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Fiscal Federalism: Theory and Practice

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SUMMARY

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Fiscal Federalism: Theory and Practice

The field of *fiscal federalism* studies how to divide responsibilities (including finances) among federal, state, and local governments to improve economic efficiency and achieve various public policy objectives. Determining the optimal division of responsibilities is difficult because of varying subjective views about what the role of government should be. As a result, fiscal federalism research generally renders no judgment on the proper level of *total* government intervention or what types of services governments should provide. The research focuses instead on how responsibilities are assigned across multiple layers of government once policymakers have decided to implement a given policy, and what trade-offs may be involved in administering it.

For example, a more prominent federal government role may improve efficiency when taxpayers can easily move among localities and states to minimize taxes, or when there are substantial spillover effects from providing goods and services. A more active state and local role may be beneficial in other cases, such as when there is a high level of variation among constituents in the desired amount of government-provided services, or when obtaining enough information to effectively administer a program is difficult (e.g., public education or local housing initiatives). Theories of fiscal federalism can be useful to policymakers when analyzing policies that could involve several layers of government.

General interest in fiscal federalism has increased following the economic downturn accompanying the Coronavirus Disease 2019 (COVID-19) crisis. Early evidence suggests there has been a significant shift in how fiscal responsibilities are divvied up among the federal government, and state and local governments. This shift has included $150 billion in direct federal assistance to state and local governments and the Federal Reserve's support of up to $500 billion in state and local debt issuances.

This report introduces a basic model of fiscal federalism. After developing the basic model and discussing its implications for governments' roles, the analysis explores the effects of various extensions to incorporate more realistic assumptions. A real-world example is presented with each modification to the basic model's assumptions to draw a connection between theory and practice.

Variation in preferences across individuals and firms incentivizes more activity from state governments, which can respond to any differences in demand for government from their residents. Allowing mobility across jurisdictions, meanwhile, can exacerbate state-level variation but can also introduce market inefficiencies that benefit from federal intervention.

Differences in the effectiveness of tax and spending programs across physical space allow for public benefits from state government activity so long as the variation is confined to the state. Introducing externalities, or program effects on anyone other than the government and program target, may warrant increased federal activity if externalities are present across multiple states. Allowing for differences in administrative costs and budget flexibility can also influence fiscal federalism choices.

Practical examples with implications for fiscal federalism include relative federal, state, and local government activity during economic downturns, spending in policy areas like education and transportation, and the type and total level of taxation present across areas.

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Introduction

The field of *fiscal federalism* studies how to divide responsibilities (including finances) among federal, state, and local governments to improve economic efficiency and achieve various public policy objectives.[1] This report develops a basic model (referred to henceforth as the *basic model*) of fiscal federalism to explore the *economic* rationales behind assigning responsibility for certain public policies to the various levels of government.[2]

General interest in fiscal federalism has increased following the economic downturn accompanying the Coronavirus Disease 2019 (COVID-19) crisis. Early evidence is suggestive of a large shift in how fiscal responsibilities are divided among the federal government and state and local governments. This shift has included $150 billion in direct federal assistance to state and local governments and the Federal Reserve's support of up to $500 billion in state and local debt issuances.[3]

Under the basic model's assumptions, the conclusion is rather straightforward: the federal and state governments only need to ensure that the total level of government services maximizes the collective well-being of all residents (often referred to as *utility*), and do not need to worry about which level of government provides those services. Subsequent sections of this report modify the basic model's assumptions to be more realistic, and explore what those changes suggest about relative government activity levels. A number of these modifications have clear implications for the type of government that would produce the most benefit. Other modifications suggest that how governments divide responsibilities is highly dependent on context. A real-world example is presented with each modification to the basic model's assumptions to draw a connection between theory and practice.

Determining the optimal division of responsibilities is difficult because of varying subjective views about what the role of government should be. As a result, fiscal federalism research generally renders no judgment on the proper level of *total* government intervention or what types of services governments should provide. The research focuses instead on how responsibilities are assigned across multiple layers of government once policymakers have decided to implement a given policy, and what trade-offs may be involved in administering it.

For example, a more prominent federal government role may improve efficiency—and increase collective well-being—when taxpayers can easily move across localities and states to minimize taxes, or when there are substantial spillover effects from the federal provision of goods and services. A more active state and local role may be beneficial in other cases, like when there is a high level of variation in the desired amount of government-provided services, or when obtaining enough information to effectively administer a program is difficult (e.g., public education or local housing initiatives). Theories of fiscal federalism can be useful to policymakers when analyzing policies that could involve several layers of government.

Although this report focuses on the economic rationales for assigning certain responsibilities to the various levels of government, policymakers also consider many noneconomic factors when

[1] For a basic introduction to fiscal federalism, see Richard A. Musgrave, *The Theory of Public Finance* (New York: McGraw Hill, 1959).

[2] Simplified formulas corresponding to the theoretical discussion are provided in **Appendix A**, along with relevant outside research where applicable. A summary of recent trends and levels in U.S. fiscal federalism can be found in **Appendix B**.

[3] Both provisions were created by the CARES Act (P.L. 116-136). For more information on the CARES Act, see CRS Report R46299, *Coronavirus Aid, Relief, and Economic Security (CARES) Act: CRS Experts*, by William L. Painter and Diane P. Horn.

weighing the merits of potential changes to government activity levels. For example, this report does not examine the role of federalism as a political system or as a protection against tyranny, nor does it evaluate the legal issues inherent in a federalist system relative to other political structures. For more on those subjects, see CRS Report R45323, *Federalism-Based Limitations on Congressional Power: An Overview*.

The Basic Model

This section presents a basic model to examine the economic incentives of assigning tax and spending activities to various levels of government. As with all models, it relies on a set of assumptions that may not always accurately reflect certain aspects of the real world. Acknowledging this, the basic model is extended in the sections that follow to account for a number of real-world observations and scenarios.

In the basic model there are three different economic actors: governments, individuals, and firms. The assumptions about these parties are as follows:

- **Assumptions about government behavior:**
  - *Governments are equally effective in collecting taxes and carrying out spending programs.* Potential cost differentials, including administrative costs and program targeting, are ignored.
  - *Government budgets are balanced.* Government spending is exactly equal to receipts.
  - *Governments work to maximize the collective well-being of all residents.*[4] The federal government chooses its tax and spending levels with the goal of maximizing the collective well-being of all national residents, while state and local governments (which for simplicity will be described as *state governments*) independently make their own tax and spending choices, with the goal of maximizing the well-being of all the residents in their jurisdiction.[5]
  - *Governments have full information about the actions of other participants.* The federal government makes its decisions with an understanding of how state governments will respond, and state governments similarly know how the federal government will operate.
- **Assumptions about individuals and firms:**
  - *All individuals and firms are identical.* There is no variation in preferences across individuals for government activity, private goods, or leisure. (In economic jargon, all individuals have the same *utility function*.) Individuals supply capital and labor to firms. In exchange, each individual receives an identical wage and return on capital that are fixed shares of firm revenues. Individuals and firms have preferences for total government spending while being indifferent to what level of government provides those services. Firms are perfectly competitive and produce an aggregate good with identical endowments of labor and capital (nonlabor) resources.

[4] Extensions of this basic model can prioritize the welfare maximization of certain segments of the population (e.g., low-income households or households with children, elderly, and/or disabled persons).

[5] Fiscal federalism models can also be constructed to allow for ordered choices (e.g., either the federal government or state governments choose first). A simultaneous structure is presented here for sake of simplicity.

- *Individuals and firms cannot move across states.* Individuals can only respond to public policy changes through changes in consumption, and firms can respond only through changes in production.

To complete the basic model, assumptions about public goods and services (collectively called *services* for simplicity) and taxes are as follows:

- **Assumptions about public services and taxes:**
  - *Services are purely public and taxes are nondistorting.* Pure public services are nonexcludable (anyone in the system has complete access to them) and nonrival (one individual's program use does not affect its availability to others). A nondistorting tax does not influence the payer's market choices.
  - *Public services and taxes do not have spillover effects.* Spillover effects, also called *externalities*, occur when someone other than the individual or firm that paid a tax to fund a public service receives value (positive or negative) from it.
  - *Tax and benefit levels do not depend on individual or firm location within a jurisdiction.* A state government produces an equal benefit for all individuals in a state, while a federal benefit does the same for all individuals nationwide.

Under the basic model's assumptions, the conclusion is that all governments only need to ensure that the optimal *level* of total government services—the level that maximizes total well-being—is provided, and do not need to worry about *who* provides those services. This result stems specifically from the assumption that individual preferences for public services are identical and not dependent on which government is providing them. This means that the split between federal, state, and local activity is indeterminate. Everyone would be just as happy with a system where the federal government spent $10 trillion and states (collectively) spent $5 trillion as they would in a situation where the federal government spent $5 trillion and the states spent $10 trillion.

Extending the Basic Model

Extending the basic model to accommodate more realistic assumptions reveals information about how various economic conditions influence the preferred distribution of government activity and how those choices translate to overall well-being. The following presents a number of extensions of the basic model in an attempt to gain *some* insight into how government responsibilities are divided among federal, state, and local governments. In many cases, there are a number of conflating factors, economic and noneconomic, that help explain observed outcomes. When possible, the discussions reference research that may be relevant.

Varying Preferences

Perhaps the simplest deviation from the basic model is to allow for differences in preferences among individuals and firms. Individuals who choose to live in New York City, rural Wyoming, or suburban Florida are likely to have variation in their demands for different types of goods, services, and leisure, which will translate into differences in what (and how much) government intervention they would like. This also generates differences among firms, which will vary their production of goods and service in response to individuals' varying demands. The modification affects the decisions of state governments, which now face differences in the quantity of services

their residents demand. In turn, the federal government will respond with changes in the amount of services it provides (and taxes it levies).

Varying preferences will tend to reduce the maximum level of *federal* government services that will be provided in equilibrium (i.e., when collective well-being is maximized). In the basic model, each state demanded the same amount of government activity, and the federal government could provide all of those services just as well as if state governments provided them. Because preferences across states now differ, in order to maximize general welfare, the federal government cannot intervene more than the minimum level of total government demanded by any state. Otherwise, total government provisions will be overprovided relative to demand in at least one area. For example, assume two identically sized states with total government demand of $10 billion in the first state and $30 billion in the second state. The model will require the second state government to provide at least $20 billion in services, with the remainder provided by the federal government. State governments therefore need to tailor the level of total government involvement to meet whatever excess demand exists in their areas after accounting for federal government behavior. The greater the differences are in government preferences across states, the larger the state government role must be to maximize well-being.

Practical Example: Effective Tax Rates

To some degree, differences in individual taxation levels across states may indicate variation in the size of government preferred in different areas.[6] **Table 1** shows the five states with the highest effective tax rates and the five states with the lowest effective tax rates in 2017 (the most recent data year), along with the U.S. average effective tax rate. Effective tax rates are calculated as the amount of state and local tax revenue collected divided by the amount of state personal income. In 2017, state and local tax collections nationwide amounted to 9.8% of all personal income.

Four of the five states with the highest effective tax rates shown in **Table 1** have a top marginal tax rate on personal income that is higher than the national average. Likewise, the five states with the lowest effective tax rates all have top marginal income tax rates below the national average. Three of those states—Florida, Tennessee, and Alaska—have no state tax on personal earned income whatsoever. (Alabama and Oklahoma both have a top marginal tax rate of 5%.) Similarities between effective and marginal tax rates indicate that receipt levels are, at least to some degree, an intentional function of the state tax system.

Table 1. Highest and Lowest Effective Tax States, 2017

State	State and Local Taxes ($ billions)	Personal Income ($ billions)	Effective Tax Rate
New York	177.8	1,281.1	13.9%
District of Columbia	7.5	55.5	13.4%
North Dakota	5.0	39.5	12.7%
Hawaii	9.5	75.4	12.6%
Vermont	3.8	32.6	11.7%
United States Total	1,652.8	16,820.3	9.8%
Alabama	16.4	198.9	8.3%
Oklahoma	13.9	174.4	8.0%

[6] This does not mean that all residents in a state will agree on government's role.

Florida	77.7	1,000.6	7.8%
Tennessee	22.9	305.7	7.5%
Alaska	3.0	42.3	7.2%

Sources: Census Bureau, *2017 State & Local Government Finance Historical Datasets*, and Bureau of Economic Analysis, *Regional Economic Accounts*.

State variation in the types of taxes used may weaken the relationship between effective income tax rates and the amount of government preferred in an area. For example, Alaska collects a majority of its revenues from oil and natural gas production, including royalties, petroleum property taxes, and corporate income taxes. In some years, revenues from these resources exceed 90% of the state's discretionary funds.[7] These revenue streams are not available to most state governments. North Dakota's high income tax collections, meanwhile, are fueled by a recent surge in oil and natural gas production that may not necessarily reflect residents' preferences regarding government.[8]

Mobility

Relaxing the basic model's assumption that individuals and firms cannot move across states introduces another incentive with relevance to fiscal federalism. In practice, location choices are products of many different factors. For instance, an individual may move to take advantage of a job market that is better suited to her skills. A firm could similarly move its headquarters to take advantage of another state's lower tax rates. The basic model did not give individuals and firms direct influence over how responsibilities are divided among federal and state governments. With this adjustment, it is still assumed that governments maximize their residents' overall well-being, but now individuals are able to maximize their own well-being and firms are able to maximize their profits along another dimension by choosing where to locate.

How much interstate movement occurs when the mobility restriction is lifted depends on how costly that movement is for individuals and firms. A key finding of early fiscal federalism research is that if it is costless to relocate (i.e., full mobility) and if there is preference variation, individuals with similar government preferences tend to cluster together in states, an outcome described as "Tiebout sorting" or "voting with your feet."[9] Making movement completely free increases the total level of desired mobility, whereas high movement costs will hamper state switches that would otherwise improve well-being. (If preferences are still identical, individuals and firms will have no incentive to move even if it is allowed.) Put another way, allowing individuals and firms to move across jurisdictions exacerbates the differences in government preferences among individuals across states. This gives state governments a bigger role as the difference in preferences between states grows. The costlier it is to relocate, the less motivation individuals and firms will have to move across states, and the smaller the increase will be in state government activity.

[7] "Understanding Alaska's Revenue," Understanding Alaska's Budget (website): http://www.alaskabudget.com/revenue.

[8] Patrick Springer, "North Dakota tax collection grows since Great Recession tops all states," *Bismarck Tribune*, April 28, 2019, at https://bismarcktribune.com/news/state-and-regional/north-dakota-tax-collection-grows-since-great-recession-tops-all/article_c09ae687-fe54-5976-bcc2-2ddfc75d83cb.html.

[9] Charles M. Tiebout, "An Economic Theory of Decentralization," *Public Finances: Needs, Sources, and Utilization*, National Bureau of Economic Research, 1961, p. 79.

Research has also found, however, that allowing freedom of movement can introduce interstate inefficiencies that can be addressed with increased federal government activity.[10] Governments may be interested in keeping people and firms in their jurisdictions for a number of reasons, including to minimize negative spillover effects (discussed later) or to maximize benefits from increasing returns to scale (meaning that additional inputs are increasingly productive) from firms. This can lead to equilibrium conditions characterized by a state's "race to the bottom." In a race to the bottom, states tax at levels lower than what is actually preferred to reduce individual and firm emigration that would otherwise reduce total well-being. Often in these tax-competition models, the federal government is the only entity that can compensate residents of jurisdictions with suboptimal state preference levels by adopting a more active approach.[11] Additionally, allowing individuals and firms to move means that state governments are no longer assured of a given level of demand for services or of revenue.

Practical Example: Tax Structure

There is some evidence that governments consider the mobility of residents and firms when devising their tax structures. Changing tax jurisdictions may be easier in some cases than in others. For example, a large national corporation may find it relatively inexpensive to change the state where it locates its corporate headquarters, whereas a household may experience significant expense (e.g., moving costs and the costs of changing employment) to move to a jurisdiction with lower taxes.[12]

Table 2 shows the composition of tax revenue across levels of government. Taxes other than income taxes, including property and sales taxes, comprise the majority of revenues at the state (58%) and local (94%) levels. States and localities may tax income less in part because income taxes are relatively easy to avoid, whereas property taxes and sales taxes often have points of sale that are easier to identify (e.g., where property and retail centers are located).

Table 2. Percentage Composition of Tax Revenue by Government Level, 2017

Type	Federal	State	Local
Individual income	51.8%	37.2%	4.7%
Corporate income	6.9%	4.7%	1.1%
Other taxes	41.2%	58.1%	94.2%

Sources: Census Bureau, *2017 State & Local Government Finance Historical Datasets*, and Office of Management and Budget, *Historical Tables*, **Table 2**.1.

Notes: Federal "other taxes" includes social insurance and retirement receipts, excise taxes, and estate and gift taxes. State and local "other taxes" is calculated as total taxes less income taxes.

Mobility may also play a role in explaining differences in tax structure within state and local government levels. Whereas most local governments in the United States have no local corporate income tax, New York City levies a corporate income tax of 8.85%, higher than most state governments. This may in part reflect New York City's position as a center of national and

[10] Michael J. Keen and Christos Kostogiannis, "Tax competition in federations and the welfare consequences of decentralization," *Journal of Urban Economics*, vol. 56, no. 3 (November 2004), pp. 397-407.

[11] For an overview of these models, see John Douglas Wilson, "Theories of Tax Competition," *National Tax Journal*, vol. 52, no. 2 (June 1999), pp. 269-304.

[12] For a general discussion of behaviors motivated by tax minimization, see Nadine Riedel, "Quantifying International Tax Avoidance: A Review of the Academic Literature," *Review of Economics*, vol. 69, no. 2 (June 2018), pp. 169-181.

international commerce, home to the stock exchanges with the two largest market capitalizations in the world.

Spatial Effects

The basic model did not allow for what are known as *spatial effects* (i.e., how the geographic location of a household or firm can affect how much it is able to benefit from certain programs). Spatial effects may be a function of proximity; for instance, public parks tend to be utilized more intensely by those who can access them easily. In other cases, service effectiveness can depend on physical characteristics. A fire station that is five miles away from a household, for example, will be more effective if the household can be reached by a highway than if it is accessible only along a winding one-lane road.

Allowing for spatial effects in the model means that the well-being of residents depends not only on the programs themselves, but also on their geographic location. Specifically, a public program's impact on an individual's well-being depends on the individual's location relative to the program's center. The precise nature of how an individual's location affects the individual's benefits from certain public services—including the way benefits taper off as an individual's distance increases from the center, as well as the size of the total service area—is also important, because it will determine how a given proximity to a program's center translates into individual benefits.

The role that various levels of governments should have in providing certain public programs depends on the distribution of those benefits within and across states. In most cases, programs that produce benefits that are confined entirely within a state will maximize well-being when delivered by the state government. Because the federal government has limited ability to tailor program benefits or taxes to particular areas in the model, it is incapable of adjusting programs to accommodate spatial variation in the same manner as state governments.

The federal government generally has a larger role to play, however, in cases where benefits may spread across state lines, as state governments would not factor the benefits of out-of-state residents in their program choices. Federal and state governments might choose different locations for benefit centers, such as hospitals near state borders that would serve both in-state and out-of-state patients. The practical implications of spatial effects can be quite complex, even when they are only introduced for a single service.[13]

Practical Example: Education

The structure of some spending across levels of government may reflect the proximity of service locations to the benefits they provide. Evidence of this effect can be found in spending on education, shown in **Table 3**. Elementary and secondary education primarily provides a highly localized benefit to the children and families in a particular school district. Although it is in a nation's interest to have a well-educated citizenry (i.e., there may be positive externalities, discussed in the next section with public education), the direct benefit of elementary and secondary school spending is the knowledge bestowed on the individuals in those schools and their families. In contrast, higher education benefits are much more spatially diffuse. Although a locality may benefit from proximity to a large research university or teaching hospital, the primary service recipients are the students, who come from across the state and country. **Table 3**

[13] More detail on how equilibrium outcomes vary with spatial characteristics can be found in Charles M. Tiebout, "An Economic Theory of Decentralization," *Public Finances: Needs, Sources, and Utilization*, National Bureau of Economic Research, 1961.

highlights this dynamic, as spending on elementary and secondary education overwhelmingly takes place at the local level. Higher education spending, however, mostly takes place at the state level with assistance from the federal government.

Table 3. Education Spending by Government Level, 2017

(billions of dollars)

	State and Local	State	Local	Federal
Elementary & secondary	660.4	7.0	653.5	40.6
Higher education	296.5	253.1	43.4	71.8

Sources: Census Bureau, *2017 State & Local Government Finance Historical Datasets*, and Office of Management and Budget, *Historical Tables*, Table 3.2.

Note: Federal elementary and secondary education includes vocational education.

Externalities

Another modification to the basic model is to allow public programs to generate externalities. Externalities occur when the production or consumption of a service (or good) imposes benefits or costs on a third party. Externalities (also known as spillovers) may be positive or negative. For example, a locally financed bridge generates benefits for out-of-town drivers who may also utilize the bridge (a positive externality). In contrast, second-hand smoke imposes health costs on individuals other than the smoker (a negative externality). In practice, externalities can be difficult to measure: what is the value to out-of-town drivers of a more direct route? How much is bystanders' health impacted by allowing smoking in restaurants?

In allowing for externalities, the model must reflect that the choices made by one actor can affect another's well-being. In the basic model, state governments maximized the happiness of their residents, whose well-being depends on their own private consumption, their own state's actions, and the actions of the federal government. With the presence of externalities, however, the well-being of individuals in one state may also depend on the actions of other state governments. This modification may also change the federal government's behavior, both because of externality effects on the demand for total government and due to changes in state government behavior.[14]

How the presence of externalities affects the relative structure of governments' roles depends on the way spillovers affect individuals and firms across state boundaries. Certain cases, like a local access road, may have spillover effects that do not extend beyond the state, and thus can be addressed by any level of government. In cases where externalities may spill over state lines, however, state governments may overprovide negative-externality goods and underprovide positive-externality goods. In these cases, a given state government does not consider the well-being of individuals outside its jurisdiction. When this occurs, the federal government may be better suited to administer the program and increase total well-being because it considers the well-being of all residents in its decisions. In practice, there may also be a threshold of interstate spillover effects where state governments can be the primary administrators with relatively little consequence.

[14] This ignores the presence of international economies, as discussed in the "Conclusion" section.

Practical Example: Excise Taxes

Excise taxes are one of the main ways governments can address goods with negative externalities. By imposing taxes on such goods, the government may both discourage their use (because raising the price of the good will decrease its consumption) and raise revenue that can be used to address any fiscal ramifications of their use on outside parties.[15] Some of the most prominent excise taxes in the United States are imposed on motor fuel, products containing tobacco and alcohol, aviation fuel, and firearms, though not all of these are intended to address externalities. Externalities represent only one motivation for excise taxes, of course, as the benefits of increased revenues are potentially attractive to governments regardless of their effect on demand for certain activities.

Table 4 shows the distribution of excise tax receipts collected across levels of government in 2017. Some negative externalities, such as damage from motor fuel consumption and drunk-driving costs, may impose externalities that are confined to the immediate area around the good's consumption, which could explain some of the state and local government use. In other cases, as with general health care system stress caused by tobacco and alcohol consumption or motor fuel's contributions to pollution and global warming, the effects are more widespread, which could serve as justification for a federal excise tax levy. In total, **Table 4** shows that 70% of all 2017 excise tax receipts flowed to state and local governments with the remaining 30% going to the federal government.

Table 4. Excise Tax Collections by Government Level, 2017

(billions of dollars)

	State and Local	State	Local	Federal
Excise taxes	191.3	157.1	34.2	83.8

Sources: Census Bureau, *2017 State & Local Government Finance Historical Datasets*, and Office of Management and Budget, *Historical Tables*, Table 2.1.

Note: State and local excise tax collections include amounts reported as selective sales taxes.

Government Effectiveness

The basic model assumed that federal and state governments are equally effective in administering tax and spending programs. There are reasons this may not be true in all cases, in ways that lend advantages to either federal or state interventions. Governments may not always have perfect information: for spending programs, identifying the intended recipients can be difficult, whereas with certain taxes, the tax base may have incentives to avoid or evade levies. Without perfect information, governments may not be able to comprehensively target their entire jurisdictions, although the situation may be aided if some of the population that is difficult to identify participates in other activities coordinated by the government.

Administrative costs may also differ across governments for certain programs, even when considering a model that otherwise conforms to the basic model. Certain programs that would lead to duplicative administrative costs if organized at the state level may lend themselves to more centralized coordination. Two cities with recycling that can be collected in one day per week, for instance, would save money on vehicle costs by pooling their resources and sharing a vehicle fleet—or simply having a higher level of government coordinate the service.

[15] For more on excise taxes, see CRS Report R43189, *Federal Excise Taxes: An Introduction and General Analysis*, by Sean Lowry.

The model can incorporate differences in effectiveness across governments by treating activities as distinct goods, services, or taxes when administered by different governments. With this adjustment, services provided by federal and state governments can differ both in how they affect well-being and in their cost. In other words, the model acknowledges that federal and state governments do not provide identical goods and services, or provide them at identical costs, when tasked with a particular activity.

The effect that these changes have on governments' equilibrium behavior is generally intuitive. If changes incorporate information and administrative costs that are higher for the federal government, then the equilibrium condition will shift to reduce the federal role and increase state activity. If, instead, information and administration costs are higher for state governments, then federal activity in equilibrium will increase and state activity will decrease.

Practical Example: Transportation

Table 5 examines three different types of transportation spending across levels of government. Differences in the federal share of spending on these services may be a function of variations in efficiency across governments. The use of highway and ground transportation services mostly takes place at the local and regional level (e.g., school and work commutes and access to market for local firms), so local and state governments are better able to structure these services to fit users' needs.

Water and air transportation, however, often involve transportation across state or international lines. The use of these services is significantly more diffuse than highway and ground transportation. Given the difficulties in administering interstate or international service provision, the share of funds for these types of transportation is weighted more toward the federal government.

Table 5. Transportation Spending by Government Level, 2017

(billions of dollars)

	State and Local	State	Local	Federal
Highways	182.0	109.8	72.2	45.8
Air	26.0	2.3	23.6	16.8
Water	6.4	2.1	4.3	4.4

Source: Census Bureau, *2017 State & Local Government Finance Historical Datasets*, and Congressional Budget Office *Public Spending on Transportation and Water Infrastructure, 1956 to 2017.*

Budget Imbalances

The final extension of the basic model considered in this report introduces budget imbalances, allowing tax and spending levels to differ. Governments may wish to generate short-term budget imbalances for any number of reasons. One reason is to smooth the effects of business cycles, which describe the pattern of expansion and contraction of the economy. With strict balanced-budget requirements, adverse economic conditions that lead to a drop in individual wages and firm revenues may also require a cut in public spending to fall in line with decreased tax revenues collected from individuals and firms. Such austerity measures are generally not supported by the

economic literature, and reduce long-term well-being under most fiscal federalism model specifications.[16]

Another potential cause for short-term budget imbalances is mismatches in the timing of public spending and revenues for certain programs. For example, a government may be interested in building a bridge paid for with a toll levied on future (automobile) users. That project is likely to generate most of its public costs earlier, as the bridge is constructed, and most of its revenues later, when the bridge is in use. Modifying the project's tax and spending structure so that budgets are always balanced may sacrifice some of the public good principles discussed earlier, such as spillover minimization.

One adjustment that can accommodate this change is to introduce multiple time periods to the model. Incorporating more than one time period would provide for multiple sets of decisions for each actor. It would also allow for short-term budget deficits and surpluses (if the requirement is also stretched over the course of multiple periods), which would allow governments to incur deficits (where spending exceeds revenues) in some periods, as long as they are balanced by surpluses (revenues exceeding spending) in others. Economic business cycle effects can then be included as determinants of some combination of firm productivity, wages, and government revenue. This modification would also allow for the inclusion of public projects with mismatched spending and revenue patterns.

Another possible modification is to allow budget deficits up to a certain level. For example, raising permissible government spending from exactly the level of revenues to that level plus a particular percentage effectively sets an allowable deficit limitation similar to those that exist in the European Union and elsewhere.[17] Regardless of the budget constraint's duration or exact value, the model needs some form of a budget restriction in order to produce useful outcomes. Without a budget restriction in place, governments have no incentive to place any limit on the amounts they can spend, and thus the relative levels of federal and state spending cannot be identified.

In general, the more overlap there is in economic conditions across states, or the greater the simultaneous spread of recession (or expansion) at once to all areas of the country, the greater the benefit there is to having the federal government take on borrowing responsibilities. The preference for relaxed federal budgeting is particularly strong in models that have free mobility of individuals and firms. The reasoning for this is similar to the incentives described earlier: states may "race to the bottom" in adjusting budgets to economic shocks to avoid individual and firm emigration. Coordination costs not accounted for in the model lend additional support to federal budget deficits.

Practical Example: Government Spending in Recessions

Figure 1 shows the share of total government spending attributable to the federal and combined state and local levels from FY2005 through FY2012. In the years prior to the Great Recession, the distribution of spending was roughly in line with historical trends (as shown in **Figure B-1**). The state and local share then took a precipitous drop during the Great Recession, averaging 38% between 2009 and 2012. The need for many state and local governments to balance budgets

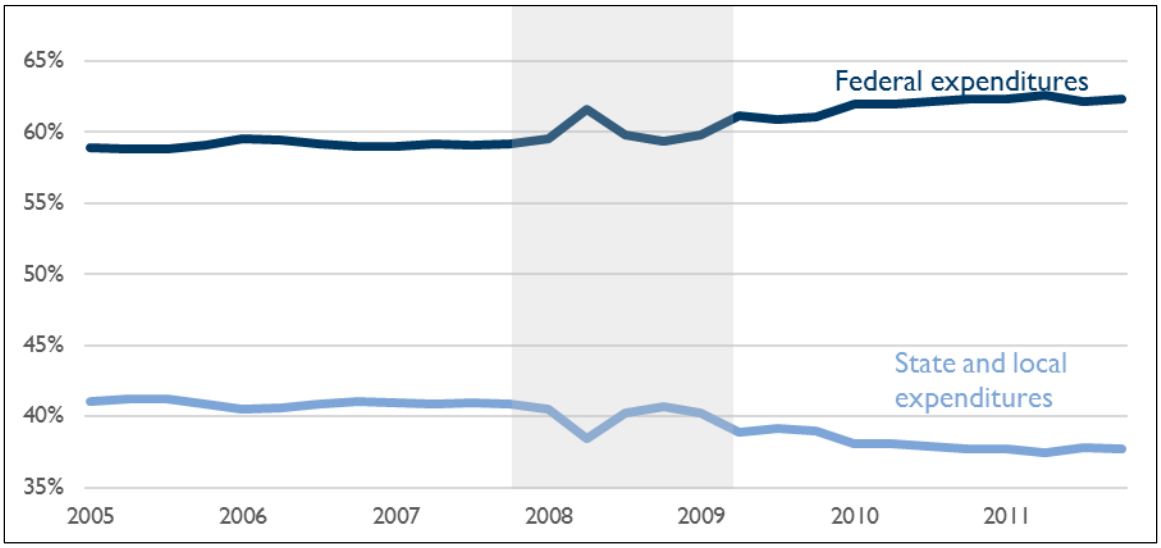
[16] For further discussion, see Alan S. Blinder, "Keynes, Lucas, and Scientific Progress," *American Economic Review*, vol. 77, no. 2 (May 1987), pp. 130-136; and Alan J. Auerbach and Yuriy Gorodnichenko, "Effects of Fiscal Shocks in a Globalized World," *IMF Economic Review*, vol. 64, no. 1 (2016), pp. 177-215.

[17] Details on the requirements in the European Union can be found in European Central Bank, "Five things you need to know about the Maastricht Treaty," February 15, 2017, available at https://www.ecb.europa.eu/explainers/tell-me-more/html/25_years_maastricht.en.html.

during this period contributed to the decline, stemming largely from reduced spending to offset a loss in tax revenues resulting from decreases in property values, lower consumer spending, and high unemployment. The federal government, meanwhile, enacted a number of countercyclical measures to increase spending during this time, including direct aid to state and local governments through the creation of a State Fiscal Stabilization Fund. Federal deficits averaged 9.0% of GDP from FY2009 to FY2011, the largest recorded values since the end of World War II.

Figure 1. Federal and Combined State and Local Expenditures FY2005-FY2012

(as a percentage of combined expenditures)



Source: Federal Reserve Bank of St. Louis.

Note: Shaded area denotes period of the Great Recession, as identified by the National Bureau of Economic Research.

Early evidence suggests that the federal government will record a similar uptick in the percentage of total expenditures in the period surrounding the COVID-19 crisis. That increase is partially attributable to several pieces of enacted legislation that increased short-term federal spending. Relevant provisions in those laws included the creation of the Coronavirus Relief Fund,[18] which provided $150 billion in direct federal assistance to state and local governments, and the establishment of the Municipal Lending Facility,[19] which provided the Federal Reserve with the capacity to support up to $500 billion in outstanding state and local government debt.

Conclusion

This report developed a basic model of fiscal federalism to explore the economic rationale behind assigning certain types of public activities to various levels of government, as summarized in **Table 6**. In certain cases, practical aspects of economic behavior (e.g., preference variation and budget imbalances) have clear implications for the type of government that would produce the most benefit: in other situations (e.g., mobility of businesses and individuals, externalities), the

[18] For more information on the Coronavirus Relief Fund and a brief discussion of the State Fiscal Stabilization Fund, see CRS Report R46298, *The Coronavirus Relief Fund (CARES Act, Title V): Background and State and Local Allocations*, by Grant A. Driessen.

[19] For more information on the Municipal Lending Facility and policy issues related to state and local debt, see CRS In Focus IF11502, *State and Local Government Debt and COVID-19*, by Grant A. Driessen.

economic incentives for fiscal federalism are highly dependent on context. (In addition, the overall implications of fiscal federalism may depend on examining how some of the aforementioned model extensions interact with one another, which is beyond the scope of this report.) As shown in the practical examples, fiscal federalism choices may have ramifications across the policy spectrum.

Table 6. Summary of Relative State or Federal Government Responsibilities from Extended Assumptions to the Basic Model of Fiscal Federalism

Factor	Implication of Relative Responsibility of Level of Government
Varying Preferences	State role increases (and federal role decreases) with level of variation across states.
Mobility	Depends on context. High mobility would exacerbate variation in preferences and result in a larger state role, or it may result in a "race to the bottom" implying a larger federal role.
Spatial Effects	Depends on context. Highly concentrated spatial effects tend to increase state role, while broadly dispersed effects tend to increase federal role.
Externalities	Depends on the level of these effects across state lines. The federal government may more efficiently address large spillover effects that spread far into other jurisdictions, whereas other cases are ambiguous.
Government Effectiveness	Increase in the role of the government with relatively smaller information and administration costs.
Budget Imbalances	Federal role increases as there is more variation in economic conditions across states. Federal role may also increase with relatively greater flexibility in budget outcomes (as is true in the United States).

Source: CRS analysis.

Several practical adjustments are not considered as part of the exercise extending the basic model, some of which are at least partly addressed in existing research. Although most fiscal federalism research assumes that federal, state, and local government operations are distinct, multilevel coordination can and often does occur for many programs.[20] Such cooperation can include intergovernmental transfers, collaborations where each government type makes some sort of contribution or collection, or intergovernmental loans. Historically, fiscal cooperation efforts included the general revenue sharing (GRS) program that was active from 1972 through 1986.[21] Under GRS, state and local taxing authority was redirected to the federal government, which would then allocate tax revenues to state and local governments as unconditional grants using a formula based on population, tax effort, and total personal income.

The model also omits the presence of foreign governments, which may affect domestic economic conditions and present competition to federal and state governments for resources. In a sense,

[20] For more on how cooperation between the federal government and state and local governments operates in practice, see CRS Report R40638, *Federal Grants to State and Local Governments: A Historical Perspective on Contemporary Issues*, by Robert Jay Dilger and Michael H. Cecire.

[21] The GRS program was established by the Local Fiscal Assistance Act (P.L. 92-512). For more on the GRS program, see CRS Report RL31936, *General Revenue Sharing: Background and Analysis*, by Steven Maguire.

international actors may be thought of as potential competitors for the federal government, and thus may reduce the potential benefit of federal involvement in alleviating externalities and other inefficiencies. Finally, this basic framework adopts an approach that forgoes more sophisticated models of business activity, which can be found in the academic literature and which add complexity to equilibrium findings.[22] Despite these limitations, fiscal federalism research provides a basis for evaluating the effectiveness of activity across levels of government that can be useful in designing and implementing public policy.

[22] For example, see Rainald Borck and Michael Pfluger, "Agglomeration and tax competition," *European Economic Review*, vol. 50, no. 3 (September 2006), pp. 647-668.

Appendix A. Theoretical Framework

Basic Model

A theoretical representation of the initial model is shown in **Equations 1 through 4**. Because individuals are identical across jurisdictions, these choices converge to the maximization constraint provided in **Equation 1**. Individuals derive utility (U) from their own private consumption and from the combination of any goods they receive from federal, state, and local governments, all purchased with their after-tax income.

Sufficient federal and state taxes are levied to meet the balanced budget requirement (**Equations 2 through 4**). The federal government chooses a level of spending (*C*) and taxes (*T*) that applies equally to all jurisdictions, while the spending and tax levels (*c, t*) of state governments—which, for the moment, combine to form one representative actor—apply exclusively to their residents.

(1) $Max\ U = f(G)$

(2) $G = C + c = T+t$

(3) $C = T$

(4) $c = t$

As shown in **Equations 5 and 6**, equilibrium (denoted with asterisks) can be achieved with any level of federal and state activity that leads to total government activity at the optimum (G^*), which is then consumed by the individual to maximize utility.

(5) $U^* = f(G^*)$

(6) $C + c = G^*$

Varying Preferences

Accommodations for varied preferences in the model are provided in **Equations 7 through 9**. The decisions facing federal and state governments are now distinct. State governments (**Equation 7**), identified with *j*, are each tasked with choosing a level of spending (c_j) that maximizes the utility of their unique set of individuals, subject to their budget constraint (**Equation 8**). The federal government chooses a level of spending applicable to all jurisdictions that maximizes total utility (**Equation 9**), while meeting its budget constraint (**Equation 10**).

(7) $Max\ U_j(c_j) = f_j(G_j)$

(8) $c_j = t_j$ for all j states

(9) Max $\sum_j U_j(C) = f_j(G_j)$, where $\sum_j$ is the sum across all j states

(10) $C=T$

Allowing preferences to vary generates an equilibrium that places an upper limit on the level of federal government intervention that will maximize public well-being. Since individuals still only have preferences for total government services and not which government is acting, the federal government can contribute to utility optimization so long as it restricts its total activity to the minimum level of intervention desired when looking across all states (**Equations 11 and 12**).

(11) $C^* \leq Min_j(G_j)$

(12) $G_j = C + c_j$

Mobility

Allowing for public mobility across states introduces individual choice to the model, accounted for in **Equation 13**. Each individual (*i*) selects the state of jurisdiction with the combination of spending and taxes that maximizes individual utility (*u*). All else equal, those preferences tend to produce clustering of similarly dispositioned individuals, which exacerbates differences in preferences across states.

(13) Max $u_i(j) = f(c_j, t_j)$ for all individuals

Though the decision set facing state governments is unchanged, the lack of certainty over the number of residents in their jurisdiction can lead to modifications in government behavior. Research has found that, under most specifications, mobility can cause underprovision of government services (*c* below optimal levels) across competitors, in this case state governments.[23] In a model with a federal actor, such outcomes may be offset by increases in federal activity (*C*).

Spatial Effects

Cost differentials that are a function of spatial considerations (including proximity to a service center) require a different adjustment. In these cases, rather than the level of services provided or revenues collected depending on the level of government application, the nature of the services or revenues themselves changes with where the provisions are applied. In other words, the model considers the provision of one good by the federal government to be different from the provision of that same good by a state government. Formulaic representation of that shift is seen in **Equations 14** and **15**, with the utility function now separating federal and state goods and services to account for this distinction. Theoretical research has found the effects of spatial variation to be highly dependent on model specifications and the level and type of variation present.[24]

(14) $Max\ U_j(c_j) = f_j(c_j, C)$

(15) $Max \sum_j U_j(C) = f_j(c_j, C)$

Externalities

Accounting for externalities also involves a modification to the utility function that governments are seeking to maximize. The model now must account for the fact that the well-being of residents in one state is affected by the decisions made by other state governments. This shift is represented in **Equations 16** and **17**, which incorporate the addition of other state government outcomes (c^{oth}) on state and federal actors, respectively.

(16) $Max\ U_j(c_j) = f_j(c_j, C, c^{oth})$

(17) $Max \sum_j U_j(C) = f_j(c_j, C, c^{oth})$

Government Effectiveness

Administrative cost differentials are incorporated into the model by modifying the balanced budget conditions, as shown in **Equations 18** and **19**. Government spending is now the product of

[23] John Douglas Wilson, "Theories of Tax Competition," *National Tax Journal*, vol. 52, no. 2 (June 1999), pp. 269-304.

[24] Charles M. Tiebout, "An Economic Theory of Decentralization," *Public Finances: Needs, Sources, and Utilization*, National Bureau of Economic Research, 1961, p. 79.

revenues collected and a multiplier (*z* for state governments, *Z* for the federal government) that accounts for frictional costs in the application of spending or collection of revenues. Situations where the state government has an efficiency advantage would be characterized by $z<Z$, while instances with a federal efficiency advantage would produce the opposite relationship, $z>Z$.

(18) $c_j = zt_j$

(19) $C = ZT$

Budget Imbalances

Equations 18 and **19** can also accommodate the introduction of government imbalances to the model. Cases where $z, Z > 1$ may be taken to represent deficits, as government spending (c, C) is otherwise greater than taxes (t, T), while $z, Z < 1$ would describe fiscal surpluses.

Alternatively, short-term budget imbalances but a long-term binding constraint are accounted for through the introduction of multiple time periods, which provide governments with the opportunity to incur deficit spending in one period that is offset by matching surpluses in other periods. **Equations 20** through **24** introduce two time periods to the initial model.

(20) $Max\ U_1 + U_2 = f(G_1) + f(G_2)$

(21) $G_1 = C_1 + c_1$

(22) $G_2 = C_2 + c_2$

(23) $C_1 + C_2 = T_1 + T_2$

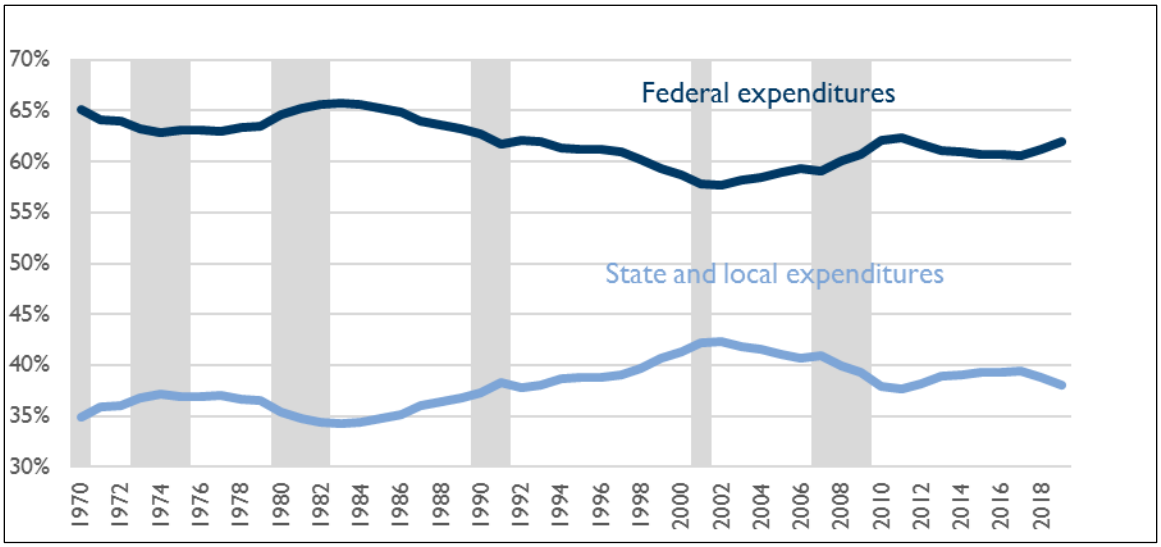
(24) $c_1 + c_2 = t_1 + t_2$

Appendix B. Recent Trends and Levels in Federal and State and Local Activity

Figure B-1 shows the balance of spending across federal, state, and local levels since 1970. State and local spending has generally comprised 35%-45% of all government spending in the United States. The state and local share was at its lowest point during the 1970s and 1980s. After rising through the 1980s and 1990s, the state and local government share declined through much of the 2000s. The state and local share then experienced a more significant drop after the Great Recession, averaging 38% between 2009 and 2012. This drop reflects the federal government's stimulus spending during and immediately following the recession, as well as the loss in tax revenues to state and local governments resulting from decreases in property values, lower consumer spending, and high unemployment.

Figure B-1. Federal and State and Local Expenditures, 1970-2019

(as a percentage of combined annual expenditures)



Sources: U.S. Bureau of Economic Analysis, State and Local Government Current Expenditures and Federal Government Current Expenditures retrieved from FRED, Federal Reserve Bank of St. Louis. Percentage calculation by Congressional Research Service.

Note: Shaded areas denote years with an economic recession, as identified by the National Bureau of Economic Research.

Table B-1 and **Table B-2** offer more detail on the composition of revenues and spending across major categories for the federal government and the governments (state and local combined) in each state. As shown in **Table B-1**, state and local governments derive their revenues from a range of general sources, including federal transfers, whereas the federal government collected just over half of its receipts from taxes on individual and corporate income in 2017. **Table B-2**, meanwhile, shows a much greater spending focus on education among state and local governments, and on other expenditures (of which health expenditures are the most prominent) at the federal level.

Table B-1. Federal and State and Local Revenues by Source, 2017

(as percentages of total revenue)

State	Property Tax	General Sales Tax	Income Taxes	Federal Transfers	Other Revenue
Federal	**0.0%**	**0.0%**	**52.6%**	**n/a**	**47.4%**
All State and Local	**13.4%**	**9.9%**	**11.2%**	**18.1%**	**47.4%**
Alabama	5.7%	10.2%	8.6%	22.0%	53.6%
Alaska	11.0%	1.6%	0.6%	24.6%	62.1%
Arizona	11.5%	15.4%	6.7%	23.6%	42.8%
Arkansas	7.1%	14.5%	10.1%	26.1%	42.2%
California	10.3%	8.0%	15.3%	16.4%	50.1%
Colorado	14.0%	12.1%	11.8%	15.9%	46.2%
Connecticut	21.8%	8.6%	17.9%	16.4%	35.4%
Delaware	7.4%	0.0%	11.9%	20.5%	60.2%
District of Columbia	16.2%	9.1%	16.7%	26.7%	31.3%
Florida	14.5%	14.4%	1.2%	15.6%	54.2%
Georgia	13.3%	10.2%	13.1%	17.9%	45.5%
Hawaii	8.7%	17.0%	11.2%	15.2%	47.9%
Idaho	11.3%	10.7%	12.1%	17.9%	48.1%
Illinois	19.3%	9.7%	10.9%	15.6%	44.6%
Indiana	11.0%	12.0%	11.3%	24.0%	41.6%
Iowa	12.4%	8.6%	10.2%	14.9%	53.9%
Kansas	14.0%	13.4%	8.5%	13.8%	50.3%
Kentucky	8.2%	7.7%	14.4%	26.9%	42.8%
Louisiana	8.1%	16.5%	6.2%	24.9%	44.3%
Maine	19.8%	10.0%	11.8%	21.2%	37.2%
Maryland	13.3%	6.3%	21.0%	19.2%	40.2%
Massachusetts	17.5%	6.5%	17.7%	18.0%	40.2%
Michigan	13.2%	8.6%	10.5%	21.4%	46.4%
Minnesota	12.1%	8.3%	16.6%	16.0%	46.9%
Mississippi	9.3%	10.6%	6.7%	26.0%	47.3%
Missouri	10.4%	10.5%	11.4%	19.6%	48.2%
Montana	14.1%	0.0%	11.0%	27.7%	47.2%
Nebraska	15.3%	9.1%	10.1%	14.1%	51.4%
Nevada	9.5%	17.4%	0.0%	17.7%	55.3%
New Hampshire	31.6%	0.0%	4.5%	17.2%	46.6%
New Jersey	25.0%	8.2%	13.8%	15.6%	37.4%
New Mexico	6.4%	12.9%	5.5%	28.4%	46.8%
New York	15.0%	8.0%	17.6%	17.6%	41.8%

State	Property Tax	General Sales Tax	Income Taxes	Federal Transfers	Other Revenue
North Carolina	9.7%	10.2%	12.4%	19.8%	48.0%
North Dakota	11.7%	10.4%	3.6%	18.2%	56.2%
Ohio	11.0%	10.8%	10.3%	18.7%	49.2%
Oklahoma	7.7%	12.4%	8.8%	20.4%	50.7%
Oregon	10.6%	0.0%	15.7%	18.5%	55.2%
Pennsylvania	13.1%	7.7%	13.3%	21.6%	44.3%
Rhode Island	19.3%	7.6%	10.4%	21.9%	40.8%
South Carolina	11.4%	7.2%	8.5%	18.7%	54.1%
South Dakota	15.6%	15.8%	0.3%	18.3%	50.0%
Tennessee	9.4%	14.9%	3.1%	19.0%	53.6%
Texas	19.2%	14.6%	0.0%	16.6%	49.6%
Utah	10.0%	10.3%	12.3%	15.7%	51.7%
Vermont	20.3%	4.8%	10.4%	24.9%	39.7%
Virginia	15.2%	5.9%	15.1%	12.9%	50.9%
Washington	11.1%	18.3%	0.0%	15.6%	55.0%
West Virginia	8.7%	6.9%	9.7%	25.9%	48.8%
Wisconsin	14.9%	8.7%	13.6%	19.5%	43.2%
Wyoming	12.5%	6.7%	0.0%	31.8%	49.0%

Sources: Census Bureau, *2017 State & Local Government Finance Historical Datasets and Tables*, and Bureau of Economic Analysis, *National Income and Product Accounts*.

Notes: CRS calculations. State and local government figures draw from Census data, while federal results draw from Bureau of Economic Analysis data.

Table B-2. Federal and State and Local Expenditures by Function, 2017

(as percentages of total expenditures)

State	Education	Social Services	Transportation	Defense and Public safety	Environment and Housing	Other Expenditures
Federal	**3.1%**	**24.2%**	**2.4%**	**15.0%**	**2.3%**	**53.0%**
All State and Local	**27.9%**	**26.6%**	**5.9%**	**7.0%**	**5.8%**	**26.8%**
Alabama	29.1%	32.3%	5.7%	5.4%	4.3%	23.2%
Alaska	22.2%	22.0%	13.0%	6.5%	6.9%	29.4%
Arizona	26.1%	27.5%	5.2%	9.5%	5.0%	26.7%
Arkansas	30.4%	32.7%	7.9%	5.7%	5.0%	18.4%
California	23.4%	29.1%	3.9%	8.2%	6.1%	29.3%
Colorado	29.1%	19.8%	6.8%	7.2%	7.1%	29.9%
Connecticut	33.3%	15.5%	5.7%	6.2%	5.3%	34.0%

State	Education	Social Services	Transportation	Defense and Public safety	Environment and Housing	Other Expenditures
Delaware	33.6%	25.8%	7.6%	6.8%	5.1%	21.1%
District of Columbia	16.2%	25.0%	2.6%	6.4%	9.6%	40.3%
Florida	24.5%	24.7%	8.4%	10.1%	9.0%	23.4%
Georgia	33.2%	22.6%	6.4%	7.3%	5.9%	24.6%
Hawaii	20.5%	25.6%	7.2%	6.1%	8.6%	31.9%
Idaho	27.5%	26.3%	7.2%	8.8%	8.2%	22.0%
Illinois	26.3%	19.1%	7.4%	7.0%	5.6%	34.6%
Indiana	31.0%	32.9%	4.6%	6.0%	4.9%	20.5%
Iowa	31.9%	28.6%	8.2%	4.6%	5.4%	21.3%
Kansas	32.5%	27.6%	6.7%	6.1%	5.0%	22.2%
Kentucky	28.3%	32.6%	5.7%	5.0%	4.7%	23.7%
Louisiana	25.6%	30.0%	6.3%	7.2%	7.2%	23.7%
Maine	28.0%	29.0%	8.2%	6.1%	6.7%	21.9%
Maryland	30.1%	22.1%	5.7%	8.7%	8.1%	25.2%
Massachusetts	25.3%	27.7%	4.9%	5.5%	5.7%	30.9%
Michigan	31.5%	27.0%	5.0%	6.5%	6.0%	23.9%
Minnesota	29.3%	26.7%	7.9%	5.5%	6.8%	23.8%
Mississippi	27.4%	36.0%	6.2%	5.5%	4.3%	20.5%
Missouri	28.1%	28.8%	4.9%	6.7%	5.8%	25.6%
Montana	27.4%	25.9%	8.6%	6.9%	7.0%	24.1%
Nebraska	32.0%	18.2%	7.3%	5.6%	5.0%	31.9%
Nevada	26.0%	20.9%	9.1%	10.6%	6.4%	27.0%
New Hampshire	33.3%	20.9%	6.4%	7.6%	5.4%	26.4%
New Jersey	33.6%	21.1%	4.6%	6.5%	4.8%	29.3%
New Mexico	27.9%	32.0%	4.1%	7.4%	5.2%	23.5%
New York	24.8%	27.2%	4.3%	6.3%	4.9%	32.6%
North Carolina	29.6%	31.4%	5.9%	7.1%	5.5%	20.5%
North Dakota	28.2%	16.9%	17.0%	5.8%	8.3%	23.8%
Ohio	28.1%	28.9%	5.1%	6.3%	5.2%	26.4%
Oklahoma	30.6%	26.4%	8.0%	7.1%	5.1%	22.7%
Oregon	26.0%	27.9%	5.0%	7.2%	5.8%	28.2%
Pennsylvania	28.8%	29.4%	7.1%	5.9%	4.9%	24.0%
Rhode Island	27.2%	26.8%	4.3%	8.0%	5.5%	28.2%
South Carolina	30.2%	32.1%	5.7%	5.5%	4.8%	21.7%

South Dakota	30.6%	18.9%	13.0%	6.2%	8.1%	23.3%
Tennessee	24.7%	27.9%	4.6%	6.7%	5.3%	30.8%
Texas	34.2%	24.0%	7.0%	7.1%	4.4%	23.3%
Utah	33.1%	22.4%	7.4%	5.6%	5.4%	26.0%
Vermont	35.3%	27.7%	8.3%	5.9%	5.5%	17.3%
Virginia	32.5%	23.4%	7.5%	8.1%	5.8%	22.7%
Washington	27.3%	25.2%	6.1%	6.5%	7.3%	27.7%
West Virginia	29.5%	31.5%	6.9%	5.1%	5.3%	21.7%
Wisconsin	29.3%	20.4%	8.8%	3.0%	1.1%	37.5%
Wyoming	30.1%	8.5%	6.7%	2.2%	1.9%	50.6%

Sources: Census Bureau, *2017 State & Local Government Finance Historical Datasets and Tables*, and Office of Management and Budget, *Historical Tables,* Table 3.2.

Notes: CRS calculations. State and local government figures draw from Census data, while federal results draw from Office of Management and Budget data. State and local figures taken from calendar year 2017, while federal figures are from fiscal year 2017.

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