

TO: ZACHARY Q. JACKSON, INDIANA STATE BUDGET DIRECTOR
FROM: JACOB ALDER, TAX ANALYST
DATE: FEBRUARY 23, 2022
RE: DYNAMIC ADEQUACY OF INDIANA TAX ON TOBACCO

The purpose of this memorandum is to provide insight on two measures that comprise a representative tax system: fiscal capacity and tax effort. I used state level tax and consumption data from 2012 from all 50 states to calculate the two metrics.¹

The methodology to calculate the representative tax system (RTS) fiscal capacity index involves six steps. I provided examples below each step.

1. Identify consistent revenue sources from tax collections for each state
For example, every state has a motor fuels sales tax
2. Identify an “ideal” tax base for each revenue source, consistent across each state
Calculate the motor fuel consumed in each state, in gallons
3. Calculate the national base rate by summarizing each state’s actual collections
National collection is equal to the sum of all states, $r = \sum_{i=1}^{50} T_i / \sum_{i=1}^{50} B_i$, where r is the nationally representative rate, T_i is the revenue collected from the motor fuel tax in each state, and B_i is the total gallons consumed in each state
4. Estimate the state’s potential revenue collection using the base rate from step 3
Multiply r by B_i
5. Obtain revenue capacity for each state
Divide the new motor fuel base by each state’s respective population, then obtain a nationally representative total by aggregating the motor fuel base for each state, scaling for national population.
6. Calculate the RTS index state per capita and multiply by 100
Divide each state’s respective capacity by step 5 and scale by 100

The methodology to calculate the RTS tax effort index involves the same first four steps to obtain tax capacity, thus, the number starts at 5. I provide examples below.

5. Obtain the total actual collections
For example, sum the motor fuel tax revenue across all states
6. Divide actual collections by total tax capacity and multiply by 100
Sum of motor fuel tax / sum of motor fuel tax capacity, scaled by 100

¹ The tax data comprise: (1) General Sales Tax, (2) Motor Fuel Tax, (3) Individual Income Tax, (4) Tax on Utilities, (5) Tobacco Tax, and (6) Corporate Income Tax. The base for each of the tax, respectively, comprise: (1) Total Consumer Revenue, (2) Total Fuel (in gallons), (3) Personal Income, (4) Utility receipts in state GDP, (5) Cigarettes Sold, and as a proxy for Corporate Income, I used (6) State GDP. I converted each variable to a standard unit, thousands. For example, State GDP is measured in millions of dollars, so I multiplied by 1,000 to standardize the unit for equal comparison.

I provide the top five and bottom five results in the subsequent table. For your convenience, I also included Indiana and its respective ranking for each measure. Indiana ranked 35th for fiscal capacity and thirteenth for tax effort. The lower ranking of fiscal capacity indicates that the State may require greater revenue sharing, as it is ranked in the bottom half of states. The fiscal capacity measure takes into account Indiana's population, which is smaller compared to the top ten states.

The higher tax effort index (right) shows that with a different measure, Indiana's tax capacity is greater, likely because this measure does not incorporate Indiana's population as a metric. Thus, Indiana has comparatively high revenue and base capabilities, indicative of the state's strong economy.

TABLE 1. REPRESENTATIVE TAX SYSTEM CAPACITY MEASURES

Rank	State	Fiscal Capacity	Rank	State	Tax Effort
		RTS Index			RTS Index
1.	North Dakota	134.69	1.	Hawaii	177.02
2.	Connecticut	128.06	2.	Connecticut	137.50
3.	Massachusetts	125.38	3.	Minnesota	129.34
4.	Wyoming	122.28	4.	New York	128.25
5.	New Jersey	119.11	5.	California	125.92
35.	Indiana	92.47	13.	Indiana	110.37
46.	Arizona	86.35	46.	Texas	65.54
47.	Arkansas	85.93	47.	South Dakota	60.37
48.	Idaho	83.26	48.	Wyoming	58.33
49.	Mississippi	82.55	49.	Alaska	44.47
50.	Utah	82.47	50.	New Hampshire	33.27

Note: Representative Tax System (RTS) indices on the left, Fiscal Capacity, incorporates a state's population in comparison to its revenue; Tax Effort on the left, does not incorporate population metrics.

These fiscal capacity indices show an important difference compared with what would be perhaps a more standard measure of comparison, such as ranking a state by its per capita income, or per capita GDP. Since prices, consumption, and revenues all vary by state and region, these measures are only crude estimations of the actual capacity in the state's fiscal system. I provide a more typical ranking of states in Table 2.

The evidence suggests that low fiscal capacity states exert greater effort to provide state government services.

TABLE 2. STATE PER CAPITA INCOME AND PER CAPITA GDP COMPARISON MEASURES

Rank	State	Per capita	Rank	State	Per capita
		Income (\$K)			GDP (\$K)
1.	Connecticut	60.18	1.	Alaska	79.25
2.	Massachusetts	56.62	2.	Wyoming	70.86
3.	North Dakota	56.28	3.	North Dakota	70.27
4.	New Jersey	54.88	4.	Connecticut	66.74
5.	New York	54.01	5.	New York	66.43
39.	Indiana	38.14	29.	Indiana	45.93
46.	New Mexico	35.79	46.	Arkansas	38.68
47.	South Carolina	35.35	47.	South Carolina	37.34
48.	West Virginia	35.15	48.	West Virginia	37.02
49.	Idaho	35.14	49.	Idaho	36.57
50.	Mississippi	33.45	50.	Mississippi	34.63