Washington State Aerospace Tax Preference Review

March 28, 2019

Prepared for the Washington State Joint Legislative Audit and Review Committee

Contents

Executive summary

EY's Quantitative Economics & Statistics practice was commissioned by the State of Washington's Joint Legislative Audit and Review Committee (JLARC) to analyze the state and local tax climate for aerospace manufacturing firms in Washington State and a set of 13 benchmark states selected by JLARC due to the presence of aerospace activity in the state. This report presents the findings of the analysis.

Overview of approach

The results presented in this study reflect estimates of the tax burdens that would be faced by representative small and large aerospace firms making investments in new facilities in Washington and benchmark states. The representative firm profiles were developed from public data sources and reflect a composite of companies within two size categories which are currently operating in the aerospace sector.[1] A high level overview of the characteristics of the representative firms is shown in Table ES-1. In Washington, large firms (with more than 1,000 employees) account for 85% of the total industry employment in the state.

Table ES-1. Small and large firm profiles used in analysis

	Small Aerospace	Large Aerospace
NAICS industry	3364	3364
Number of employees	54	10,018
Average employee wages	$60,062	$91,600
Capital investments	$8.2 million	$1.5 billion
Business receipts (year 1)	$21.7 million	$4.6 billion

Source: EY analysis using IRS Corporate Sourcebook data for NAICS industry 3364

Table ES-2 shows key statutory tax rates used in the analysis. Comparing Washington's tax rates to the benchmark states, Washington has generally competitive property tax rates yet higher sales tax rates. Washington has the lowest effective property tax rate on industrial real property, and the third-lowest effective tax rate on personal property after Ohio and Kansas, which exempt industrial personal property from taxation. In contrast, Washington's 8.2% combined average state and local sales tax rate is the third highest of the benchmark states after California (9.7%) and Kansas (8.4%). While most states in the analysis levy a corporate income tax, three states—Ohio, Texas, and Washington—levy a tax on gross receipts (or modified gross receipts) in lieu of a corporate income tax. Washington's Business and Occupations (B&O) tax is a gross receipts tax that is measured on the value of products, gross proceeds of sales, or gross income of the business. A manufacturer that sells its product is generally taxed at the manufacturing B&O tax rate, not the retailing or wholesale rate. The value of products is the tax base for the manufacturer, typically measured as sales.

[1] The aerospace sector is defined as NAICS 3364 aerospace manufacturers, which includes a broad spectrum of activity including civil and defense.

Table ES-2. Summary of statutory tax rates for Washington and benchmark states

State	State corporate income, margin, or gross receipts tax rate	Combined state and local sales tax rate	Effective tax rate on industrial real property**	Effective tax rate on industrial personal property**
Alabama	6.50%	7.40%	1.16%	1.16%
Arizona	4.90%	8.10%	3.19%	3.19%
California	8.84%	9.70%	1.18%	1.18%
Colorado	4.63%	6.90%	2.08%	2.08%
Connecticut	7.50%	6.40%	3.21%	3.21%
Georgia	6.00%	6.60%	1.66%	1.66%
Kansas	7.00%	8.40%	3.39%	0.00%
Missouri	6.25%	7.30%	2.09%	2.09%
North Carolina	3.00%	6.60%	1.25%	1.25%
Ohio	0.26%*	6.90%	2.97%	0.00%
South Carolina	5.00%	6.90%	3.23%	3.23%
Texas	0.75%*	7.70%	2.37%	2.37%
Utah	4.95%	6.40%	1.32%	1.32%
Washington	**0.48%***	**8.20%**	**1.05%**	**1.05%**

*Tax rates are shown for Ohio's Commercial Activity Tax, Texas Margin Tax and Washington's Business & Occupation (B&O) tax. The B&O rate shown is the manufacturing rate before the reduction for aerospace manufacturers (which is modeled as an incentive).
**Effective property tax rate is the product of the millage rate and the assessment ratio, but does not reflect differences in valuation approaches or personal property depreciation schedules.
Source: EY analysis

The tax system characteristics for each state were applied to the financial profiles to estimate the state and local tax burden for the representative firms. These tax burdens were then translated into effective tax rates (ETR), which are expressed as the percentage change in the rate of return due to taxes (i.e. the difference between the pre- and post-tax rates of return divided by the pre-tax rate of return). For example, state and local taxes that reduce the rate of return from 10% to 9% would translate into a 10% effective tax rate.

After calculating the total state and local ETRs for the small and large aerospace firms under the current tax systems in each state, the analysis incorporates statutory and negotiated (discretionary) incentives. Statutory incentive benefits are estimated using statutorily defined incentive program features applied to the profile of the investment and operations of each representative firm. In contrast, the amount of benefit provided by negotiated incentives is determined at the discretion of economic development officials and cannot be estimated precisely. Therefore, discretionary incentive amounts included in this analysis are based on past deals in each state, but will vary from the actual result realized by any particular company making an investment. Due to differing levels of uncertainty in the estimation of the two types of incentives, they are shown separately so that the individual impact of each category of incentive on ETRs can be observed.

States incentivize aerospace industry investment using a combination of different programs, some of which are targeted specifically to the aerospace industry. Table ES-3 provides an overview of

these incentives. Statutory incentives include tax credits that can be claimed against the primary business entity taxes in each state. Often these incentives are tied to new employment, qualified capital investments, or both. Many states also offer a tax credit related to research and experimentation (R&E) expenses. Washington, California, and Colorado offer specific tax incentives for aerospace firms, in addition to other incentives which may be available to aerospace. In Washington, these targeted incentives include a reduced B&O tax rate for aerospace manufacturers, a retail sales and use tax exemption for computer purchases, sales and use tax exemption for the construction of airplane production facilities, and B&O tax credits for property and leasehold taxes and for qualified preproduction expenditures. Two states in our analysis – Alabama and Missouri – are shown as not having statutory incentives since their most widely used incentives have a discretionary component. Negotiated incentives include local property tax abatements, exemptions from sales and use taxes during construction of the manufacturing facility, income tax credits, cash grants, and employee withholding tax refunds.

Table ES-3. Summary of types of incentives by state

	Statutory incentives				Negotiated incentives				
State	R&E	Jobs	Investment	Specific - aerospace incentive	Property tax	Sales tax	Corporate/ Business entity tax	Grants	Other tax credits
Alabama	None				x	x	x		
Arizona	x	x	x					x	
California	x			x*		x	x		x
Colorado				x	x	x		x	x
Connecticut	x		x		x	x		x	
Georgia	x	x			x	x		x	
Kansas	x		x		x	x		x	
Missouri		x			x	x		x	
North Carolina	None				x			x	
Ohio	x				x		x	x	x
South Carolina	x	x	x		x			x	
Texas	x				x			x	
Utah	x				x				x
Washington	x		x	x	x		x		

*California offers a corporate income tax credit through the Advanced Strategic Aircraft Program. We did not include this credit in our analysis because it is for the manufacture of advanced strategic aircraft for the US Air Force.
Source: EY analysis

Summary of findings

Key findings from the analysis are described below.

Tax burdens before any incentives (before statutory and negotiated incentives)

- **Washington's pre-incentive total state and local effective tax rate is higher than the benchmark average for both small and large aerospace firms.** Washington's pre-incentive ETR of 15.8% is nearly two percentage points higher than the benchmark average of 14.0%

for the small aerospace firm. Washington's ETR at 20.9% is 34% higher than the benchmark average for large firms of 15.6%, making Washington the state with the second-highest ETR for the large firm. See Table ES-4.

- **Washington's local tax burdens are competitive for the large and small aerospace firms, but state tax burdens pre-incentives are higher than benchmark states.** Higher state ETRs are the result of higher corporate/business entity and sales taxes than peers. Washington taxes almost all construction services where most of the benchmark states exempt purchases of construction services from the sales and use tax.

- **Washington's B&O tax creates the highest corporate/business tax burden of the states in the analysis before considering preferential rates.** Washington's general B&O tax rate of 0.484% rate results in significantly higher burdens than other states' corporate income taxes, however aerospace manufacturers are entitled to a preferred rate of 0.2904%, which mitigates this effect.

- **Washington's local property taxes are among the lowest of the benchmarks.** Washington's effective real property tax rate on industrial property of 1.05% is the lowest of the benchmark states and its taxes on personal property are the third lowest after Kansas and Ohio, which exempt personal industrial property.

- **States with the lowest ETRs include North Carolina and Georgia.** North Carolina has the lowest corporate income tax ETR and one of the lowest property ETR while Georgia has the lowest state sales taxes and competitive corporate income taxes.

Table ES-4. Total state and local effective tax rates before any incentives
Rank of 1=Lowest ETR

State	Small aerospace representative firm	*Rank*	Large aerospace representative firm	*Rank*
Alabama	13.1%	5	13.6%	4
Arizona	18.0%	13	19.6%	11
California	14.9%	9	15.9%	8
Colorado	12.3%	4	13.6%	5
Connecticut	17.4%	12	20.3%	12
Georgia	10.0%	2	10.7%	2
Kansas	14.7%	8	16.3%	9
Missouri	14.0%	7	14.7%	6
North Carolina	9.1%	1	9.9%	1
Ohio	11.3%	3	13.3%	3
South Carolina	15.4%	10	17.6%	10
Texas	18.4%	14	22.2%	14
Utah	13.1%	6	14.8%	7
Washington	**15.8%**	**11**	**20.9%**	**13**
Average, excluding WA	***14.0%***		***15.6%***	

Source: EY analysis

Post-statutory incentives results (before negotiated incentives)

- **Washington has the largest drop in total state and local ETR for the small firm after applying statutory tax incentives.** Statutory tax incentives lower Washington's total state and local ETR by more than 8 percentage points for the small firm and by more than 9 percentage points for the large firm, as shown in Table ES-5.
- **Washington becomes the most favorable state for the small representative firm and the fourth most favorable for the large representative firm after statutory tax incentives.** Washington's B&O tax burden was significantly higher than benchmark states before statutory incentives and the specific aerospace incentives significantly reduce this differential for the large firm and eliminate the B&O tax burden for the small firm.
- **Washington's statutory sales tax incentives for aerospace manufacturers significantly reduces its sales tax ETR.** Statutory tax incentives eliminate the sales and use tax on construction purchases for the manufacturing facility. Washington exempts machinery and equipment from sales and use tax, as most other states in the analysis do, but also provides an exemption for computer equipment.
- **After Washington, states with the largest decline in total overall ETR due to statutory incentives include Arizona, Missouri, and Utah**. Arizona's tax credits due to new jobs, investment and R&E lowered the total ETR by more than its peers, improving its ranking. Utah's ETR declined due to significant R&E tax credits. Missouri's ETR fell due to the incentives provided through the Missouri Works Program.

Table ES-5. Total state and local ETR decrease after statutory incentives

	Small aerospace representative firm				Large aerospace representative firm			
State	**Pre-incentive ETR**	**Post-statutory ETR**	**PP change**	***Rank Post***	**Pre-incentive ETR**	**Post-statutory ETR**	**PP change**	***Rank Post***
Alabama	13.1%	13.1%	0.0%	*8*	13.6%	13.6%	0.0%	*8*
Arizona	18.0%	15.3%	-2.7%	*12*	19.6%	17.1%	-2.5%	*12*
California	14.9%	14.3%	-0.6%	*10*	15.9%	14.9%	-1.0%	*9*
Colorado	12.3%	11.9%	-0.4%	*6*	13.6%	13.4%	-0.2%	*7*
Connecticut	17.4%	16.6%	-0.8%	*13*	20.3%	19.4%	-0.9%	*13*
Georgia	10.0%	9.3%	-0.6%	*3*	10.7%	10.1%	-0.6%	*3*
Kansas	14.7%	13.9%	-0.8%	*9*	16.3%	15.6%	-0.8%	*10*
Missouri	14.0%	12.1%	-2.0%	*7*	14.7%	4.4%	-10.3%	*1*
North Carolina	9.1%	9.1%	0.0%	*2*	9.9%	9.9%	0.0%	*2*
Ohio	11.3%	11.3%	-0.1%	*5*	13.3%	13.2%	-0.1%	*6*
South Carolina	15.4%	14.8%	-0.6%	*11*	17.6%	15.8%	-1.8%	*11*
Texas	18.4%	17.9%	-0.5%	*14*	22.2%	21.3%	-0.9%	*14*
Utah	13.1%	10.8%	-2.2%	*4*	14.8%	12.0%	-2.9%	*5*
Washington	**15.8%**	**7.4%**	**-8.4%**	***1***	**20.9%**	**11.5%**	**-9.4%**	***4***
Average, excluding WA	**14.0%**	**13.1%**	**-0.9%**		**15.6%**	**13.9%**	**-1.7%**	

Source: EY analysis

Post-all incentives results: Large firm

- **Washington's post-incentive total overall ETR of 10.0% is significantly higher than the benchmark average of 7.2% for the large aerospace firm.** The impact of statutory incentives on total overall ETR for Washington is the second most significant of the states (after Missouri). However, the benefit of Washington's negotiated tax credits is below the benchmark average, lowering the total overall ETR by 1.5 percentage points compared to an average of 4.7 percentage points for the benchmark states. See Table ES-6.

- **The impact of negotiated tax incentives on the overall ETR for the large aerospace firm in Washington is less than the impact in benchmark states due to a lack of refundable credits and grants.** Incentives included in the analysis do not completely offset the B&O tax while other states have their corporate income tax liabilities completely offset and in some cases a refundable tax credit provided. Other states also provide grants calculated as a percentage of employee withholding taxes or as a percentage of new payroll in the state.

- **Negotiated incentives for Washington include a local property tax abatement and local B&O tax credit.** Very few negotiated incentives are provided in Washington since significant statutory tax incentives are provided for the aerospace industry. However, EY has included a limited number of incentives which relate primarily to certain municipalities providing a local property tax abatement of city and county property taxes for 10 years and a limited credit on the local B&O tax.

- **The largest decrease in the ETR from due to incentives occurs in Missouri with the second largest decline in ETR due to incentives in South Carolina.** The Missouri Works Program provides a significant incentive that has statutory and discretionary components that would provide an incentive equivalent to 9% of new state payroll during a period of five years. Local property and sales tax incentives combined with the Missouri Works incentives make Missouri the state with the lowest ETR. South Carolina's fee-in-lieu of taxes FILOT program significantly reduces property taxes for the large aerospace firm. This finding assumes a 4% assessment ratio (down from statutory 10.5%) for the 30-year period due to this incentive.

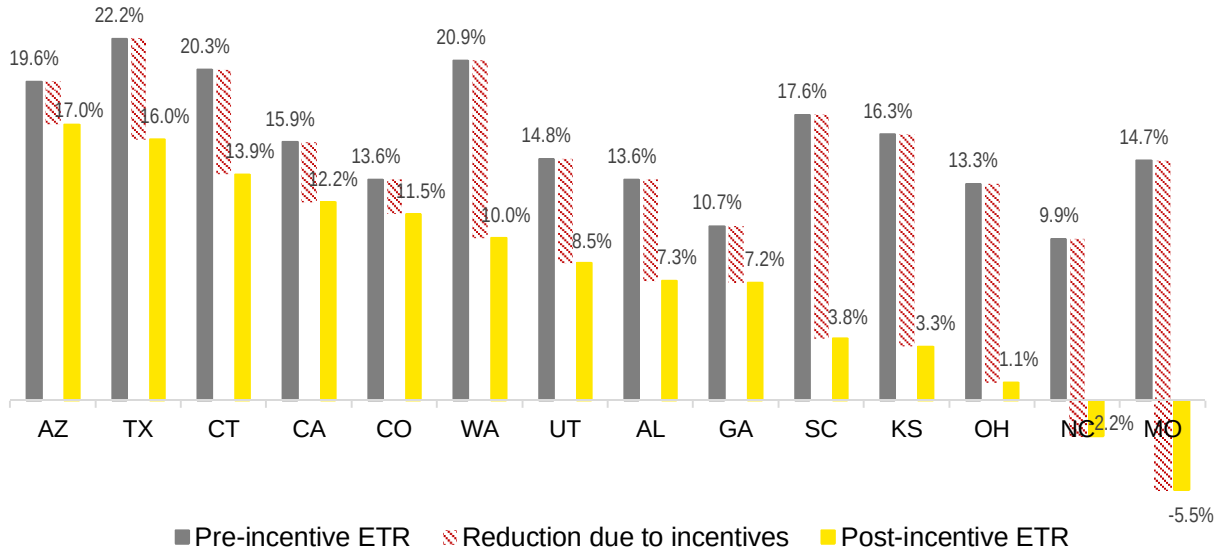
- **Missouri and North Carolina both have a negative total overall ETR for large aerospace.** In North Carolina, the withholding taxes amount that would be refunded through the Job Development Investment Grant (JDIG) program is greater than the estimated total state and local taxes for the large aerospace firm. Employee withholding taxes are not included in the analysis since these are a tax liability on the individual rather than the firm. However, North Carolina provides a cash grant based on employee tax withholdings. North Carolina is also a lower tax state for the large aerospace firm as compared with benchmarks before considering incentives. See Figure ES-1.

Table ES-6. Total state and local effective tax rates, before and after considering all incentives for large aerospace facility by state

State	Pre-incentive ETR	*Rank*	Statutory tax incentive	Negotiated tax incentive	Post-incentive, pre-grant ETR	Grants	Post-all incentives ETR	*Rank*
Missouri	14.7%	6	-10.3%	-5.1%	-0.6%	-4.9%	-5.5%	1
North Carolina	9.9%	1	0.0%	-2.7%	7.2%	-9.5%	-2.2%	2
Ohio	13.3%	3	-0.1%	-12.1%	1.1%	0.0%	1.1%	3
Kansas	16.3%	9	-0.8%	-9.1%	6.5%	-3.2%	3.3%	4
South Carolina	17.6%	10	-1.8%	-7.1%	8.6%	-4.8%	3.8%	5
Georgia	10.7%	2	-0.6%	-2.6%	7.6%	-0.4%	7.2%	6
Alabama	13.6%	4	0.0%	-6.2%	7.3%	0.0%	7.3%	7
Utah	14.8%	7	-2.9%	-3.5%	8.5%	0.0%	8.5%	8
Washington	**20.9%**	**13**	**-9.4%**	**-1.5%**	**10.0%**	**0.0%**	**10.0%**	**9**
Colorado	13.6%	5	-0.2%	-1.6%	11.8%	-0.3%	11.5%	10
California	15.9%	8	-1.0%	-2.7%	12.2%	0.0%	12.2%	11
Connecticut	20.3%	12	-0.9%	-4.6%	14.9%	-1.0%	13.9%	12
Texas	22.2%	14	-0.9%	-4.5%	16.8%	-0.8%	16.0%	13
Arizona	19.6%	11	-2.5%	0.0%	17.1%	-0.2%	17.0%	14
Average, excluding WA	***15.6%***		***-1.7%***	***-4.7%***	***9.2%***	***-1.9%***	***7.2%***	

Source: EY analysis

Figure ES-1. Pre- and post-incentive total state and local ETR by state for large aerospace firms



Note: Post-incentive ETR includes statutory incentives, negotiated incentives, and cash grants
Source: EY analysis

Post-all incentives results: Small firm

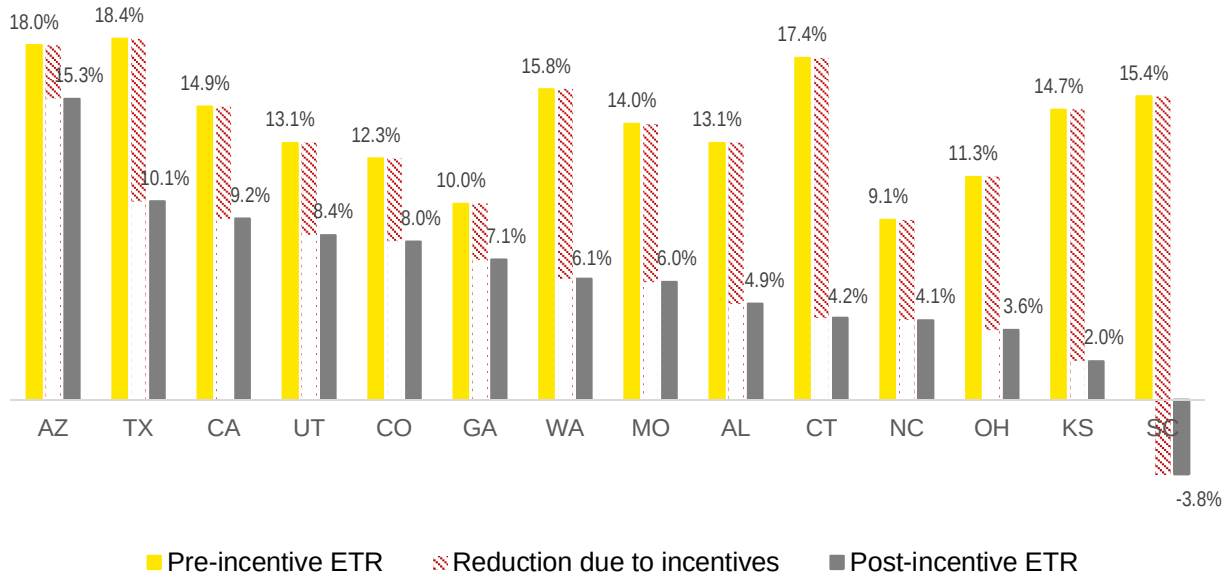
- **Washington's statutory and negotiated tax incentives significantly lower the total state and local ETR for small aerospace firms.** After statutory and negotiated tax incentives, Washington's total ETR pre–grants is 6.1%, well below the benchmark average of 9.4%. Negotiated incentives include local property abatements and local B&O tax incentives. Table ES-7 shows the impact of all incentives, including grants, on the total state and local ETR.
- **Due to the absence of cash grants, which are prohibited in Washington, the state's ETR advantage is diminished once negotiated incentives are included**. States with the largest grants include Connecticut, Kansas, North Carolina, South Carolina, and Texas. After including grants, Washington has the eighth lowest total state and local ETR where before grants it was the second lowest. See Figure ES-2.
- **South Carolina and Kansas have the lowest ETRs for the small aerospace firm due to significant grants and property tax incentives.** South Carolina has the lowest ETR due to the Job Development Credit, which provides an incentive equal to 5% of payroll for 10 years and significant property tax incentives that lower the assessment ratio from 10.5% to 6%. Kansas does not tax industrial personal property and provides property tax abatements on real property. Coupled with significant grants through the PEAK program and Kansas Job Creation Fund, the state has the second lowest ETR of the benchmark states post-incentives.

Table ES-7. Pre- and post-all incentives total state and local ETR for small aerospace facility by state

State	Pre-incentive ETR	*Rank*	Statutory tax incentive	Negotiated tax incentive	Post-incentives, pre-grant ETR	Grants	Post-all incentives ETR	*Rank*
South Carolina	15.4%	10	-0.6%	-3.3%	11.6%	-15.4%	-3.8%	1
Kansas	14.7%	8	-0.8%	-6.4%	7.5%	-5.6%	2.0%	2
Ohio	11.3%	3	-0.1%	-5.4%	5.9%	-2.4%	3.6%	3
North Carolina	9.1%	1	0.0%	-1.6%	7.6%	-3.5%	4.1%	4
Connecticut	17.4%	12	-0.8%	-5.5%	11.2%	-7.0%	4.2%	5
Alabama	13.1%	5	0.0%	-8.2%	4.9%	0.0%	4.9%	6
Missouri	14.0%	7	-2.0%	-4.9%	7.2%	-1.2%	6.0%	7
Washington	**15.8%**	**11**	**-8.4%**	**-1.3%**	**6.1%**	**0.0%**	**6.1%**	**8**
Georgia	10.0%	2	-0.6%	-1.1%	8.2%	-1.1%	7.1%	9
Colorado	12.3%	4	-0.4%	-1.6%	10.3%	-2.2%	8.0%	10
Utah	13.1%	6	-2.2%	-2.5%	8.4%	0.0%	8.4%	11
California	14.9%	9	-0.6%	-5.1%	9.2%	0.0%	9.2%	12
Texas	18.4%	14	-0.5%	-3.5%	14.4%	-4.3%	10.1%	13
Arizona	18.0%	13	-2.7%	0.0%	15.3%	0.0%	15.3%	14
Average, excluding WA	***14.0%***		***-0.9%***	***-3.8%***	***9.4%***	***-3.3%***	***6.1%***	

Source: EY analysis

Figure ES-2. Pre- and post-incentives total state and local ETR by state for small aerospace firms



Note: Post-incentive ETR includes statutory incentives, negotiated incentives, and cash grants
Source: EY analysis

1. Approach

1.1 Effective tax rate analysis

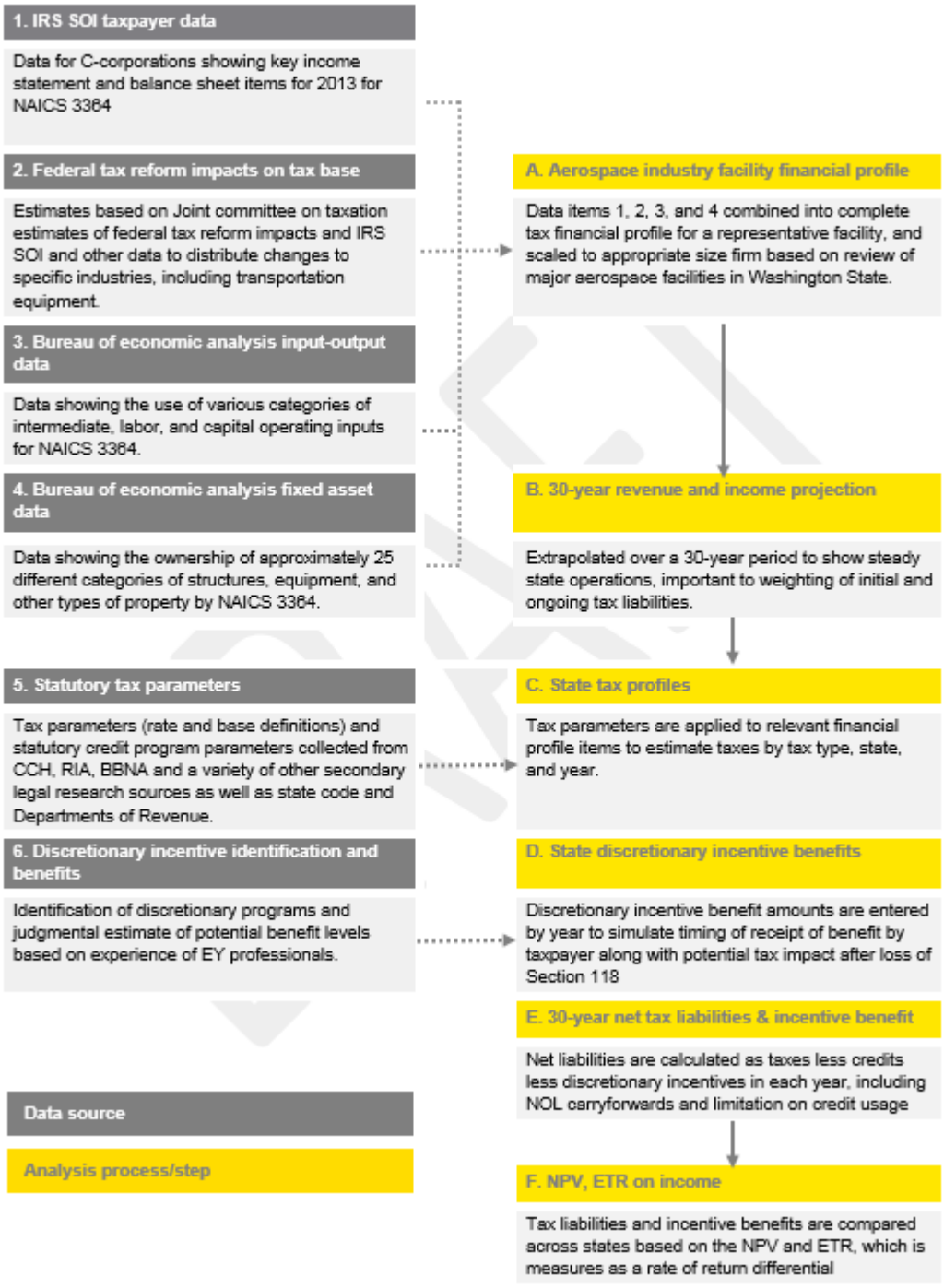
This evaluation uses a discounted cash flow model, relevant tax system parameters, and industry-specific financial profiles of hypothetical facilities to estimate the state and local taxes that would be paid over a 30-year life of a small and large aerospace facility. The tax burdens imposed by the state and local tax systems in each state are then translated into effective tax rates (ETR), which are expressed as the percentage change in the rate of return due to taxes (i.e. the difference between the pre- and post-tax rates of return divided by the pre-tax rate of return). For example, a reduction in the rate of return from 10% to 9% due to taxes, a one percentage point decrease, translates to a 10% effective tax rate.

The differential in the effective tax rate with and without incentives is presented to show the impact of state and local incentives. The goal of this approach is to simulate the level of tax liability and benefits from tax credits and other incentives that would be available to a representative taxpayer who complies fully with the tax law and avails itself of the relevant benefits. Two distinct categories of incentives are included in this analysis: (1) statutory incentives with a specific benefit that is available to all aerospace manufacturers who meet the criteria, and (2) discretionary incentives that are negotiated with state and local agencies and can vary from one firm to the next based on their investment and operating profiles. In total, three different results are presented in this study:

- **Pre-incentives ETR** before any statutory and negotiated tax incentives available to an aerospace manufacturing facility have been added to the cash-flow analysis. The pre-incentive ETR illustrates differences in the state tax systems.
- **Post-statutory incentives ETR** which captures the impact of statutory tax credits and other incentives on tax payments and net cash flow.
- **Post- all incentives ETR** which includes the impact on tax payments and net cash flow after including both statutory and negotiated incentives. Pre- and post-grant ETRs are also shown.

Figure 1 presents an overview of the modeling approach, data, and calculation steps.

Figure 1. Overview of tax modeling approach



1.2 Definition of industry

NAICS industry 3364 is the definition of the aerospace industry used throughout the analysis. The industry is fairly broad and includes both civil and defense activity including "establishments primarily engaged in manufacturing aircraft, missiles, space vehicles and their engines, propulsion units, auxiliary equipment, and parts thereof." The industry also includes the development and

production of prototypes and the factory overhaul and conversion of aircraft and propulsion systems."[2] For the purpose of this analysis, the firms are assumed to qualify as a manufacturing facility.

Table 1 summarizes the employment and payroll data for establishments in the NAICS 3364 industry in Washington State in 2016. Note that the largest size category of firm (1,000 employees or more) accounts for 85% of total industry employment in Washington, while firms with less than 500 employees accounts for 10% of total employment. The average wage for employees in this industry was $88,031 in 2016.

Table 1. Aerospace activity in Washington State, 2016

	Number of establishments	Q1 paid employees	First-quarter payroll ($1,000)	Annual payroll ($1,000)
All establishments	**116**	**73,482**	**$1,826,298**	**$6,468,703**
1 to 4 employees	27	45	$533	$3,382
5 to 9 employees	16	107	$2,016	$8,233
10 to 19 employees	12	155	$2,680	$10,746
20 to 49 employees	16	545	$7,550	$31,498
50 to 99 employees	9	697	$9,555	$35,502
100 to 249 employees	13	1,970	$29,183	$121,746
250 to 499 employees	10	3,768	$61,701	$246,298
500 to 999 employees	6	3,594	$61,364	$271,152
1,000 employees or more	7	62,601	$1,651,716	$5,740,146

Source: US Census Bureau, County Business Patterns, 2016, NAICS 3364 in Washington State

1.3 Representative firm profiles

The analysis models the cash flows of two representative aerospace manufacturing firms, reflecting large and small facilities. The profiles were derived using IRS Statistics of Income (SOI) for NAICS 3364 (aerospace product and parts manufacturing), US Bureau of Economic Analysis (BEA), and the US Economic Census data and reflect the industry average investment, employment, and operating metrics.

Each profile reflects the full operating life cycle of a firm. It is assumed that the firm is seeking to invest in a new facility, with initial capital investment in the year prior to operations. The firm then operates for the remaining thirty years at full capacity, with industry average research and development (R&D) expenditures, labor intensity, asset distribution, and other operating costs. The firms generate industry average gross revenue and profit margins, which are then subject to each state's unique tax structure.

Table 2 shows financial profiles for the hypothetical large and small firms. These profiles are based on the returns of active corporations with and without net income. The large firm profile is

[2] US Census description for 33641 aerospace product and parts manufacturing.

based on firms with assets of $2.5 billion or more while the small firm profile is based on companies with assets of between $10 million and $25 million. Based on conversations with JLARC, representative firm financial profiles were developed to reflect large companies with 10,000 employees and small companies with 50 employees. Based on each level of employment, the corresponding assets, equity, debt, income and expenses were tailored to each of those size of firms based on the IRS data. These hypothetical firm operating characteristics are then used to estimate the taxes in each of our states.

Table 2. Financial profiles for hypothetical small and large aerospace firms used in tax analysis

Metric	Source	Hypothetical Large Firm	Hypothetical Small Firm
Employment	Economic Census	10,018	54
Average compensation	EY Calculation, Economic Census	$91,600	$60,061
Receipts per employee	EY Calculation, Economic Census	$608,899	$243,321
Assets		***in ($,000s)***	***in ($,000s)***
Cash	IRS Corporate Source Book	468,819	$2,110
Notes and accounts receivable	IRS Corporate Source Book	630,667	$2,922
Less: Allowance for bad debts	IRS Corporate Source Book	($10,005)	($29)
Other current assets	IRS Corporate Source Book	$141,809	$413
Inventories	IRS Corporate Source Book	$1,136,626	$5,485
Loans to shareholders	IRS Corporate Source Book	$1,627	$599
Mortgage and real estate loans	IRS Corporate Source Book	$0	$56
Other investments	IRS Corporate Source Book	$1,217,665	$669
Depreciable Assets:			
%Furniture & Fixtures	EY Calculation, BEA and IRS data	1%	1%
%Office Equipment, Computers	EY Calculation	3%	3%
%Motor Vehicles	EY Calculation	16%	16%
%Other Machinery & Equipment	EY Calculation	26%	26%
%Industrial Structures	EY Calculation	46%	46%
%Commercial Structures	EY Calculation	4%	4%
%Other	EY Calculation	4%	4%
Depreciable Assets (gross)	EY Calculation	$1,463,408	$8,167
Land	IRS Corporate Source Book	$29,444	$74
Intangible assets (Amortizable)	IRS Corporate Source Book	$1,576,424	$1,104
Less: Accumulated amortization	IRS Corporate Source Book	($271,390)	($188)
Other assets	IRS Corporate Source Book	($28,998)	($4,927)
Total Assets	EY Calculation	**$6,400,000**	**$16,700**
Total Equity	EY Calculation	$1,906,881	$6,275
Total Debt	EY Calculation	$4,493,119	$10,425
Income and receipts			
Business receipts	IRS Corporate Source Book	$4,594,407	$21,696
Interest	IRS Corporate Source Book	$6,965	$6
Interest on govt. obligations, total	IRS Corporate Source Book	$4	$0
Dividends, domestic corporations	IRS Corporate Source Book	$104	$0
Dividends, foreign corporations	IRS Corporate Source Book	$10,914	$0
Other receipts	EY Calculation	$53,199	$113
Total Receipts	EY Calculation	**$4,716,743**	**$21,863**
Deductions			
Cost of goods	IRS Corporate Source Book	$3,297,844	$13,931

Metric	Source	Hypothetical Large Firm	Hypothetical Small Firm
Labor in CGS	EY Calculation	$700,310	$4,804
Materials & other inputs	EY Calculation	$2,597,534	$9,127
Compensation of officers	IRS Corporate Source Book	$9,285	$842
Salaries and wages	IRS Corporate Source Book	$217,296	$1,379
Interest paid	IRS Corporate Source Book	$60,948	$294
Amortization	IRS Corporate Source Book	$26,046	$51
Domestic production activities deduction	IRS Corporate Source Book	$18,236	$37
Other deductions	EY Calculation	$426,665	$907
Total Expenses	EY Calculation	**$4,515,894**	**$20,108**
Net Income	IRS Corporate Source Book	**302,610**	**2,580**
Net Income / Assets	EY Calculation	4.7%	15.5%
Business Receipts / Assets	EY Calculation	72%	130%
Rate of Return on Equity	EY Calculation	14%	36%
Debt-equity ratio	EY Calculation	2.4	1.7
Gross margin	EY Calculation	28%	44%
Profit margin	EY Calculation	7%	13%
Business Receipts / Total Receipts	EY Calculation	98%	99%

Source: EY analysis using IRS SOI corporate sourcebook data for NAICS 3364 firms; US Economic Census and US Bureau of Economic Analysis data

1.4 Benchmark locations included in analysis

The analysis compares the tax climate for the two representative aerospace firms in Washington State to that of 13 other states. The list of benchmark states was provided by JLARC and these states were selected in part due to the high level of aerospace activity in the state. To evaluate certain local taxes and certain features of state programs, the analysis required the selection of a specific city in each state. The county with the most employment in NAICS industry 3364 was selected in each state. Within each county, a location was selected based on current aerospace activity and the representativeness of tax levels.

Table 3. Benchmark states included in analysis and locations for property taxes

State	City (for local taxes)
Alabama	Huntsville
Arizona	Phoenix
California	Los Angeles
Colorado	Littleton
Connecticut	East Hartford
Georgia	Atlanta
Kansas	Wichita
Missouri	St Charles
North Carolina	Raleigh
Ohio	Cincinnati
South Carolina	North Charleston
Texas	Fort Worth
Utah	Salt Lake City
Washington	Seattle & Everett

2. State and local tax systems

Tax parameters for each of the 14 states were captured in the analysis to develop estimates of the tax burdens faced by the aerospace industry, including estimates of the tax burdens resulting from corporate income tax, sales tax, property tax, franchise tax, and gross receipts taxes such as the Washington B&O tax, Ohio CAT, and Texas Margin Tax.

- *Corporate tax*. The model reflects key corporate tax system features such as conformity with the US Internal Revenue Code, the definition and weighting of apportionment factors used to apportion income to the state, the presence of throwback and throw-out provisions, and the tax rate.
- *Sales tax*. The model reflects relevant tax base features including the taxability of purchased raw materials, manufacturing consumables, purchased services, utilities, machinery and equipment, and other relevant inputs that have varying tax treatment by state.
- *Property tax*. The assessment ratios, statutory rates for real and personal property, and depreciation schedules for tangible personal property are included in the model.
- *Franchise tax*. The tax base is estimated for those states imposing franchise taxes based on capital stock as reported on Form 1120.

2.1 Corporate income and gross receipts taxes

Table 4 shows the tax parameters by state for the corporate income, franchise, and gross receipts taxes. Of the 14 states in this study, 11 states have a corporate income tax and all but one with a flat corporate rate. Kansas has a 4% corporate income tax rate for taxable income less than $50,000 and a 7% rate for income that is greater than $50,000. The states without a state corporate income tax include Ohio, Texas, and Washington.

- The Commercial Activity Tax (CAT) in Ohio is a tax on gross receipts, which includes most business receipts for selling goods and services. For services, the receipt is sourced to Ohio based on the physical location of the purchaser that receives the benefit of the service. Receipts from out-of-state purchasers of services are not subject to the CAT.
- The Texas Margin tax is a tax on total revenue of a company after certain deductions.
- The Washington Business & Occupation (B&O) Tax is a gross receipts tax that is measured on the value of products, gross proceeds of sales, or gross income of the business. It is a tax on the seller of the business providing the good or service, rather than the purchaser. A manufacturer that sells its product is taxed at the manufacturing B&O tax rate, not the retailing or wholesale rate. The value of products is the tax base for the manufacturer, typically measured as sales.

Three states – Alabama, Georgia, and North Carolina- levy a franchise tax for the privilege of doing business in the state. Alabama has a graduated tax of 0.175% on income over $2.5 million

with a maximum tax for most businesses of $15,000. Georgia taxes net worth capped at a maximum tax of $5,000. North Carolina levies a 0.15% tax on the greater of net worth, 55% of assessed value of real and tangible personal property, or investment in tangible personal property.

The analysis also includes local business entity tax rates for Ohio and Washington. For property and local income tax purposes, the county with most employment in NAICS 3364 was identified in each state. A location was then selected within the county based on other aerospace activity. For Ohio, the Cincinnati local income tax rate is shown. For Washington, the local B&O tax rate is the average of Seattle and Everett rates for manufacturers.

Table 4. Corporate income, gross receipts, and franchise tax parameters

State	Tax base	State requires throwback?	State flat rate or highest marginal tax rate	State franchise tax rate	Local business entity tax
Alabama	Income	Yes	6.50%	0.18%	0.00%
Arizona	Income	No	4.90%	0.00%	0.00%
California	Income	Yes	8.84%	0.00%	0.00%
Colorado	Income	Yes	4.63%	0.00%	0.00%
Connecticut	Income	No	7.50%	0.00%	0.00%
Georgia	Income	No	6.00%	0.05%	0.05%
Kansas	Income	Yes	7.00%	0.00%	0.00%
Missouri	Income	Yes	6.25%	0.00%	0.00%
North Carolina	Income	No	3.00%	0.15%	0.00%
Ohio	Gross receipts	n/a	0.26%	0.00%	2.10%
South Carolina	Income	No	5.00%	0.00%	0.00%
Texas	Gross margin	No	0.75%	0.00%	0.00%
Utah	Income	Yes	4.95%	0.00%	0.00%
Washington	B&O	n/a	0.48%	0.00%	0.161%*

Source: EY analysis
*Note: The local B&O tax rate is shown as the average for Seattle and Everett for manufacturers

Apportionment factors used in the model for corporate income and gross receipts is shown in Table 5. In some states, manufacturers have the ability to select an apportionment formula. For example, Utah allows an election of double-weighted sales. The apportionment formula and the assumption around the apportionment of payroll, property, and sales to the state in which the new manufacturing facility will reside is shown as well. The model assumes that 15% of the facility's sales would go to customers in the state while all of the new property and payroll due to the facility would occur in the state in which it's located.

Table 5. Apportionment formulas used in analysis for corporate income and gross receipts taxes

State	Corporate income or gross receipts/margin tax apportionment used in analysis
Alabama	3 factor (payroll, property, sales) - double weighted sales
Arizona	3 factor (payroll, property, sales) - double weighted sales
California	1 factor (sales)
Colorado	1 factor (sales)
Connecticut	1 factor (sales)
Georgia	1 factor (gross receipts)
Kansas	3 factor - can elect sales only but did not in our analysis
Missouri	3 factor (payroll, property, sales)
North Carolina	1 factor (sales)
Ohio	1 factor (gross receipts attributable to the state)
South Carolina	1 factor (sales)
Texas	1 factor (gross receipts)
Utah	3 factor (payroll, property, sales)
Washington	1 factor (gross receipts sourced to the state)

Source: EY analysis using state revenue and tax law sources

The model has been adjusted to consider the impact of federal tax reform, the Tax Cut and Jobs Act (TCJA), on states. The data used to construct the financial profiles of the representative firms reflects a period prior to federal tax reform. Therefore, an adjustment to certain items must be made to accurately reflect the tax base. For certain federal provisions contained in TCJA deemed relevant to the analysis, EY estimated the resulting percentage change in taxable income. These estimates are based on the Joint Committee on Taxation budgetary impact estimates, with modifications to reflect industry differences in the impact of each provision. The analysis considers the following major business and international provisions to the extent deemed relevant for the representative facility:

- **Research and experimentation amortization (R&E)**: Requires amortization of domestic research and experimentation expenditures over five years. All states levying a corporate income tax conform to this change.
- **Like-kind exchange (LKE)**: Limits to exchanges involving real property only. All states levying a corporate income tax conform to this change.
- **Fringe benefit limitation (Fringe):** Limits the deduction of certain employee fringe benefits.
- **Domestic production activities deduction (DPD)**: TCJA repeals the Section 199 deduction for domestic production activities. Most of this deduction is taken by the manufacturing sector.

Table 6. Increases to the state corporate income tax base due to changes in certain tax law provisions because of TCJA

	R&E	DPD	Fringe	LKE
Year 1	0.00%	1.29%	0.84%	0.15%
Year 2	0.00%	2.52%	1.07%	0.25%
Year 3	0.00%	2.38%	1.00%	0.33%
Year 4	0.00%	2.44%	1.02%	0.43%
Year 5	6.04%	2.47%	1.02%	0.55%
Year 6	8.09%	2.53%	1.03%	0.71%
Year 7	6.24%	2.57%	1.03%	0.91%
Year 8	4.42%	2.60%	1.03%	1.10%
Year 9	2.59%	2.63%	1.09%	1.32%
Year 10+	1.38%	2.68%	1.05%	1.58%

Source: EY Analysis

Table 7 below summarizes each state's conformity to the major provisions of TCJA that are relevant for this analysis. States with rolling conformity have already adopted the new federal tax provisions as part of their tax codes. Many of the states with fixed conformity dates have adopted post-TCJA IRC dates, meaning they incorporate TCJA in their calculation of taxable income. For those fixed conformity states that have not yet adopted a post-TCJA conformity date, is it likely that this will occur in the near-term. Therefore, the analysis assumes that all states levying a corporate tax will conform to the post-TCJA IRC and remain coupled (and decoupled, as relevant) to the same IRC sections as they have historically.

Table 7. State conformity with provisions in federal corporate income tax

	R&E	DPD	Fringe	LKE
Alabama	100%	100%	100%	100%
Arizona	100%	100%	100%	100%
California	100%	0%	100%	100%
Colorado	100%	100%	100%	100%
Connecticut	100%	0%	100%	100%
Georgia	100%	0%	100%	100%
Kansas	100%	100%	100%	100%
Missouri	100%	100%	100%	100%
North Carolina	100%	0%	100%	100%
Ohio	0%	0%	0%	0%
South Carolina	100%	100%	100%	100%
Texas	100%	0%	100%	100%
Utah	100%	100%	100%	100%
Washington	0%	0%	0%	0%

Source: EY analysis

Federal reform also changed the tax treatment of incentives provided by government entities to corporations. Prior to TCJA, Section 118 of the Internal Revenue Code allowed for certain capital contributions from non-shareholders to be excluded from income. In other words, cash or land grants provided by governments would not be treated as gross income for the corporation. The

taxpayer's basis in the asset would be reduced by the amount of the grant so that the company would not receive a depreciation deduction on that portion of the asset. TCJA changed Section 118 so that grant proceeds from governmental entities are taxable upon receipt as gross income. However, there are exemptions for certain types of grants. When a grant is made as a part of a government's master development plan, and the plan was approved by the governmental entity before the enactment of TCJA, the grants may be grandfathered in and not treated as taxable gross income. Given the uncertainty surrounding the taxability of negotiated incentives depending on location, and that this report focuses on state and local taxes, this analysis does not reduce negotiated cash incentives due to potential federal or other taxes.

2.2 Property taxes

The model estimates real and personal property taxes paid in each state. Several categories of property are included in the model:

- Commercial Structures
- Industrial Structures
- Land
- Furniture & Fixtures
- Machinery & Equipment
- Motor Vehicles
- Office Equipment, Computers

Effective property tax rates are shown in Table 8. Real property includes the land, industrial structures, and commercial structures of the firm. The effective tax rate is the amount of tax paid as a percentage of full cash value, thus incorporating the assessment ratio and statutory tax rate. States with higher effective tax rates on real property include Kansas (3.392%), South Carolina (3.234%), Connecticut (3.210%), and Arizona (3.187%). States with lower effective tax rates include Washington (1.053%), Alabama (1.160%), and California (1.183%).

Personal property includes machinery and equipment, motor vehicles, furniture and fixtures, office equipment, computers, and inventories. Industrial personal property is subject to taxation in all states except Kanas and Ohio. Inventories are exempt from property taxation in all states except Georgia and Texas. Additionally, in the two states in which inventory is taxable (Georgia and Texas), freeport exemptions for inventory are commonly provided to companies who export their finished product from the state. Therefore, the estimated tax liabilities assume the representative aerospace company will receive a freeport inventory tax exemption in these two states.

Table 8. Industrial property tax parameters
(Effective tax rate (ETR) shown on full value; assessment ratios for reference)

State	ETR (real, industrial)	ETR (personal, industrial)	Assessment ratio (industrial)	Personal property taxable - intangible	Forklifts and motorized equipment taxed?	Inventories taxed?
Alabama	1.160%	1.160%	20%	No	Yes	No
Arizona	3.187%	3.187%	18%	No	No	No
California	1.183%	1.183%	100%	No	No	No
Colorado	2.078%	2.078%	29%	No	Yes	No
Connecticut	3.210%	3.210%	70%	No	Yes	No
Georgia	1.656%	1.656%	40%	No	No	Yes
Kansas	3.392%	0.000%	25%	Yes	No	No
Missouri	2.091%	2.091%	32%	No	Yes	No
North Carolina	1.252%	1.252%	100%	No	Yes	No
Ohio	2.973%	0.000%	35%	No	No	No
South Carolina	3.234%	3.234%	10.5%	No	No	No
Texas	2.371%	2.371%	100%	No	Yes	Yes
Utah	1.324%	1.324%	100%	No	Yes	No
Washington	1.053%	1.053%	100%	No	No	No

Source: EY analysis; state taxation websites and property tax millages for cities shown in Table 3.

2.3 Sales and use taxes

Sales and use taxes are paid on different types of purchases by the firms:

- Capital investment purchases of tangible personal property, such as machinery, equipment, computers, and office furniture used in operating the manufacturing facility;
- Capital investment purchases of materials and supplies used in constructing the manufacturing facility and in repairing and maintaining it; and
- Intermediate input purchases for the operation of the facility and component parts.

Table 9 shows sales tax parameters used in the model. The state rate is the state statutory sales tax rate while the local rate is the average local sales tax rate in the state, calculated using Census State and Local Finance data. Intermediate expenditures for the aerospace industry were obtained from the Bureau of Economic Analysis 2007 Input-Output benchmark use table, which is the most recent available at the required level of detail. Expenditures were classified as direct-use inputs, inputs consumed during manufacturing, purchased services, and other consumable goods. The sales taxability of each category generally, and each good or service purchased specifically, were researched for each state. The result is that most intermediate purchases are exempt for the aerospace industry in most states. As shown in the table, less than 5% of input purchases in the states would be subject to sales taxes.

Table 9. Sales and use tax parameters in model relevant for aerospace manufacturing

	Statutory state sales tax rate	Average local sales tax rate	% of intermediate inputs taxable	% of capital investments taxable (weighted – see Table 10)
Alabama	4.0%	3.4%	1.57%	38.9%
Arizona	5.6%	2.5%	0.61%	37.7%
California	7.25%	2.4%	1.99%	56.0%
Colorado	2.9%	4.0%	1.99%	29.9%
Connecticut	6.35%	0.0%	3.37%	29.9%
Georgia	4.0%	2.6%	0.45%	29.9%
Kansas	6.5%	1.9%	0.45%	42.9%
Missouri	4.225%	3.1%	0.57%	29.9%
North Carolina	4.75%	1.8%	1.90%	29.9%
Ohio	5.75%	1.1%	0.50%	29.9%
South Carolina	6.0%	0.9%	1.71%	29.9%
Texas	6.25%	1.5%	4.38%	46.7%
Utah	4.7%	1.7%	2.04%	29.9%
Washington	6.5%	1.7%	2.08%	42.9%

Source: EY analysis.
Note: Combined state and local rate is state sales tax rate plus the average of local sales tax rates in the state.

The tax treatment of capital investment expenditures by state is shown in detail in Table 10. In all states, furniture and office equipment would be taxable before the application of any statutory tax exemptions. While most states exempt from the sales tax manufacturing machinery and equipment, a few states tax machinery and equipment at a reduced rate rather than exempting it completely. Alabama taxes machinery and equipment at a reduced rate of 1.5% rather than the 4% state sales tax and California provides a partial exemption of 3.9375% from the state sales tax of 7.25% for machinery and equipment. EY has interpreted the category of motor vehicles to include equipment used in the manufacturing process, including forklifts and testing equipment. In most states, this equipment is exempt from the sales tax. The taxability of purchases of labor and materials during new construction, and then in maintaining and repairing real property after construction, are shown in the real property column. In most states, sales of construction labor are exempt from the retail sales tax. However, in Washington, almost all construction materials and services are taxable, except charges for the installation of manufacturing machinery and equipment at a manufacturing site. In Kansas, construction labor during new construction is exempt but repairs and on-going maintenance services are taxable. The weighted average of capital investments subject to the sales tax is shown in the last column on the right in Table 9.

Table 10. Sales taxes on personal and real property by state

	Furniture & fixtures	Machinery & equipment	Office equipment & computers	Forklifts and motorized equipment	Construction, repair & maintenance
Alabama*	100%	20%	100%	20%	50%
Arizona	100%	0%	100%	0%	65%
California*	100%	34%	100%	100%	50%
Colorado	100%	0%	100%	0%	50%
Connecticut	100%	0%	100%	0%	50%
Georgia	100%	0%	100%	0%	50%
Kansas	100%	0%	100%	0%	75%
Missouri	100%	0%	100%	0%	50%
North Carolina	100%	0%	100%	0%	50%
Ohio	100%	0%	100%	0%	50%
South Carolina	100%	0%	100%	0%	50%
Texas	100%	0%	100%	100%	50%
Utah	100%	0%	100%	0%	50%
Washington	100%	0%	100%	0%	75%

Source: EY analysis.
* Reduction in rates for Alabama and California are shown as a reduction to the total combined state and local sales tax rate. These are reductions before statutory incentives further reduce sales taxes for certain states.

2.4 Unemployment taxes

State unemployment tax rates and the taxable wage base of employees is shown in Table 11 below. The rates shown are for new employers in each state. States with the highest effective tax rates include Utah, Connecticut, and Washington while states with the lowest effective tax rates include Arizona, South Carolina, and Colorado.

Table 11. State unemployment taxes by state

	Unemployment tax rate	Taxable wage base
Alabama	2.70%	$8,000
Arizona	2.00%	$7,000
California	3.40%	$7,000
Colorado	1.70%	$12,500
Connecticut	3.90%	$15,000
Georgia	2.60%	$9,500
Kansas	2.70%	$14,000
Missouri	2.70%	$13,000
North Carolina	1.00%	$23,000
Ohio	2.70%	$9,000
South Carolina	1.20%	$14,000
Texas	2.70%	$9,000
Utah*	2.70%	$33,100
Washington*	1.00%	$45,000

*Note: Greater of industry average or 2.7% for Utah and greater of predetermined yield or 1% for Washington
Source: US Department of Labor, *Significant Measures of State Unemployment Insurance Tax Systems*, 2017 rates.

3. Pre-incentive tax burdens by state

3.1 Results by state

Total state and local effective tax rates for small and large aerospace firms is shown in Table 12 below. Washington has an overall ETR of 15.8% for the small aerospace firm, higher than the benchmark state average of 14.0% and making it the fourth highest overall ETR for small aerospace firms. Washington's tax environment is less competitive for large aerospace firms than the benchmark states with the second highest overall ETR at 20.9% and 34% higher the benchmark average of 15.6%.

Table 12. Pre-all incentives total overall ETR for small and large aerospace firms

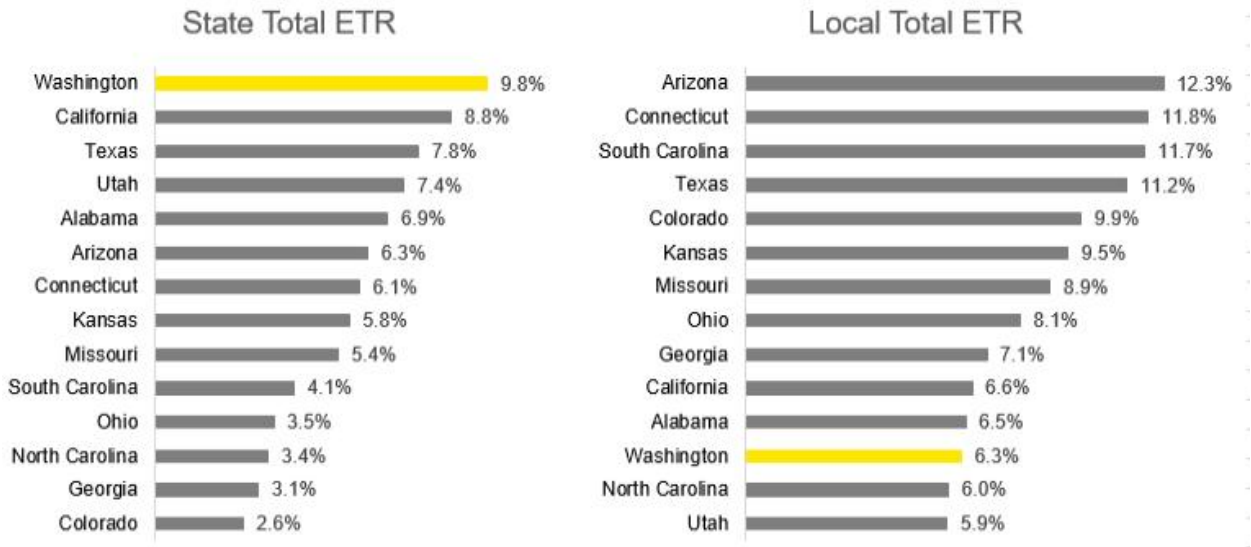
State	Small aerospace	*Rank*	Large aerospace	*Rank*
Alabama	13.1%	5	13.6%	4
Arizona	18.0%	13	19.6%	11
California	14.9%	9	15.9%	8
Colorado	12.3%	4	13.6%	5
Connecticut	17.4%	12	20.3%	12
Georgia	10.0%	2	10.7%	2
Kansas	14.7%	8	16.3%	9
Missouri	14.0%	7	14.7%	6
North Carolina	9.1%	1	9.9%	1
Ohio	11.3%	3	13.3%	3
South Carolina	15.4%	10	17.6%	10
Texas	18.4%	14	22.2%	14
Utah	13.1%	6	14.8%	7
Washington	**15.8%**	**11**	**20.9%**	**13**
Average, excluding WA	***14.0%***		***15.6%***	

Source: EY analysis

Figure 2 shows the total state ETRs and total local ETRs for the small aerospace firm. Washington's local ETR is one of the lowest at 6.3%, which is well below the benchmark average of 8.9%. However, Washington's total overall state ETR is the highest at 9.8%, resulting in Washington's above average total overall ETR for small aerospace. Washington's high state ETR is due to the B&O tax and the state sales tax. Washington's sales taxation of operating inputs is similar to other states, but Washington taxes most construction, repair, and maintenance services. Washington has the highest state sales tax ETR due to this.

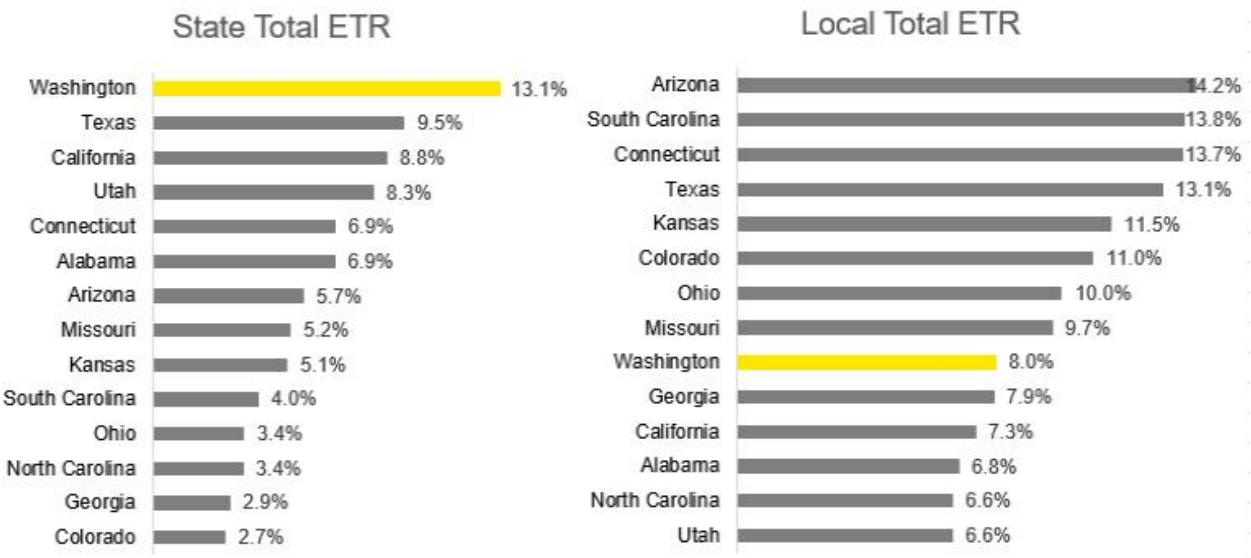
Figure 3 shows the total state ETR and total local ETR for large aerospace firm. Washington's state ETR is the highest of the states at 13.1%. The state corporate/business tax burden is highest in Washington with the B&O tax at the 0.484% for manufacturers. This rate is reduced with statutory incentives. The local B&O rate creates an additional burden on manufacturers. Most of the locations in this analysis do not have a local income tax.

Figure 2. Comparison of total state ETR and total local ETR for small aerospace



Source: EY analysis

Figure 3. Comparison of total state ETR and total local ETR for large aerospace



Source: EY analysis

3.2 Results by tax type

Results by tax type are shown first for the small aerospace firm in Table 13. Washington is well above the state average for corporate income/business entity tax due to the Washington B&O tax. Washington's state sales tax ETR is higher than the benchmark average due to the taxation of more services than the benchmark states and having the second highest state sales tax rate after California. Washington has the lowest property ETR. While Ohio and Kansas do not tax industrial personal property, the effective tax rates on real property are about three times Washington's effective tax rate.

Table 13. Pre-incentive ETRs by tax type for small aerospace firm

State	State sales tax	*Rank*	State corporate/ business entity tax	*Rank*	Local sales tax	*Rank*	Property tax	*Rank*
Alabama	2.7%	7	3.8%	13	2.3%	13	4.3%	3
Arizona	3.2%	9	2.9%	11	1.4%	9	11.0%	12
California	7.2%	14	1.1%	9	2.5%	14	4.2%	2
Colorado	1.6%	1	0.6%	3	2.2%	12	7.8%	9
Connecticut	3.9%	10	0.9%	7	0.0%	1	11.8%	14
Georgia	1.8%	2	0.7%	5	1.2%	6	5.9%	6
Kansas	4.1%	11	0.9%	6	1.2%	8	8.3%	10
Missouri	2.0%	3	2.7%	10	1.5%	10	7.6%	8
North Carolina	2.6%	4	0.3%	1	1.0%	5	5.0%	4
Ohio	2.7%	6	0.3%	2	0.5%	3	7.3%	7
South Carolina	3.2%	8	0.6%	4	0.5%	2	11.3%	13
Texas	6.3%	13	1.0%	8	1.5%	11	9.8%	11
Utah	2.6%	5	2.9%	12	0.9%	4	5.0%	5
Washington	**4.7%**	**12**	**4.3%**	**14**	**1.2%**	**7**	**3.7%**	**1**
Average, except WA	**3.4%**		**1.4%**		**1.3%**		**7.7%**	

Source: EY analysis

Pre-incentive results by tax type for the large aerospace firm is shown in Table 14. The results are similar for the large firm as for the small firm where states taxes are higher than the benchmark average and local taxes are below the benchmark average. North Carolina has a low state corporate/business entity ETR due to its low corporate income taxes with a 3.0% flat rate and single sales factor apportionment. Georgia has the lowest state sales tax ETR with a 4.0% state sales tax rate and very little sales and use taxation of intermediate input purchases.

Table 14. Pre-incentive ETRs by tax type for large aerospace firm

State	State sales tax	*Rank*	State corporate/ business entity tax	*Rank*	Local sales tax	*Rank*	Property tax	*Rank*
Alabama	2.4%	7	3.8%	13	2.0%	13	4.9%	2
Arizona	2.4%	8	2.8%	11	1.1%	9	13.2%	12
California	7.0%	14	1.1%	8	2.4%	14	5.0%	3
Colorado	1.4%	2	0.6%	2	2.0%	12	9.1%	8
Connecticut	4.0%	12	0.9%	7	0.0%	1	13.7%	14
Georgia	1.4%	1	0.7%	5	0.9%	7	7.0%	6
Kansas	2.9%	10	0.9%	6	0.9%	5	10.7%	10
Missouri	1.5%	3	2.5%	10	1.1%	10	8.7%	7
North Carolina	2.3%	5	0.3%	1	0.9%	6	5.8%	4
Ohio	2.0%	4	0.6%	4	0.4%	2	9.4%	9
South Carolina	2.8%	9	0.6%	3	0.4%	3	13.4%	13
Texas	6.8%	13	1.8%	9	1.6%	11	11.5%	11
Utah	2.3%	6	2.9%	12	0.8%	4	5.8%	5
Washington	**4.0%**	**11**	**7.7%**	**14**	**1.0%**	**8**	**4.4%**	**1**
Average, except WA	**3.0%**		**1.5%**		**1.1%**		**9.1%**	

Source: EY analysis

Table 15 shows the effective tax rates for state unemployment taxes. New employer tax rates are applied to taxable wages that vary by state. Washington's ETR is among the highest along with Utah and Connecticut.

Table 15. ETR for state unemployment taxes

State	Small aerospace	*Rank*	Large aerospace	*Rank*
Alabama	0.5%	*4*	0.8%	*4*
Arizona	0.3%	*1*	0.5%	*1*
California	0.5%	*6*	0.8%	*6*
Colorado	0.5%	*3*	0.8%	*3*
Connecticut	1.3%	*13*	2.1%	*13*
Georgia	0.6%	*9*	0.9%	*9*
Kansas	0.9%	*11*	1.3%	*11*
Missouri	0.8%	*10*	1.2%	*10*
North Carolina	0.5%	*5*	0.8%	*5*
Ohio	0.5%	*7*	0.9%	*7*
South Carolina	0.4%	*2*	0.6%	*2*
Texas	0.5%	*7*	0.9%	*7*
Utah	2.0%	*14*	3.2%	*14*
Washington	**1.0%**	***12***	**1.6%**	***12***
Average, except WA	***0.7%***		***1.1%***	

Source: EY analysis

4. Post-incentive tax burden results

This section discusses the impact of incentives on the tax burdens faced by the hypothetical small and large aerospace firms.

4.1 Statutory incentives

Statutory incentives for each state are shown in Table 16 on page 29. Statutory incentives often ower the primary business entity tax liability. In most states, that means reducing corporate income tax for the business, while in Ohio the credits apply to the CAT, in Texas to the Margin Tax and in Washington the credits apply to the B&O tax.

EY reviewed major categories of incentives and have included the following incentives:

- Tax credits due to job creation
- Tax credits due to investment
- Wage rebates
- Preferential tax rates
- Tax credits due to research and experimentation (R&E) expenditures
- Sales and use tax exemptions on capital investments

Several categories of incentives were excluded from the analysis:

- Specific geographic-based incentives, such as tax reductions for locating in an Enterprise Zone
- Credits tied to certain types of energy consumption or utility credits
- Credits for the training of workers

As described in report Section 2, certain tax exemptions were directly programmed into the model as not a specific statutory incentive. For example, the model includes the exemption of sales and use tax that applies to certain machinery and equipment used directly in the manufacturing process. This is a broad exemption, not specific to only aerospace manufacturers, and we included it as a feature of the tax law that generally applies to all manufacturers and have not treated it as a specific incentive.

Job and investment-based credits. Many states provide an income tax or other major business entity tax credit for jobs created or new investment made in the state. States vary in the number of jobs that need to be created to qualify for the credit, the length of the credit, and the credit amount per job. Some provide credits as a set amount per job, such as Arizona providing a tax credit of $3,000 per new job for three years while other states provide a credit for new jobs that is calculated as a percentage of new payroll such as Missouri Works Mega 140 program. Credits for investment are calculated as percentage of certain types of qualified fixed capital investments. The definition of qualifying investment varies by state where in some states, such as Connecticut, the qualifying investment includes certain types of personal property with an economic life of more than 4 years and no real property while other states, such as Arizona and Kansas consider real property as qualified investment.

R&E credits. Ten states provide a business entity tax credit for research and experimentation expenditures. Most states conform to the federal definition of qualified research expenses (QRE), although California uses a slightly different definition. States provide different calculations methods for the R&E credit amount, but most allow a credit that is equivalent to a certain percentage of QRE in the given year that is above a three-year average QRE. To calculate the likely credit that the small and large representative firms in our model would likely receive, we estimated qualified research expenses for four years. We analyzed data on R&E expenses as a share of business receipts using data for aerospace firms from the Compustat Database. The average QRE as a share of receipts was 3.46% for aerospace firms. Applying this percentage to the business receipts for our hypothetical firms yields a 2018 estimate of R&E expenses of $158 million for the large firm and $750 thousand for the small firm. Previous year expenditures were constructed adjusting the 2018 amounts for inflation. These QRE amounts could then be put through the various state formulas to calculate the R&E credits. These credits are then applied on state corporate income, Ohio CAT, and Texas margin taxes in the EY model. Basic research expenditures as a percentage of QRE was assumed to be 3.7% based on a National Science Board report. States with the most generous R&E credits include Utah and Arizona.

Preferential tax rates and other credits. Washington State provides several specific tax incentives to aerospace manufacturers. Aerospace manufacturers get a preferential B&O tax rate of 0.2904% compared to the standard 0.48% for manufacturers. Washington State also provides a property and leasehold excised tax B&O tax credit. The law provides a B&O tax credit equal to the property taxes paid on new buildings, land upon which the new buildings are located, the increased value of renovated buildings, and machinery and equipment that is subject to the machinery and equipment sales and use tax exemption.

Sales and use tax exemptions. Washington State provides a statutory sales and use tax exemption for labor and services used in constructing new buildings for the manufacturing of commercial airplanes. This statutory incentive is included in the model for both small and large representative firms. Washington also provides a sales and use tax exemption for computer equipment. South Carolina provides a statutory sales and use tax exemption for materials used in the construction of a single manufacturing facility with capital investment of at least $100 million. The model includes this incentive for the large representative firm only.

Table 16. Statutory incentives included in analysis

State	Type	Amount	Credit equal to:
Arizona	Jobs	$3,000/job	$3,000 per new job for 3 years
	Investment	10%	10% of the qualifying capital investment until 2022
	R&E	24%	24% of the first $2.5 million in qualifying expenses plus 15% of the qualifying expenses in excess of $2.5 million (sunsets 2022)
	R&E	20%	20% of the first $2.5 million in qualifying expenses plus 11% of the qualifying expenses in excess of $2.5 million (after 2022)
California	R&E	15% & 24%	15% of the excess of qualified research expense plus 24% of basic research payments
Connecticut	Investment	5%	5% for any new fixed capital investment with a class life of more than 4 years. Does not include real property.
	R&E (non-incremental)	1% & 4%	For the large firm: $1.5 million plus 4% of R&D spending that exceeds $100 million. For small firm: 1% of R&D spending that is less than $50 million. This credit used instead of the incremental R&E credit.
Colorado	Jobs	$1,200/job	Aviation Development Zone tax credit of $1,200 per new full-time employee.
Georgia	Jobs	$3,000/job for small	Quality Jobs Tax Credit of $3,000 per job for small firm. Large firm receives Mega Project Tax Credit in model instead.
	Jobs	$5,250/job	Mega Project Tax Credit of $5,250 per job, per year for the first five years of each qualifying job that is created.
	R&E	10%	Credit in the amount of 10% of the excess of current year base amount. Able to off-set 50% of income tax liability.
Kansas	R&E	6.5%	6.5% of the difference between the actual qualified research and development expenses for the year and the average of the actual expenditures made during the year and the two previous tax years
	Investment	10%	High Performance Incentive Program provides 10% credit for qualified business facility investment that exceeds $1 million
Missouri	Jobs	3.4% (small) 7.0% (large)	Missouri Works Statewide Works for small firm – 3.4% of payroll for 5 years; Mega 140 for the large firm – 7% of payroll for 5 years
Ohio	R&E	7.0%	7% of increase in R&E expenditures over previous 3 years
South Carolina	Jobs	$1,500/job	Jobs Tax Credit of $1,500 per new job
	Investment	2.5%	2.5% of company's investment in new production equipment
	R&E	5.0%	5% of qualified research expenses
	Sales tax	6.9%	Sales tax exemption for construction materials (large firm only)
Texas	R&E	5%	5% of the excess amount of current year qualified expenses over the base amount (50% of the average of the previous 3 years).
Utah	R&E	5.0%	5% credit for qualified research expenses in Utah for the current tax year that exceed a base amount (defined under UC §59-10-1012(3))
	R&E	5.0%	5% credit for payments made to a qualified organization for basic research in Utah for the current taxable year that exceed a base amount (defined under UC §59-10-1012(3)
	R&E	7.5%	Credit of 7.5% of qualified research expenses for the current year
Washington	B&O rate	0.2904%	Reduced B&O tax rate for aerospace firms of 0.2904%.
	R&E	1.5%	B&O tax credit for preproduction development expenditures for aerospace firms.
	Property taxes	--	B&O tax credit that is equal to the amount of property/leasehold tax paid on aerospace land and buildings.
	Sales tax	8.2%	Sales and use tax exemption for computer equipment
	Sales tax	8.2%	Sales and use tax exemption for the construction of new facilities to manufacture commercial airplanes

Source: EY analysis of state credits and incentive programs and statutes

4.2 Effect of statutory incentives on tax burdens

As shown in Table 17, statutory tax incentives had the largest impact on total overall ETR for the small firm in Washington State compared to the benchmark states. Washington's total ETR declined by more than 8 percentage points for the small firm and by more than 9 percentage points for the large firm. After considering statutory incentives, but not discretionary incentives, Washington's total effective tax rate is the lowest for the small representative firm and the fourth lowest for the large firm.

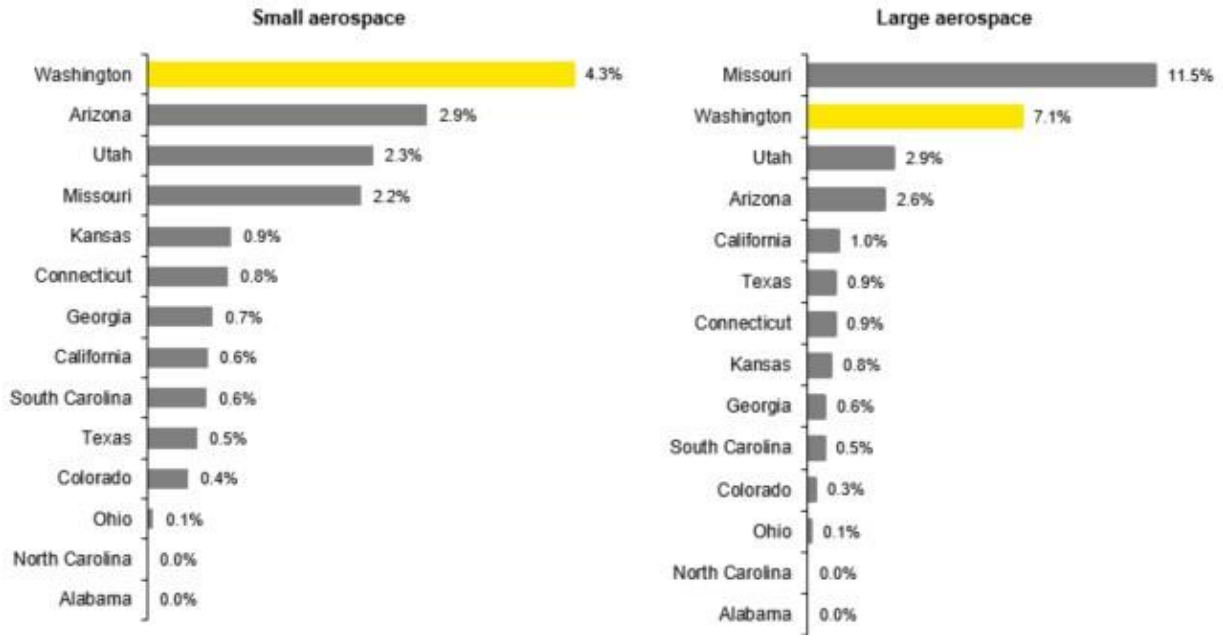
Table 17. Pre- and post-statutory incentives total state and local ETR for small and large aerospace firms

	Small aerospace representative firm				Large aerospace representative firm			
State	**Pre-incentive ETR**	**Post-statutory ETR**	**PP change**	***Rank***	**Pre-incentive ETR**	**Post-statutory ETR**	**PP change**	***Rank***
Alabama	13.1%	13.1%	0.0%	*8*	13.6%	13.6%	0.0%	*8*
Arizona	18.0%	15.3%	-2.7%	*12*	19.6%	17.1%	-2.5%	*12*
California	14.9%	14.3%	-0.6%	*10*	15.9%	14.9%	-1.0%	*9*
Colorado	12.3%	11.9%	-0.4%	*6*	13.6%	13.4%	-0.2%	*7*
Connecticut	17.4%	16.6%	-0.8%	*13*	20.3%	19.4%	-0.9%	*13*
Georgia	10.0%	9.3%	-0.6%	*3*	10.7%	10.1%	-0.6%	*3*
Kansas	14.7%	13.9%	-0.8%	*9*	16.3%	15.6%	-0.8%	*10*
Missouri	14.0%	12.1%	-2.0%	*7*	14.7%	4.4%	-10.3%	*1*
North Carolina	9.1%	9.1%	0.0%	*2*	9.9%	9.9%	0.0%	*2*
Ohio	11.3%	11.3%	-0.1%	*5*	13.3%	13.2%	-0.1%	*6*
South Carolina	15.4%	14.8%	-0.6%	*11*	17.6%	15.8%	-1.8%	*11*
Texas	18.4%	17.9%	-0.5%	*14*	22.2%	21.3%	-0.9%	*14*
Utah	13.1%	10.8%	-2.2%	*4*	14.8%	12.0%	-2.9%	*5*
Washington	**15.8%**	**7.4%**	**-8.4%**	***1***	**20.9%**	**11.5%**	**-9.4%**	***4***
Average, excluding WA	**14.0%**	**13.1%**	**-0.9%**		**15.6%**	**13.9%**	**-1.7%**	

Source: EY analysis

Statutory incentives lowered state corporate income/business entity taxes in all states but Alabama and North Carolina, which did not have statutory tax incentives, as shown in Figure 4. Washington's statutory incentives completely eliminate the B&O tax for the small aerospace firm. Arizona had the second largest decline in ETR for small aerospace due to the jobs, investment, and R&E tax credits that result in a 2.9 percentage point reduction to the total ETR for small aerospace firms. Utah provides a significant tax credit for qualified research expenses, which lowered the ETR by 2.3 percentage points for the small firm and 2.9 percentage points for the large firm. Missouri's Mega 140 program for the large aerospace firm provides an incentive of 7% of payroll for 5 years. The corporate income tax liability is eliminated for those five years and the incentive increases the large aerospace firm's after-tax cash flow, assigned here to the corporate/business entity tax analysis, resulting in the largest decline in corporate income/business entity tax ETR of the benchmark states.

Figure 4. Reduction in corporate income/business entity tax state ETR after statutory credits for small and large aerospace firms



Source: EY analysis

Statutory incentives significantly lowered the sales tax ETR for a few states. Statutory sales and use tax incentives lowered Washington's state sales tax ETR from 4.7% to 1.0% for the small firm and from 4.0% to 1.8% for the large firm. South Carolina offers a sales and use tax exemption for construction purchases when the investment is more than $100 million. For the large representative firm, this lowered the state sales tax ETR from 2.8% to 1.5% in South Carolina.

4.3 Negotiated incentives

Negotiated incentives further lower the total effective tax rate of firms in the aerospace industry in Washington and other states. The amount of benefit provided by negotiated incentives is determined at the discretion of economic development officials and cannot be estimated precisely. Therefore, discretionary incentive amounts included in this analysis reflect assumptions developed based on historical experience of practitioners, but will vary from the actual result realized by any particular company making an investment. Due to differing levels of uncertainty in the estimation of the two types of incentives, statutory and negotiated incentives are shown separately so that the individual impact of each category of incentive on ETRs can be observed. Table 18 summarizes negotiated incentives by state.

The types of negotiated incentives in the analysis include:

- Property tax abatements
- Sales and use tax exemptions
- Business tax credits
- Grants

Table 18. Negotiated incentives by state included in analysis

State	Negotiated incentive programs
Alabama	Investment credit equal to 1.5% of qualified capital investment for 10 years Jobs credit equal to 3% of prior year wages for employees for 10 years Property tax incentive Sales and use tax exemption on construction expenditures
Arizona	Arizona Competes (large firm only) – grant funding
California	California Competes Tax Credit California Alternative Energy and Advanced Transportation Financing Authority sales tax exemption for construction expenditures on personal property
Colorado	Advanced Industries Acceleration Act Job Growth Incentive Tax Credit (small firm); Strategic Fund (large firm) Local property incentive Local sales and use tax exemption on construction expenditures for personal property
Connecticut	Urban and Industrial Reinvestment Tax Credit (small firm) Employment, Payroll, Supplier Spend, Capital Expenditures, and Performance Incentives Grants (large firm) CT Innovation Sales Tax Refund Local property tax incentive
Georgia	REBA/EDGE grant Property tax incentive
Kansas	PEAK grant Kansas Job Creation Fund Property tax incentive Sales tax exemption for construction expenditures
Missouri	MEGA 140 discretionary 2% of payroll for 5 years (large firm only) Chapter 100 sales and property tax incentives
North Carolina	Property tax incentive Job Development Investment Grant
Ohio	Ohio Job Creation Tax Credit JobsOhio Economic Development Grant Local Job Creation Tax Credit Community Reinvestment Program (local property tax relief)
South Carolina	Job Development Credit Fee In Lieu of Property Tax (FILOT) Special Source Revenue Credit Governor's Closing Fund
Texas	Texas Enterprise Fund Texas Enterprise Zone Chapter 380/381 grant Property tax incentives
Utah	Economic Development Tax Increment Financing Tax Credit (EDTIF) Property tax incentives
Washington	Property tax incentive (city and county taxes) Local B&O tax credit

Source: EY analysis

Property tax incentives. In all but two of our states, the aerospace firms would likely receive a local property tax incentive. Arizona and California would provide other forms of incentives, but not a local property tax abatement. For the property tax incentives, there are differences in the type of taxes abated, the percentage abated, the types of property receiving the abatement and the length of the abatement. The average reduction during the time period is shown for the large and small firms. The reduction reflects the millages that are abated, which in some cases are all millages and in other locations non-school millages, such as city and county millages only. There are also differences in length of time. Most are 10 years in duration, but a few states allow longer terms such as 20 years in Alabama and Utah. Firms that invest more than $2.5 million in South Carolina can negotiate a fee-in-lieu of property taxes (FILOT). This lowers the assessment ratio from 10% to 6% for the small firm and down to 4% for the large firm. The length of the FILOT can be negotiated for the entire time period of our analysis (30 years). The analysis includes a local property tax abatement for city and county taxes in Washington for a 10 year period.[3] Table 19 shows the details of the property tax incentives by state.

Table 19. Property tax incentives included in analysis as negotiated incentives

State	Small average % reduction	Term (Years)	Large average % reduction	Term (Years)	Type of property abated
Alabama	47%	20	47%	20	Real and personal - non-educational taxes
Arizona	n/a	n/a	0%	n/a	n/a
California	n/a	n/a	0%	n/a	n/a
Colorado	27%	10	27%	10	Real & personal - city and county
Connecticut	70%	10	70%	10	Real only
Georgia	28%	10	28%	10	Real and personal
Kansas	50%	5	100%	10	Real only
Missouri	50%	10	75%	10	Real and personal
North Carolina	50%	10	75%	10	Real and personal
Ohio	75%	10	100%	10	Real property
South Carolina	43%	30	62%	30	Real and personal
Texas	57%	10	66%	10	Real and personal – school district included for large
Utah	50%	20	75%	20	Real and personal
Washington	71%	10	71%	10	Real only – city and county

Source: EY analysis using previous experience in states to estimate likely type of property tax incentive awarded to small and large aerospace firm.

Sales and use (SUT) tax incentives. All states in the analysis provide some type of sales tax exemption for machinery and equipment. Several states would likely provide an additional discretionary incentive for sales taxes on real and personal property during the construction and initial capital investment period. In our analysis, we made the following exemptions:

[3] Inclusion of a property tax incentive for Washington was based on the offering of city and county millage exemptions for a 10-year period by cities like Arlington, Washington (https://www.arlingtonwa.gov/DocumentCenter/View/2025/Ordinance-2016-008-Property-Tax-Exemption?bidId=).

- *Alabama* provides a reduced state sales tax rate for machinery and equipment. As a negotiated incentive, the model assumes all real and personal property purchased during construction would be exempt from state and local sales taxes.
- *California* provides a reduced SUT rate for machinery and equipment used in manufacturing. Under the California Alternative Energy and Advanced Transportation Financing Authority Sales and Use Tax Exclusion program, purchases of qualified tangible personal property can be exempt from the state and local sales and use tax. As an advanced manufacturer, the aerospace firms would qualify for this program.
- *Colorado* allows for local governments to negotiate a refund of local sales and use taxes on tangible personal property. We have included this incentive for local SUT on personal property acquired initially by the aerospace firms.
- *Connecticut* allows for a SUT exemption on construction materials and equipment. The model provides an exemption for sales and use taxes on real and personal property during the initial capital investment period.
- *Georgia* would provide a SUT abatement on construction materials for the large aerospace firm during the initial capital investment period.
- *Kansas* would provide a SUT exemption on items used to construct, build-out, furnish and equip the new facility.
- *Missouri* provides a SUT exemption on purchases of tangible personal property, fixtures, and materials for construction through the Chapter 100 financing program. The model exempts SUT on initial real and personal property purchases.

Grants and tax credits. Nine states in the analysis would likely provide a cash grant to aerospace firms. Some of these grants would be funded through a rebate of state withholding taxes for employees. For example, the Job Development Investment Grant (JDIG) in North Carolina is a discretionary incentive that is funded as a percentage of state withholding tax liabilities of new employees. South Carolina's Job Development Credit provides a refund of employee withholding taxes that ranges from 2% to 5% for a period not to exceed 10 years. The refund is limited to $3,250 per new employee annually. Missouri Works provides withholding taxes back and tax credits equivalent to a certain percentage of payroll. The large aerospace firm would qualify for the Mega Works 140 program which would provide a tax credit equal to 7% of payroll for 5 or 6 years. Kansas also provides withholding taxes back through the PEAK program. Based on past deals for large aerospace firms, the model assumes a cash grant provided to Connecticut during a period of 14 years based on meeting certain employment, payroll, supplier spend, and capital expenditure targets. The model assumes that Arizona would provide a grant to the large aerospace firm, but the not the small firm, through the Arizona Competes program. A cash grant through the REBA/EDGE program is included for Georgia. Utah provides a refundable income tax credit that is equal to 30% of new state revenues (sales taxes, corporate taxes, and withholding taxes paid to the state) over the life of the project up to 10 years. The analysis does not include grants for Washington State.

The analysis includes a local B&O tax credit for Washington. This is due to the provision of a B&O credit in Everett, one of the cities that we used for specific local taxes. A maximum tax credit of

$500,000 is included as a negotiated incentive.[4] The analysis includes a local income tax credit in Ohio through the Local Job Creation Tax Credit. A 50% income tax credit for 10 years has been included in the analysis for Ohio.

4.4 Effect of negotiated incentives on tax burdens

Negotiated incentives affect property, sales, and corporate/business entity taxes. Cash grants do not lower a specific tax liability, but are modeled as an increase in after-tax cash flows and are shown separately.

Large aerospace firm

Table 20 shows the impact of negotiated incentives on the large aerospace firm. Washington's total overall ETR for the large firm post statutory and negotiated tax credits, but pre-grant, (10.0%) is only slightly higher than the average of the benchmark states (9.2%). However, after grants are included in the cash flows, Washington's total overall ETR of 10.0% is significantly higher than the benchmark state average of 7.2%. Washington has the ninth lowest overall tax burden once all forms of incentives are included. The impact of negotiated incentives on the overall ETR for the large firm in Washington State is less than the impact in other peer states due to the lack of refundable credits and cash grants.

Table 20. Pre- and post-all incentives total state and local effective tax rates for large aerospace facility by state

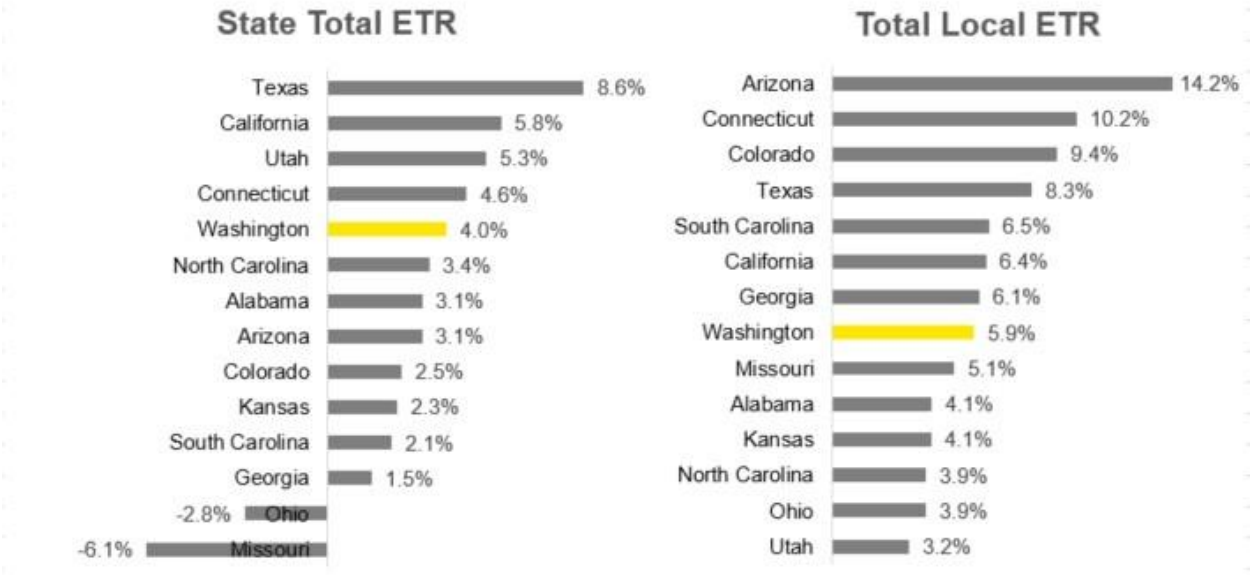
State	Pre-incentive ETR	*Rank*	Statutory tax incentive	Negotiated tax incentive	Post-incentive, pre-grant ETR	Grants	Post-all incentives ETR	*Rank*
Missouri	14.7%	6	-10.3%	-5.1%	-0.6%	-4.9%	-5.5%	1
North Carolina	9.9%	1	0.0%	-2.7%	7.2%	-9.5%	-2.2%	2
Ohio	13.3%	3	-0.1%	-12.1%	1.1%	0.0%	1.1%	3
Kansas	16.3%	9	-0.8%	-9.1%	6.5%	-3.2%	3.3%	4
South Carolina	17.6%	10	-1.8%	-7.1%	8.6%	-4.8%	3.8%	5
Georgia	10.7%	2	-0.6%	-2.6%	7.6%	-0.4%	7.2%	6
Alabama	13.6%	4	0.0%	-6.2%	7.3%	0.0%	7.3%	7
Utah	14.8%	7	-2.9%	-3.5%	8.5%	0.0%	8.5%	8
Washington	**20.9%**	**13**	**-9.4%**	**-1.5%**	**10.0%**	**0.0%**	**10.0%**	**9**
Colorado	13.6%	5	-0.2%	-1.6%	11.8%	-0.3%	11.5%	10
California	15.9%	8	-1.0%	-2.7%	12.2%	0.0%	12.2%	11
Connecticut	20.3%	12	-0.9%	-4.6%	14.9%	-1.0%	13.9%	12
Texas	22.2%	14	-0.9%	-4.5%	16.8%	-0.8%	16.0%	13
Arizona	19.6%	11	-2.5%	0.0%	17.1%	-0.2%	17.0%	14
Average, excluding WA	***15.6%***		***-1.7%***	***-4.7%***	***9.2%***	***-1.9%***	***7.2%***	

Source: EY analysis

[4] See City of Everett city ordinance 3.24.105.

Washington's state total ETR is tenth lowest and its total local ETR seventh lowest for the large aerospace firm. Washington's effective property tax rate is the second lowest of the states, but the local B&O tax and higher local sales taxes keep it from having one of the lowest overall local ETRs. See Figure 5.

Figure 5. Total state and total local ETR for large aerospace firms after statutory and negotiated incentives



Source: EY analysis

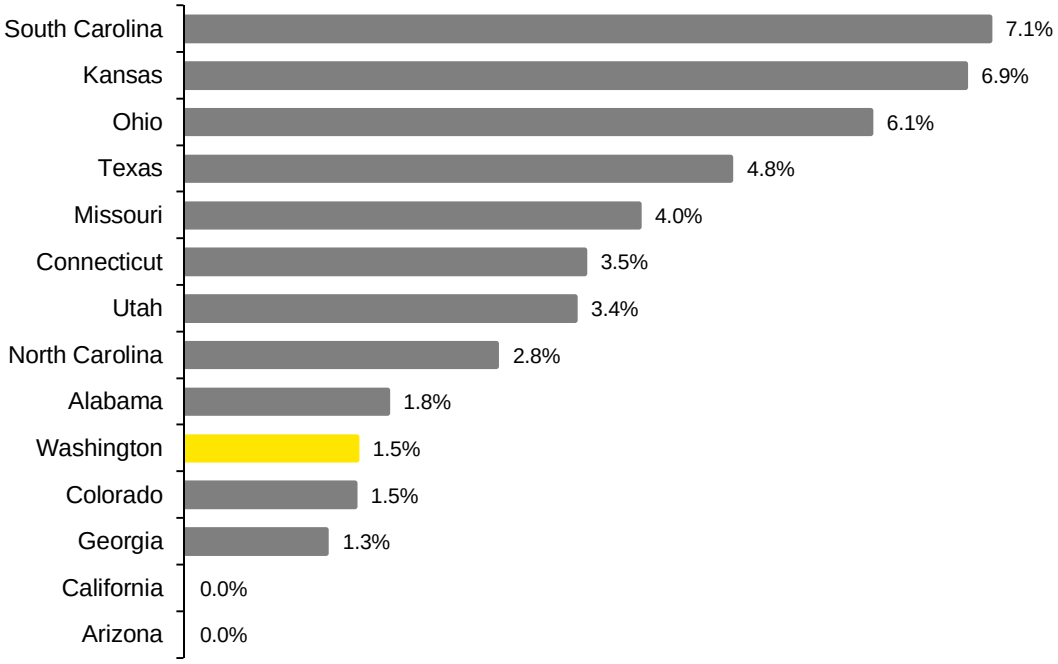
Washington's tax incentives do not completely offset the B&O tax liability for the large aerospace the firm. In other states, such as North Carolina and Missouri, incentives are provided that more than offset the firm's overall tax liability, resulting in a negative ETR. Table 21 shows the reduction in corporate/business entity taxes once grants are included. Washington has the second highest corporate/business entity ETR post-incentives. Property taxes are the second lowest, but as shown in Figure 6, this is due to the tax structure rather than large property tax abatements. South Carolina's post-incentive property tax ETR is fifth highest of the states, but the fee-in-lieu of property tax agreement that lowers the assessment ratio from 10.5% to 4% results in the largest reduction in property tax ETR of the states. Kansas has a large reduction in property tax ETR due to a 100% abatement of real property taxes for 10 years. Kansas already exempts industrial personal property from taxation.

Table 21. Pre- and post-incentives for corporate/business entity state ETR with grants and local property ETR for large aerospace firms

State	Pre-incentives corporate/ business entity	Post-incentives corporate/ business entity	*Rank Post*	Pre-incentives property	Post-incentives property	*Rank Post*
Alabama	3.8%	1.1%	14	4.9%	3.1%	4
Arizona	2.8%	0.1%	11	13.2%	13.2%	14
California	1.1%	0.0%	10	5.0%	5.0%	8
Colorado	0.6%	0.0%	9	9.1%	7.6%	12
Connecticut	0.9%	-1.0%	6	13.7%	10.2%	13
Georgia	0.7%	-0.3%	7	7.0%	5.8%	9
Kansas	0.9%	-3.1%	5	10.7%	3.8%	6
Missouri	2.5%	-13.9%	1	8.7%	4.7%	7
North Carolina	0.3%	-9.2%	2	5.8%	3.0%	3
Ohio	0.6%	-5.7%	3	9.4%	3.3%	5
South Carolina	0.6%	-4.8%	4	13.4%	6.3%	10
Texas	1.8%	0.1%	12	11.5%	6.7%	11
Utah	2.9%	-0.1%	8	5.8%	2.4%	1
Washington	**7.7%**	**0.6%**	**13**	**4.4%**	**2.9%**	**2**
Average, excluding WA	***1.5%***	**-2.8%**		***9.1%***	***6.0%***	

Source: EY analysis

Figure 6. Reduction in local property tax ETR due to property tax incentives for large aerospace firm



Source: EY analysis

Small aerospace firm

Table 22 shows the impact of negotiated incentives on the small aerospace firm. Washington's pre-grant, post-incentives total overall ETR is competitive at 6.1%, ranking third lowest. After grants are included, of which Washington has none, it falls to eighth lowest total overall ETR post-all incentives at the benchmark state average of 6.1%. Negotiated tax incentives significantly reduce the total overall ETR for the small firm in California and Ohio, but post-all incentives the states end up with very different rankings. In California, income tax credits and sales tax exemptions lower the ETR. In Ohio, a lower ETR is driven by property tax incentives through the Community Reinvestment Area program, and CAT credits through the Ohio Job Creation Tax Credit along with cash grants through JobsOhio. Since Ohio was a lower tax state for the small aerospace firm before incentives, negotiated incentives and grants make Ohio the third lowest tax state for small aerospace while California is third highest ETR post-all incentives. South Carolina has the lowest total ETR due to significant property tax incentives, tax credits, and grants.

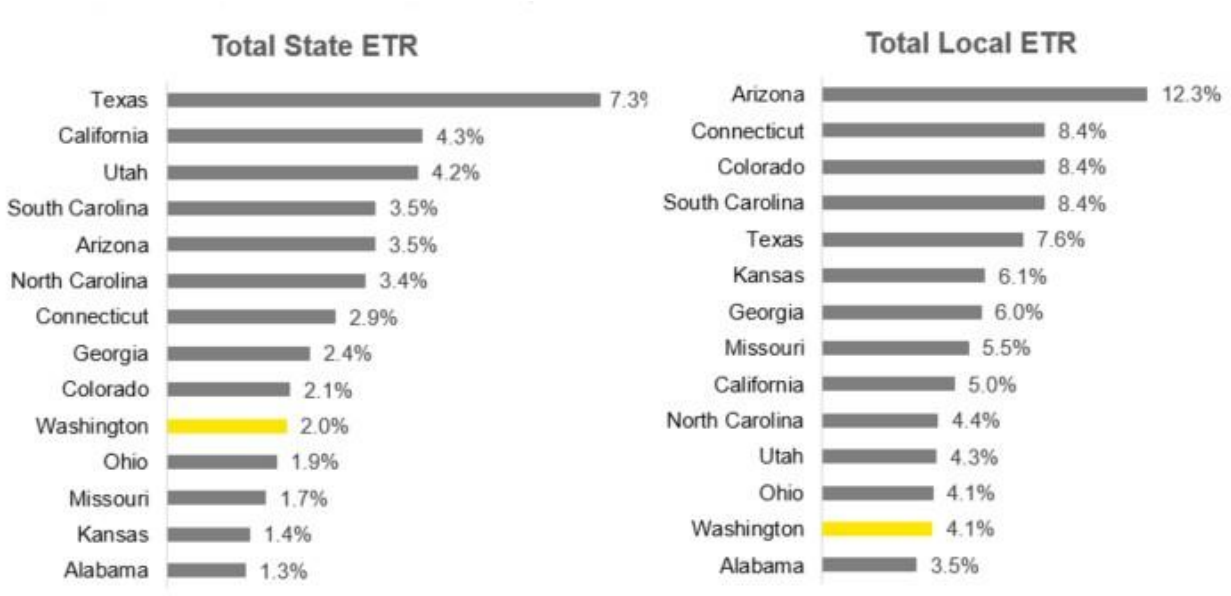
Table 22. Pre- and post-all incentives total state and local ETRs by state for small aerospace firm

State	Pre-incentive ETR	*Rank*	Statutory tax incentive	Negotiated tax incentive	Post-incentives, pre-grant ETR	Grants	Post-all incentives ETR	*Rank*
South Carolina	15.4%	10	-0.6%	-3.3%	11.6%	-15.4%	-3.8%	1
Kansas	14.7%	8	-0.8%	-6.4%	7.5%	-5.6%	2.0%	2
Ohio	11.3%	3	-0.1%	-5.4%	5.9%	-2.4%	3.6%	3
North Carolina	9.1%	1	0.0%	-1.6%	7.6%	-3.5%	4.1%	4
Connecticut	17.4%	12	-0.8%	-5.5%	11.2%	-7.0%	4.2%	5
Alabama	13.1%	5	0.0%	-8.2%	4.9%	0.0%	4.9%	6
Missouri	14.0%	7	-2.0%	-4.9%	7.2%	-1.2%	6.0%	7
Washington	**15.8%**	**11**	**-8.4%**	**-1.3%**	**6.1%**	**0.0%**	**6.1%**	**8**
Georgia	10.0%	2	-0.6%	-1.1%	8.2%	-1.1%	7.1%	9
Colorado	12.3%	4	-0.4%	-1.6%	10.3%	-2.2%	8.0%	10
Utah	13.1%	6	-2.2%	-2.5%	8.4%	0.0%	8.4%	11
California	14.9%	9	-0.6%	-5.1%	9.2%	0.0%	9.2%	12
Texas	18.4%	14	-0.5%	-3.5%	14.4%	-4.3%	10.1%	13
Arizona	18.0%	13	-2.7%	0.0%	15.3%	0.0%	15.3%	14
Average, excluding WA	***14.0%***		***-0.9%***	***-3.8%***	***9.4%***	***-3.3%***	***6.1%***	

Source: EY analysis

Figure 7 shows the total state ETR and total local ETR after the inclusion of both statutory and negotiated tax credits. Washington has the third lowest state ETR and second lowest local ETR.

Figure 7. Total state and total local ETRs for small aerospace post statutory and negotiated tax credits and incentives



Source: EY analysis

Table 23 shows the pre- and post-tax incentive total ETRs for corporate/business entity taxes and local property taxes. These are the two major taxes affected by the statutory and negotiated tax incentives. The post-incentive ETR for corporate/business entity includes grants. For a majority of states in the analysis, the inclusion of grants makes the corporate/business entity ETR negative, meaning the combination of tax credits and grants more than offsets the business tax liability during the 30 year period.[5] South Carolina's corporate/business entity post-incentives ETR is the lowest due to the Job Development Credit that refunds a portion of employee state withholding taxes. The impact of Connecticut's grants can be seen in this table where the corporate income ETR is the second lowest of the states.

Table 23 also shows the pre- and post-incentive ETR for property taxes. Washington had the lowest ETR on real industrial property of the states before incentives. Once property tax incentives are included, Washington continues to have the lowest property tax ETR of the states. Alabama's property tax abatements were modeled for twenty years, providing abatements for non-educational taxes that reduced taxes by almost 50%. One of the largest changes in property tax ETR is in South Carolina where fee-in-lieu of property taxes reduced the assessment ratio from 10.5% to 6% for the small firm. The result was a 43% reduction in property taxes in South Carolina. See Figure 8 for the change in property tax ETRs for the small aerospace firm due to incentives.

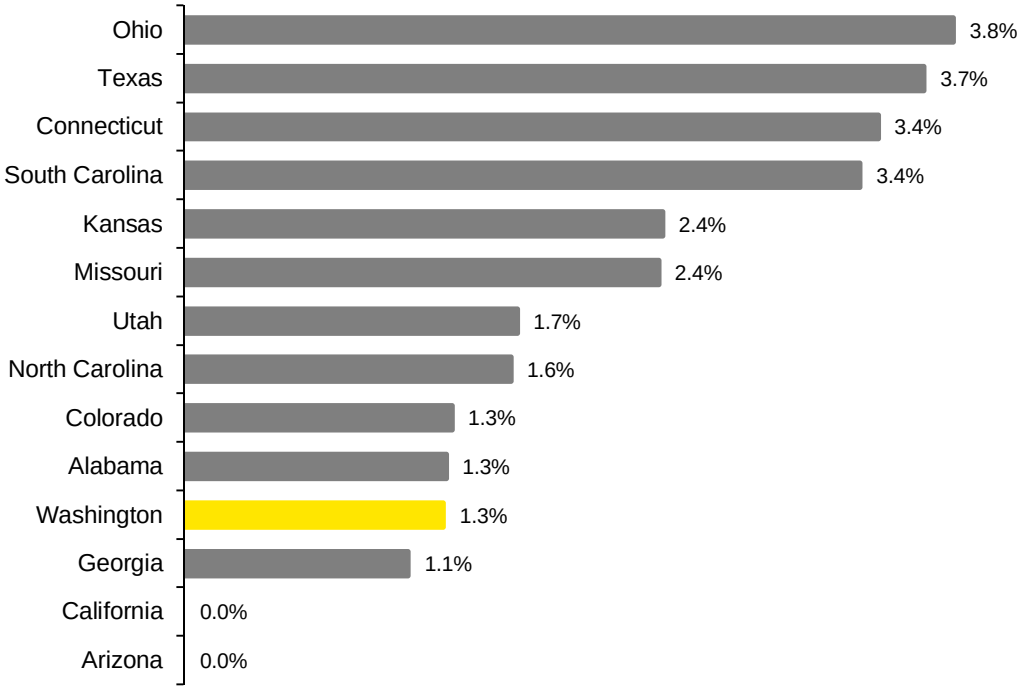
[5] With the passage of TCJA, grants could be subject to corporate income taxes, which have not been modeled here. However, a range of grant amounts is possible. Included in the analysis is the lower estimate from EY professionals, potentially correcting for any tax payments that would be due on the grants.

Table 23. Pre- and post-incentives for corporate/business entity total ETR and local property ETR for small aerospace firms

State	Pre-incentives corporate/ business entity	Post-incentives corporate/ business entity	*Rank Post*	Pre-incentives property	Post-incentives property	*Rank Post*
Alabama	3.8%	0.2%	14	4.30%	3.0%	2
Arizona	2.9%	0.0%	11	11.01%	11.0%	14
California	1.1%	0.1%	13	4.24%	4.2%	6
Colorado	0.6%	-2.2%	7	7.85%	6.5%	11
Connecticut	0.9%	-6.9%	2	11.82%	8.4%	13
Georgia	0.7%	-1.1%	8	5.95%	4.8%	7
Kansas	0.9%	-5.5%	3	8.34%	6.0%	9
Missouri	2.7%	-0.6%	9	7.62%	5.3%	8
North Carolina	0.3%	-3.2%	6	5.01%	3.4%	3
Ohio	0.3%	-3.7%	5	7.33%	3.5%	5
South Carolina	0.6%	-15.4%	1	11.27%	7.9%	12
Texas	1.0%	-3.8%	4	9.78%	6.1%	10
Utah	2.9%	-0.3%	10	5.05%	3.4%	4
Washington	**4.3%**	**0.0%**	**12**	**3.73%**	**2.4%**	**1**
Average, excluding WA	***1.4%***	***-3.3%***		***7.7%***	**5.7%**	

Source: EY analysis

Figure 8. Change in local property tax ETR due to property tax incentives for small aerospace firm



Source: EY analysis