Strength in diversity? Fiscal federalism among the fifty US states

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Abstract Fiscal federalism in the USA has a distinctive structure that contrasts sharply with that in most other industrialized nations. Our purpose in this paper is to describe and explore the US "brand" of fiscal federalism. We demonstrate that there is a striking amount of variety in the 50 state fiscal systems and that these differences have prevailed in the face of potentially disruptive forces. The variety we find stems in large part from states having meaningful fiscal autonomy, in particular, the authority to levy taxes. The result is likely higher societal welfare than would ensue without this autonomy.

Keywords Fiscal federalism · 50 US states · Subnational fiscal autonomy

JEL Classification H70 · H77

1 Introduction

Fiscal federalism in the USA has a distinctive structure that contrasts sharply with that in most other industrialized nations. Indeed, foreign scholars, visiting in the USA, are often astonished at what they find: a highly decentralized structure consisting of

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fifty different fiscal and governmental systems with many apparent anomalies when compared to fiscal systems elsewhere. Our purposes in this paper are to describe and explore the US "brand" of fiscal federalism, to contrast it with the more typical forms of intergovernmental structure that one finds elsewhere, and to consider the normative question of how a diverse subnational government sector affects societal well-being.

We will demonstrate that there is a striking amount of variety in the 50 state fiscal systems and that these differences across the fiscal systems have prevailed in the face of potentially disruptive forces. The variety we find stems in large part from states having meaningful fiscal autonomy, in particular, the authority to levy taxes, which allows states to act on the preferences of their residents. As formalized by Oates (1972), subnational fiscal autonomy can lead to significant improvements in social welfare.

We begin in Sect. 2 with a comparison of the features of the intergovernmental system in the USA to systems in other countries. We then proceed in subsequent sections to investigate in depth the striking variety in the fiscal structures of the fifty states. Our treatment has two basic themes. The first is simply the highly decentralized nature of the public sector in the USA, where subnational governments have autonomy to act on the preferences of their residents in setting both fiscal policies and social policies. We see great diversity across the states in a variety of realms, from tax policy to marriage laws to charter schools policy. The second is the large variety in fiscal structures across the fifty states and the resilience over time in these differences. Finally, we turn to the normative implications of our analysis and ask whether all this variety across the states is a good thing.

2 An overview of the distinctive character of the US fiscal system

Compared to most other industrialized nations, the USA has a relatively small and highly decentralized public sector. In Table 1, we display for a subset of the countries comprising the Organization for Economic Cooperation and Development (OECD), the size of the government sector as measured by total revenues or total expenditures as a share of gross domestic product.

In 2013, the USA ranked 31 out of 34 OECD countries in the size of its government sector as measured by revenues. In that year, US governments financed part of their spending through borrowing; thus, when the size of government is measured by expenditures, the US rank rises to 28, which still places the country in the bottom one-fourth of the 34 OECD countries.

Using two different sources of data (the OECD and the International Monetary Fund, IMF), we display in Table 2 for several countries two measures of the degree of fiscal decentralization: the share of total revenues and the share of total expenditures that are attributable to subnational units of government. The USA is one of the more decentralized countries among this set of industrialized countries. Depending on the measure and the source, the degree of decentralization in the USA sits in a tight range from 43 to 47%, and expenditures are only slightly more decentralized than are revenues, with that difference being the smallest of all of the differences dis-

Table 1 Size of government: total central + state + local revenues and expenditures as a share of GDP (select OECD countries, 2013). *Source*: National Accounts at a Glance, OECD

Country	Total revenues as a percent of GDP	Revenues rank over 34 countries	Total expenditures as a percent of GDP	Expenditures rank over 34 countries
Australia	34.03	28	36.64	30
Canada	37.96	23	40.67	25
Chile[a]	21.25	34	24.62	33
Denmark	56.02	1	57.08	5
France	53.02	4	57.11	4
Germany	44.47	14	44.32	14
Israel	37.21	25	41.30	22
Mexico	24.53	33	24.44	34
Netherlands	44.51	13	46.79	12
New Zealand	39.71	19	40.12	26
Norway	55.37	2	44.04	16
Spain	37.50	24	44.30	15
Sweden	51.92	5	53.30	7
Switzerland	33.60	30	33.52	31
Turkey[b]	36.60	26	37.40	29
UK	39.77	18	45.51	13
USA	33.15	31	38.71	28
OECD average	42.41		45.25	

[a]2009
[b]2011

played.[1] Only Switzerland and Canada have a more decentralized revenue structure than the USA. Switzerland is a confederation based on the principle of subsidiarity, and its cantons, their regional government, can design and levy taxes on personal and corporate income, wealth, inheritance, and capital. In Canada, the provinces have significant revenue-raising authority; they levy taxes on personal and corporate income, payroll, specific items such as alcohol and tobacco, and general sales.

In several countries (Denmark, the Netherlands, Norway, and the UK, for example), expenditures are much more decentralized than are revenues. In these countries, revenues from the central government are an important source of funding for subnational units of government, and subnational units of government have relatively limited revenue-raising authority. The comparison between revenues and expenditures in decentralization is central to understanding the degree of effective autonomy, but also to assessing the potential benefits to the economy. In Gemmel et al. (2013), the authors find that raising revenue decentralization or lowering spending decentralization would be growth enhancing on average for the OECD countries. They

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[1] The gap between the degrees of decentralization of expenditures and revenues is even smaller for New Zealand; however, the degree of decentralization is so small in New Zealand that the gap has very little importance.

Table 2 Degree of fiscal decentralization: state + local as a share of central + state + local, revenues and expenditures (IMF and OECD 2012). *Sources*: Fiscal Decentralization Database, OECD; Government Finance Statistics Yearbook, IMF

Country	IMF revenues decentralization	OECD revenues decentralization	IMF expenditures decentralization	OECD expenditures decentralization
Australia[a]	0.27	NA	0.46	NA
Canada[ab]	0.55	0.55	0.76	0.68
Chile	0.07	NA	0.13	NA
Denmark	0.27	0.27	0.63	0.60
France	0.16	0.16	0.20	0.20
Germany[a]	0.35	0.35	0.46	0.39
Israel[c]	0.08	0.10	0.12	0.12
Mexico[c]	NA	0.16	NA	0.44
Netherlands	0.10	0.10	0.32	0.32
New Zealand	0.07	NA	0.08	NA
Norway	0.13	0.14	0.34	0.34
Spain[a]	0.34	0.30	0.50	0.41
Sweden	0.38	0.35	0.49	0.47
Switzerland[a]	0.46	0.48	0.63	0.57
Turkey	0.05	NA	0.10	NA
UK	0.06	0.09	0.27	0.26
USA	0.43	0.45	0.45	0.47

[a]From our reading of the available documentation, it is possible that grants from the regional level of government (states) to the local level of government (locals) are double counted in the IMF expenditures data for these countries, i.e., grants from states to locals are counted as expenditures by states, and the monies are counted again as expenditures by locals. If this is the case, the degree of decentralization of expenditures is exaggerated in the IMF data
[b]OECD 2010
[c]OECD 2011

present empirical evidence consistent with the theory that the efficiency benefits from decentralization are greater when there is a close match between the degree of decentralization in spending and the degree of decentralization in revenues (Oates 1972).

Tables 1 and 2 account for expenditures that are on budget, i.e., actual outlays of the various governments. In many countries, social and economic policy also occurs through tax expenditures whereby the central government allows credits and deductions on its income taxes for various types of spending. If we were to take into account the value of central government tax expenditures, the size of government in Table 1 would be larger and the degree of decentralization in Table 2 would generally be lower, depending on the nature of the deductions/credits.[2]

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[2] An OECD report on tax expenditures (OECD 2010) displays measures of tax expenditures as a percent of GDP in six of the countries we list in Tables 1 and 2. The figures are 7.68% for Canada, 0.64% for Germany, 1.78% for the Netherlands, 4.95% for Spain, 12.54% for the UK, and 6.47% for the USA.

The sizeable degree of decentralization in the USA reflects in large measure the relatively limited range of functions performed at the central level in the USA. In the budget of the central government, two items, military spending and the social security program, account for more than half of central expenditures. The primary responsibility for most other functions rests with the state and local sector.[3]

Not only are direct expenditures on goods and services at the central level relatively small in the USA, but transfers of revenues from the center to the state and local sector are relatively modest. In fiscal year 2011, central government grants to state and local governments accounted for 17% of central expenditures and funded about a quarter of spending by state and local governments (Congressional Budget Office 2013). About half of these transfers support public-health programs, most notably the Medicaid program, which provides health care for low-income households. There are also transfers to the states to assist with various infrastructure programs such as highway construction.

But there are no unrestricted transfers to the states, which places the USA at odds with many other Western countries. It is interesting in this regard that Robin Boadway (2006), in his general treatment of federal fiscal systems, argues that "Equalizing transfers are the lifeblood of federations. They facilitate the decentralization of fiscal responsibilities by addressing the inequities and inefficiencies that would result from decentralization of spending and revenue-raising responsibilities" (p. 376).[4]

To see how distinctive the US grant system is, in Fig. 1, using IMF data, we document for several countries the size of central government transfers to subnational governments. In most countries, state and local governments rely more heavily on central government transfers than in the USA. Indeed, only in Germany, Switzerland, and Canada do subnational governments have a lower reliance on central government grants than they do in the USA.[5]

To understand to what degree variety, or diversity, among subnational governments is a distinct feature of the US system, we display in Table 3 for a handful of countries a measure of the degree of diversity across states within a country in total subnational expenditures per capita.[6] The USA is the country that displays the greatest diversity.

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[3] In an earlier literature, Brennan and Buchanan (1980) argue that there is a causal relation between the extent of fiscal decentralization and the overall size of the public budget. They contend that competition among lower-level governments constrains the monopolistic tendencies of the public sector so that countries with highly decentralized public sectors would tend to have relatively small public sectors. This notion became known as the Leviathan hypothesis. The evidence is, however, mixed at best. Oates (1985), in the first empirical study of "Leviathan," finds that the evidence runs counter to the Brennan–Buchanan proposition. Some later empirical work, however, suggests a more complex relationship. See, for example, Ashworth et al. (2013).

[4] Canada is unusual in that it has both large equalizing grants and extensive subnational revenue authority. See Simeon et al. (2014).

[5] Germany's number is not comparable to the others because of the unique German system in which equalizing transfers occur as redistributions between states rather than grants from the central government; since Fig. 1 does not capture redistributions between states, the number for Germany does not capture the total amount of transfer revenues. See Enderlein and von Müller (2014) for a description of the differences between Germany's form of fiscal federalism compared to others. New Zealand's figure is very similar to the US figure, but note from Table 2 that its degree of decentralization in revenues is only 7%.

[6] Our measure of diversity is the coefficient of variation, i.e., the standard deviation divided by the mean.
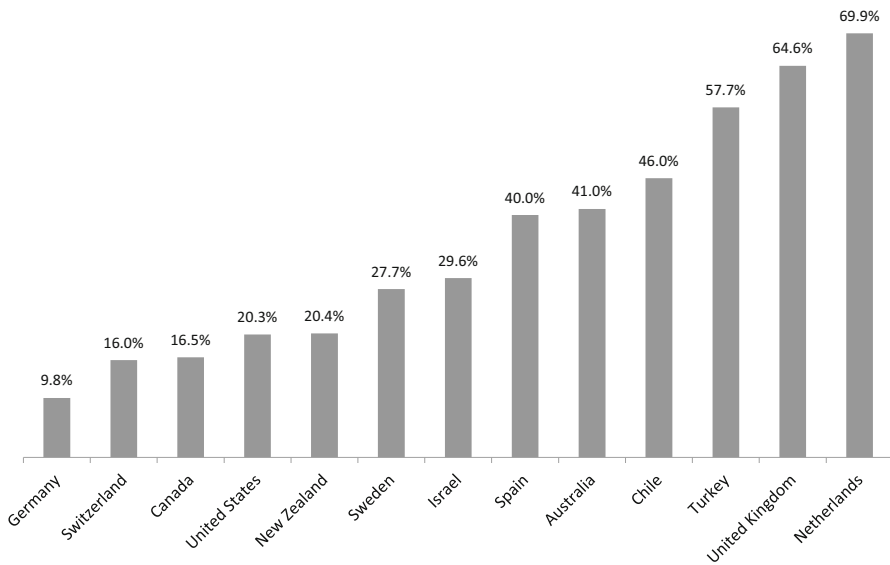
Fig. 1 Intergovernmental transfers as a percentage of subnational government revenue, 2012. *Source*: Government Finance Statistics, International Monetary Fund, eLibrary Data, updated February 4, 2016. We do not include France, Denmark, Mexico, and Norway because data on state and local grants are not reported for these countries

Table 3 Degree of diversity across regions in total state + local expenditures per capita. *Source*: Author calculations based on data from the following sources: United States Census, 2011; Australian Government Finance Data, 2013; Statistisches Bundesamt, 2011, Germany; Instituto de Estudios Fiscales, BADESPE, 2012, Spain; Statistiska Centralbyran, 2009, Sweden; Statistics Canada, 2012, Canada

Country (number of states/regions)	USA (50)	Australia (6[a])	Germany (16)	Spain (15[b])	Sweden (21)	Canada (10[a])
Coefficient of variation	0.22	0.07	0.16	0.08	0.06	0.10

[a] Australia and Canada also have territories, which we have not included in the analysis
[b] For Spain, we exclude the Basque Country and Navarra because they are under a different fiscal federal model than the other autonomous communities

All the other countries displayed exhibit significantly less diversity, a fact that fits well with the casual observation that these countries, for the sake of preserving equity, tend to devolve less fiscal autonomy to subnational governments or to have more significant equalizing grants—or both—than does the USA.

Not only is the state and local government sector diverse in the USA, but the states vary widely in their laws and institutions, reflecting differences in social values. There are, for example, quite different laws and procedures across the states for marriage, divorce, inheritance rules and taxes, capital crimes and punishment, and tort law more

generally. Moreover, the executive and legislative structures of state and local government vary significantly across the states. Many have deep historical roots. One striking example is the state of Louisiana, whose legal system is still based largely on the Napoleonic Code, where most other states have common-law backgrounds. Another is the state of Nebraska, which uniquely has a unicameral government.

A recent and controversial matter that reflected diversity in social values is the issue of single-sex marriage. Several states passed laws restricting marriage to a man and a woman, while other states made provision for single-sex marriages. This became even more complicated by the unwillingness of some states to recognize single-sex marriages legally performed in other states. In June 2015, the US Supreme Court struck down restrictions on single-sex marriage and this avenue of diversity across the states was eliminated. Nonetheless, the episode demonstrates that basic social values differ across the states and they act in accordance with these differences.

The reliance on diverse approaches to current policy issues also manifests itself in some recent efforts to address global climate change. Rather than imposing a uniform set of standards for reducing carbon emissions from power plants, the Obama Administration promulgated a regulation that offered the states a menu of policy options to meet their respective pollution–reduction targets (Davenport and Baker 2014).

In the next two sections, we explore more deeply and systematically the extent of variation across the states in their fiscal systems. We begin in Sect. 3 with an examination of the structure and funding of public education. We find that the extent to which states fund K-12 education and states support publicly funded charter schools differs greatly from state to state. We turn in Sect. 4 to an examination of the expenditure and revenue systems of the 50 US states.

3 Fifty distinct K-12 education systems

Over the last half century, there has been a movement among the states to reform the method of financing K-12 education. Oftentimes, the reforms were inspired by state Supreme Court cases focused on inequities in funding across school districts. Policies enacted to reduce inequities tended to reduce both local control and local reliance on the property tax for funding education. In general, within-state dispersion in spending was reduced through increased resources for low-spending school districts.[7]

In recent decades, another trend has taken hold: the advance of publicly funded, privately run charter schools that are not subject to many of the same rules and regulations as traditional public schools. The impetus for charter schools stemmed from the observation that academic achievement in many traditional public schools was low, prompting public officials to try new approaches. Charter schools have been warmly embraced in some states and rejected in other states.[8]

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[7] For an examination of changes in the distribution of K-12 education spending across school districts within and across states from 1972 to 1992, see Murray et al. (1998).

[8] In early 2015, the education committee of the Nebraska legislature voted to kill a bill that would have allowed charter schools in Omaha.

Table 4 State share of total spending on K-12 education, 2011. *Source*: National Center for Education Statistics

State share in total education spending	States		
Top quintile (mean: 64.38%)	HI (89.39%)		
	VT	AK	NC
	NM	DE	WA
	ID	MN	CA (56.60%)
2nd quintile (mean: 52.81%)	WV (55.78%)		
	IN	KS	AK
	MI	AL	UT
	WY	KY	ND (50.03%)
3rd quintile (mean: 44.51%)	OK (46.89%)		
	MS	TN	OH
	WI	MT	IO
	OR	SC	LA (42.19%)
4th quintile (mean: 39.59%)	GA (41.70%)		
	MD	TX	MA
	ME	NY	NJ
	AZ	CO	VA (37.03%)
Bottom quintile (mean: 33.04%)	NH (36.61%)		
	RI	CT	NE
	PA	NV	MO
	FL	IL	SD (29.09%)

3.1 Funding

State governments are more or less involved in funding their systems of schools. We see in Table 4 that in 2011 the state share of total K-12 education spending ranged from a high of 89% in Hawaii to a low of 29% in South Dakota.[9] On average, states fund about 45% of the total, with the vast majority of the remainder attributable to local taxes (the federal government is responsible on average for around 10% of total K-12 education spending). For the states in the top quintile, there is limited local control over revenues and therefore spending levels, while in the states in the bottom quintile local school districts have relatively high autonomy over revenues and therefore over their spending levels.

It is instructive to examine the funding systems in a few specific states. Michigan and Ohio present an interesting contrast in their school funding systems because, in many other respects, they are alike. Both are large, manufacturing-based states with diverse populations and a mix of cities of varying sizes, suburbs and rural districts. The

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[9] Hawaii is an outlier state in many respects, not the least of which is the fact that it has only one school district.

two school systems are very similar in size: Michigan has 552 local school districts, with an average enrollment of 2774 students per district, and Ohio has 613 public school districts, with an average enrollment of 2870.[10] However, in an attempt to address the issue of inequities in spending across local school districts, the two states have adopted quite different funding systems. Michigan has what is essentially a state-funded system: equal per-pupil grants to all school districts and strict limits on access to local property taxes for supplementing the operational spending level funded by the state grant. When the current system was implemented in Michigan over 20 years ago, the level of the state per-pupil grant was high relative to the level of spending in many of the districts, and thus, the system equalized spending across districts by bringing the bottom up. Equalization also came about because all districts, including, importantly, high-spending districts, were restricted in their ability to tap into local property taxes to increase operating expenditures beyond the state grant amount.

Ohio has a classic state-foundation-aid funding system. The state determines an "adequate" level of spending on educational services and then ensures that each district has enough total revenue, through a combination of state aid and local taxes, to support the adequate level. The amount of state aid per pupil is inversely related to the amount of property tax revenue that a district could raise by imposing a required minimum local property tax rate. Local school districts can add to the state funding by imposing additional local property taxes or local income taxes. Thus, the state ensures that each school district is spending at a state-determined minimum level and then allows local school districts to tax themselves in order to spend more than this minimum level. School districts in Ohio thus have significantly more autonomy in setting their revenues and therefore spending levels than do school districts in Michigan.[11]

In Fig. 2, we display the distributions across school districts in spending per pupil in both Michigan and Ohio in school year 2009–2010. In some respects, the distributions are quite similar; the tails of the two distributions are comparable, and the coefficients of variation are essentially identical (0.275 for Michigan and 0.278 for Ohio). However, Michigan's expenditures per pupil are more tightly clustered than Ohio's, which likely reflects the fact that under the Michigan system school districts have less autonomy than school districts have in Ohio.

3.2 Charter schools

States differ substantially in their treatment of charter schools. In Table 5, we see that, as of 2012, 15 states (counting the District of Columbia) either actively encouraged or were accepting of charter schools. Nineteen states had charter laws, but the laws neither encouraged nor placed strict limits on the expansion of charter schools. In eight states, there were laws enabling charter schools; however, expansion of the system of charter schools was restricted. Nine states had no active charter law in place.

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[10] Our description of the systems in Michigan and Ohio relies on Conlin and Thompson (2014).

[11] Michigan school districts are constrained in terms of raising revenues for operating expenditures; however, residents can vote to raise local property taxes for capital expenditures (Conlin and Thompson 2014).
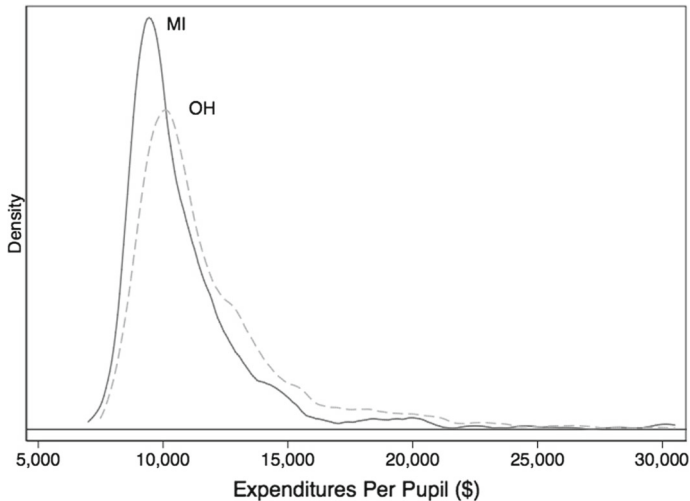
Fig. 2 Per-pupil expenditures by school district in 2009–2010, Michigan and Ohio. *Notes*: authors' calculations based on data from the National Center for Education Statistics provided by Michael Conlin. We eliminated a handful of outlier districts from the data, leaving in the sample for Michigan 547 out of 550 school districts and for Ohio 609 out of 611 school districts

Much of the innovation in charter schools is occurring in large cities whose public school systems are considered inadequate. In 2010, the state of Tennessee created the state-run Achievement School District (ASD), whose aim is to improve the lowest-performing schools in the state. The vast majority of the schools under the auspices of the ASD are in the city of Memphis. The ASD uses a variety of approaches, including turning schools over to independent charter operators. One difference with traditional public schools is that teachers who work for an ASD-affiliated school do not have tenure. There is a general drive in Memphis toward expansion of charter schools and the use of alternative teacher training programs, such as Teach for America.

Louisiana's Recovery School District came into full force in New Orleans after Hurricane Katrina destroyed much of what had been a poorly performing traditional urban public school system. Today, over 40 different independent charters, including private operators such as KIPP (Knowledge Is Power Program) and local community groups, operate 95% of the public schools in New Orleans. By various measures (for example, graduation rates), the system of charter schools is outperforming the former set of traditional schools, but it is also notable that spending per pupil has increased dramatically from $7900 pre-Katrina to $13,800 in 2014 (The Economist, December 13, 2014).

To summarize, innovation in recent decades in terms of state funding of local school districts and the types of organizations allowed to operate publicly funded schools has led to great variation across the states in their systems of public education.

Table 5 A characterization of charter school systems in the 50 states (plus DC) as of 2012. *Source*: Charter School Laws Across the States 2012, The Center for Education Reform

Characterization of charter school system	States		
Encouraged (5 states)	DC	LA	TN
	FL	MI	
Accepted (10 states)	CA	MN	TX
	IL	NY	UT
	IN	OH	WI
	MA		
Average (18 states)	AK		
	AZ	IO	NM
	AR	KS	NC
	CO	MD	OK
		MO	OR
	GA	NV	PA
	ID	NJ	RI
Discouraged (9 states)	CT	ME	SC
	DE	MS	VA
	HI	NH	WY
Nonexistent (9 states)	AL	NE	VT
	KY	ND	WA[a]
	MT	SD	WV

[a]The state of Washington began in late 2012 to develop a law enabling charter schools

Categories describing the nature of a state's charter law

Encouraged laws in these states actively encourage expansion of the charter system. Charter schools typically receive equal if not more funding than traditional public schools and have high enrollment percentages

Accepted laws are accepting of the charter system. Charter schools have mostly equal funding to public schools, no caps on expansion, and fairly high enrollment percentages

Average laws lack notable limits or encouragement of the charter system. Charters typically have only modest/moderate enrollment percentages

Discouraged laws typically provide charters with lower levels of funding than public schools and often involve strict caps on expansion of the system. Charters have low enrollment percentages

Nonexistent no active charter law is in place

4 Fifty distinct fiscal systems

In this section, we present evidence that diversity is one of the characteristics that best summarizes the 50 fiscal structures of the states comprising the USA. Table 6 presents descriptive statistics on 11 variables that capture the main features of the state and local public sector. The first column lists the variables of interest (defined at the bottom of the table). In the second column we present the US average calculated as the simple average of the fifty state values. The next two columns present two measures of diversity: the standard deviation across states and the coefficient of variation (stan-

Table 6 Distinct fiscal systems. *Source*: United States Census, 2011. All mean variables are multiplied by 100

Variable	US average	Standard deviation	Coefficient of variation	Min value (state)	Max value (state)
Size of state government	8.81	2.29	0.260	4.93 (NV)	14.05 (AK)
Size of local government	8.55	1.58	0.184	3.51 (HI)	12.09 (NY)
Size of s&l government	17.36	2.49	0.143	13.68 (TX)	24.76 (MS)
Degree of decentraliza-tion	41.01	9.19	0.224	17.37 (VT)	56.38 (CO)
State-to-local transfers as a percentage of local revenues	33.85	8.45	0.250	8.02 (HI)	63.82 (VT)
Reliance by state government on individual income tax	13.54	7.92	0.585	0 (7 states)	27.55 (CT)
Reliance by state government on general sales tax	13.28	6.62	0.498	0 (5 states)	30.24 (WA)
Reliance by local governments on property tax	29.97	11.06	0.369	9.58 (AR)	58.29 (CT)
Percentage of total s&l expenditures on K-12 education	21.76	2.58	0.118	15.88 (HI)	28.73 (NJ)
Percentage of total s&l expenditures on higher education	10.37	2.44	0.235	6.03 (NY)	16.24 (UT)
Percentage of total s&l expenditures on public welfare	18.86	3.59	0.190	10.11 (WY)	25.77 (ME)

Table 6 continued

Variable	US average	Standard deviation	Coefficient of variation	Min value (state)	Max value (state)
Reliance by s&l governments on federal grants	26.10	4.61	0.177	17.94 (CO)	37.64 (MS)

Statistics based on 50 state observations for 2011

Size of state government = state direct expenditures/gross state product (GSP)

Size of local government = local direct expenditures/GSP

Size of s&l government = state + local direct expenditures/GSP

Degree of decentralization = local own-source revenues/state + local own-source revenues

State-to-local transfers as a percentage of local revenues = intergovernmental revenues from state to local governments/total local general revenues

Reliance by state government on individual income tax = state individual income tax revenues/total state general revenues

Reliance by state government on general sales tax = state general sales tax revenues/total state general revenues

Reliance by local governments on property tax = local property tax revenues/total local general revenues

Percentage of total s&l expenditures on K-12 education = state and local direct spending on elementary and secondary education/total state and local direct spending

Percentage of total s&l expenditures on higher education = state and local direct spending on higher education/total state and local direct spending

Percentage of total s&l expenditures on public welfare = state and local direct spending on public welfare/total state and local direct spending

Reliance by s&l governments on federal grants = intergovernmental transfers from federal government to state and local governments/total state and local general revenues

dard deviation divided by the mean). Finally, in the last two columns we present the minimum and maximum values observed across the fifty states. For many variables, the range between the minimum and maximum values is quite large, indicating that states can differ dramatically in some characteristics of their fiscal structure.

On average, state governments and the aggregate of all local governments within states are very similar in size, as measured by direct expenditures as a percentage of Gross State Product (GSP), labeled in the table as size of state government (at 8.81%) and size of local government (at 8.55%). The diversity across states, as measured by the coefficient of variation, is larger between states than between local governments of different states. When the subnational governments are considered together, their direct expenditures are on average 17.36% of GSP, and the coefficient of variation drops, which indicates that state and local governments complement each other to a certain extent.

We measure the degree of decentralization within a given state by the proportion of total state and local government own-source revenues raised by local governments. On average, the degree of decentralization is 41 percent. We see large differences among states, from Vermont with only around 17% of revenues set by local governments to Colorado where the local governments raise more than the state government (56% of the total). There are also large differences across the states in state-to-local transfers

as a percentage of total local general revenues, with a range from 8.02% in Hawaii to 63.82 in Vermont.

To paint a picture of revenues and expenditures for state and local governments, we choose to examine the main revenues of each level of government separately—i.e., state government reliance on specific taxes separately from local government reliance on specific taxes—and to examine the main categories of expenditures as an aggregate across the state and local governments within a state. We make this choice for a couple of reasons. First, having choice over revenues is instrumental to subnational autonomy and accountability, and thus, we are interested in understanding the reliance by each level of government on specific taxes. We are interested in knowing how reliant state governments are on the two most important taxes employed at the state level and how reliant local governments are on the single most important tax source at the local level. Second, decisions on expenditures by the two levels of government are intertwined so that each level of government determines its expenditures on a given service only after taking the expenditures of the other level into account. For example, the municipal level of government will take into account the affordable housing policies and expenditures of the state government when choosing how much to spend on affordable housing. We are interested in knowing how much of the state and local budget, taken together, is allocated to specific categories of spending.

Diversity across states in the reliance by state and local governments on different tax sources is striking. On average, state governments obtain almost equal percentages of their general revenues from the individual income tax and the general sales tax, with over 13% attributable to each tax. But the story state by state is very different. Some states do not employ one or the other tax, while other states raise up to 30% of total general revenues from one or the other (see Fig. 3a, b). These differences are well captured in the coefficient of variation of each tax variable, with values significantly higher than for any other variable examined. Similar variability is observed across local governments in the different states in their reliance on the property tax, with a mean value of almost 30%, but with large differences; for example, local governments in Arkansas raise under ten percent of their total general revenues from the property tax, while local governments in Connecticut raise close to 60%. We conclude that there are large differences across the states in the two primary state tax sources and in the most important tax employed by local governments, the property tax.

States and their local governments are less diverse in the allocation of expenditures across different categories, in part because, relative to revenues, states have less discretion over expenditures. Also, federal government grants tend to equalize spending on basic publicly provided services such as education and public welfare. The largest expenditure category, at 21.76% of total state and local direct spending, is K-12 education, where the variability is small (coefficient of variation of 0.118) relative to the variability in the other two spending shares reported (for higher education and public welfare). The next most important expenditure component, public welfare (accounting for close to 20% of the budget), exhibits larger diversity than K-12 education, but still much less variation than we observe in the revenue variables.

While it is not a choice of state and local governments, it is interesting to examine federal grants as a share of total state and local general revenues. On average, they account for 26% with relatively little variability across the states as measured by the
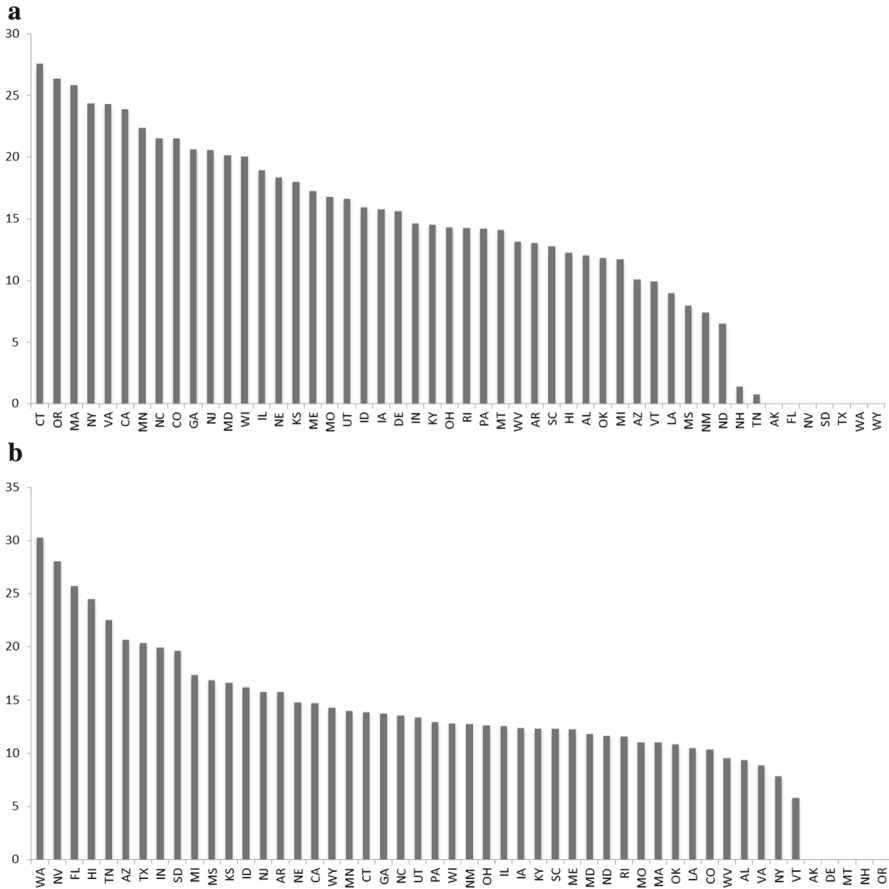
a

b

Fig. 3 a Reliance of state government on individual income tax. **b** Reliance of state government on general sales tax. *Source*: United States Census, 2011

coefficient of variation, although the range between the maximum value (for Mississippi) and the minimum value (for Colorado) is almost twenty percentage points.

We have not identified any state that shows extreme values in more than a couple of the variables analyzed. A few states have values near the maximum or minimum in three variables (for example, Colorado has the highest degree of decentralization, the lowest reliance on federal grants, and one of the lowest values for the size of state government), but there are no obvious patterns to single out any one state.

To summarize, we find that the state and local fiscal systems of the 50 states differ significantly and that the differences in their tax structures are larger than the differences in their expenditure structures. States display relatively similar shares of total spending on education, for example, but obtain resources to finance expenditures through quite different tax structures.

Table 7 Estimated time trends (1977–2011) for coefficients of variation (50 state observations)

Variable (coefficient of variation of …)	Time trend
Size of state government	− 0.000336 (000341)
Size of local government	− 0.000501** (0.000178)
Degree of decentralization	0.00193 (0.00215)
State-to-local transfers as a percentage of local revenues	− 0.00774** (0.000264)
Reliance by state government on individual income tax	− 0.00166*** (0.000408)
Reliance by state government on general sales tax	0.000786*** (0.000190)
Reliance by local governments on property tax	− 0.000910 (0.000460)
Percentage of total s&l expenditures on K-12 education	0.000297* (0.000116)
Percentage of total s&l expenditures on higher education	− 0.000572*** (0.0000877)
Percentage of total s&l expenditures on public welfare	− 0.00446*** (0.000284)
Reliance by s&l governments on federal grants	0.00115*** (0.000297)

See notes to Table 6 for data source and definitions of variables

Standard errors in parenthesis

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$

In Table 7, where we examine trends in the coefficients of variation over the period 1977–2011, we show that this diversity has prevailed over several years. We focus on the evolution of the coefficients of variation of all but one of the variables displayed in Table 6 (we omit from the analysis the size of the state and local government sector combined). For each variable, we estimate the trend over the period 1977–2011 in the coefficient of variation (our measure of cross-state diversity). In examining the 11 variables, we find there is no clear pattern of convergence or divergence over time. For three of the variables, the estimated time trends are not significantly different from zero at a 5% significance level, meaning that there is no change in diversity as measured by the coefficient of variation over time. For five of the variables, the estimated trends are negative and significant, meaning that diversity in those variables fell over time. For the other three variables, the estimated trend is positive and significant, indicating that diversity in those variables increased over time. The estimated trend coefficients are small, and in all but two cases they represent less than 0.3% change in the coefficient of variation per year. Federal grants show an increase in diversity over the period, with a coefficient of variation that increases yearly an average of 0.00115, representing a 0.68% yearly change. The largest change over the period can be seen in the coefficient of variation of public welfare that steadily decreased over time, with a yearly decrease

in its value of − 0.0045, representing a 1.35% yearly decline. This decrease in diversity of public welfare, which goes along with an increase in the mean value of public welfare over time, is likely due to the increasing importance of Medicaid as a share of the public welfare budget and the direct role of the federal government in financing the program and setting the rules.[12] In view of the results presented in Table 7, we conclude that the degree of diversity that existed in 1977 is not dissimilar to the degree of diversity that existed in 2011.[13]

Diversity over the period we examine has held up in light of many developments. Technological advances and globalization have made geography less important: information and ideas flow much more easily, access to education and economic opportunity has increased, and consumption possibilities have become more expansive for a given individual and more similar across countries. In the USA, the period we analyze includes six different federal administrations, three Democratic, with a tendency to centralize spending responsibility, and three Republican, with a propensity to devolve authority to the states. Throughout these geography-shrinking global forces and US political cycles, we see that diversity across the states' fiscal systems and outcomes has prevailed.[14]

5 Is all this diversity a good thing?

In the preceding sections of the paper, we present a descriptive treatment of the fiscal systems of the 50 states in the USA with two themes: first, the public sector in the USA compared to other OECD countries is relatively decentralized, and, second, the diversity in systems across the 50 states, especially in tax structures, is quite large and striking. This raises the question of whether this diversity is desirable. In other words, is it likely to produce outcomes that increase overall social welfare?

The traditional economic case for fiscal decentralization, or subnational fiscal autonomy, is based on the improved allocation of resources in the public sector that results from expanded fiscal choice at lower levels of government. It argues that the diversity that results from the unrestricted choices made by subnational governments improves the performance of the overall public sector. In short, diversity is potentially a good thing.

This view has been formalized in the so-called Decentralization Theorem, which lays out a set of sufficient conditions for fiscal decentralization to be welfare-enhancing.

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[12] Medicaid expenditures as a share of public welfare expenditures increased from 45% in 1982 to 80% in 2012.

[13] Rhode and Strumpf (2003), using observations on municipalities and counties in the USA from 1850 to 1990, test for evidence of Tiebout sorting by examining trends in diversity in fiscal policy. Contrary to predictions of the Tiebout model, they find that in the long run as transportation costs have fallen communities have become more alike in their fiscal policies. One possible explanation for why their results differ from ours is that we employ quite different units of analysis and analyze quite different time periods.

[14] For interesting treatments of the evolution of the state and local sector in the USA, see Baicker et al. (2012) and Wallis (2000).

The Decentralization Theorem: For a public good–the consumption of which is defined over geographical subsets of the total population, and for which the costs of providing each level of output of the good in each jurisdiction are the same for the central government or for the respective local government–it will always be more efficient (or at least as efficient) for local governments to provide Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide any specified and uniform level of output across all jurisdictions (Oates 1972, p. 35).

This proposition seems quite obvious, but it does call attention to two conditions that are needed for its validity: the absence of any significant economies of scale associated with the centralized provision of the public good and the absence of any important spillover effects across jurisdictions. On the first issue, existing studies (see, for example, Craig 1987) suggest that decentralized provision of most publicly provided services (aside most notably from national defense) do not exhibit economies of scale that would justify centralized provision. The goods and services provided by state and local governments appear in most cases to exhaust any major scale economies.

The issue of interjurisdictional spillover effects is more complex. For many state-local outputs involving infrastructure (e.g., local roads and parks), the benefits and costs accrue predominately within the jurisdictional boundaries. However, there are some cases where state and local activities affect their neighbors. For environmental regulation, for example, polluting activities in one area may reach across boundaries; the emissions from power plants in one locality or state are sometimes carried by prevailing winds into neighboring jurisdictions. The US Environmental Protection Agency has used this as justification for the centralized regulation of such emissions.

A yet more complicated issue is education. In a highly mobile modern world with households moving among jurisdictions, the quality of public education in one state or locality can have significant implications for the productivity of workers and the quality of life elsewhere. In addition, better-educated children will turn into adults with higher incomes, providing potential tax revenue benefits to other states but also to the federal government through its more progressive income tax scheme. Moreover, education also raises equity issues. As Boadway (2006) has pointed out, there may exist in a federation some sense of "horizontal equity," that households in certain jurisdictions should not suffer adverse effects by virtue of simply being located in a state or locality with high levels of fiscal needs and/or relatively low fiscal capacity. Intergovernmental grants can provide a fiscal instrument to address some of these perceived inequities, and, as we saw in Sect. 3, states provide equalizing grants to local school districts. To some extent, of course, the case for fiscal decentralization and diversity runs counter to such equity principles. But, particularly as regards education, there may be a pervasive sense, both on efficiency and on equity grounds, that certain standards of achievement and minimal levels of spending on education be met in all jurisdictions.[15]

In the USA, this concern has manifested itself in the so-called Common Core Initiative. The governors of the fifty states responded to this issue by establishing a

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[15] See Calsamiglia et al. (2013) for a treatment of the notion that minimal levels of spending can be achieved without losing subnational fiscal autonomy.

working group that in 2008–2009 drew up a set of standards for achievement across the states. These standards consist of a set of quantified benchmarks in, among other subjects, English language arts and mathematics at each grade level from kindergarten through high school. These are basic skills in reading and mathematics that are to be taught and whose achievements are to be measured by testing. The initiative does not lay out any specific curriculum; this is left to the individual states. In addition, each state determines its own timelines and budgetary procedures for meeting the standards.

As of mid-2014, 43 states had approved the Common Core standards, but considerable opposition had emerged. The governors of a few states introduced bills to repeal the standards and replace them with a new set of locally determined standards amidst charges that such standards amount to a central takeover of public schools. Thus, we find here a striking confrontation between various efficiency and equity concerns on a national scale and the strong sense of the importance of decentralized choice in the USA.[16]

Fiscal decentralization and diversity may have advantages beyond expanded fiscal choices at the state and local level: they can encourage development and experimentation with new forms of public policy. In the most famous statement of this view (so-called Laboratory Federalism), Justice Louis Brandeis wrote in 1932 that

> There must be power in the States and the Nation to remold through experimentation our economic practices and institutions to meet changing social and economic needs…It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory, and try novel social and economic experiments without risk to the rest of the country (Osborne 1988).

There are, in fact, a number of instances in the USA in which innovative measures introduced by state or local governments have spread into wider use in other states, or, in some instances, to the national level. Unemployment insurance, for example, was a state-level policy before the federal government effectively made it mandatory across all the states in 1932. In the field of environmental regulation, California introduced the first emissions standards for motor vehicles in 1959, more than a decade before the implementation of national standards. In the 1970s, five states introduced a new fiscal institution to cushion public finances against the shocks resulting from cyclical variability in revenues and expenditures. These measures consisted of budget stabilization funds (known as "rainy-day funds") with explicit rules for deposits, withdrawals, and replenishment. The general appeal of such funds soon became apparent with a rush of adoptions by other states in the 1980s. At last count, there were only five states without such a fund. Another example is the federal welfare reform act of 1996. The design of the reform that was adopted at the federal level drew heavily upon various experiments undertaken at the state level. Similarly, the Massachusetts healthcare

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[16] The Every Student Succeeds Act, signed into law in December 2015, prohibited the federal government from imposing academic standards, including the Common Core.

reform was a precursor to the federal Affordable Care Act.[17] Fiscal decentralization and diversity have thus made a variety of contributions to social well-being.

6 Conclusion

The picture that emerges from this examination of the fiscal systems of the US states over the last 35 years is one of diversity that stands the test of time. The 50 fiscal systems vary in significant ways from one another, most importantly in their tax structures. We found that, even in the face of global forces and political cycles, states continued to choose differentiated fiscal systems. This diversity is the outcome of having subnational fiscal autonomy.

Unlike in the USA, subnational governments in most European countries have not been granted significant fiscal autonomy by their central governments. We believe the intention was largely to limit diversity in the provision of public goods and services, in order to accommodate strong preferences among Europeans for solidarity—a sense that equality in public outcomes is desirable.[18] In a paper inspired by the ideas in Oates (1972) and Tobin (1970), Calsamiglia et al. (2013) find that, even in countries with a strong taste for solidarity, societal welfare is higher if subnational governments have fiscal autonomy to choose differentiated levels of the publicly provided good above some centrally agreed upon guaranteed minimum level across the country. In other words, the authors find that countries can realize the benefits of subnational fiscal autonomy without violating strong preferences for solidarity.[19] If these notions were applied to fiscal systems in Europe, countries could realize higher societal welfare because national solidarity goals could be achieved without denying subnational governments the ability to tailor their fiscal systems to accommodate local preferences.

The evidence presented here suggests that diversity across subnational fiscal systems has thrived in the US. Economic theory indicates that when subnational governments have the ability to act on the preferences of resident voters in setting important dimensions of their fiscal systems, as they do in the USA, the result is likely higher societal welfare than would ensue without this autonomy, even in societies where solidarity preferences are strong.

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[17] The Affordable Care Act illustrates the ongoing debate in the USA over the appropriate role of the central government in a fiscal federal system. Many would have preferred a federal requirement that all states expand Medicaid, but others found such a requirement overly intrusive and, in the end, states were given the choice, with 19 choosing not to expand Medicaid despite the federal government agreeing to cover virtually the entire cost of the expansion.

[18] Recall from Table 3, the relatively low amount of diversity across regions in the three European countries analyzed.

[19] This possibility is illustrated by Canada, where large equalizing grants exist next to extensive fiscal autonomy for the provinces.

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