Nevada Policy Research Institute

analysis

The Impact of Federal Transfers on State and Local Spending

Nevadans pay dearly for 'free' money from the federal government

by Eric Fruits, Ph.D.

Executive Summary

National, state and local politicians often boast to their constituents about federal funds secured for their state or local communities. "Bringing home the bacon," it's called. Likewise, local governments routinely lobby for increased federal monies for local projects.

Nothing, however, is ever "free."

In 2012, Nevada state and local governments secured $3.6 billion from the federal government for a variety of projects and programs. Then, for each dollar Nevada taxpayers saw from the federal government, they also saw a $0.56 increase in new taxes, fees and other state and local revenue collection.

In most other American states the rate of tax increase was even higher — averaging from 74 to 88 cents.

In other words, as lawmakers have successfully milked Washington, D.C., for allegedly "free" money, taxpayers in Nevada and all across America have watched an accompanying "ratcheting" effect drive up the costs of their state and local governments.

Hypothetically, a 10 percent increase in federal transfers to Nevada would amount to about $360 million more money to the state. Actually, however, it would be associated with approximately $200 million more in spending from state and local sources — translating into an additional $70 per person in taxes and charges.

Almost certainly, more such tax increases are in Nevada's pipeline. That's because of the Obamacare Medicaid expansion that Nevada's governor and legislature embraced when the federal government promised short-term increases in associated federal grants.

The late economist Milton Friedman titled one of his books *There's No Such Thing as a Free Lunch*." How wise he was.

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Dr. Fruits has also written peer-reviewed articles on initial public offerings (IPOs), the municipal bond market and the formation and operation of cartels. His economic analysis has been widely cited and has been published in *The Economist*, *The Wall Street Journal*, and *USA Today*.

The Impact of Federal Transfers on State and Local Spending

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Author's foreward

A large amount of economic research has examined the impact of federal grants on state and local spending. Much of this previous research, however, has focused exclusively on the impact of federal grants on total state and local spending itself rather than on the extent to which federal grants drive additional state and local spending and, in turn, drive demand for higher state and local taxes, fees, and other own-source revenues. Our study departs from earlier literature by examining the impact of federal transfers on state and local taxes and fees. This is the most comprehensive analysis to date, using information from U.S. states spanning the period from 1972 to 2012.

Our results clearly demonstrate that federal transfers to state and local governments result in higher own-source revenue, taxes, and fees.

- Regression results indicate that state and local revenues from taxes, fees, and other own-sources will rise by 82 cents for each additional dollar in federal transfers.

- Graphical analysis supports the statistical analysis and suggest that each additional dollar in federal transfers is associated with an increase in state and local taxes and fees of 74–88 cents.

- Recent peer-reviewed research published in the widely cited academic journal *Public Choice* supports our findings by concluding that each dollar of additional federal grants to states is associated with a total increase of 54–86 cents in new state and local taxes.

Federal transfers to states have grown from $74 billion a year in 1980 to almost $300 billion in 2012. Based on our results, state revenues from taxes, charges, and other own-sources will rise by 82 cents for each additional dollar in federal transfers. A hypothetical 10 percent increase in federal transfers would amount to about $62 billion to the states. Using our regression results, and holding personal income constant, this would be associated with approximately $50 billion in additional increased taxes, charges or other revenue sources, or an additional government burden of $158 per person.

Importantly, our results suggest that the increases in federal grants to state and local governments associated with the ACA's Medicaid expansion will have significant future tax implications at the state and local level as these governments raise revenue to continue, expand, and promote these newly funded programs into the future and as federal support tapers off once the expansion is in place.

1 Introduction

How does federal money flowing to states affect state and local government spending? This has been a question since the United States' first experiment with revenue sharing, nearly 200 years ago. In 1835, the federal government enjoyed a budget surplus. In addition, forecasts at the time projected federal surpluses into the foreseeable future. Congress decided to distribute the surplus to the state governments, based on population. The thinking was that states would use the money to fund additional public works. In other words, it was expected that state governments would use the grants they received from the federal government to increase state and local spending, *without increasing state and local taxes*.

Federal intergovernmental transfers—usually in the form of grants—are a significant part of state and local budgets (hereafter, unless stated otherwise, "states" should be understood to include state and local governments). The first annual cash grant was made under the Hatch Act of 1887. The Act is still in effect and more than $56 million was distributed to states in 2014 under the Act. By 1980, federal transfers to states had grown to $74 billion a year. By 2012, these transfers grew to almost $300 billion a year. In 1980, federal transfers amounted to about 3.2 percent of total personal income. By 2012, the amount had grown to 4.2 percent of total personal income.

The stimulus package known as the American Recovery and Reinvestment Act, enacted during the recession of 2008–2009, revived interest in the effects of federal intergovernmental transfers on state and local budgets and raised the following questions:

- Does temporary state and local spending induced by federal grants disappear from state and local budgets when grant provisions expire; or

- Do federal grants have a lasting effect on state budgets, with temporary aid giving rise to permanent state expenditure programs that ultimately require increased state and local revenue?

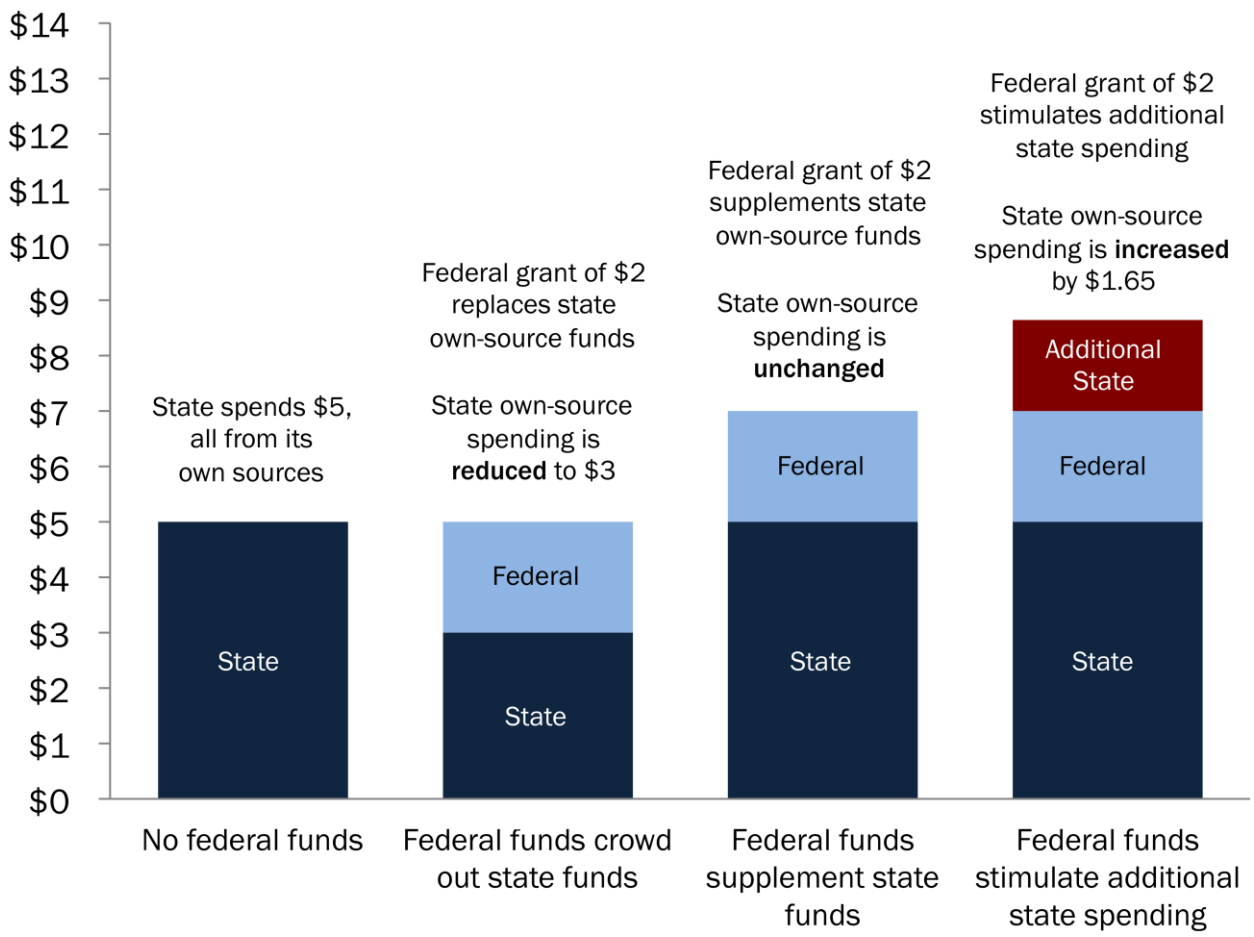
Indeed, concerns about a "ratchet" effect on state budgets were cited by several state lawmakers who considered refusing stimulus money from the federal government. For example, in early 2009, Louisiana's Governor Jindal issued a statement saying Louisiana would not participate in a federal stimulus program aimed at expanding state unemployment insurance coverage.

Most federal grant programs are small and serve narrow purposes. A few large programs, however, such as Medicaid and the Highway Planning and Construction program, dominate the grant-in-aid system.

Looking forward, implementation of the Affordable Care Act is raising the issue of the extent to which the Medicaid expansion provisions will affect state and local taxes in those states that opt to expand Medicaid coverage. As enacted, the Affordable Care Act broadened Medicaid's reach to include nearly all low-income Americans with incomes up to 138 percent of the federal poverty level. A Supreme Court ruling on the ACA gave states the option of implementing the Medicaid expansion. For states that expand, the federal government will pay 100 percent of Medicaid costs of those newly eligible for Medicaid from 2014 to 2016. The federal share gradually phases down to 90 percent in 2020. In 2013, Medicaid accounted for 15.1 percent of spending from state general funds and other non-federal amounts that are not a part of general funds, such as provider taxes levied for Medicaid purposes. A significant expansion could place substantial burdens on state budgets—even with federal funds covering 90 percent of the costs of expansion. This raises the question whether states will divert spending from other programs or increase taxes to fund the states' share of the increased costs of Medicaid expansion.

Federal grants are expected to serve purposes beyond returning resources to taxpayers in the form of state and local services. It is argued that grant programs encourage states to spend federal funds on activities, projects, and services for which they otherwise would have spent less. The amount of additional spending is affected by the degree to which federal grant funds encourage more or less spending from states' own-sources.

Figure 1: Illustrative impacts of $2 in federal grants on state spending from state and local revenues



Conceptually, the impact of federal transfers on state and local budgets is ambiguous. Theory indicates that state and local spending could grow, shrink, or stay the same, depending on how state and local governments respond to the additional federal funds:

1. **Federal funds crowd-out state funds on a dollar-for-dollar basis**. State services remain a pre-grant levels. As shown in the second bar in Figure 1, the federal funds replace state own-source funding (e.g., funds from taxes, fees, and other state and local sources). In this way state spending from own-source revenues declines, and is ultimately returned to residents through lower taxes or reduced fees. Because federal funds replace state own-source funds dollar-for-dollar, the federal spending is said to *crowd out* state and local spending.

2. **Federal funds fully supplement state funds**. As shown in the third bar in Figure 1, federal funds are added on top of state own-source funding. In this way state

spending from own-source revenues is unchanged, but total state spending increases. This result is widely known as the *flypaper effect*, a term coined by Arthur Okun, who remarked that the money the government sends out "sticks where it hits."

3. **Federal funds *stimulate* state spending**. As shown in the fourth bar in Figure 1, federal funds are added on top of state own-source funding *and* stimulate additional state spending. A review of the literature reports that most studies find that spending is stimulated by much more than theory would predict. A review of numerous studies—done with a variety of approaches and data sets—finds that at the low-end, a $1 increase in federal grants increases the spending of state or local agencies by 25 cents.[1] The review finds that at the high end, federal grants stimulate a dollar-for-dollar increase in state or local spending.

The U.S. Government Accountability Office identifies two ways that strings attached to federal grants can increase state spending: (1) matching fund requirements, and (2) maintenance of effort requirements.[2]

Many federal grants require that state or local governments contribute their own funds in order to receive federal matching funds. Economic theory suggests that grants requiring matching funds result in less substitution than those that do not require matching. It is argued that, by lowering the effective price of aided programs relative to other state spending priorities, they encourage states to spend *more* of their own funds. Matching requirements may stimulate state spending by encouraging states to engage in and fund projects or deliver and fund services that they would not undertake without the matching funds. For example, consider a hypothetical light-rail transportation project with a $200 million construction cost and requiring a $5 million a year subsidy for operations. The local government would not go forward with the project at $200 million in construction costs. However, with a federal matching funds, the locality's share of constructions are $100 million, and the local government chooses to move forward with the project. Because of the federal matching funds, the locality is burdened with an additional $100 million in spending for construction, plus an additional $5 million in operating costs that would not be incurred if the project had been rejected. These additional funds must come from existing programs or additional revenues in the form of taxes, fees, or charges.

Maintenance-of-effort requirements demand states maintain existing levels of state spending on an aided program as a condition of receiving federal funds. By requiring

[1] Hines and Thaler (1995).

[2] Wrightson et al. (1996).

states to maintain a given level of spending from their own funds in addition to the federal grant funds they receive, maintenance-of-effort can prevent substitution in those programs where there is no federal matching requirement or where state spending exceeds the minimum required state match. For example, the American Reinvestment and Recovery Act—more commonly known as the "stimulus package"—had a provision that required states to provide a minimum threshold state appropriation to higher education of not less than the 2006 state appropriated levels. States falling under the maintenance-of-effort threshold would be in jeopardy of losing significant federal stimulus money. A publication of the American Association of University Professors concludes that state appropriations data clearly show that the threat of loss of federal funds was the key driver of higher education budgeting decisions for many states.[3] For example, for 2010, Oregon matched the federal threshold amount precisely. Nearly a dozen other states came in just over the minimum in 2010. In this way, maintenance-of-effort requirements caused states to spend more on higher education in the wake of the Great Recession and shrinking state budgets than they would have otherwise. This in turn, led to pressures to raise taxes. For example, in 2010 the Oregon legislature referred—and voters approved—two tax measures amounting to a $727 million state tax increase.

In addition to the strings attached to federal funds, research points to a "ratchet effect" in which spending in response to a temporary crisis becomes a permanent increase in spending. Similarly, additional spending from a one-time revenue windfall can become a permanent program as staff are employed and residents receive services, thereby establishing and entrenching interest groups in support of program. Recent research into the ratchet effect published in the widely cited academic journal *Public Choice* finds that each dollar of additional federal grants to states is associated with a tax increase of 31–40 cents at the state level and 23–46 cents at the local level, for a total increase of 54–86 cents in new state and local taxes.[4]

2 The relationship between federal intergovernmental transfers and state and local spending

Recent research finds that each dollar of additional federal grants to states is associated with tax increases in the range 54 cents to 86 cents in new state and local taxes.[5] Hines &

[3] Alexander (2010).

[4] Sobel & Crowley (2014); the article provide a review of the research on the "ratchet effect."

[5] Sobel & Crowley (2014); the article provide a review of the research on the "ratchet effect."

Thaler (1995) and Bailey & Connolly (1998) provide a review of and summary of earlier research, including empirical findings and the theoretical expectations.

This study tests the effects of federal intergovernmental transfers on state and local own-source general revenue using a balanced panel of the 50 U.S. states and annual data for 1972 through 2012. Information is not available for the years 1973–1976, 2001, and 2003. Table 1 list the revenue sources comprising state and local own-source general revenue for 2012.

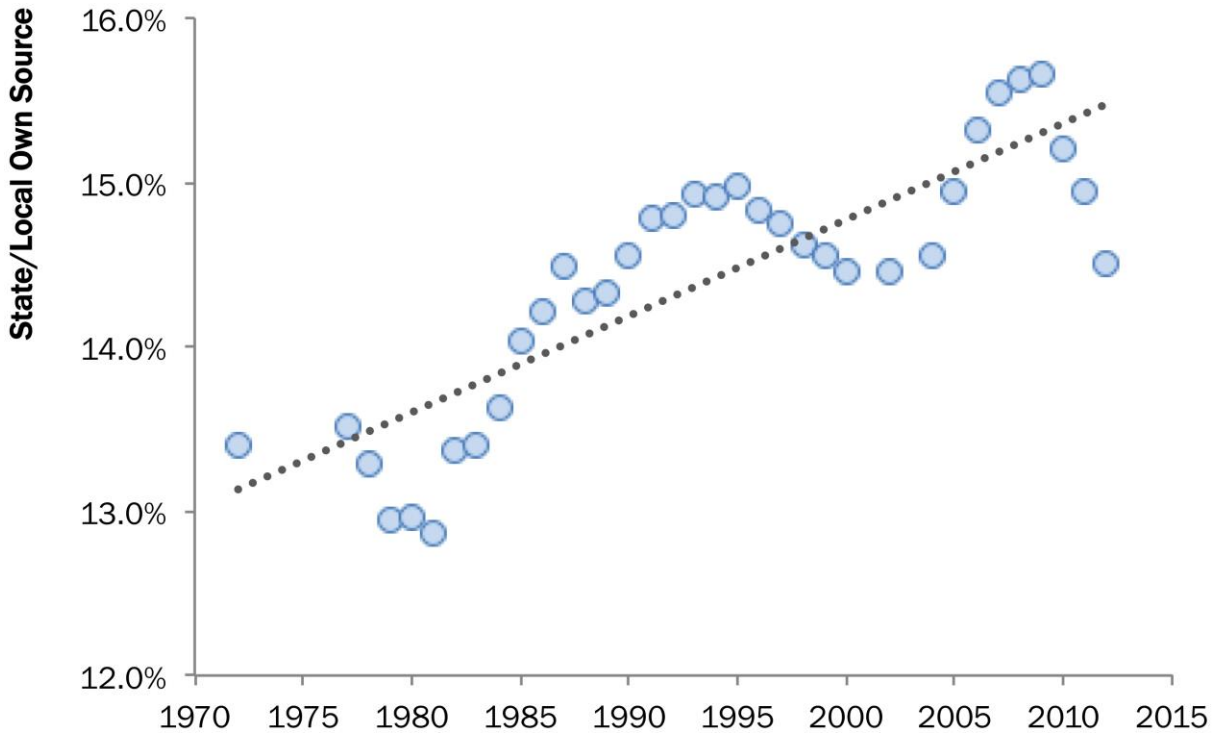
Table 1: Components of state and local own-source general revenue, all states combined

Revenue source	2012 Amount	Share of Total
Property taxes	$445 billion	22%
Sales taxes, general	315 billion	16%
Sales taxes, selective	160 billion	8%
Income tax, individual	305 billion	15%
Income tax, corporate	50 billion	2%
License taxes	70 billion	3%
Other taxes	40 billion	2%
Charges	425 billion	21%
Miscellaneous revenue	200 billion	10%
Total	$2,010 billion	100%

The analysis begins with a graphical analysis of the relationships between federal transfers to the states and state and local own-source general revenues. In this way, one can visualize the extent to which federal transfers may result in higher state and local taxes and charges.[6]

[6] The analysis follows the outline described by Pritchett (2015) and Romer (2015).

Figure 2: State and local own-source general revenue, all states combined, 1972–2012



The figures show the relationship between federal money going to states and the own-source general revenues at the state and local level. "Own-source" means that the money is generated from state and local taxes and charges. To control for differences in the size of states and inflation over time, the data are displayed as a share of total state personal income.

Figure 2 shows that state and local own-source general revenue varies from year to year, but shows an upward trend over time. In the 1980s, spending from state and local sources represented 13.9 percent of personal income, or $468 billion a year. In the 2000s, the amount grew to $1,217 billion, or 15.1 percent of personal income. In other words, not only has state and local own-source revenues grown, but they have grown as a share of personal income.

Figure 3: Federal intergovernmental revenue, all states combined, 1972–2012

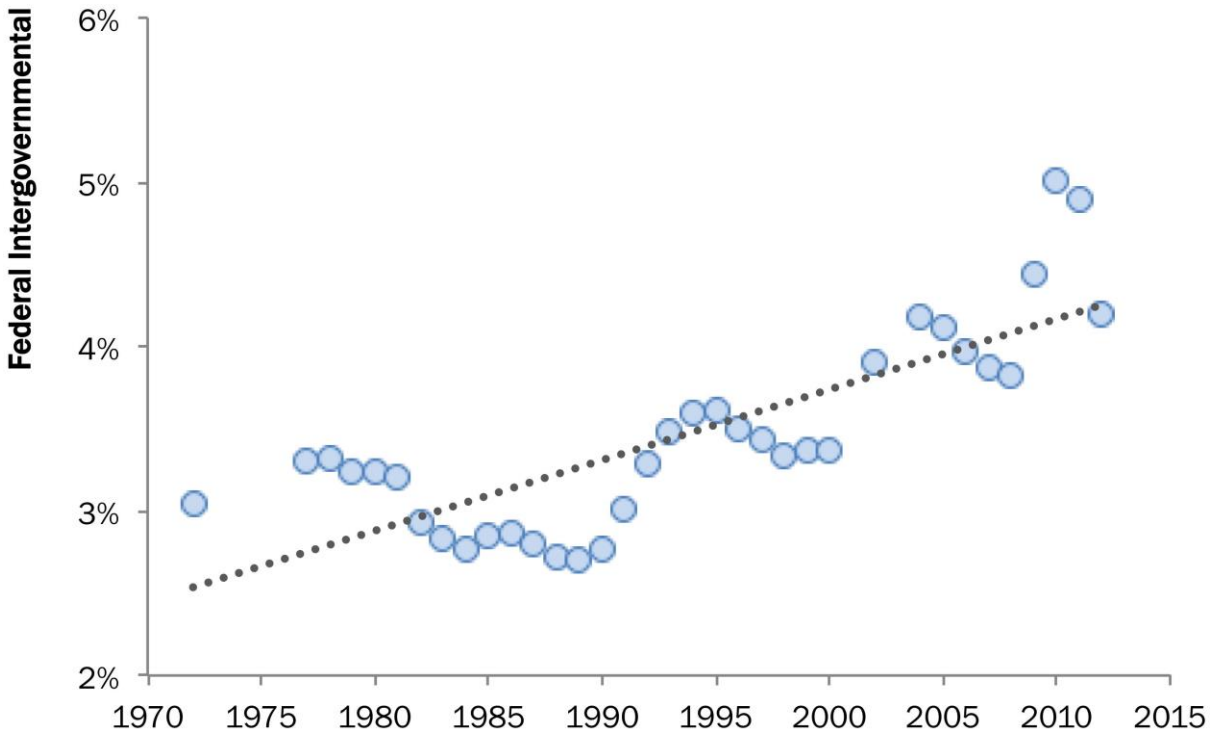


Figure 3 shows that state and local revenue from federal intergovernmental transfers varies from year to year, but—as with own state and local own-source general revenue—shows an upward trend over time. In the 1980s, state and local revenues from federal transfers represented 2.9 percent of personal income, or $96 billion a year. In the 2000s, the amount grew to $372 billion, or 4.2 percent of personal income. In other words, not only have federal transfers to states grown, but they have grown as a share of personal income.

Figure 4: Relationship between federal intergovernmental revenue and state/local own-source general revenue, all states combined, 1972–2012

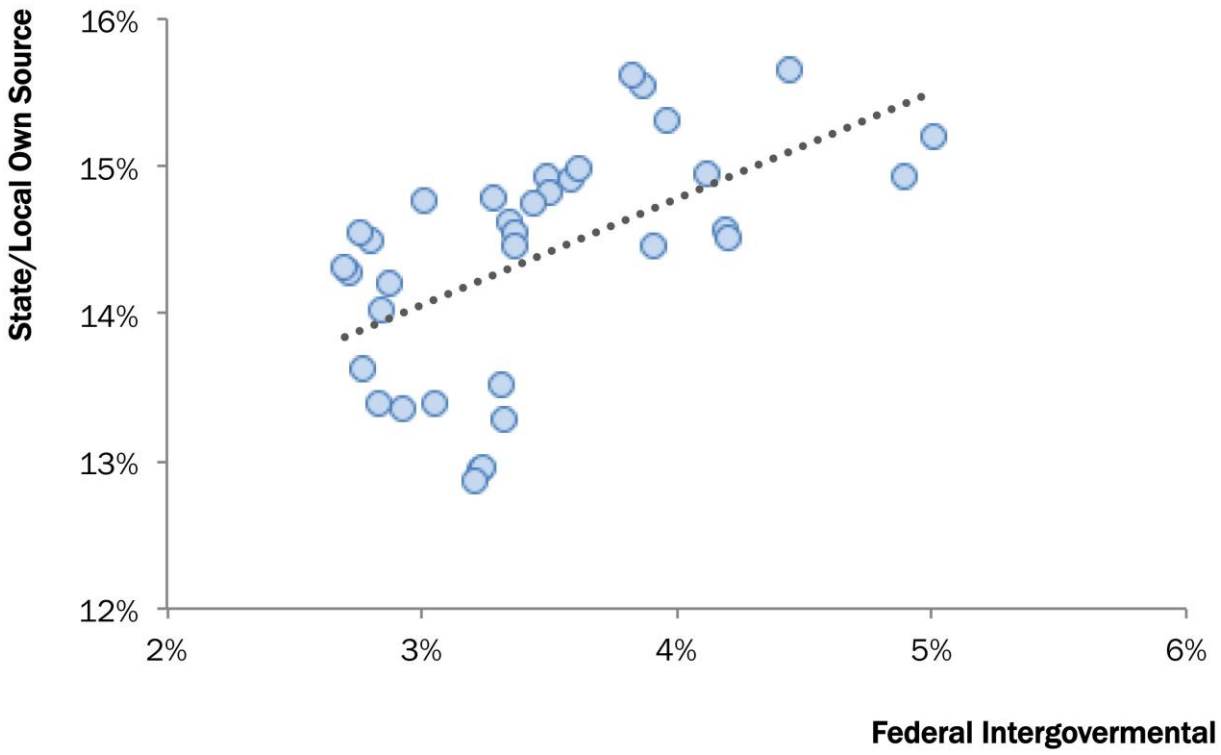


Figure 4 combines the trends shown in Figure 2 and Figure 3 into a scatterplot showing the relationship between federal revenue and spending from state and local sources for all 50 states combined. Each dot represents a single year. The figure shows an obvious positive relationship: As federal revenues grow relative to income, so do state and local revenues. The trendline indicates that, on average across the U.S. as a whole, for every percentage point increase in federal money to states, revenues from taxes and charges at the state and local level increase by roughly 0.75 percentage points.

The figure shows the strong correlation of spending from federal and state/local sources, but it does not split it into cross-sectional (states) and time-series components (years) that research encourages to consider separately.[7]

[7] Romer (2015).

Figure 5: Relationship between federal intergovernmental revenue and state/local own-source general revenue, each state (Alaska in red), 1972–2012

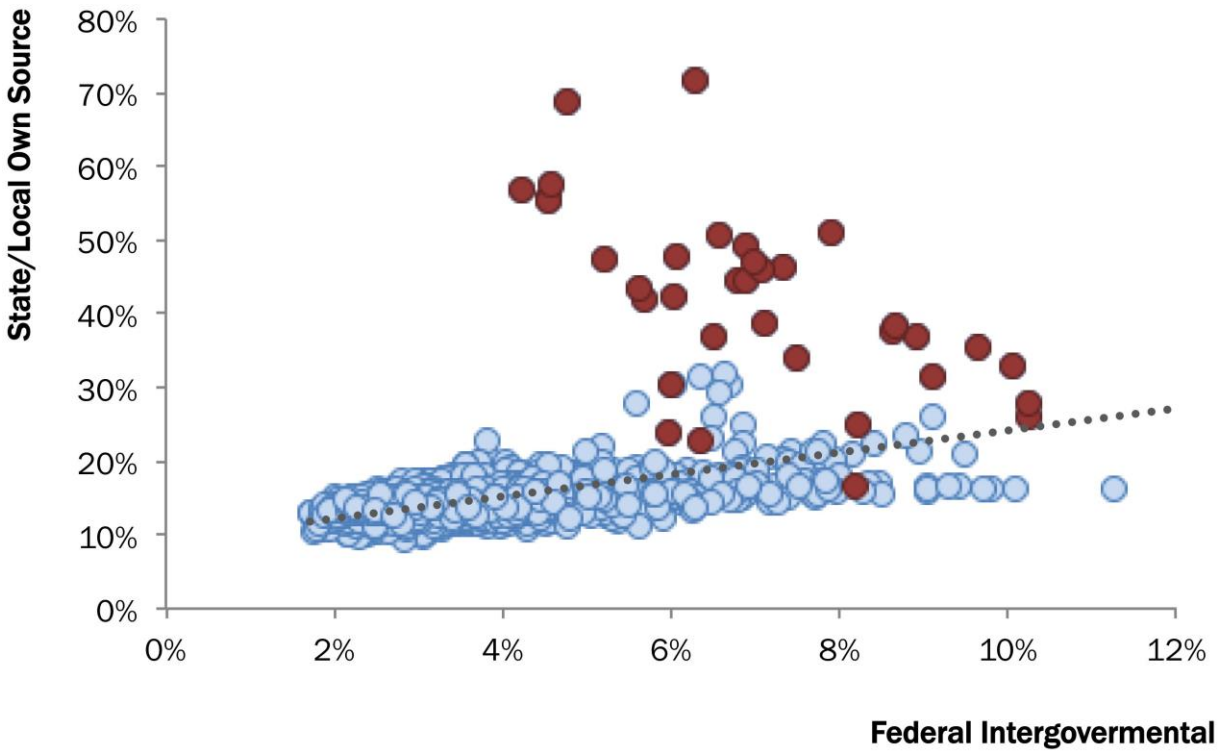


Figure 5 is similar to Figure 4, but displays a separate dot for each year for each of the 50 states, for a total of 1,750 dots. The scatterplot has some outliers at the upper end of state and local own-source general revenue. Each of these outliers are associated with the State of Alaska and are shown as red dots. These outliers distort the averages and trends in the rest of the data, which is especially distortionary considering Alaska represents less than one percent of U.S. population, output, and incomes.

Figure 6: Relationship between federal intergovernmental revenue and state/local own-source general revenue, each state (Alaska excluded), 1972–2012

Figure 6 is the same as Figure 5, but excludes the State of Alaska. Hereafter, all figures will exclude data from Alaska.

As with Figure 4, this figure shows an obvious positive relationship: As federal revenues grow relative to income, so do state and local revenues from taxes and other charges. The trendline indicates that for every percentage point increase in federal money to states, taxes and charges at the state and local level increase by roughly 0.88 percentage points.

The figure shows the strong correlation of spending from federal and state/local sources, but still does not split it into cross-sectional (states) and time-series components (years) suggested by research.

Figure 7: Relationship between federal intergovernmental revenue and state/local own-source general revenue, each state, 2012

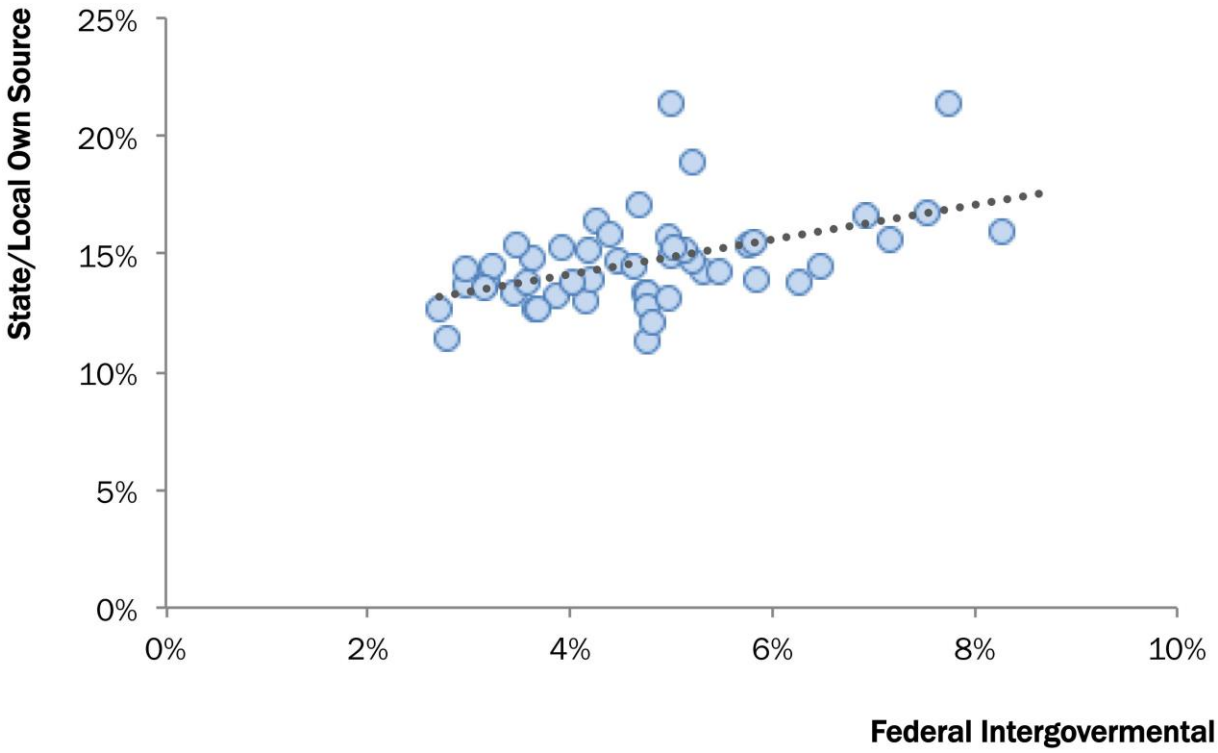


Figure 7 shows one simple way to get at the cross-sectional—state-by-state—variation. It plots federal revenue and spending from state and local sources for each state in a single year, 2012. The figure shows the strong correlation of spending from federal and state/local sources: States receiving more federal intergovernmental transfers also have greater spending from their own state and local sources. The trendline indicates that for every percentage point increase in federal money to states, state and local taxes and charges increase by roughly 0.74 percentage points.

Figure 8: Relationship between percentage point change in federal intergovernmental revenue and percentage point change in state/local own-source general revenue, each state, from 1972 to 2012

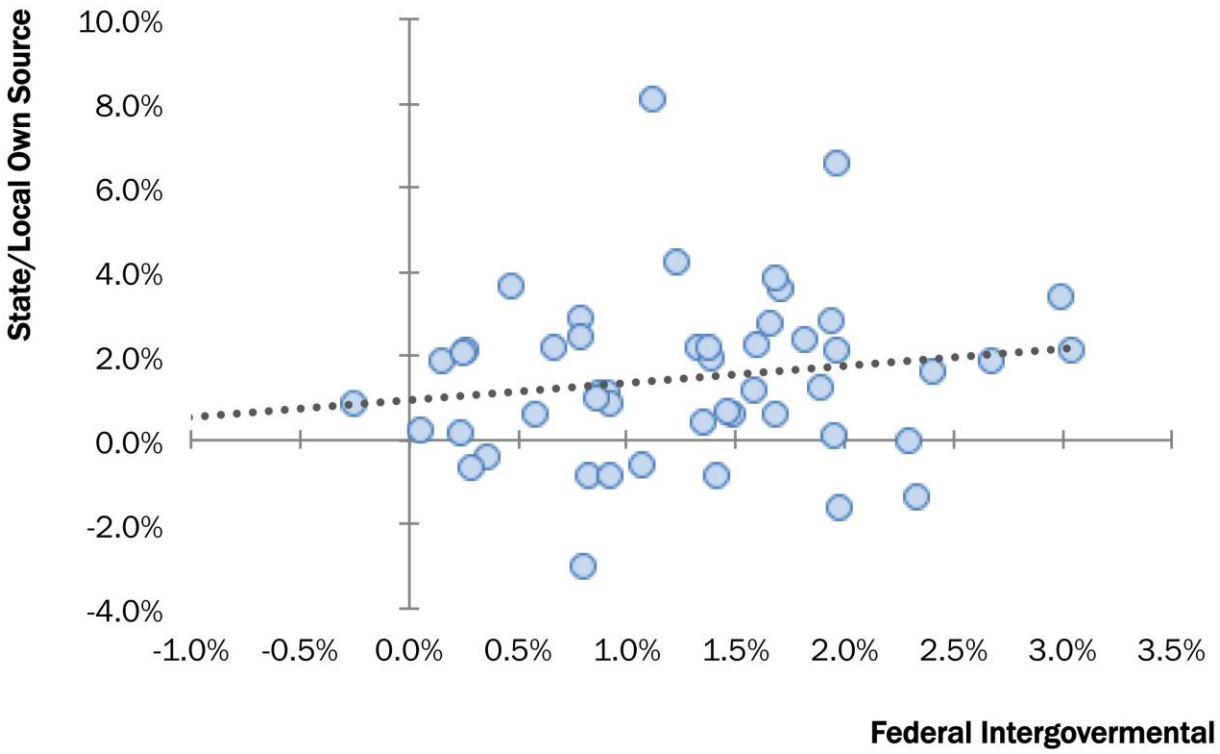


Figure 8 shows one simple way to get at the variation over time. It plots the *change* in federal revenue and the *change* in spending from state and local sources for each state over the years 1972 and 2012.

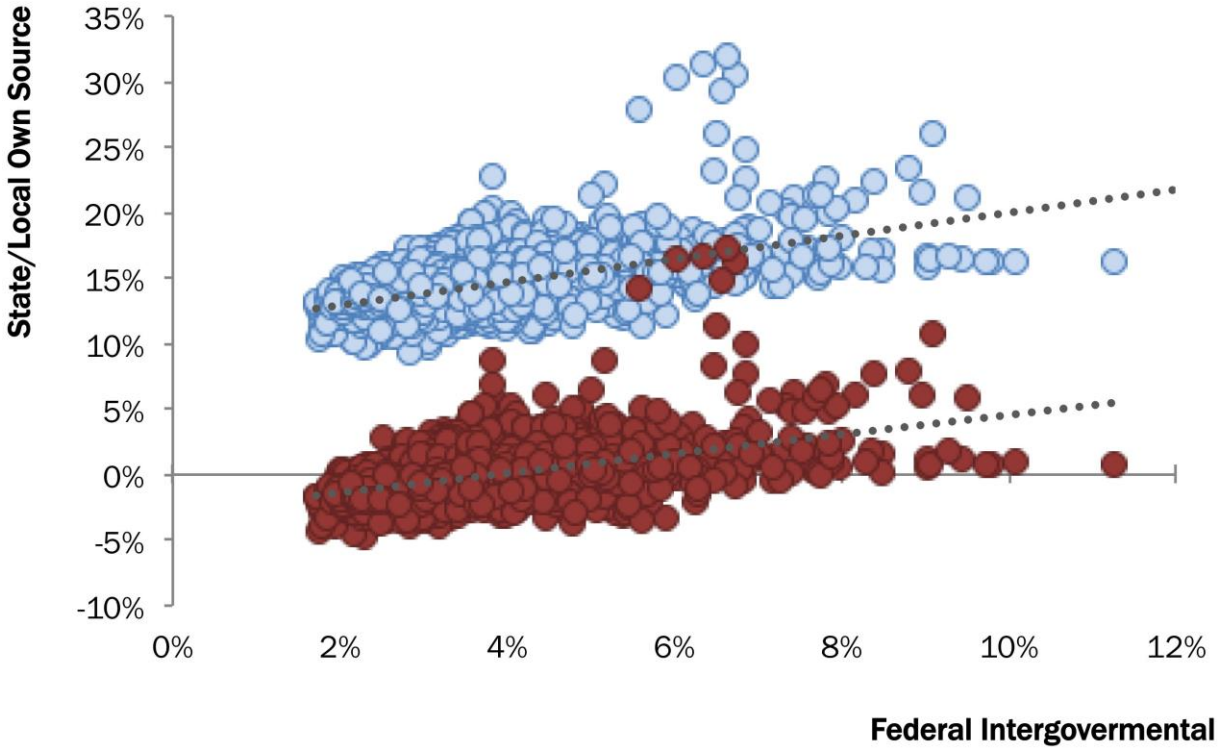
The figure shows the strong correlation of the change in spending from federal and the change in spending state/local sources: States with increasing intergovernmental transfers also increase collections from there own-sources such as taxes, fees, and charges.

3 Regression analysis of relationship between federal intergovernmental transfers and state and local spending

Another way to deal with the variation over time uses a statistical approach. One way to separate out the effect of the changes over time from the persistent differences in spending among states is to run a regression that allows for state-specific fixed effects using dummy variable for each state.

Figure 9 shows the correlation between the state and local own-source general revenue in a given year and federal intergovernmental transfers in that year after taking out the effect of the state specific dummy and a time trend (red dots). The blue dots show the initial scatter in Figure 6.

Figure 9: Relationship between federal intergovernmental revenue and state/local own-source general revenue, each state, controlling for state fixed effects, 1972–2012



As expected, the scatter plot of these state-specific effects has a slope that is less steep than the scatter of points in Figure 6. The trendline indicates that for every percentage point increase in federal money to states, state and local spending increases by roughly 0.74 percentage points. The slope is less steep because the regression allocates some of this correlation to the average of state-specific changes over time. Nevertheless, when examined this way, the data still show a correlation of spending from federal and state/local sources.

The fixed affects approach is simplistic. It assumes that each state is different from other states, but does not describe the ways in which states differ. It also does not describe how such differences could account for spending from state and local taxes, fees, charges, and other revenue sources apart from own-source spending associated with federal intergovernmental transfers.

Previous research identifies several factors that could explain differences in state and local own-source spending. These controls are typical of studies that examine the fiscal behavior of local governments. Each of the following factors vary across states and vary from year-to-year:

- **Unemployment**, share of labor force;[8]
- **Poverty**, share of population;[9]
- **Age 5 and younger**, share of population;[10]
- **Age 5-18**, share of population;
- **Age 65 and older**, share of population;
- **Mining share of gross state product**, is included to account for state-by-state differences in the energy and mining sector and also to account for the recent boom in energy and mining markets;[11]
- **Manufacturing share of gross state product**;[12] and
- **Population density.**[13]

[8] See, for example, Gamkhar & Oates (1996); Wrightson et al. (1996); Baicker (2001); Kula (2004); and Brooks and Phillips (2010).

[9] See, for example, Wrightson et al. (1996); Gordon (2004); Kula (2004); Payne (2009); and Brooks and Phillips (2010).

[10] See, for example, Wrightson et al. (1996) and Brooks and Phillips (2010).

[11] Adkisson and Mohammed (2014).

[12] See, for example, Clark and Whitford (2011).

[13] See, for example, Wrightson et al. (1996); Kula (2004); and Baicker (2005).

Figure 10: Relationship between federal intergovernmental revenue and state/local own-source general revenue, each state, controlling for economic and demographic variation, 1972–2012

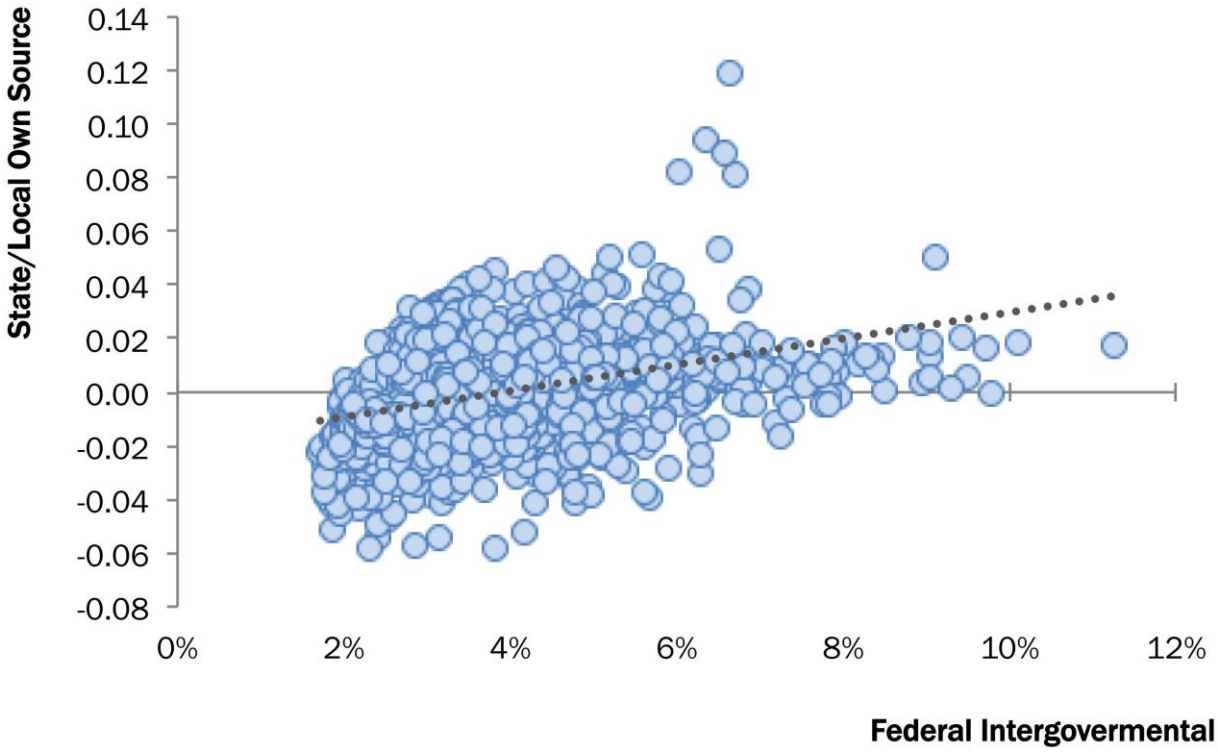


Figure 10 shows the correlation between the state and local own source general revenue in a given year and federal intergovernmental transfers in that year after taking out the effect of the state- and year-specific control factors. The scatter plot of these state-specific effects has a slope that is less steep than the scatter of points in Figure 6 and Figure 9. Nevertheless, when examined this way, the data still show a correlation of spending from federal and state/local sources.

Table 2: Regression results of relationship between state/local own-source general revenue (dependent variable) and federal intergovernmental revenue, by state, controlling for economic and demographic variation, 1980–2012

Variable	Coefficient	Std. Error	
Constant	0.109	0.008	***
Federal intergovernmental revenue	**0.817**	**0.044**	***
Unemployment, share of labor force	–0.018	0.022	
Poverty, share of population	–0.086	0.013	***
Age 5 and younger, share of population	0.516	0.094	***
Age 5-18, share of population	–0.123	0.038	***
Age 65 and older, share of population	0.040	0.025	
Mining share of gross state product	0.121	0.015	***
Manufacturing share of gross state product	–0.024	0.006	***
Population density	2.51E-06	0.000	**
R-squared	0.493		
Adj. R-squared	0.490		
Number of observations	1,519		

** denotes significant at the 5 percent level of significance
*** denotes significant at the 1 percent level of significance

Table 2 presents the results of a regression that quantifies the relationship between state/local own-source general revenue (as a share of state personal income) and federal intergovernmental revenue (as a share of state personal income) and controlling for the economic and demographic factors that vary across states and over time.

The trendline indicates that for every percentage point increase in federal money to states, state and local spending increases by 0.82 percentage points, which is in line with the estimates provided by the scatterplot analysis provided in Figures 4–10. The estimated coefficient is statistically significant at the 1 percent level of significance. This is also consistent with recent academic research finding that each dollar of additional federal grants to states is associated with tax increases in the range 54 cents to 86 cents in new state and local taxes.[14]

The regression model has an R-squared statistics of 0.493, which is within the range presented in peer-reviewed articles in this area of research.

[14] Sobel & Crowley (2014).

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A vast literature has examined the impact of federal grants on state and local spending. Recent academic peer-reviewed research finds a "ratchet" effect in which federal transfers to the states are associated with increased state and local taxes and charges. Research points to several reasons why additional federal funding would lead to greater state and local own-source spending:

- A "flypaper" effect, in which federal funds are accepted as a supplement to, rather than a substitute for state and local taxes and charges.
- A "stimulus" effect in which matching fund and maintenance of effort requirements tied to federal funds require increased spending from state and/or local funds. In addition, matching requirements may stimulate state and local spending by encouraging projects that would not have been undertaken without the matching funds.

Recent academic research finds that each dollar of additional federal grants to states is associated with a total increase of 54–86 cents in *new* state and local taxes. The research presented in this report supports the published finding. Our statistical study is the most comprehensive analysis to date, using information from U.S. states spanning the period from 1972 to 2012 and controls for state-by-state differences in economic and demographic factors.

Our results clearly demonstrate that federal transfers to state and local governments result in higher own source revenue and taxes. **Across states as a group, each dollar of additional federal grants to states is associated with a total increase of 82 cents in *new* state and local taxes.**

Nevada has a smaller ratchet effect than states as a group. Statistical analysis controlling for the economic and demographic factors that vary across states and over time indicates that—holding other variables constant—**each additional dollar of federal intergovernmental transfers to Nevada is associated with $0.56 in additional taxes, charges, and other state and local own source revenue**.

In 2012, Nevada state and local governments received $3.6 billion in federal intergovernmental transfers and spent $15.4 billion raised from state and local sources.

- A hypothetical 10 percent increase in federal transfers to Nevada would amount to about $360 million more federal money to the state.
- The statistical analysis indicates that this would be associated with approximately $200 million more in spending from state and local own sources, or **an additional $70 per person in taxes and charges**.

4 Conclusion

A vast previous literature has examined the impact of federal grants on state and local spending. Much of this previous literature, however, focuses exclusively on the impact of the grant spending rather than on the state and local own-source revenues. This study depart from this literature by examining the impact of federal transfers on state and local taxes and charges. This is the most comprehensive analysis to date, using information from U.S. states spanning the period from 1972 to 2012.

Our results clearly demonstrate that federal transfers to state and local governments results in higher own-source revenue and taxes. Importantly, our results suggest that the increases in federal grants to state and local governments associated with the ACA's Medicaid expansion will have significant future tax implications at the state and local level as these governments raise revenue to continue these newly funded programs into the future and as federal support tapers off once the expansion is in place.

Federal transfers to states have grown from $74 billion a year in 1980 to almost $300 billion in 2012. Based on our results state revenues from taxes, charges, and other own-sources will rise by 82 cents for each additional dollar in federal transfers. A hypothetical 10 percent increase in federal transfers would amount to about $62 billion to the states. Using our regression results, and holding personal income constant, this would be associated with approximately $50 billion in additional increased taxes, charges or other revenue sources, or an additional government burden of $158 per person.

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