Lindenwood University
Digital Commons@Lindenwood University

Center for Economics and the Environment | The John W. Hammond Institute for Free Enterprise

2017

# Comparing Income Tax Liability Across States: Where Does Missouri Rank?

R. W. Hafer
*Lindenwood University*

Michael Rathbone
*Show-Me Institute*

Follow this and additional works at: https://digitalcommons.lindenwood.edu/cee

## Recommended Citation

Hafer, R. W. and Rathbone, Michael, "Comparing Income Tax Liability Across States: Where Does Missouri Rank?" (2017). *Center for Economics and the Environment*. 23.
https://digitalcommons.lindenwood.edu/cee/23

This Article is brought to you for free and open access by the The John W. Hammond Institute for Free Enterprise at Digital Commons@Lindenwood University. It has been accepted for inclusion in Center for Economics and the Environment by an authorized administrator of Digital Commons@Lindenwood University. For more information, please contact phuffman@lindenwood.edu.

# Comparing Income Tax Liability Across States: Where Does Missouri Rank?

**By R.W. Hafer and Michael Rathbone**

The Hammond Institute
CENTER FOR ECONOMICS AND THE ENVIRONMENT
AT LINDENWOOD

The Center for Economics and the Environment is an economics research center in the John W. Hammond Institute for Free Enterprise. Its focus includes policy-oriented research on the business and economic environment, particularly of state and local economies.

**CEE Policy Series**
**Number 20**

**2017**

**This paper is reprinted with the permission of the Show-Me Institute. It previously appeared as a Show-Me Institute Essay, October 2015.**

**www.showmeinstitute.org**

## EXECUTIVE SUMMARY

The answer to the question "Is Missouri a low-tax state?" depends on the approach used. This paper addresses the question by comparing income taxes. Specifically, for purposes of comparison we calculate, for each state, the income tax liability for a representative family of four earning the national median income. With this information we then compare the income tax liability across states, ranking them from highest to lowest. Using our approach, we find that Missouri ranks in the top half of states according to income tax liability. In other words, our ranking shows that Missouri is not a low-tax state.

## 1. INTRODUCTION

Is your state a "low-tax" state? This is an often-asked question, because it has important economic implications. Think of it: If all other factors that go into deciding where to live were equal (e.g., weather, proximity of beaches or mountains, lack of crime, access to cultural activities), would you prefer to live in a state that taxes away more or less of your income? Presumably, you would prefer to have more of your income to spend as you wish rather than less.

This question is easier to ask than to answer, for several reasons. One is that not all states levy the same tax rates against the same level of income. That is to say, marginal tax rates on the same amount of income vary across states. Another complication is that states (not to mention localities within states) impose different taxes at different rates. Sales taxes differ not only across but also within states; property taxes are inconsistent; and most states have a jumble of tax credits that ease the tax burden on select groups within their borders.

To answer the question opening this essay, we propose an admittedly imperfect but workable and hopefully transparent method. Our approach is to calculate the state income tax liability for a representative family in every state that levied an income tax for the tax year 2014. We use this calculated tax liability to rank the states from highest (most taxes paid) to lowest. Note that we do not calculate what this representative family actually may have paid in total state taxes, which would include income, sales, property, and other taxes. Rather, we focus on the family's basic income tax liability: the basic tax paid if the family did not take advantage of additional tax credits, deductions, and loopholes. We believe that approaching the question of "who faces the larger tax liability" in this manner creates a useful ranking of states, one that is not grossly affected by states' idiosyncratic tax codes.

Before we get to our ranking analysis, we first consider the question "Why income taxes?" and follow with a fairly detailed

description of the procedures we used to arrive at the representative family's tax liability across states. We then present our ranking of states according to our measure of tax liability. For purposes of comparison, we also report rankings based on alternative approaches used by the Tax Foundation.

## 2. WHY INCOME TAXES?

The old adage is that if you want people to stop doing something, tax that activity. This view is firmly based in standard economic theory and everyday common sense. How does the government influence you to stop smoking? Raising the cigarette tax increases what the consumer pays for a pack of smokes and makes the relative price of smoking higher than that of substitute activities. With this higher price, many people are likely to smoke less or quit altogether. Similarly, raising gasoline taxes or imposing a carbon tax increases the cost of driving, which in turn decreases driving and thereby reduces pollution.[1]

As theory suggests that raising taxes on gas or cigarettes leads to reduced use, a tax on labor income will also distort labor markets.[2] In essence, imposing an income tax leads to less labor (think of this as hours worked) being supplied at the going market wage rate. Given employers' existing demand for hours worked by employees, the effect is to reduce the amount of labor in the market. Imposing an income tax reduces the number of hours of work compared to a market in which there is no income tax. If the remaining workers are no more productive than before the tax was imposed, the longer-term dynamic is such that income and output produced by these workers falls. That is, states or countries with higher tax burdens on workers could see overall income fall (or not grow as fast) relative to lower-taxed states. Indeed, there is ample evidence that states (and countries) with lower tax burdens tend to perform better economically (income and output grows faster) than those with higher tax burdens.[3] We thus take it as a stylized fact that lower income tax rates are preferable to higher tax rates, all else the same.

## 3. WHICH TAX OBLIGATION?

We noted earlier that our analysis focuses on the tax liability facing our family. This means that we will not calculate and compare actual taxes paid for our representative family. If total taxes paid were of interest, we could rely on the Tax Foundation's measure of state and local taxes paid per capita. But "total taxes paid" confounds income taxes and other taxes. It also reflects the myriad of state exemptions and

**Table 1**

**COMPARISON OF TAX CREDITS**

CREDITS AVAILABLE TO TAXPAYERS VARIES GREATLY ACROSS STATES

| **Missouri** | **Louisiana** | |
|---|---|---|
| Affordable housing assistance | Angel investor | Louisiana community development financial institutions |
| Champion for children | Brownfields investor | Motion picture investment |
| Family development account | Bulletproof vest | Organ donationOwner of newly-constructed accessible home |
| Food pantry | Capital company | Partial federal credits (elderly, foreign tax, investment tax, residential energy, and jobs) Port of Louisiana investor |
| Historic preservation | Child care | Prison industry enhancement |
| Income taxes paid to other states/subdivisions | Contributions of technological equipment to educational institutions | Qualified playgrounds |
| Maternity home | Conversion of vehicle to alternative fuel | Small town doctor/dentist |
| Pregnancy resource | Digital interactive media | School readiness |
| Property tax | Disabilities | Technology commercialization |
| Pubic safety officer surviving spouse | Earned income tax credit | Urban revitalization |
| Residential dwelling accessibility | Education | Wind and solar energy systems |
| Self-employed health insurance | Family responsibility programs | **Arkansas** |
| Shared care for the elderly | Historic residential/historic structures | Adoption expenses |
| Shelter for victims of domestic violence | Household expense for physically and mentally incapable persons | Child care |
| Special needs adoption | Income taxes paid to other states | Income taxes paid to other states |
| | Law enforcement education | Phenylketonuria disorder |
| | Louisiana citizens property insurance assessment | Political contributions |

Source: Wisconsin Fiscal Bureau (2015)

http://legis.wisconsin.gov/lfb/publications/Informational-Papers/Documents/2015/4_Individual%20Income%20Tax%20Provisions%20in%20the%20States.pdf

credits. To give an idea how state-level tax credits could distort a comparison of taxes paid across states, Table 1 reports just one aspect of the state tax code—tax credits allowed—for three representative states. In addition to Missouri, we include Arkansas and Louisiana simply because they represent states with few and many tax credits (5 and 30, respectively).

Table 1 helps illustrate the vast array of credits one could claim against one's tax liability—credits that not all tax filers can claim—in different states. Such differences in states' tax codes probably lead to inefficient use of scarce resources to avoid taxes. Thus, we argue that our approach provides a more fundamental comparison of income tax liability across states, one that is largely undistorted by the variety of credits provided by state legislatures for certain constituents.

We could, as some do, rank states by their highest marginal tax rate. Table 2 shows why this metric may not provide the best comparison. The first column in Table 2 reports the marginal tax brackets for California. We chose California because it has the highest marginal tax rate on income, 13.3 percent. Even though California has the highest marginal tax rate, note that it does not apply until income exceeds $1,039,374. The second column reports the tax rates for Missouri. Like California, Missouri has a large number of tax brackets, but its highest tax bracket is much lower, at 6 percent.[4] The point of this comparison is that the income brackets at which the tax rates become effective are very different. Missouri's top marginal tax rate of 6 percent kicks in after taxable income reaches $9,000.

**Table 2**
**Comparing Marginal Income Tax Rates and Brackets***

| California | | Missouri | |
|---|---|---|---|
| Rate (%) | Bracket ($) | Rate (%) | Bracket ($) |
| 1.0 | >0 | 1.5 | >0 |
| 2.0 | >15,498 | 2.0 | >1,000 |
| 4.0 | >36,742 | 2.5 | >2,000 |
| 6.0 | >57,990 | 3.0 | >3,000 |
| 8.0 | >80,500 | 3.5 | >4,000 |
| 9.3 | >101,738 | 4.0 | >5,000 |
| 10.3 | >519,688 | 4.5 | >6,000 |
| 11.3 | >623,624 | 5.0 | >7,000 |
| 12.3 | >1,000,000 | 5.5 | >8,000 |
| 13.3 | >1,039,374 | 6.0 | >9,000 |

*Based on 2015 laws; married filing jointly. Source: Tax Foundation.

What would the marginal tax rate be for a resident of California at an income level of $9,000? Only 1 percent. And while Missouri's highest marginal tax rate of 6 percent occurs after an income level of $9,000, in California you would have to make $57,990 before you would be subject to that tax rate. This comparison suggests that simply using a state's highest marginal tax rate to assess its relative rank in taxing income can be misleading.

## 4. HOW WE MEASURE TAX LIABILITY

Given the myriad of state-level exemptions and credits that are layered on top of wildly different sets of marginal tax rates, as well as the levels of income at which those rates apply, our approach is straightforward. The process used to generate our ranking is as follows:

- We assume a representative family of four: two working parents both earning the same income and two children who are each less than 18 years of age, who do not work and have no disabilities.[5]
- We set this family's gross income at the U.S. median, which is $80,356 for 2013, the latest year for which data is available. We recognize that each state's median family of four income is different. Even so, using one value allows us to directly compare tax liability, not confounding decisions about where to live based on other economic factors, such as cost of living.
- All calculations were made using the TaxAct 2014 Deluxe Edition Software Package. Using this software we first generated a federal return. We used information (e.g., total federal tax liability, federal adjusted gross income, number of exemptions) from that common federal return to complete a tax return for each state that imposes an income tax. The TaxAct software automatically selected credits or deductions depending on the state. We did not claim any additional alterations in our experiment.[6]
- Once our representative family's state income tax liability was calculated, we ranked the states from the highest tax liability to the lowest. States that do not levy a tax on individual income (Alaska, Florida, Nevada, South Dakota, Texas, Washington, and Wyoming) did not have a module in TaxAct. There are state tax modules for New Hampshire and Tennessee, but because our model family had no income from dividends or interest, their

tax liability in both states was zero, equivalent to those states that had no income tax.

- Using this methodology, we set out to answer the following questions: "How does our representative family of four's state income tax liability compare across the states?" And "Using this basis of comparison, where does Missouri rank among the states?"

## 5. THE RESULTS

The second column in Table 3 reports the state income tax liability that our family of four would have paid in 2014 on an income of $80,356. The states are ranked (column 3) from the highest to the lowest tax liability. Our calculations show that if our family lived in Oregon, they would face a state tax liability of $5,183, the highest in the nation. At the other end of the spectrum (for those states levying income taxes), the family's state tax liability would have been $637 if they lived in North Dakota. Where does Missouri fall in this ranking? Of the 41 states that impose a state income tax, Missouri imposes a tax liability of $2,936 on our family of four, placing it as the 23rd highest.[7]

What about Missouri's neighbors? Based on our calculations, Iowa, Kentucky, Arkansas, and Illinois all have relatively more burdensome tax climates compared to Missouri. For example, our calculations indicate that if our family lived in Iowa they would face an income tax liability that is roughly 63 percent higher than in Missouri. In Kentucky and Arkansas, the tax liability is about 46 percent higher than in Missouri, and in Illinois the tax liability is about 22 percent higher than in Missouri. If our representative family lived in any of

**Table 3**
**Comparative Ranking of Income Taxes by State**

| 1<br>State | 2<br>Tax Due | 3<br>Rank | 4<br>Rank | 5<br>Rank |
|---|---|---|---|---|
| Oregon | $5,183.00 | 1 | 3 | 6 |
| Maryland | $4,812.00 | 2 | 25 | 9 |
| Iowa | $4,787.00 | 3 | 5 | 17 |
| Hawaii | $4,484.00 | 4 | 2 | 12 |
| Kentucky | $4,303.00 | 5 | 20 | 29 |
| Arkansas | $4,293.00 | 6 | 13 | 25 |
| Montana | $3,754.00 | 7 | 14 | 20 |
| Indiana | $3,682.00 | 8 | 39 | 34 |
| Wisconsin | $3,595.00 | 9 | 10 | 11 |
| Illinois | $3,593.00 | 10 | 38 | 10 |
| North | $3,591.00 | 11 | 24 | 15 |
| West Virginia | $3,579.00 | 12 | 18 | 23 |
| Georgia | $3,577.00 | 13 | 19 | 27 |
| Virginia | $3,545.00 | 14 | 26 | 8 |
| Delaware | $3,418.00 | 15 | 17 | 13 |
| New York | $3,384.00 | 16 | 8 | 2 |
| Alabama | $3,293.00 | 17 | 30 | 36 |
| Connecticut | $3,256.00 | 18 | 16 | 1 |
| Utah | $3,254.00 | 19 | 32 | 22 |
| Massachusetts | $3,243.00 | 20 | 29 | 3 |
| Idaho | $3,018.00 | 21 | 11 | 32 |
| Minnesota | $2,982.00 | 22 | 4 | 5 |
| Oklahoma | $2,866.00 | 24 | 28 | 33 |
| Maine | $2,860.00 | 25 | 9 | 14 |
| Mississippi | $2,738.00 | 26 | 31 | 40 |
| Michigan | $2,735.00 | 27 | 37 | 31 |
| Nebraska | $2,472.00 | 28 | 15 | 16 |
| Pennsylvania | $2,467.00 | 29 | 41 | 30 |
| Kansas | $2,435.00 | 30 | 35 | 21 |
| Colorado | $2,415.00 | 31 | 34 | 37 |
| South | $2,398.00 | 32 | 12 | 35 |
| Louisiana | $2,295.00 | 33 | 21 | 39 |
| New Mexico | $2,147.00 | 34 | 33 | 38 |
| Ohio | $1,952.00 | 35 | 27 | 28 |
| Vermont | $1,851.00 | 36 | 7 | 18 |
| Rhode Island | $1,835.00 | 37 | 23 | 19 |
| Arizona | $1,699.00 | 38 | 36 | 41 |
| New Jersey | $1,483.00 | 39 | 6 | 7 |
| California | $1,412.00 | 40 | 1 | 4 |
| North Dakota | $637.00 | 41 | 40 | 24 |
| Alaska | $- | 42 | 42 | 44 |
| Florida | $- | 42 | 42 | 44 |
| Nevada | $- | 42 | 42 | 44 |
| New | $- | 42 | 42 | 42 |
| South Dakota | $- | 42 | 42 | 44 |
| Tennessee | $- | 42 | 42 | 43 |
| Texas | $- | 42 | 42 | 44 |
| Washington | $- | 42 | 42 | 44 |
| Wyoming | $- | 42 | 42 | 44 |

the other neighboring states, they would face a lower tax liability. If they lived in Oklahoma, for example, their tax liability would be about the same as in Missouri. But Missouri's tax liability is greater than in Nebraska (18 percent higher) and in Kansas (21 percent higher). As noted earlier, our family would face no state income tax liability if they resided in Tennessee.

Table 3 includes two popular rankings published by the Tax Foundation in Washington, D.C. The fourth column in Table 3 reports the Tax Foundation's ranking of states by their highest 2015 marginal tax rate. Column 5 shows the Tax Foundation's ranking of states using individual income taxes collected per capita based on 2013 data. How do our tax calculations and rankings compare with more commonly used lists?[8]

We noted earlier that we would expect the rankings to be different, and they are. California, which has the highest marginal tax rate and therefore ranks the worst (number 1) on this scale, ranks 40th (out of 41) states in our calculation. A similarly dramatic change occurs for New Jersey: 39th in our ranking and 6th when ranked using highest marginal tax rate. We also find notable shifts for several of the states that we ranked as "high tax" states. For instance, Kentucky falls from 5th in our ranking to 20th using highest marginal tax rates. This transformation reflects the fact that marginal tax rates alone may not provide a complete or accurate assessment of a state's income tax structure (e.g., Table 2). Interestingly, Missouri ranks 23rd using our calculation and 22nd when ranked on the basis of highest marginal tax rates.

The fifth column of Table 3 ranks states according to individual income taxes collected per capita for the fiscal year 2013, the most recent year reported by the Tax Foundation. This ranking thus incorporates all of the deductions, credits, and other idiosyncratic aspects of different state-level tax codes. Again we find that the individual states' rankings change when different methods are used. California and New Jersey show how different ranking schemes can lead to different results. Kentucky falls from 5th in our ranking to 29th using per-capita tax collections. These comparisons indicate how different state tax codes alter the representation of state tax liability. Once more, Missouri's placement does not change much across the different approaches. Ranking 23rd using our approach, Missouri's rank based on tax collections is 26th.

Given Missouri's consistent ranking in the mid-range of states, one might ask if our ranking based on the representative family of four's tax liability is just mimicking the other rankings. We can find out by measuring the correlation among the different rankings. The correlation used here compares the states' placement in the two lists. For example, if the two lists are identical in terms of each state's ranking, the correlation is equal to 1.0. If the lists are exactly the opposite—the rankings are flipped between the two lists—the correlation is -1.0.

When we compare the ranking based on our criterion to the ranking based on highest marginal tax rate, the calculated correlation is only 0.22. When we compare our ranking to that based on income tax collections, the correlation is slightly higher, 0.29.[9] Though positive, neither correlation coefficient is statistically different from zero at the 5 percent level of significance.[10] These low correlations tell us that each ranking is capturing something different.[11] That is, just because Missouri consistently falls in the mid-range of states does not mean that our approach has mimicked the Tax Foundation's rankings.

## 6. CONCLUSION

Our goal was to assess states' relative rankings with regard to individual income tax liability. With special interest in determining Missouri's relative rank among other states, we calculated the state income tax liability for a representative family of four with an income of $80,356 in each state that levied an income tax in 2014. According to our calculations, this average family in Missouri would face the 23rd largest tax liability out of the 41 states that impose an income tax. This places Missouri in the top half of states nationally, with a few more states imposing a smaller tax liability than Missouri compared to those taxing income more. We also found that our approach yielded a relative ranking for Missouri that was similar to that based on using marginal tax rates or individual income taxes collected per capita. In the end, the evidence shows that Missouri is not, by any measure reported, a low income-tax state.[12]

*R.W. Hafer is Director, Center for Economics and the Environment, Hammond Institute for Free Enterprise, Professor of Economics, Lindenwood University, and a scholar at the Show-Me Institute. At the time of publication, Michael Rathbone was a policy researcher at the Show-Me Institute*

## NOTES

[1] The idea is to get the individual to internalize the cost to society of their action. In the case of pollution, driving my car pollutes the air that you have to breathe. But you cannot impose a cost on me for doing so, even though you are made worse off. A gas tax is one way to increase my cost of polluting so that I will do less of it. For an appraisal of the effects of carbon taxes, see Mooney, "British Columbia Enacted the Most Significant Carbon Tax in the Western Hemisphere. What Happened Next Is It Worked."

[2] Using a standard model of economic growth, Casteel and Haslag conclude that "by replacing the income tax with a revenue-neutral sales tax, the state economy realizes faster economic growth."(p. 9) See Casteel and Haslag, "Income Taxes vs. Sales Taxes."

[3] See, for example, Hafer, "Should Missouri Eliminate the Individual Income Tax?"; Skidmore, "Taxes and Growth"; or Ni, "A Review of Cross-Country Evidence on Government Fiscal Policy and Economic Growth."

[4] Legislation passed in 2014 reduces the top rate of 6 percent to 5.5 percent in 2021, provided revenues rise sufficiently.

[5] The assumption of no disabilities is required because some states allow tax credits for this situation.

[6] This means that the tax software automatically selected additional credits for the states of Arkansas, Iowa, Minnesota, North Carolina, Ohio, Oklahoma, South Carolina, and Wisconsin. The types of automatic credits selected included dependent/child tax credits, joint filer/marriage credits, and miscellaneous credits such as grocery credits and taxpayers' trust fund credits. The amount of the credits ranged from $30 (Taxpayers Trust Fund Credit) to $480 for the Married Couple Credit in Wisconsin.

[7] This experiment looked only at tax liabilities for a family of four earning the national median income. Others interested in replicating this methodology are not limited to just examining state tax liabilities for individuals or families earning the national median income. Interested parties can replicate this experiment for filers earning a wide range of incomes. Early in the research phase of this project, the authors considered running this experiment multiple times for filers with incomes at the poverty line and at the top 5 percent of income. Given the complexity involved with each state's tax return and the time involved in generating said returns, we ultimately decided to reduce the scope of this paper to obtaining tax liabilities for a family of four earning national median income.

[8] Let us be clear: There is no one "correct" measure or ranking. One must be aware of the process used to create each one and determine its usefulness, reliability, etc., based on that assessment. As we will note, one way to see if there is independent information being provided by each is to compare the rankings using correlation analysis.

[9] The reported correlations are Spearman rank-order correlation coefficients.

[10] Interestingly, the correlation between the two Tax Foundation rankings is 0.53, significantly different from zero at better than the 1 percent level of significance.

[11] As the rankings in Table 3 show, there is a possibility that examining these families at different income levels can have an impact. Not every state has a flat tax, so income at different levels is subject to different tax rates in many cases. This can affect the state rankings, especially for states with progressive tax tables. Any follow-up to this project should consider how these rankings of tax liability change depending on the gross income of the sample family.

[12] This is the same conclusion reached by Ishmael in "Taxes Matter and They're Too High for Missouri."

## REFERENCES

Casteel, Grant, and Joseph Haslag. "Income Taxes vs. Sales Taxes: A Welfare Comparison." *Essay*, Show-Me Institute, 2010, http://www.showmeinstitute.org/publications/essay/taxes/479-income-taxes-vs-sales-taxes.html.

Hafer, R.W. Should Missouri Eliminate the Individual Income Tax? *Policy Study*, Show-Me Institute, 2007.

Ishmael, Patrick. Taxes Matter and They're Too High for Missouri. *Essay*, Show-Me Institute, 2015.

Mooney, Chris. British Columbia Enacted the Most Significant Carbon Tax in the Western Hemisphere. What Happened Next Is It Worked. *Mother Jones* (March 26, 2014).

Ni, Shawn. A Review of Cross-Country Evidence on Government Fiscal Policy and Economic Growth. *Policy Study*, Show-Me Institute, 2010.

Skidmore, Mark. Taxes and Growth: A Review of the Evidence. *Policy Study*, Show-Me Institute 2010.