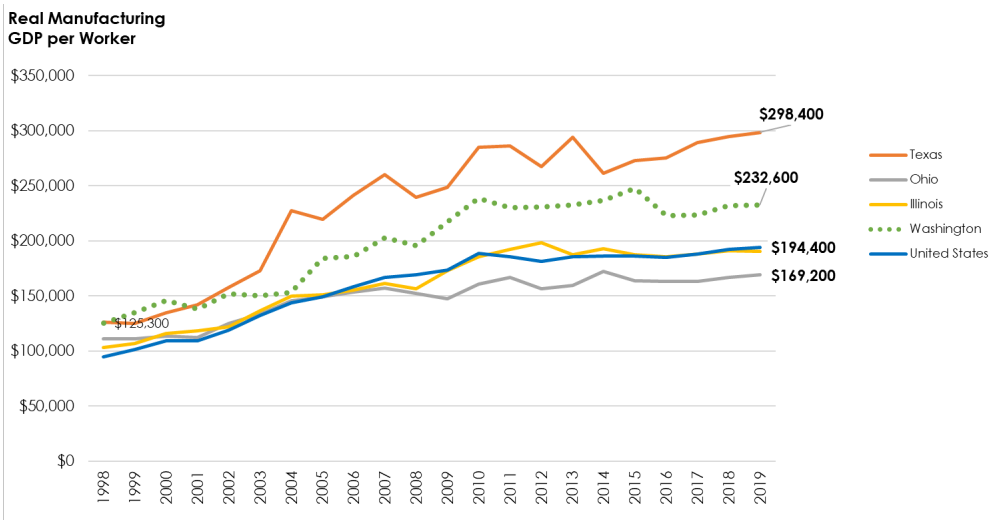
Source: U.S. Bureau of Economic Analysis (2021).

Washington ranked fifth among all states for real manufacturing GDP per worker in 2019, at $232,600 (**Exhibit 4**). However, Washington has lagged in growth in real manufacturing GDP per worker. Between 2009 and 2019, Washington real manufacturing value-added per worker increased at an average compound annual growth rate (CAGR) of 0.7% (28th overall), as compared with 1.1% for the U.S. overall (**Exhibit 5**).

This contrasts with Washington's overall GDP per worker performance (across all sectors), which grew 1.9% per year overall during the same period, ranking the state second behind only North Dakota. These rankings vary widely by subsector. For example, Washington ranked second in the nation in 2019 for valued-added in durable goods (**Exhibit 6**). Washington's No. 2 ranking for "petroleum and coal products" is due to the presence of refineries on Puget Sound and the high value-added per worker of this subsector.[1]

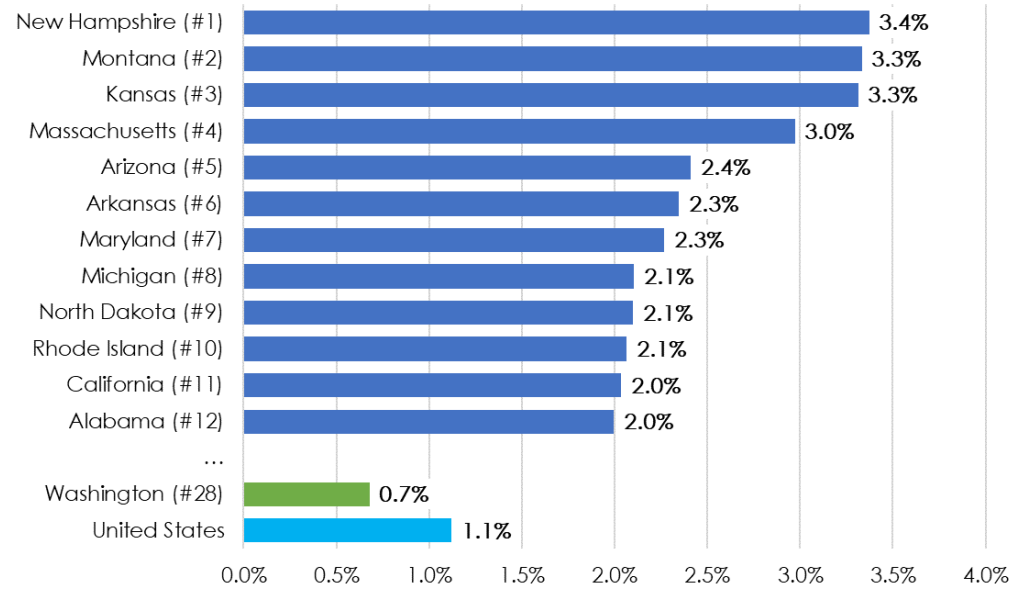
[1] The unusually high value-added per worker in Washington state ($3,207,500 per worker) is consistent with the industry overall. The national value-added per worker in the sector in 2019 was more than $2.2 million per worker.

Exhibit 4. Real Manufacturing GDP per Worker, Largest States for Manufacturing GDP in 2019, Washington, and U.S., 1998-2019 (2019 $)



Source: U.S. Bureau of Economic Analysis (2021).
Note: original values reported in 2012 dollars. Estimates above inflated to 2019 dollars.

Exhibit 5. Growth in Real Manufacturing Value-added per Worker, 2009-2019, States with At Least 2% Annual Growth, Washington, U.S.



Source: U.S. Bureau of Economic Analysis (2021).

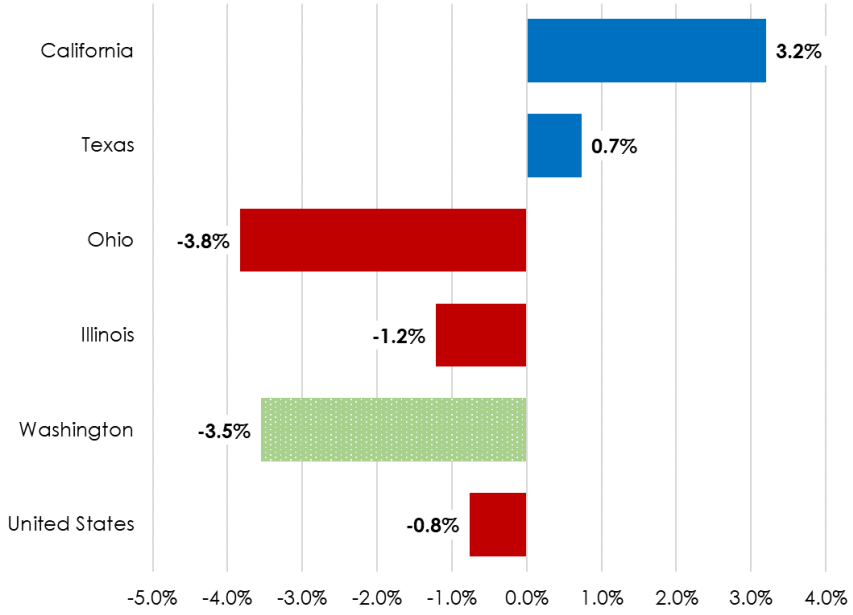
Exhibit 6. Washington State GDP per Covered Worker and State Ranking, Manufacturing Subsectors, 2019 (2019 $)

Sector/Subsector	GDP per Worker, 2019	Rank
Durable goods manufacturing	$223,700	2
Wood product manufacturing	$110,300	14
Nonmetallic mineral product manufacturing	$159,900	17
Primary metal manufacturing	$177,600	11
Fabricated metal product manufacturing	$109,900	17
Machinery manufacturing	$112,600	39
Computer and electronic product manufacturing	$212,100	16
Electrical equipment, appliance, and component manufacturing	$145,800	26
Motor vehicles, bodies and trailers, and parts manufacturing	$212,000	6
Other transportation equipment manufacturing	$312,200	5
Furniture and related product manufacturing	$68,300	30
Miscellaneous manufacturing	$119,500	25
Nondurable goods manufacturing	$188,500	21
Food and beverage and tobacco product manufacturing	$107,800	30
Textile mills and textile product mills	$68,000	34
Apparel, leather, and allied product manufacturing	$65,000	23
Paper manufacturing	$177,600	17
Printing and related support activities	$93,300	20
Petroleum and coal products manufacturing	$1,947,200	2
Chemical manufacturing	$319,800	24
Plastics and rubber products manufacturing	$93,100	40

Sources: U.S. Bureau of Economic Analysis (2021); U.S. Bureau of Labor Statistics (2020).
Note: aerospace GDP is not reported by the U.S. Bureau of Economic. This is due to non-disclosure rules designed to prevent the public from discerning company-specific information.

Despite growth in the manufacturing sector, the share of Washington's state GDP directly attributable to manufacturing has declined in absolute terms by 3.5 percentage points from 1997 to 2019. This compares with a 0.8 percentage point decline nationwide and 3.2 percentage increase in California (**Exhibit 7**). This does not necessarily imply a negative drag on Washington's economy, since a large share of this decline in overall GDP share was due to displacement in GDP by the information & communication technology sector. This in part reflects the state's diversification into other sectors, notably the tech industry. The ICT grew at a faster pace; manufacturing is a relatively smaller slice of a larger pie.

Exhibit 7. Change in Manufacturing Share of State GDP, 1997 to 2019, Among Five Largest State Manufacturing Economies, Washington State, and U.S.



Source: U.S. Bureau of Economic Analysis (2021).

EXISTING STUDIES AND INDICATORS IN STATE MANUFACTURING COMPETITIVENESS

Several studies released in recent years compare state competitiveness based on such areas as government and fiscal policy, technology, innovation, transportation & infrastructure, and regulatory regimes. These studies can be high-level assessments that miss important nuances in each state. Nonetheless, they provide a lens into state-by-state comparisons and are influential in government policy and business decision-making. In the sections below, these studies are married with relevant data by category to provide a fuller picture of how Washington compares with the rest of the U.S.

The following reports were reviewed, either for select sections or in their entirety:

Exhibit 8. Competitiveness Studies Reviewed

Report	Source	Area(s)
18th Annual Beacon Hill Institute State Competitiveness Report	The Beacon Hill Institute for Public Policy Research	Overall competitiveness; taxes and fiscal policy
2020 New State Economic Index	Information Technology & Innovation Foundation	Human Capital & Labor and Innovation
Quantifying Regulation in U.S. States with State RegData 2.0	Mercatus Center, George Mason University	Regulatory costs and certainty
Total State and Local Business Taxes, State-by-State Estimates for FY 19	Council on State Taxes (COST)	Taxes and fiscal policy
2019 Washington Infrastructure Report Card	American Society of Civil Engineers	Infrastructure, ports, trade
Oregon Workers' Compensation Premium Rate Ranking, Calendar Year 2020	Oregon Department of Consumer and Business Services	Human Capital & Labor and Innovation
The 50-State Small Business Regulation Index	Pacific Research Institute	Regulatory costs and certainty

Taxes and Fiscal Policy

Taxes and fiscal policy can impact business climate and business costs. In some instances, fiscal policy can have a positive impact on economic growth and manufacturing expansion, while in other situations taxes may in net be a significant burden on businesses.

The Council on State Taxation (COST) in October 2020 released its *Total State and Local Business Taxes* report (Phillips & Sallee, 2020), which compares overall tax burdens on businesses across all 50 states, the District of Columbia, and the U.S. overall. Business taxes per employee and total effective business tax are computed by COST. The authors define business taxes to mean taxes "that are the legal liability of businesses." Examples include property taxes, general sales taxes paid for the purchase of production inputs, a business's share of excise taxes, corporate income

taxes, and business licenses.[2] Nationwide, the largest source of business taxes in fiscal year 2019 was "general sales and use tax on inputs," representing nearly one-third (31.8%) of all state businesses taxes. The largest source of local business taxes was "property taxes on business property," at 76.1% (Phillips & Sallee, 2020, p. 7).

According to the report calculations, Washington state's total effective business tax rate—based on state and local taxes divided by gross state product—was 4.5% in fiscal year 2019, ranking Washington state 20th among all states and the District of Columbia. However, Washington ranked 43rd for business taxes per employee ($8,000).[3] Missouri ranked first, with $3,800 per employee in 2019 (**Exhibit 9**). Washington's total state and local business taxes increased 6.6% between FY 2018 and FY 2019, compared with a U.S. state and local business tax increase average of 5.7% (Phillips & Sallee, 2020, p. 9).

Washington's tax structure relies heavily on business taxes. According to calculations by COST, in FY 2019 49.1% of Washington's state and local tax revenues came in the form of business taxes, ranking the state 36th for business tax share. The U.S. average for business share of state and local taxes in FY 2019 was 44% (Phillips & Sallee, 2020, p. 14). Approximately 64.4% of Washington's total state and local business taxes were from business property tax and business sales tax in FY 2019 (p. 23). Business taxes include taxes paid on corporate income and, in cases such as Washington, gross receipts.[4]

[2] The full list of business taxes included by COST include: property taxes paid by businesses on real and personal property, including taxes on income-generating residential rental property; general sales taxes paid by businesses on purchases of goods and services used in production, excluding sales taxes on final goods paid by consumers; a portion of excise taxes, such as businesses' share of motor fuel taxes and other selective sales taxes; corporate income taxes; taxes on insurance premiums and utility gross receipts, which are in some cases levied in lieu of other business entity taxes; individual income taxes on pass-through business income, except for taxes withheld on employee earnings, which are not considered business taxes; unemployment insurance taxes paid by employers; business licenses, including general business licenses, specific industry and occupational licenses, and commercial motor vehicle licenses; and severance taxes on mining, natural gas, oil and other natural resources (Phillips & Sallee, 2020, p. 5).

[3] Business taxes per employee calculated using 2018 private-sector employment from Bureau of Labor Statistics Quarterly Census of Employment and Wages and FY19 total state and local business tax collections (Phillips & Sallee, 2020, p. 12).

[4] According to the report, "Ohio's commercial activity tax, Texas' margin tax, New Hampshire's business enterprise tax, Nevada's commerce tax, and Washington's business and occupation tax are included in corporate income tax revenue. These taxes are based on gross receipts or modified gross receipts and constitute the primary business entity tax in each state" (Phillips & Sallee, 2020, p. 3).

Exhibit 9. Total State and Local Tax Burden per Employee, Fiscal Year 2019, by State

Rank	State	Business Taxes per Employee	Rank	State	Total Effective Business Tax Rate
…		…	…		…
43	Washington	$8,000	24	Washington	4.5%
…		…	…		…
10	Oregon	$4,900	10	Maryland	3.9%
9	Wisconsin	$4,800	9	Oregon	3.8%
8	Utah	$4,800	8	Ohio	3.7%
7	Ohio	$4,700	7	Massachusetts	3.7%
6	Idaho	$4,700	6	Connecticut	3.7%
5	Georgia	$4,600	5	Indiana	3.5%
4	North Carolina	$4,300	4	Georgia	3.4%
3	Indiana	$4,300	3	North Carolina	3.3%
2	Michigan	$4,100	2	Missouri	3.3%
1	Missouri	$3,800	1	Michigan	3.3%
	U.S. Average	$6,500		U.S. Average	4.5%

Source: Council on State Taxation (2020).
Note: business taxes included corporate income tax, which for Washington state, Nevada, Ohio, and Texas includes gross receipt tax revenues.

Human Capital, Innovation, and Labor Costs

The Information Technology & Innovation Foundation (Atkinson & Foote, 2020) every few years publishes the *State New Economic Index*. The report assesses the extent to which states are knowledge-based, globalized, entrepreneurial, IT-driven, and innovation-oriented. In the 2020 report, Washington ranked fifth overall across all categories.

The state ranked highest in "innovation capacity" (No. 3) and "economic dynamism" (No. 10), while performing weakest in "knowledge jobs" (No. 18). Washington's high rank in innovation capacity ranking was supported by having the fourth highest percentage of its workforce in high-tech industries (7.3%), third highest for share of workforce who are scientists and engineers (5.8%), second most patents per 1,000 workers (2.4%), second and fifth highest levels for R&D spending and venture capital as a shares of gross state product (7.7% and 0.47%).

The Beacon Hill Institute for Public Policy Research each year releases its Annual State Competitiveness Report (2020). The 18th annual report, published in 2020 using data from 2018, includes a set of indicators for technology capturing workforce dynamics, patent production, and degrees conferred in science & engineering fields, and federal spending on research. Washington performed strongly in workforce and federal research, but less so in degree production and science & engineering R&D relative to gross state product (**Exhibit 10**).

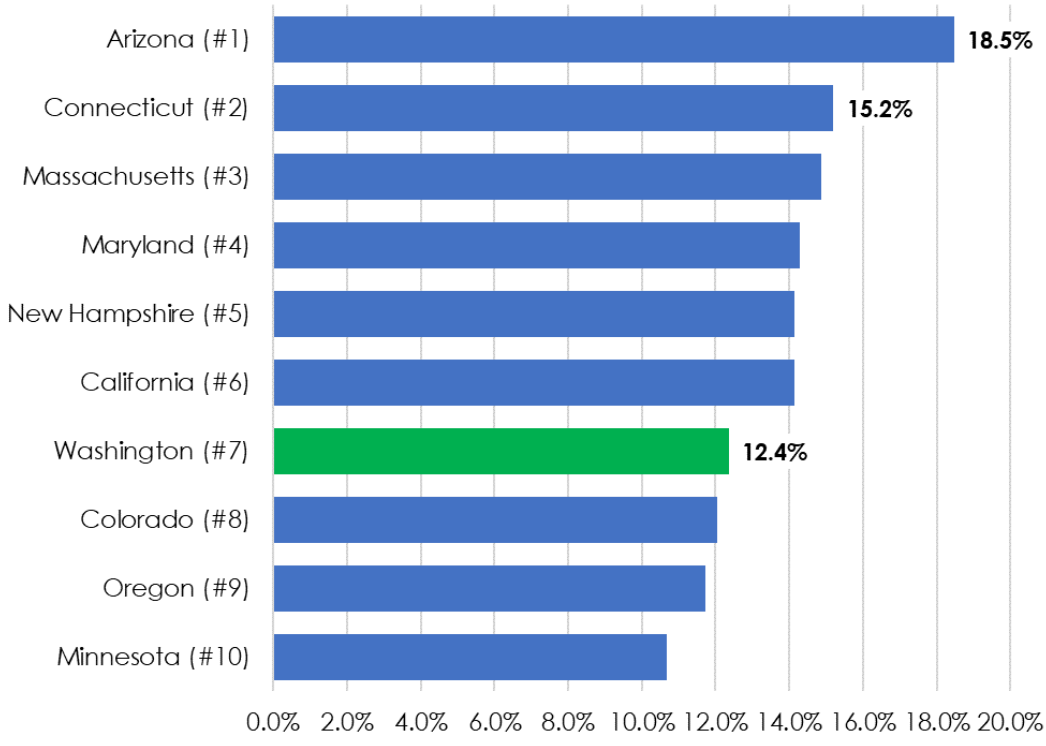
Exhibit 10. Beacon Hill Institute Washington State Rankings for "Technology"

Competitiveness	Indicator	Index	Rank
Strengths	NIH support to institutions per capita	5.91	6
	Patents per 100,000 inhabitants	7.43	4
	Scientists and engineers as % of labor force	7.26	3
	Employment in high-tech industry as % of total employment	6.61	5
Weaknesses	Academic Science and Engineering R&D per $1,000 GSP	4.63	31
	Science & Engineering grad. students 100,000 inhabitants	4.41	38
	S&E degrees awarded per 100,000 inhabitants	4.36	36

Source: Beacon Hill Institute (2020).

A talented and skilled workforce is a key consideration for site selection. Approximately 12.4% of total workers in Washington's statewide manufacturing workforce were engaged in "computer and mathematical" or "architecture and engineering" occupations, ranking the state seventh, behind leaders Arizona and Connecticut, at 18.5% and 15.2%, respectively (**Exhibit 11**). This share will vary widely by subsector, however, with a much higher share in aerospace and lesser share in other industries such as food processing.

Exhibit 11. Share of "Computer and Mathematical" and "Architecture and Engineering" Occupation Workers in Manufacturing Workforce, 2019



Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics (2020).

Labor costs are another consideration. Washington's average manufacturing salary, across all subsectors, was $81,200 in 2019, excluding benefits and other wage supplements, ranking the state 46th (or fifth-most expensive). The average wage was 16% higher than the national average in 2019. However, the average wage is heavily influenced by a state's industrial mix, which will vary widely. For example, Washington ranked third most expensive average wage for aerospace in 2019, but 13th for ship and boat building and 22nd for "fruit and vegetable preserve and specialty processing," the third largest subsector for employment (**Exhibit 13**).

Moreover, wages are often (albeit not perfectly) correlated with productivity. As discussed earlier, Washington ranks among the nation's leaders in manufacturing value-added per worker, at $232,600 per worker in 2019 (fifth in the nation). Higher wages may at least partly reflect the greater productivity of these workers—enabled through skills, knowledge, and experience—compared with similar jobs in the same industry elsewhere.

Exhibit 12. Private Sector Manufacturing Average Wages, 2019

State	Average Wage, 2019
…	…
Washington (#46)	$81,200
…	…
Maine (#10)	$57,200
New Mexico (#9)	$55,700
North Dakota (#8)	$55,200
Nebraska (#7)	$52,700
Alaska (#6)	$52,700
Montana (#5)	$51,700
South Dakota (#4)	$50,200
Mississippi (#3)	$50,100
Arkansas (#2)	$49,200
Hawaii (#1)	$46,500
Unites States	$69,900

Source: U.S. Bureau of Labor Statistics (2020).

Exhibit 13. Average Private Sector Wages for Washington's Largest Manufacturing Subsectors (those representing at least 2.5% of all manufacturing jobs) and Rank with Other States, 2019

Subsector	Share of Statewide Manufacturing Jobs	Average Wage	Rank (1 = Highest Wage)
Aerospace product and parts manufacturing	29.2%	$119,000	3
Ship and boat building	6.4%	$62,800	13
Fruit and vegetable preserving and specialty	3.9%	$48,800	22
Beverage manufacturing	3.4%	$42,500	20
Electronic instrument manufacturing	3.3%	$104,500	11
Architectural and structural metals mfg.	2.9%	$61,500	6
Plastics product manufacturing	2.7%	$53,900	16

Source: U.S. Bureau of Labor Statistics (2020).
Note: subsectors based on largest employment by 4-digit North American Industry Classification System (NAICS) codes.

Another important contributor to the cost of doing business tied to labor is workers' compensation. According to a recent report by the National Academy of Social Insurance (2020), Washington state workers' compensation as a share of payroll was the highest in the U.S., at $0.81 per $100 covered wages in 2018. However, Washington has reduced its ratio of workers' compensation as a share of covered wages fell 26.4% between 2014 and 2018, the ninth-largest reduction over that period (**Exhibit 14**).

Exhibit 14. Workers' Compensation Costs per $100 Covered Wages by State, 2018 (National Academy of Social Insurance Report)

Rank	State	Workers' Comp per $100 Covered Wages, 2018	Change, 2014-2018	Rank for Change, 2014-2018
51	Washington	$0.81	-26.4%	9
...		...	...	...
10	Wisconsin	$0.19	-17.4%	21
9	New Hampshire	$0.18	-21.7%	12
8	District of Columbia	$0.18	-5.3%	45
7	Virginia	$0.17	-19.0%	17
6	Tennessee	$0.16	-42.9%	1
5	Arizona	$0.16	-27.3%	7
4	Arkansas	$0.14	-17.6%	20
3	Utah	$0.13	-13.3%	32
2	Indiana	$0.12	-7.7%	41
1	Texas	$0.11	-15.4%	25
	U.S.	$0.39	-15.2%	

Source: National Academy of Social Insurance (2020).

The unemployment insurance tax constitutes an additional cost of doing business for employers. In 2019, Washington ranked 43rd for unemployment tax per employee, across all sectors, at $490 per full-time equivalent worker, according to data published U.S. Department of Labor, Employment and Training Administration (**Exhibit 15**).

Exhibit 15. Unemployment Insurance Tax by State, 2019

Rank	State	Tax on Average FTE	Tax as Share Taxable Wage Rate
…		…	…
43	Washington	$490.00	0.9%
…		…	…
8	Alabama	$98.00	1.2%
7	Virginia	$93.00	1.2%
6	South Dakota	$92.00	0.6%
5	New Hampshire	$78.00	0.6%
4	Nebraska	$78.00	0.9%
3	Tennessee	$75.00	1.1%
2	Mississippi	$70.00	0.5%
1	Florida	$46.00	0.7%

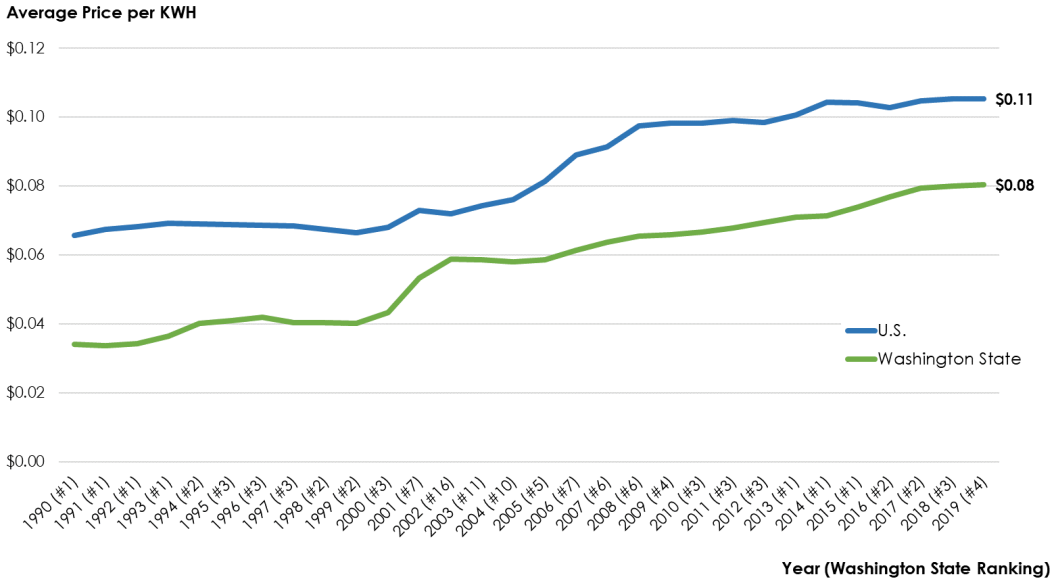
Source: U.S. Department of Labor, Employment and Training Administration (2020).

Energy Costs

Washington state is consistently among the lowest cost states for electricity, owing largely to the high percentage of electricity production sourced from hydroelectric dams. In 2019, the average retail price for electricity was 8 cents per kilowatt-hour (KWH), ranking Washington fourth in the nation (**Exhibit 16**). This ranking is down from the lowest cost nationwide from 2013 to 2015 (U.S. Energy Information Administration, 2021). Washington was overtaken as the lowest cost state for electricity in 2016 by Louisiana, which has remained lowest cost state through 2019. In 2018 Washington fell to third lowest cost state, behind Louisiana and Arkansas. Washington fell one more spot in 2019, to fourth, behind Louisiana, Oklahoma, and Idaho.

One potential explanation for the modest, gradual increase in energy prices is the new investment in solar and wind generation sources mandated in the 2008 Energy Independence Act (EIA). The act requires electric utilities serving at least 25,000 retail customers to use renewable energy and energy conservation. There are 18 utilities subject to the EIA; these utilities provide 80% of the electricity sold to Washington retail customers (Washington State Department of Commerce, 2021).

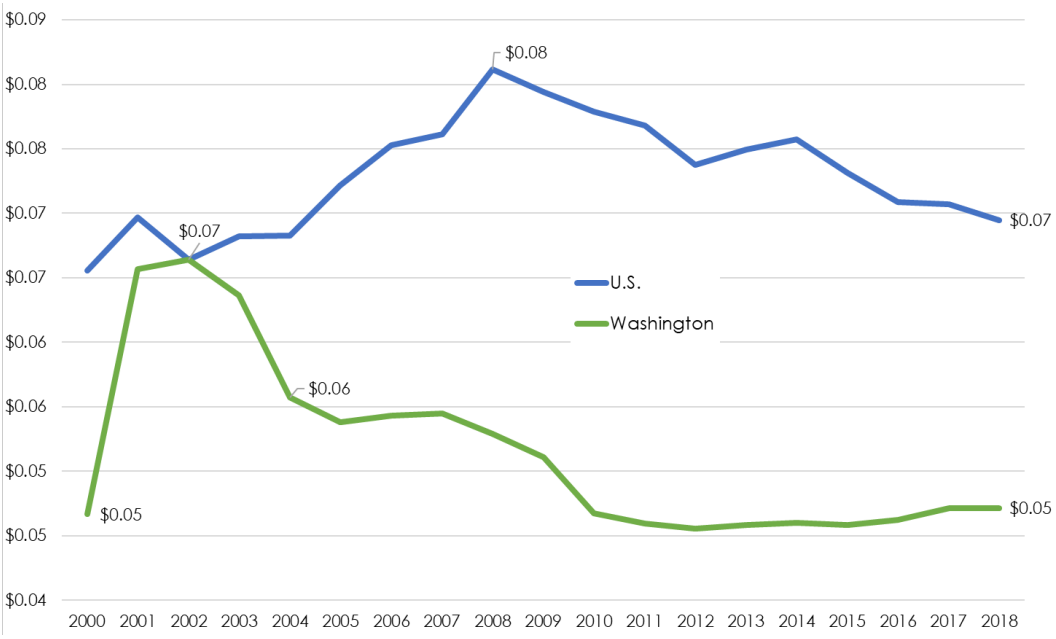
Exhibit 16. Electricity Cost per Kilowatt Hour, Washington State, and State Rank, 1990-2019 (State Rankings in Parentheses)



Source: U.S. Energy Information Administration (2021).

Industrial sector electricity prices are slightly lower, at $13.52 per million British Thermal Units (BTUs), or the equivalent of 5 cents per KWH (**Exhibit 17**). Since 2009, Washington has ranked every year as the lowest cost industrial sector use electricity rates. Prices have, in inflation-adjusted terms, declined 0.9% since 2009, compared to a national price decline of 1.5%, ranking Washington 29th nationally for rate declines over this period. While Washington has remained the lowest cost state for industrial electricity, there has been greater convergence in average rates with other states over this period, potentially eroding the state's competitive advantage.

Exhibit 17. Industrial Sector Electricity Prices ($/kilowatt hour), Washington State and U.S., 2000-2018 (2018 $)



Source: U.S. Energy Information Administration (2021).

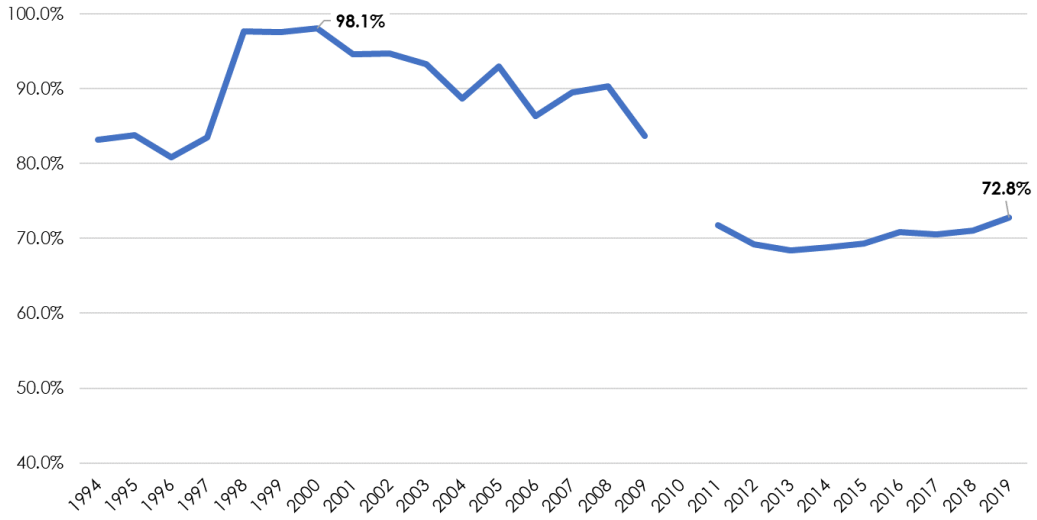
Infrastructure

A reliable and robust state infrastructure system reduces transportation costs and increases predictability for deliveries and shipments, strengthening the competitiveness of business vis-à-vis those in other states. Trade, both imports and exports, is already a major aspect to doing business in manufacturing. Access to freight and intermodal systems has become crucial for many manufacturers across the country, both for accessing key inputs, such as machined components and materials from abroad, and the shipment of finished components or products. Conversely, the lack of a reliable and robust transportation system raises businesses costs, both direct and implicit, and harms productivity, including from congestion that affects workers 'ability to arrive on schedule.

The latest American Society of Civil Engineers' state report for Washington state (2019) gave the state a composite grade of "C-" for overall infrastructure. Some of the lowest category grades were in stormwater systems (D+), roads (C-), and drinking water (C-). Washington was given a C+ for its bridges system, citing nearly 5% of all bridges as "structurally deficient."

According to the most recent data from the U.S. Bureau of Transportation Statistics (2021), in 2019 approximately 72.8% of Washington's roadway mileage (interstate, state, and local) were considered in "acceptable" condition, putting Washington 43rd among 50 states and the District of Columbia. This was down from a high of 98.1% in 2000 (**Exhibit 18**).

Exhibit 18. Percent of Washington's Roadways Considered "Acceptable," 1994-2019



Source: U.S. Bureau of Transportation Statistics (2021).
Note: data not available for 2010.

Washington's bridges are also ranked among the lower half among states regarding condition. In 2019, 6.1% of Washington's bridges measure by surface area was classified as in "poor condition" by the U.S. Department of Transportation, ranking the state 29th (Utah, with just 0.8% of bridge surface area classified as "poor," was ranked first). Since at least 2011, Washington has consistently ranked among the lower half of U.S. states by this measure (**Exhibit 19**).

Exhibit 19. Percentage of Washington's Bridge Surface Area Classified as "Poor" and State Ranking, 2011-2019

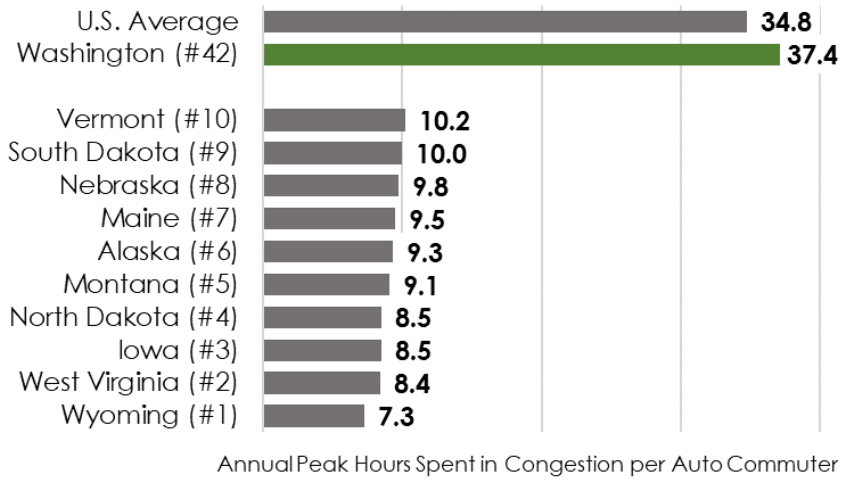
Year	Share of Bridge Area in "Poor" Condition	Rank (lowest % = #1)
2011	9.1%	30
2012	8.9%	30
2013	8.6%	34
2014	7.9%	31
2015	8.0%	32
2016	8.6%	36
2017	7.0%	31
2018	7.5%	33
2019	6.1%	29

Source: U.S. Bureau of Transportation Statistics (2021).

Congested roadways and consequent extended commute times, shipping delays, and fuel costs adversely impact business profitability and worker productivity. Washington's urban roadways are among the most congested in the U.S., with an average of 37.4 hours spent in congestion per auto commuter across the state in 2019, based on data gathered by traffic data

firm INRIX and reported by the Reason Foundation (**Exhibit 20**). The weighted national average for congestion commute hours in 2019 was 34.8 hours annually per auto commuter. However, many of the leading states for low commute congestion times are much less urbanized. More industrial and urbanized states, such as Texas, Maryland, Illinois, Massachusetts, Georgia, California, New York, and New Jersey all performed worse than Washington by this measure.

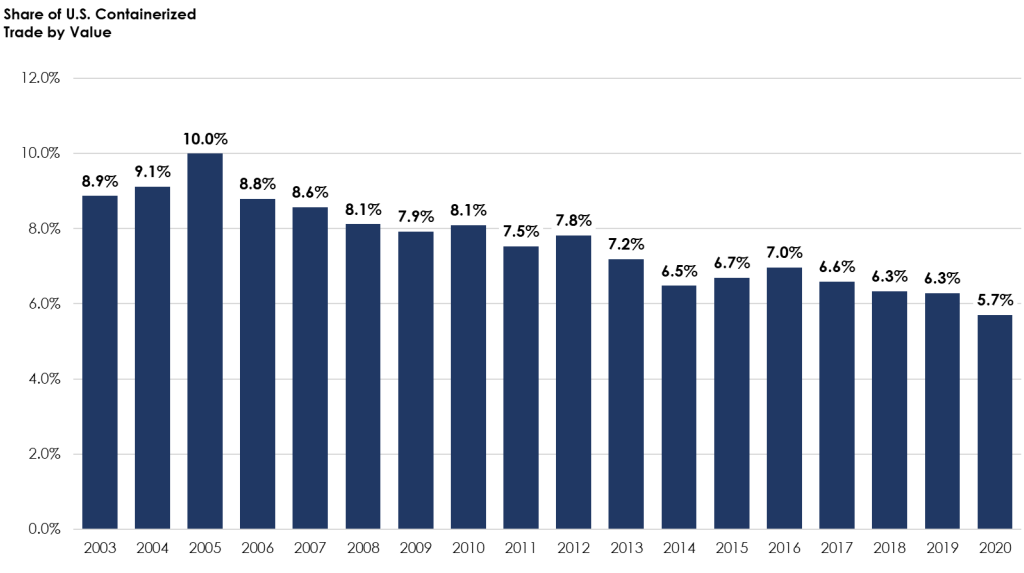
Exhibit 20. Annual Peak Hours Spent in Congestion per Auto Commuter by State, 2019



Source: Feigenbaum, Purnell & Fields (2019).

Manufacturers increasingly rely on access to a trade and logistics systems to ferry the movement of both core manufacturing inputs and final products to customers. Washington's ports system includes airports, seaports, and river ports. The state has two major container ports—the ports of Seattle and Tacoma, combined as The Northwest Seaport Alliance—along with bulk and break-bulk facilities on the Puget Sound, Pacific Ocean, and Columbia and Snake Rivers. In 2020, Washington ranked fifth for combined two-way maritime trade by tonnage across all modes (bulk, break-bulk, and containerized) and seventh for containerized value. However, Washington's share of containerized value handled at U.S. ports (imports and exports) has been in a general downward decline since 2005, falling from 10.0% to 5.7%. In addition to other U.S. ports, Washington is also in competition for containerized shipments from Canadian ports (Vancouver and Prince Rupert).

Exhibit 21. Washington State Ports' Share of U.S. Containerized Cargo (Imports and Exports) Handled at U.S. Ports by Value, 2003-2020



Source: U.S. Census Bureau, USA Trade® Online (2021).

With respect to state and local transportation infrastructure spending, Washington spent $12,800 per capita in 2018, ninth-highest in the U.S. Inflation-adjusted per capita spending between 2011 and 2018 increased overall by 3.2%, ranking the state 16th in the U.S. Overall U.S. spending per capita in 2018 was $11,700, and grew 2.6% between 2011 and 2018 (**Exhibit 22**). However, comparisons across states are hindered by wide variation in each state's physical geography and climate, such as mountains, extreme temperatures (high and low), rainfall, and water bodies, all of which influence the level of costs required for regular maintenance or roads and other infrastructure.

Exhibit 22. Overall Growth in Real State and Local Per Capita Spending on Infrastructure, 2011-2018

Rank	State	Overall Growth in Real Per Capita Spending, 2011-2018
…		…
16	Washington	3.2%
…		…
10	Illinois	6.2%
9	Virginia	6.3%
8	Maryland	6.3%
7	Hawaii	6.8%
6	New York	8.7%
5	Vermont	8.9%
4	Minnesota	9.4%
3	California	13.2%
2	North Dakota	13.6%
1	Oregon	16.4%
	United States	2.6%

Source: U.S. Bureau of Transportation Statistics (2021).

Modern infrastructure systems represent not just transportation assets (e.g., roads, bridges), but also energy, water, and communications assets. In a recent needs assessment by the Association of Washington Business (2019), necessary upgrades to Washington's infrastructure system will require more than $220 billion in the coming years. These investments include $146.5 billion in highways and load roads, $13.6 billion in aviation projects, and $34.9 billion in stormwater and natural resource investments (**Exhibit 23**).

Exhibit 23. Association of Washington Business Infrastructure Needs Assessment, Washington State, 2019

Type of Project	Estimated Investment	Description
Bridges	$5.2 billion	Replace and upgrade existing bridges, e.g., I-5 bridge over the Columbia River.
Highways and Local Roads	$146.5 billion	Reduce congestion.
Freight Rail	$2.0 billion	Enhancing trade system.
Aviation	$13.6 billion	Airport investments at Sea-Tac and Spokane International.
Ports	$5.7 billion	Marine ports.
Communications	$450 million	Rural broadband.
Water	$5.5 billion	Drinking water, storage, and agriculture.
Wastewater	$4.1 billion	Water treatment and conveyance.
Stormwater and Natural Resources	$19.4 billion	Stormwater infrastructure.
	$15.5 billion	Fish and habitat.
Energy	$3.5 to 4.8 billion	Upgrades to the electric transmission network.
	$20.8 million	Electric vehicle-charging facilities improvements.
Estimated Total	**~$222 billion**	

Source: Association of Washington Business (2019).

Regulatory Costs and Certainty

Regulations are designed to support the public good, such as clean water, building standards, and labor protections. Businesses oftentimes do not necessarily dispute the purpose or intent of the regulation, but desire a more efficient, streamlined, and predictable regulatory system. For example, in 2015 the Washington State Auditor's Office found that Washington lacks a long-term strategy or lead agency for identifying and prioritizing "opportunities for targeted, multi-agency coordination of regulatory processes, and to facilitate that coordination on an ongoing basis" (Washington State Auditor's Office, 2015, p. 3). Regulatory costs are also typically more burdensome on smaller businesses. According to Crain & Crain (2014), manufacturing firms with fewer than 50 employees have regulatory costs that are 77% higher than for the average manufacturing firm.

The challenge of streamlining regulations is not unique to Washington state. However, drawing state-by-state comparisons can be elusive. For example, The Mercatus Center at George Mason University developed a state-by-state comparison of regulations based on the presence of key words in administrative codes, such as "shall," "must," and "prohibit." Based on their analysis, researchers identified more than 196,000 restrictions on companies in the Washington Administrative Code (among the highest in the U.S.), in addition to 1.09 million restrictions in the federal code (Broughel & McLaughlin, 2020). However, these comparisons are meant only as a proxy for regulatory burden and would thus require much more in-depth analysis to evaluate the degree of overlap or compliance challenges and costs. The volume of administrative code can also in some cases reflect tax exemptions, thereby representing a reduction in regulatory burdens.

California-based Pacific Research Institute (PRI) in 2015 ranked Washington state 42nd for small businesses regulatory burden, with #1 representing the least burdensome (Winegarden, 2015). According to the PRI study, in 2015 Washington ranked at or near the bottom in unemployment insurance (No. 48), minimum wage regulations (No. 50), family leave regulations (No. 47), and land use regulations (No. 44).

LEADING STATE COMPETITORS FOR MANUFACTURING

Selection of Comparator States

States for comparison on economic development policies were selected based on the following criteria: 1) ranking by size of manufacturing workforce in 2019; 2) ranking by net change in manufacturing workforce, 2010-2019; and 3) ranking by percentage change in manufacturing workforce, 2010-2019. A composite ranking was developed based on the above criteria to arrive at a final list of leading states to consider. For example, Michigan was the fourth largest state in 2019 for size of manufacturing workforce but ranked first in net change and second in percentage change between 2010 and 2019. California is the largest state by

manufacturing workforce but ranked 32nd in percentage change in manufacturing workforce between 2010 and 2019 (**Exhibit 24**).

Between 2010 and 2019, Washington state improved from 11th to 10th nationwide for real manufacturing GDP per worker. The state's real manufacturing per worker during this period grew at a compound annual growth rate of 1.2%, compared 1.5% nationally (**Exhibit 25**).

Exhibit 24. Leading States for Manufacturing Employment and Growth, 2019 and 2010-2019 (ranks in parentheses)

Composite Rank	State	Manufacturing Emp, 2019	Net Change, 10-19	Percentage Change, 10-19
…		…	…	…
14	Washington	290,300 (#15)	35,500 (#13)	13.9% (#20)
…		…	…	…
10	Wisconsin	483,200 (#8)	53,900 (#9)	12.6% (#24)
9	California	1,322,500 (#1)	87,800 (#4)	7.1% (#32)
8	Tennessee	355,000 (#13)	56,600 (#8)	19.0% (#14)
7	South Carolina	258,300 (#18)	50,400 (#10)	24.3% (#6)
6	Georgia	404,100 (#11)	61,000 (#7)	17.8% (#15)
5	Ohio	700,800 (#3)	80,500 (#5)	13.0% (#22)
4	Texas	906,000 (#2)	95,800 (#2)	11.8% (#25)
3	Florida	384,000 (#12)	76,500 (#6)	24.9% (#5)
2	Indiana	541,100 (#7)	93,600 (#3)	20.9% (#10)
1	Michigan	625,700 (#4)	150,300 (#1)	31.6% (#2)

Data source: U.S. Bureau of Labor Statistics (2020).

Exhibit 25. Real Manufacturing Output among Select States, 2010 and 2019 (mils 2019 $)

State	2010	2019	Rank, 2010	Rank, 2019	CAGR
…	…	…	…	…	…
Washington	$61,556	$68,253	11	10	1.2%
…	…	…	…	…	…
Michigan	$77,038	$101,054	9	7	3.1%
Indiana	$98,832	$104,735	6	5	0.6%
Florida	$42,888	$60,595	19	14	3.9%
Texas	$231,307	$270,714	2	2	1.8%
Ohio	$99,931	$118,620	5	3	1.9%
Georgia	$53,308	$62,042	14	13	1.7%
South Carolina	$30,965	$40,536	25	22	3.0%
Tennessee	$44,343	$55,253	18	18	2.5%
California	$274,227	$357,913	1	1	3.0%
Wisconsin	$55,823	$65,407	13	11	1.8%
U.S. Overall	$1,932,626	$2,215,345			1.5%

Sources: U.S. Bureau of Economic Analysis (2021); Federal Reserve Bank of St. Louis (2021).

Exhibit 26 below summarizes select, key comparator indicators between Washington state and the 10 other states evaluated in this analysis.

Exhibit 26. Washington State and Select Comparator State Indicators and Subgroup Rankings

State	Real Manufacturing GDP per Worker Growth (%), 2010-2019 U.S. Bureau of Economic Analysis	Business Taxes per Employee ($thousands) Council on State Taxes	Total Effective Business Tax Rate Council on State Taxes	Share of Computer, Mathematical, and Engineering Occupation Workers in Manufacturing Workforce, 2019 U.S. Bureau of Labor Statistics	Private Sector Manufacturing Average Wage, 2019 U.S. Bureau of Labor Statistics	Industrial Sector Electricity Prices, 2018 U.S. EIA	Percent of Road Miles Classified as "Acceptable" U.S. Bureau of Transportation Statistics
Michigan	-0.2%	$4.1	3.3%	8.3%	$68,500	$0.071	78.5%
Indiana	-1.4%	$4.3	3.5%	6.8%	$63,300	$0.074	77.4%
Florida	1.4%	$5.7	4.8%	8.8%	$63,900	$0.077	87.1%
Texas	0.5%	$7.7	5.0%	10.6%	$79,800	$0.054	78.1%
Ohio	0.6%	$4.7	3.7%	6.8%	$62,900	$0.070	83.6%
Georgia	-0.1%	$4.6	3.4%	5.4%	$58,200	$0.060	92.9%
South Carolina	0.6%	$5.0	4.5%	8.0%	$60,900	$0.061	81.9%
Tennessee	0.6%	$5.0	4.1%	5.5%	$60,300	$0.057	94.7%
California	2.3%	$7.7	4.3%	14.1%	$98,200	$0.132	64.8%
Wisconsin	0.5%	$4.8	4.0%	7.3%	$59,100	$0.073	82.5%
Washington	*-0.3%*	*$8.0*	*4.5%*	*12.4%*	*$81,200*	*$0.047*	*72.8%*
Within Group Rank							
Michigan	9	1	1	5	8	7	7
Indiana	11	2	3	8	6	9	9
Florida	2	8	10	4	7	10	3
Texas	6	9	11	3	9	2	8
Ohio	4	4	4	9	5	6	4
Georgia	8	3	2	11	1	4	2
South Carolina	3	6	8	6	4	5	6
Tennessee	5	6	6	10	3	3	1
California	1	9	7	1	11	11	11
Wisconsin	7	5	5	7	2	8	5
Washington	*10*	*11*	*8*	*2*	10	*1*	*10*

Note: rankings based on "1" representing the most competitive. For some indicators, such as industry sector electricity prices and total effective business tax rate, the lowest value equates to a ranking of 1, whereas for others, e.g., real manufacturing GDP per worker growth, the highest value equates to 1.

WASHINGTON STATE POLICIES IN SUPPORT OF MANUFACTURING

Washington faces some important barriers in business recruitment compared with other states.

However, the state can support firms indirectly through investments in educational training and other programs. For example, Washington has some discretionary funds available for attracting or retaining manufacturing businesses, albeit not direct transfers of financial resources to businesses as found in other states, such as Texas and Ohio. These include:

- **The Governor's Strategic Reserve Fund**. A discretionary job creation/retention incentive. Uses include workforce development, technical or planning assistance, environmental analysis, or relocation assistance.
- **Community Economic Revitalization Board (CERB) Funds**. Funding for local governments and federally recognized tribes for public infrastructure projects which supports private business growth and expansion. Eligible projects include domestic and industrial water, storm water, wastewater, public buildings, telecommunications, and port facilities (Washington State Department of Commerce, 2020).
- **Clean Energy Fund**. Provides funds for the development, demonstration, and deployment of clean energy technology (Washington State Department of Commerce, 2020).

Washington state is also able to make targeted investments in training in support of business. For example, Washington state has its own customized employment training program through the community and technical college system, similar to Texas's Skills Development Fund. Washington state also runs the Jobs Skills Program—a 50:50 cost-sharing program between the state and employer—administered through the state community and technical college system. The Work Start program provides customized training using the Governor's Strategic Reserve Funds.

Washington state tax incentives take the form of reduced B&O tax rates and tax credits for select activities (e.g., for aerospace preproduction development expenditures, hiring of new employees and research & development in rural counties), and tax exemptions (Washington State Department of Revenue, 2020).[5] There are also retail sales and use tax deferrals for manufacturers constructing eligible investments projects. Washington's High Tech B&O tax credit expired in 2015.

[5] Examples of preferential B&O tax rates include for solar energy systems and components of solar energy systems; semiconductor materials; aluminum; wood biomass fuel; and wood and timber products.

Workforce Training

Washington has three workforce training programs. These programs provide a broad depth of training options for businesses that utilize these programs to locate in Washington and create new jobs or expand the existing workforce at a business.

The Job Skills Program is focused on helping workers access training in communities with high unemployment rates and high levels of poverty and enhance economic growth and employment in those regions. The program also supports areas of new and growing industry, locations where the local population does not have the skills needed to stay employed and regions impacted by large-scale job loss. The program funds half of the training costs and the partner employer covers the other half either through paying for the training, providing an in-kind contribution or a combination of the two. Community colleges provide the training for employees. Eligible businesses include manufacturing and trainings may be held for new employees, retraining and training to upgrade skills that will make employees eligible for promotions or pay increases (Washington Community and Technical Colleges, 2020).

The purpose of the Customized Employment Training Program is to increase employment opportunities for workers at a new or existing business. Community and Technical Colleges educate participants in basic education and skills, English language for non-native speakers, technical skills, and job-related instruction. After the training is complete the business repays the costs to the Washington State Board for Community and Technical Colleges interest free (State Board for Community and Technical Colleges, 2020)

Businesses work with the Department of Commerce's Washington Work Start team to create a customized training program to fit their needs and can also include pre-employment activities. Services are provided at little to no cost to the business. The training program can take place at a local community or technical college or at the business itself. Targeted industries in this program include advanced materials, agriculture/food manufacturing, clean tech, forest products, information communication technology, life science/global health, maritime and locally targeted industries. To be eligible, participation in the program must result in a minimum of 15 permanent full-time hires or involve a critical need to increase the skillset of existing workers in a target industry for recruitment, expansion, or retention purposes.

Work Start program funds are intended to be used to prevent the closure of a business or facility, prevent the relocation of a Washington state business to another state or country or to recruit a business to the state. Training is limited to new workers, except in the cases in which training an incumbent will lead to a promotion that enables a new hire to take the individual's place (Training the Workforce of the Future, n.d.).

STATE POLICIES FOR ATTRACTING MANUFACTURING INVESTMENT

Washington's policies in support of manufacturing are industrywide, designed to support both incumbent businesses and those considering locating in the state. However, many other states across the U.S. are less inhibited in providing targeted incentives and recruitment policies. These policies and investment attraction tools are discussed among Washington's select list of competitors below.

The following policies have been selected for consideration in Washington state. These policies are organized by the following categories: 1) tax credits and incentives; 2) workforce development; 3) regulatory compliance and permitting; 4) infrastructure, ports, and trade; 5) targeted investments; and 6) innovation and research & development.

Tax Credits and Incentives

The states studied use tax credits in a variety of ways to incentivize job creation. Some of these directly prioritize manufacturing and others are much broader but applicable to the manufacturing industry. States have used tax credits to drive job creation and expansion in rural areas and economically distressed areas. These tax credits range from a credit per job created, property tax abatement, sales tax exemptions, corporate income and franchise tax reductions and incentives to use renewable energy.

Examples of taxes reviewed in other states are provided in **Exhibit 27** below.

Exhibit 27. Examples of Tax Incentive Programs Available in Competitor States

Category	State	Program	Description
Tax Incentives & Credits and Job Creation	Georgia	Quality Jobs Tax Credit	Credits range from $2,500 to $5,000 per job, per year for five years.
	Georgia	Job Tax Credit	Focused on distressed areas.
	Florida	Tax refund for job creation	Credits for job creation in rural county.
	Florida	Capital Investment Tax Credit	Used to attract businesses creating at least 100 jobs in the state and making at least a $25 million capital investment.
	Tennessee	Job Tax Credit	$4,500 per job tax credit to offset 50% of the franchise and excise taxes in any given year with a carry forward of up to 15 years.
	Wisconsin	Business Development Tax Credit	Refundable tax credit to help reduce the Wisconsin income/franchise tax liability.
	California	California Competes Tax Credit	Businesses sign agreements committing to minimum employee compensation, retention periods and investment milestones to achieve in order to receive the tax credit and agree on the credit distribution period.
	Indiana	Hoosier Business Investment Credit	Corporate income tax credit calculated as a percentage of the eligible capital investment to support the project.
Investment Tax Incentives	Georgia	Investment Tax Credit	For companies engaged in manufacturing or telecommunications support that have operated in Georgia for at least three years.
Property Tax Incentives	Michigan	PA 198 Industry Property Tax Abatement	Incentive for manufacturers and technology operations to build new plants, expand existing plans, renovate aging plants, or add new machinery and equipment.
	South Carolina	Property tax exemption	Exempts 14.2857% of the property tax value of the manufacturing property from property taxation up to a state limit of $85 million.
Sales Tax Exemptions on Manufacturing Purchases			*All States*
Area-specific Incentives	South Carolina	Corporate Income Tax Moratorium	Available in distressed communities.
Tax Incentives for Renewable Energy Usage	Michigan	Renewable Energy Renaissance Zones Program	Tax exemptions for facilities that create energy, fuels or chemicals directly from renewable energy resources.
	Texas	Renewable Energy Incentives	Tax exemption to manufacturers, sellers and installers of solar energy devices.

Tax Incentives & Credits and Job Creation

Several states have a tax credit tied to the creation of new jobs. These include Georgia, Florida, Wisconsin, California, and Indiana.

Georgia

In Georgia, companies in all industries can qualify for the Quality Jobs Tax Credit, which requires businesses to create at least 50 new jobs within a 24-month period with wages that are at or about 110% of the county average wage. Credits range from $2,500 to $5,000 per job, per year for five years. (Georgia Department of Economic Development, 2021). Georgia also has the Job Tax Credit and manufacturing is a specified industry qualifying for the credit. Counties with the highest levels of economic distress receive a higher tax credit. To qualify, each job must have a minimum 35-hour work week and offer health insurance. A company can earn the tax credit for each new job it creates and maintains for five years. Each year that a company creates new jobs above the required threshold, a new five-year cycle starts. For both programs, the tax credit is applied to corporate income tax liability (Georgia Department of Economic Development, 2020).

Florida

For Florida's target industry sectors—including manufacturing—businesses are given a tax refund of $3,000 per job and $6,000 per job if the job is created in a rural county. A local municipality must agree to contribute 20% of the tax refund to be eligible for the state tax credit. Eligible businesses must create at least 10 jobs (Enterprise Florida, 2021). Florida's Capital Investment Tax Credit is used to attract businesses creating at least 100 jobs in the state and making at least a $25 million capital investment. Target industries for this credit include advanced manufacturing. The credit is provided for up to 20 years against the corporate income tax. Eligible capital costs include all expenses incurred in the acquisition, construction, installation and equipping of a project from the beginning of construction to the commencement of operations.

Tennessee

Tennessee also provides a Job Tax Credit. Companies are eligible for a $4,500 per job tax credit to offset 50% of the franchise and excise taxes in any given year with a carry forward of up to 15 years. To be eligible, businesses must create at least 25 new full-time jobs within a 36-month period and invest at least $500,000 in their business.

Wisconsin

Through the Business Development Tax Credit, Wisconsin provides companies with a refundable tax credit to help reduce the Wisconsin income/franchise tax liability based on the size of the company's capital investment and the number of jobs it plans on creating. Evaluations of applications consider if a project may not occur without the allocation of tax credits, the extent to which the project will increase employment in the state

and contribute to economic growth, financial soundness of the business, and previous financial assistance given by the state (Wisconsin Economic Development Corporation, n.d.).

Examples of Wisconsin's Business Tax Credit

Sub-Zero Group, Inc., a manufacturer of kitchen appliances, was looking to invest in a research and development center to facilitate new product development and innovation. Sub Zero Group secured $1 million in Business Development Tax Credits to build its research and development center that created 100 jobs (Sub-Zero, 2021).

California

The California Competes Tax Credit was created in 2013 to help businesses of all sizes expand and locate in California. Businesses sign agreements committing to minimum employee compensation, retention periods and investment milestones to achieve to receive the tax credit and agree on the credit distribution period. There are tax credit recapture provisions if businesses do not meet the agreements listed in contracts. Since 2014, the Cal Competes program has had more than 124,000 jobs committed and 1,089 businesses have participated in the program (California Governor's Office of Business and Economic Development, 2021). Two examples of manufacturers who have received the tax credit are:1) Zenith Manufacturing, a marine and aerospace component manufacturer, that committed to growing from 23 jobs to 34 from 2016 to 2021 and received a $200,000 tax credit; and 2) Wolf and Associates, a 3D printer manufacturer, was awarded a $500,000 tax credit and grew from 3 jobs to 120 between 2013 and 2018 (Awardee List, 2021).

Investment Tax Incentives

The Indiana Hoosier Business Investment Credit is a corporate income tax credit calculated as a percentage of the eligible capital investment to support the project. The credit may be certified annually, based on the phase-in of the eligible capital investment, over a period of two calendar years from the commencement of the project. Eligible capital investment includes new machinery and modern manufacturing and building costs associated with the project. To be eligible, the project must result in new jobs. The applicant must also demonstrate receiving the tax credit is a major factor in the decision to move forward with the project (Hoosier Business Investment Tax Credit, 2021).

Georgia's Investment Tax Credit provides tax credits to companies engaged in manufacturing or telecommunications support that have operated in Georgia for at least three years. Businesses may be eligible for a tax credit from 1% to 8% of qualified investment of at least $50,000. The actual credit will depend on the development tier of the county in which the project is located and the type of capital expenditures that are made by a business. Credits can be used to offset up to 50% of state corporate income tax liability. Any unused credits can be carried forward for up to 10 years. A

company may claim either but not both the Job Tax Credit and the Investment Tax Credit (BLS & Co., 2019).

Property Tax Incentives

Many states provide incentives to reduce property taxes. Two examples are in Michigan and South Carolina.

Michigan has the PA 198 Industry Property Tax Abatement, which provides an incentive for manufacturers and technology operations to build new plants, expand existing plants, renovate aging plants, or add new machinery and equipment. Tax benefits are granted by the local government and the tax abatement can be applied to real and personal property taxes for up to 12 years (Michigan Economic Development Corporation, 2018).

South Carolina exempts 14.2857% of the property tax value of the manufacturing property from property taxation up to a state limit of $85 million. In any year that the exemption amount is higher than that threshold, it is reduced on a pro-rated basis. South Carolina does not have a state property tax, instead they provide a five-year property tax abatement for county operating taxes for manufacturers investing more than $50,000 (South Carolina Department of Commerce, 2020).

Sales Tax Exemptions on Manufacturing Purchases

Washington state and all ten states studied have a sales tax exemption for purchasing manufacturing machinery and equipment. For example, Florida has a sales tax exemption for electricity or steam used to operate machinery and equipment used in manufacturing (Florida Department of Revenue, n.d.). South Carolina also has a sales tax exemption for industrial electricity and other fuels used in manufacturing (State of South Carolina, 2020).

Area-Specific Incentives

If investing in economically distressed communities, companies can benefit from South Carolina's Corporate Income Tax Moratorium if creating new jobs in these areas. The company's total corporate income tax liability can be eliminated for a period of either 10 or 15 years. At least 90% of the company's total investment in the state must be in a county where the unemployment rate is twice the state average. Companies creating at least 100 new full-time jobs over the course of a five-year period qualify for a 10-year moratorium and companies creating at least 200 new full-time jobs over five-years can qualify for a 15-year moratorium (South Carolina Economic Development Incentives Programs, 2019).

Tax Incentives for Renewable Energy Usage

Some states have created tax policies to promote the use of renewable energy. Michigan created the Renewable Energy Renaissance Zones program to provide tax exemptions for facilities that create energy, fuels, or chemicals directly from renewable energy resources (Michigan Economic Development Corporation, 2015). Texas has used Renewable Energy Incentives to give a tax exemption to manufacturers, sellers, and installers of solar energy devices (Office of the Governor, State of Texas, 2020).

Targeted Investment Funds

States use targeted investment programs to bring new businesses to the state, provide capital for expansion projects, and award funding for investments companies are making in communities. The methods used include grants, loans, and tax credits.

The Michigan Business Development Program provides grants, loans, and other economic assistance to businesses for projects that create jobs and/or provide investments that result in a net positive return to Michigan. Preference can be given to businesses seeking to locate or expand in Michigan instead of another state (Michigan Business Development Program, 2019).

JobsOhio provides discretionary grants to support manufacturing, R&D, corporate headquarters, and distribution projects that involve capital investment and job creation. Grant funds can be used for machinery and equipment purchase costs, new building construction and acquisition costs, infrastructure improvements, and other fixed asset investments (BLS & Co., 2019). JobsOhio also operates the Growth Fund Loan that provides capital for expansion projects to companies that have limited access to capital from conventional, private sources of financing. Loans range from $500,000 to $5 million. The loan terms for real estate are up to 15 years and for machinery up to 10 years (JobsOhio, 2021).

Wisconsin has the Qualified New Business Venture program which provides tax credits to eligible angel and venture fund investors who make equity investments to early-stage businesses. Manufacturing is one of the qualifying sectors for this program. Tax credits are equivalent to 25% of the value of the equity investment made. To qualify, the business must be headquartered in the state and more than half of the employees are in Wisconsin (Wisconsin Economic Development Corporation, 2020).

The Texas Enterprise Fund is used as an incentive for projects that offer significant projected job creation and capital investment to the state and the Texas site is competing with another viable out-of-state option. Deal-closing cash grants are calculated according to a uniform analytical model for each applicant. Award amounts are determined based on the average wage of new employees, considering the expected hiring timeline and number of jobs created (Texas Economic Development Incentive Programs, 2019).

Workforce Development

The workforce programs in the states studied are quite similar. States have created programs that provide a partnership with the program or community college system and the business to provide a customized training program to fit the needs of the business to expand or create new jobs in the state. Some state programs provide wraparound services that begin with assistance to help recruitment of qualified employees. Manufacturing is either a target industry for these programs or the type of training provided meets the needs of manufacturers.

Michigan has created industry cluster groups and there are several for manufacturing. These groups are composed of geographic concentrations of related employers, industry suppliers, and support institutions focused on a product or service field. Employers within an industry engage directly with training institutions to identify their talent and training needs and challenges. By providing employers this opportunity training is developed that meets the needs of industry (State of Michigan, n.d.).

California operates an Employment Training Panel (ETP), which is a funding agency, not a training agency. It provides funding to employers wanting to assist in upgrading the skills of their workers through training that leads to good paying, long term jobs. Businesses determine their own training needs, how to provide the training and select their own trainers. ETP has a tripartite governing structure, with appointed panel members representing businesses, unions, and the state government. Manufacturing is highlighted as a priority industry for receiving funding. Participating employers provide at least a 50% match. The program is funded through the Employment Training Tax paid by California employers who participate in the unemployment insurance system (State of California, 2021).

South Carolina and Georgia have programs for training current employees on new technology or new equipment. Georgia's Retraining Tax credit offers businesses a tax credit of up to 50 percent off their direct training expenses, with up to a $500 credit per full-time employee, per training program. The annual maximum credit amounts to $1,250 per employee. Eligible expenses include costs of instructors and teaching materials, employee wages during retraining, and reasonable travel expenses (Georgia Department of Economic Development, 2021). South Carolina offers a tax incentive for companies engaging in manufacturing, processing or technology that helps the business remain competitive by introducing new equipment and/or new technology to their facility. The tax credit cap is $1,000 per person, per year. Eligible employees are full-time production and technology first-line employees and immediate supervisors who have met the following criteria 1) have been on the company payroll for at least two years; 2) need training on new equipment and/or processes; and 3) are offered healthcare through the company (South Carolina Technical College System, n.d.)

Georgia's Quick Start program works with advanced manufacturing, aviation, and the automotive industries amongst others. This program starts with a consultation with a business, a needs analysis, instructional design, materials

development, and ends with training delivery. The program provides training space, instructors, and the needed training materials for new employees at no cost to qualifying companies. The program can also help companies assess, select, and train new employees for new jobs in expansion or relocation (Georgia Quick Start, 2019).

Examples of Georgia's Quick Start Program

Georgia has had success with using the Quick Start program and has used it as a method to grow manufacturing jobs in the state. Mitsubishi Hitachi Power Systems Americas brought 500 jobs to Georgia with an average salary of $64,000 and a $325 million investment to manufacture, maintain, and transport large gas and steam turbines. The company was given several incentives, including free customized training assistance through Georgia Quick Start, a 10-year partial property tax abatement and Job Tax Credits toward the state income tax liability (State of Georgia, 2014). Inalfa Roof Systems, an automotive sunroof manufacturer, was looking to open its first U.S. plant outside Michigan to serve automakers in Tennessee, Kentucky, Alabama, Mississippi, and South Carolina. The company worked with the Quick Start training program to train employees. They were also given the Job Tax Credit (State of Georgia, n.d.)

The ReadySC program run by South Carolina provides a suite of services to help businesses. From employee recruitment campaigns, customized training, curriculum development, employee orientations, to continued workforce development. To qualify, jobs must be permanent, pay represents a competitive wage for the area, and the benefit package must include health care (ReadySC, 2021).

Florida has a Quick Response Training Grant Program which provides funding to new and expanding businesses to implement customized training to qualifying industries, including manufacturing and requires a partial reimbursement from participating companies. The training must be non-degree, specialized skills-based training of 12 months or less that is not currently available. They must create high-quality jobs paying an average annual wage of at least 125% of local or state private sector wages, whichever is lower unless the business is in a distressed community (Career Source Florida, 2020).

Indiana has the Skills Enhancement Fund, which provides assistance to businesses to support training and upgrading the skills of employees. The grant typically reimburses 50% of eligible training costs over a period of two full calendar years from the commencement of the project. Grants from this fund must lead to a post-secondary credential, nationally recognized credential, or specialized company training for new hires or existing workers and an increase in wages for existing employees (Skills Enhancement Fund - Workforce Training Grant, 2021).

Ohio's JobsOhio Workforce Grant selects grantees based on job creation, additional payroll, investment commitments, project return on investment and project location. Eligible training includes information technology, skilled

trades, leadership skills, product knowledge, quality management and processes, safety training and technical training. This program is reimbursement-based (JobsOhio Workforce Grant, 2021).

The Texas Skills Development Fund offers customized training to employees at community and technical colleges to train new workers and upgrade the skills of existing workers. Since its inception in 1996, the Skills Development Fund has been tied to the creation or upgrading of more than 356,744 jobs throughout Texas. The grants have assisted 4,356 employers with their customized training needs. The average reimbursable training costs are $1,800 per trainee and up to $500,000 for the business (Skills Developement Fund, 2020).

Example of Texas Skills Development Fund

A manufacturing consortium, consisting of Daikin Industries Goodman Manufacturing Company, LP and Daikin Industries Quietflex Manufacturing Company, LP, partnered with Lone Star College to provide job training using a $968,537 Skills Development Fund grant from the Texas Workforce Commission. This grant was given to provide customized training to 530 new and incumbent workers. Eligible trainees included computer programmers, forklift operators and quality engineers. Upon completion of training, the workers were expected to receive average hourly wage of $22.08 (Texas Workforce Commission, 2019).

Wisconsin's Workforce Training Grant provides a higher matching grant for programs in rural counties or opportunity zones. The job training is required to focus on new technology, industrial skills, manufacturing processes, or leadership development. This incentive provides a matching grant of 50% of eligible training costs or up to 75% in designated rural counties or opportunity zones. The maximum grant amount is calculated by multiplying the number of employees expected to be trained by $5,000 (Wisconsin Economic Development Corporation, 2020).

Regulatory Compliance, Permitting

States have created permitting assistance offices to help businesses throughout the permitting process. These offices act as liaisons between the regulatory agency and the business by helping to move the permitting process forward and resolving problems that may occur during the regulatory consideration process. Indiana and Ohio have also created mechanisms for reviewing or reporting rules and reporting requirements that are onerous for businesses.

Indiana operates a Regulatory Affairs Assistance office within the Indiana Economic Development Corporation. The office assists current and potential businesses on facilitating communication with agencies, license and permit requirements and applications, tracking permitting, and regulatory compliance. Members of the regulatory affairs staff serve as liaisons between companies, communities, local economic development organizations, and regulatory agencies. The office establishes early communications with

technical staff to ensure all permits are efficiently processed. This service is an effort to minimize the amount of time spent on regulatory compliance (Regulatory Assistance Program, 2021).

The Business Permit Office in Texas assists businesses with navigating Texas' permitting licensing and regulatory environment and aids in resolving permitting issues that arise. The ombudsman/liaison assists applicants in the resolution of outstanding issues identified by state agencies, including delays experienced in permit review. It also makes recommendations for eliminating, consolidating, simplifying, expediting, and improving permit procedures affecting business enterprises (Office of the Governor, State of Texas, 2021).

South Carolina has a Permit Central office as part of the Department of Health and Environmental Control. It includes a panel of permitting specialists with expertise ranging from air to solid waste to health care. This team discusses with businesses their business plans and determines the necessary approvals needed from the government. There is a small business team equipped to understand the unique challenges faced by small businesses (The Edgefield Advertiser, 2013).

The Small Business Environmental Assistance program in Tennessee provides assistance to small businesses to help them understand and comply with environmental regulations. The staff are not regulators and information shared with them is confidential. They also develop outreach opportunities and materials, including training programs, brochures, webinars, and site visits to help small businesses comply with the state and federal environmental regulations that affect them (Tennessee Department of Environment and Conservation, 2020).

Indiana's General Assembly passed legislation in 2017 to create a website with a survey to solicit feedback from businesses and local governments on duplicative reporting requirements. It is intended to help the Indiana Economic Development Corporation identify situations where businesses or local governments are required to submit the same information to different state agencies, authorities, boards, or commissions to remain in compliance with state laws or regulations (Indiana Economic Development Corporation, n.d.).

In Ohio, administrative agencies must review their administrative rules every five years. If they ascertain that a rule has a harmful effect on businesses, there is a review process through the legislature to decide if the rule should be removed (State of Ohio, n.d.)

Infrastructure

Ohio's program is called the Roadwork Development (629) and funds grants for public roadway improvements including engineering and design costs. Funding is available for projects primarily involving manufacturing, research and development, technology, corporate headquarters, and distribution activity. Projects must create or retain jobs. Grants are usually provided to a local jurisdiction and require local participation (Ohio Development Services Agency, n.d.).

The South Carolina Port Volume Increase Tax Credit provides an income tax credit or withholding tax credit to manufacturers, distributors, or companies that engage in warehousing, freight forwarding, goods processing, cross docking transloading, or wholesale goods. The amount of the tax credit may be based on the taxpayer's transportation costs to and from a South Carolina Port. The credit is allocated to a taxpayer at the discretion of the Coordinating Council (South Carolina Department of Commerce, 2020).

Innovation and R&D

States studied have used tax credits, loans, and matching dollars to incentivize businesses to conduct research and development activities in their states. California operates programs that provide benefits for manufacturers that reduce greenhouse gases and manufacturing with recycled materials.

Michigan has the Emerging Technology fund for four sectors: life sciences, homeland security and defense, advanced automotive, manufacturing and materials and alternative energy. This program expands funding opportunities in federal research and development by providing matching dollars to support commercialization of Small Business Innovation Research/Small Business Technology Transfer projects (Michigan Economic Development Corporation, 2019).

The value of the Research and Development Tax Credit in Indiana is equal to the taxpayer's qualified research expenses for the taxable year, minus the base period amount of up to $1 million, multiplied by 15 percent. A credit percentage of up to 10% is applied to any excess of qualified research expense greater than $1 million. There is also a Research and Development Sales Tax Exemption for research and development equipment and property purchased (Indiana Economic Development Corporation).

Ohio has the Research and Development loan program which finances project costs from $500,000 to $5 million. Allowable uses for the funds include land or building purchases, building or construction renovation, long-term leasehold improvements, and capitalizable costs directly related to fixed-asset purchases. Businesses are also eligible for a loan repayment tax credit against their Ohio Commercial Activity tax liability. The credits are equal to the amount of principal and interest repaid on the loan up to a maximum of annual credit of $150,000. The credit is non-refundable, and any unused credit may be carried forward until expended (JobsOhio, 2021).

Ohio also operates a Research and Development Center Grant which supports the development and commercialization of emerging technology of JobsOhio's targeted industries which includes advanced manufacturing. Discretionary grants are available to companies that create new R&D centers in Ohio. They provide funding for a portion of the costs related to a new center over the course of five years. These centers are expected to create at least five jobs and make a capital investment of $3 million. Qualifying applicants include corporations with a minimum of 5 years of operating history and annual revenue of greater than $10 million (JobsOhio, 2021).

In Georgia, the Research and Development Tax Credit applies to manufacturing companies and allows them to claim a tax credit equal to 10% of qualified R&D spending when compared to a base period. The credit can be used to offset up to 50% of their Georgia corporate income tax liability. Any excess R&D credits can be applied to state payroll tax withholding. Unused credits can be carried forward for up to 10 years (Georgia Department of Economic Development, 2021).

In California, the Renewable Energy for Agriculture program was implemented in 2018 by the California Energy Commission to fund emissions-eliminating manufacturing and processing projects. Approximately $10 million is available for renewable energy technologies that achieve a greenhouse gas reduction (California Economic Development Incentive Programs, 2019).

For companies manufacturing with recycled materials, there are numerous programs offered by CalRecycle, including low-interest loans and grants to promote infrastructure development for recycling/manufacturing projects that divert materials from landfills and reduce greenhouse gas emissions. During FY 2018-2019 $11 million in grants were awarded (California Economic Development Incentive Programs, 2019).

DISCUSSION AND RECOMMENDATIONS

Washington's manufacturing competitiveness strengths lie in the state's incumbent, highly trained manufacturing workforce, low industrial electricity rates, innovation, and highly export-driven manufacturing sector. The state, however, exhibits competitive weaknesses vis-à-vis other states in such areas as labor costs, regulatory burden, and the availability and use of tax incentives as "deal closers" for new investments in the state.

There are several key policies in other states for consideration in Washington. These policies are either specific to manufacturing or more broadly scope but with potential application to the manufacturing sector. In each instance, these policies and programs are designed to improve the competitiveness of each state to attract, retain, and grow manufacturing investments. **Exhibit 28** below summarizes the most notable types of policies for consideration.

Exhibit 28. Summary of Policy Comparisons, Washington and Competitor States

Category	Washington Policies	Policies in Other States
Tax Credits and Incentives	Incentives based on industry, in form of preferential tax rates, exemptions, credits, and rural and distressed areas.	Property tax abatements, incentives not limited to industry—can be more company-specific. Deal-closing tax incentives and credits.
Workforce Development	Customized training.	Credentials in addition to customized training.
Regulatory Compliance and Permitting	Research, regulatory assistance through Office of Regulatory Innovation and Assistance.	Direct business support for navigating regulations; periodic review of regulations to evaluate efficacy and impact on businesses.
Infrastructure	CERB	Grants for infrastructure tied to manufacturing and jobs; tax credits for port facility usage.
Innovation and R&D	B&O R&D tax credit in rural counties.	R&D tax credits; R&D loans and grants for manufacturing operations and R&D centers.

Recommendations

Manufacturing is a highly competitive space, and for good reasons. Washington state policymakers should consider the following approaches to improving the state's competitiveness for attracting and manufacturing investments:

- **Protect and continue to invest in Washington's core competitive advantages**. One of Washington's strongest competitive strengths has been energy costs, which have historically been among the lowest in the nation. Losing this competitive advantage would be detrimental to the state's long-term competitiveness. Policymakers should continue to ensure this low cost advantage while not compromising on clean energy and renewable energy objectives.
- **Prioritize infrastructure investments**. Washington has more than $222 billion in unaddressed infrastructure needs, ranging from transportation, energy, water, and communications systems. The state should focus on funding these projects to protect and preserve the manufacturing sector's long-term competitive strengths in Washington state.
- **Continually benchmark Washington's tax incentives to ensure the state is competitive relative to other states**. The state should periodically assess how it performs vis-à-vis other states in areas of tax rates and tax incentives in the manufacturing sector. Benchmark Washington's tax rates to make sure tax policies remain competitive relative to other states.
- **Review Washington's existing regulatory system and determine areas of improvement**. The 2015 State Auditor's report laid out areas where Washington can improve the ease by which businesses comply with state regulations. This report should be updated and be followed with a strategy for implementing the report's recommendations. As part of this process, each year Washington should convene a panel of manufacturing businesses to understand the challenges and hurdles to new investment due to regulatory compliance and permitting processes.

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