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Why Is State and Local Government Capital Spending Lower in the New England States Than in Other U.S. States?

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I. Introduction

Census data show that state and local capital spending since 2000 has been well below the national average in all six New England states, whether measured on a per capita basis, as a share of personal income, or as a share of state and local government spending. Moreover, the census data reveal substantial differences among the New England states in both the per capita level and the composition of capital investment. This report explores several hypotheses as to why state and local governments in New England have been spending less on capital investment than nationally on a normalized basis.

Normalized capital spending by New England governments was well below the national average between 2000 and 2012.

Capital spending by state and local governments has wide-ranging benefits for a region's economy. These benefits include the direct utility of public capital facilities, avoidance of the negative effects on public safety and the environment of deteriorating public infrastructure that underlies transportation, water, and sanitation services, and the positive effects of enhancements to such public infrastructure. There may also be a beneficial relationship between public capital and long-run economic growth, although research results regarding this last issue have been ambiguous.[1] Still, for all these reasons, the issue of public infrastructure remains of keen interest to both public officials and the general public.

Public infrastructure can have positive effects on surrounding states. The positive spillover effects of state capital investment may be most obvious in the case of transportation, but these effects can also be important in such areas as education and environmental protection—especially in New England, where states are relatively small and engage in substantial interstate economic activity. For example, capital spending by states and localities raises the value of capital investment in surrounding states (Cohen 2004).

In addition to the direct evidence from census data, this analysis of capital investment by state and local governments in New England since 2000 was also prompted by a study of the determinants of states' capital spending behavior in the years between 2000 and 2012 (Fisher and Wassmer 2015a), which concluded that state-specific factors lead the majority of New England states to spend less than predicted on capital maintenance and investment. To explore why this is so, this report focuses on a number of key policy questions: Why has capital expenditure been relatively low among the New England states? How has capital spending been changing over time, and what has been the impact of the recessions of the past decade? Why do some New England states concentrate capital spending

1 Differences vary based on the type of analysis performed, the period examined, and the method of measuring the public capital stock. Munnell (1992), Gramlich (1994), Fisher (1997), and Bivens (2012) provide reviews of this literature.

in certain functional areas (such as transportation), whereas others emphasize capital investment in entirely different areas (such as education)? Is there evidence that states with severely depreciated public capital assets spend relatively more on capital investment? Or is there evidence that the quality of the public capital stock has improved in states that have spent relatively more on public capital?

The role of state governments, use of capital budgets, political decisions, and quality of existing capital stock all vary across U.S. states and could theoretically explain differences in capital spending among the New England states and between the New England states and the rest of the nation.

Key findings of this report include the following:

- Economic, social, and political characteristics used in previous research are insufficient to fully explain the observed normalized levels of state and local capital spending in the New England states relative to their rates in the national average of all U.S. states.
- Combined state and local capital expenditure per capita during the period considered was well below the national average in each of the six New England states, and especially so in Maine, New Hampshire, Rhode Island, and Vermont.
- The available evidence does not appear to support the view that additional capital spending by state and local governments in New England in 2000–2012 would have been unnecessary because the quantity or quality of existing public capital was unusually high.
- Per capita capital spending in the New England states in recent years remains below the average for all U.S. states even if capital spending for utilities is excluded.
- State governments in New England have a more important role in engaging in capital spending and issuing debt than state governments do nationally; as a result, comparisons of per capita debt and capital spending by New England state governments alone with those of other U.S. states are deceptive.
- Political choices aimed at lowering state government debt may have contributed to the New England states' relatively low investment in public capital compared with other states' capital investment.

II. Capital Spending in New England and the Nation

The National Role of State and Local Government Capital Spending

In the United States, annual state and local government spending on capital goods was substantial over the 2000–2012 period, representing about 2.3 percent of GDP and about 12 percent of total state and local spending. In fiscal year 2012, these governments spent more than $331 billion ($1,054 per capita) on capital investment, an amount that represents about 2.0 percent of GDP, 10.5 percent of total state and local spending, and 14.4 percent of outstanding state and local government long-term debt (excluding private-purpose debt).

Nationally, local governments accounted for two-thirds of such expenditure. Capital spending represented 14.1 percent of local government spending in 2000–2012, compared with only 6 percent of state government spending.[2]

There are substantial differences among states in both the amount and the composition of capital spending. Over fiscal years 2000–2012, nominal state and local capital spending per person varied from $28,775 in Alaska to $6,704 in Maine, with a U.S. average of $11,327. Nationally, state and local capital expenditure over that period averaged about $1,030 per person per year in nominal terms. As a percentage of state personal income, state and local capital expenditure varied from 6.4 percent in Alaska to 1.6 percent in New Hampshire, with an average for all states of 2.7 percent.

Using U.S. Census Data to Analyze State and Local Government Fiscal Behavior

The U.S. Census Bureau defines state and local government capital expenditure as "[D]irect expenditure for construction of buildings, roads, and other improvements undertaken either on a contractual basis by private contractors or through a government's own staff... for purchases of equipment, land, and existing structures; and for payments on capital leases."

There are several advantages to the capital spending data collected and reported by the U.S. Census Bureau. First, the bureau applies a consistent definition of capital spending, even though individual states may label capital spending differently. Second, the data are adjusted for differences in the way states report spending—including different fiscal years and different financial accounting practices—to allow consistent comparisons among the states. Third, for each state, the bureau reports separate aggregate data for state government, local governments, and other governmental entities such as public universities and special districts, permitting an examination of overall public capital investment in a state regardless of the institutional structure.

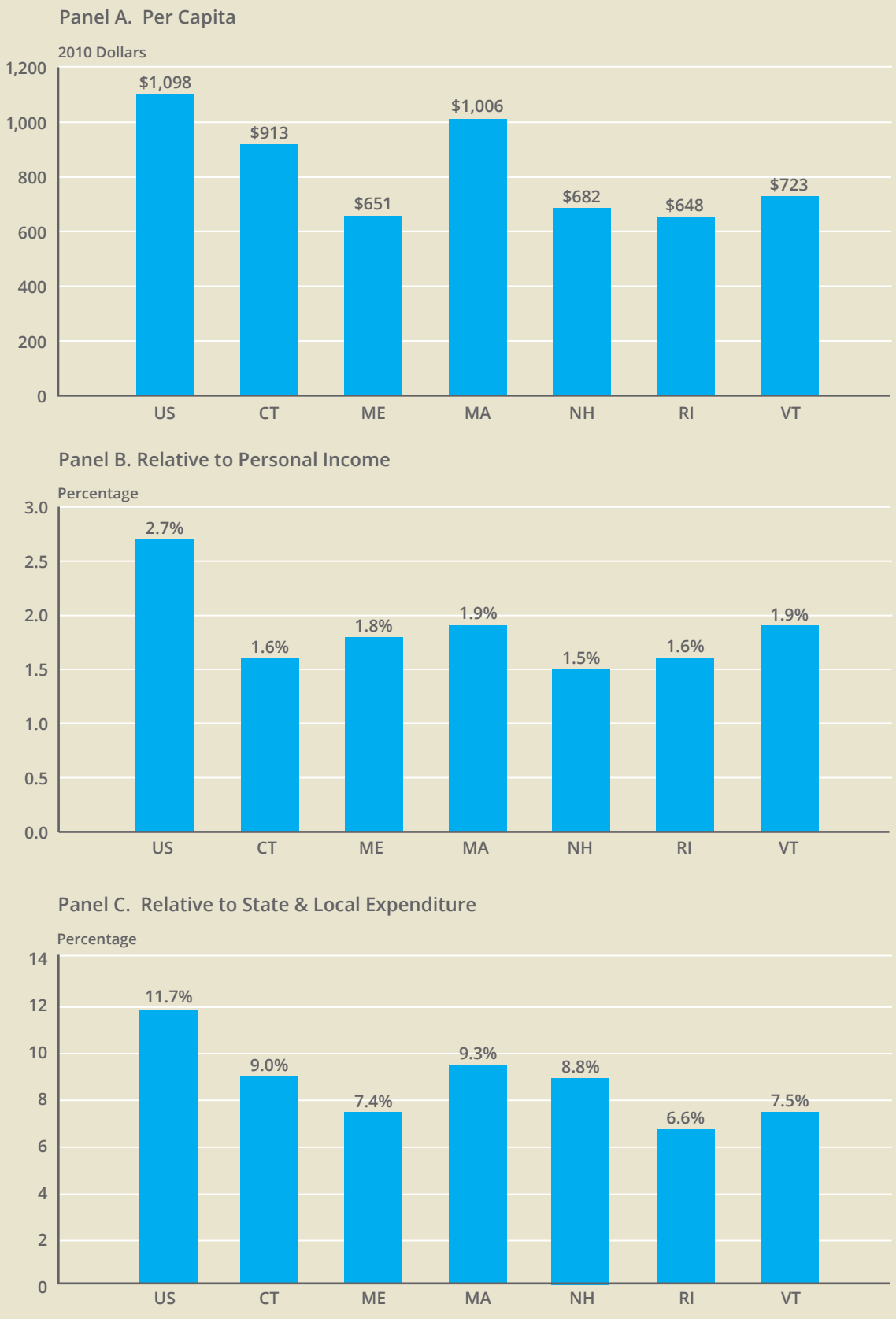
An important implication of these practices is that the census data for an individual state may differ from similar information reported in a state or city government's budget or financial report. Still, for all the reasons noted above, census data are preferable for interstate comparisons of capital spending.

2 For additional detail, see Fisher and Wassmer (2015b).

Figure 1

State & Local Government Capital Spending

New England States vs. the U.S. Average, 2000–2012



Source: U.S. Census Bureau.

Table 1

Average Annual Real Per Capita State & Local Capital Expenditure

New England States vs. United States, 2000–2012

(Dollars)

	US	CT	ME	MA	NH	RI	VT
Capital Expenditure, total	1,098	913	651	1,006	682	648	723
Capital Expenditure, general	957	844	625	858	673	587	675
Higher Education	90	84	55	83	74	35	119
Elementary & Secondary Education	209	196	112	143	141	50	109
Hospitals	25	4	2	9	0	1	0
Highways	280	183	235	279	190	188	275
Corrections	12	3	5	6	9	9	1
Natural Resources	19	7	10	11	6	5	5
Parks & Recreation	34	16	7	12	8	6	7
Sewerage	60	41	31	86	11	21	26
Solid Waste Management	7	4	5	4	4	15	3
Utility	141	69	26	148	13	66	53
Other	222	306	162	225	225	252	124

Source: U.S. Census Bureau.

Comparing the New England States to All U.S. States

The New England states stand out in both the normalized level and the composition of capital spending.[3] As Table 1 and Panel A of Figure 1 show, state and local capital expenditure per capita during this period was well below the national average in each of the six New England states, although by less in Connecticut and Massachusetts.[4] Nationally, in real terms, state and local governments averaged almost $1,100 of capital spending per person per year, whereas the equivalent average among the New England states was less than $800. The level of capital spending per person was relatively low in the New England states in 2000–2012, not just in aggregate, but in all the identified subcategories as well.

Capital spending relative to personal income was also substantially lower in the New England states than the national average, as shown by Panel B of Figure 1. In contrast with the national average of 2.7 percent, state and local capital spending as a percentage of personal income was less than 2 percent in every state in New England. Indeed, the region's states were six of the nation's lowest-ranking eight states in terms of capital spending relative to income.

Similarly, capital spending relative to total state and local expenditure was also substantially lower in the New England states than nationally, as Panel C of Figure 1 shows. As noted above, capital spending represented nearly 12 percent of total state and local government spending nationally over the

3 Capital spending levels are normalized to population, income, and total state and local government spending.

4 Per capita state and local government capital spending in the New England states was also below the U.S. average in 1992 and 1997, and the difference from the national average was larger in the later period than in the earlier period in every New England state except Vermont.

Table 2

Share of State and Local Capital Expenditure by Category

New England States vs. United States, 2000–2012

(Percentage)

	US	CT	ME	MA	NH	RI	VT
Higher Education	8.2	9.2	8.5	8.3	10.9	5.3	16.5
Elementary & Secondary Education	19.1	21.5	17.1	14.2	20.8	7.7	15.1
Hospitals	2.3	0.4	0.3	0.9	0.0	0.1	0.0
Highways	25.5	20.0	36.2	27.7	27.8	28.9	38.1
Corrections	1.1	0.4	0.8	0.6	1.3	1.4	0.2
Natural Resources	1.7	0.8	1.6	1.1	0.9	0.8	0.6
Parks & Recreation	3.1	1.7	1.1	1.1	1.2	0.9	1.0
Sewerage	5.4	4.5	4.7	8.5	1.5	3.3	3.6
Solid Waste Management	0.7	0.5	0.8	0.4	0.6	2.4	0.4
Utility	12.8	7.5	4.0	14.7	1.9	10.1	7.3
Other	20.2	33.5	24.9	22.4	33.0	38.9	17.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: U.S. Census Bureau.

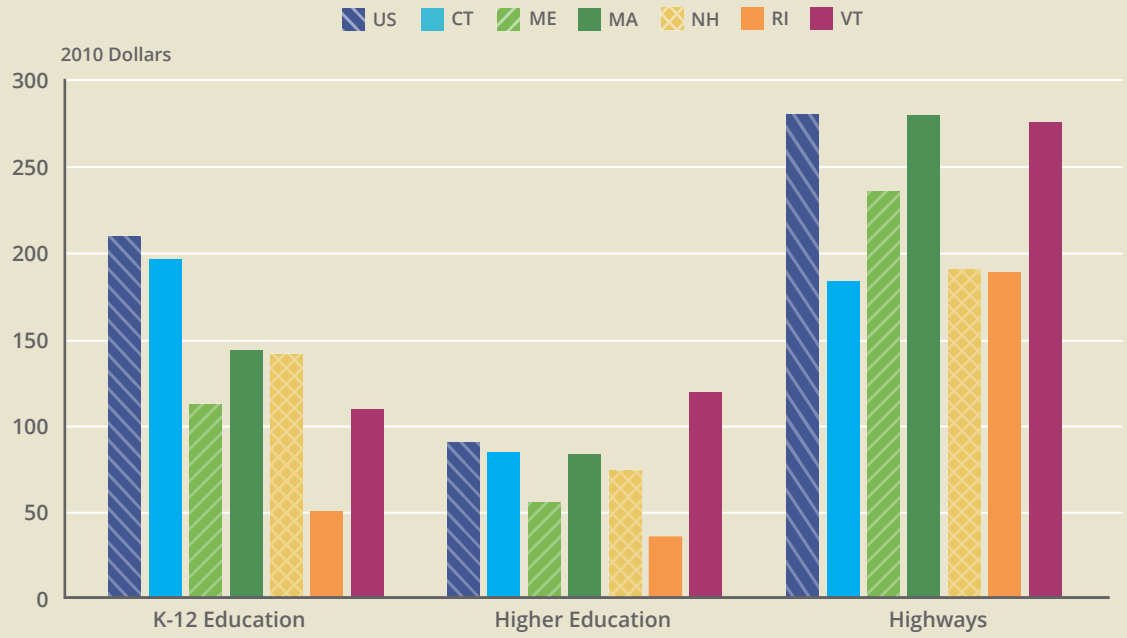
2000–2012 period, while it was below 10 percent in every New England state and even lower—below 8 percent—in Maine, Rhode Island, and Vermont.

Tables 1 and 2 show the mix of state and local government capital spending by state over the 2000–2012 period. There are striking differences in the mix of capital spending both between the New England states and the national average and among the New England states. Capital spending on elementary and secondary education in Rhode Island was less than half such spending in every other New England state, and large variation is also evident in capital spending on highways. Capital spending on higher education was more important in Vermont than in the other New England states, capital spending on highways was high in Massachusetts and Vermont—near the national average (see also Figure 2), and capital spending on public utilities was less important in the New England states than in the nation as a whole (except in Massachusetts, where it was actually slightly higher). As the figures and tables show, normalized capital spending by state and local governments among the New England states averaged over the 2000–2012 period was lower than the national average across the board.

The national pattern of capital spending in the New England states during and after the Great Recession also differed significantly from the national pattern. Nationally, per capita state and local capital spending increased in 2008 and 2009, perhaps in a partial reflection of state and local governments' responses to federal aid, and then declined in 2010 and subsequent years. In New England, in contrast with the national trend, per capita capital spending did not increase during 2008 and 2009 in three of the New England states, increased in 2011 in all the New England states, and continued to rise in 2012 in both Connecticut and Massachusetts (with relatively large increases in 2011 and 2012), before falling back in 2012 in the other four New England states, as shown in Figure 3.

Figure 2

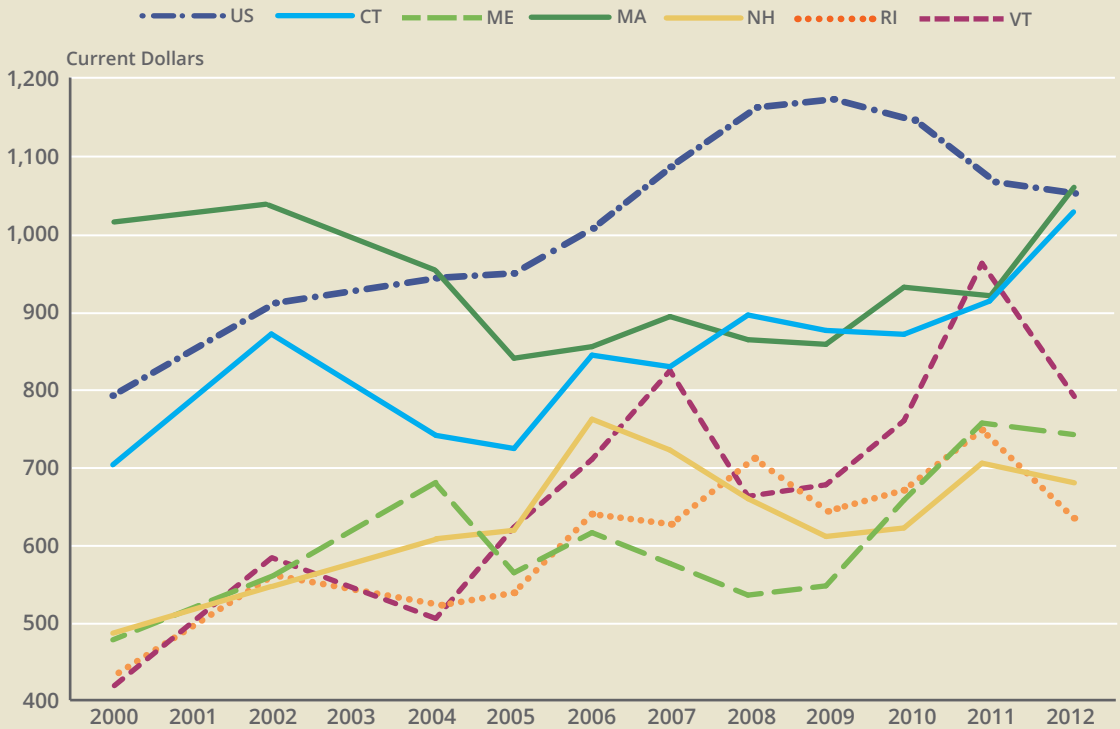
Real Average Per Capita Capital Spending by Type
New England States vs. U.S., 2000–2012



Source: U.S. Census Bureau.

Figure 3

State and Local Per Capita Capital Expenditure
New England States vs. U.S., 2000–2012



Source: U.S. Census Bureau.

III. What Might Explain Variation in Capital Spending?

Socio-Economic Characteristics

States vary drastically across the country and even throughout New England with respect to their socio-economic make-up, and they have experienced varying levels of population change and demographic shifts. State governments have made budgeting choices about investments, debt, and federal grants that have resulted in many state-specific differences. Some people move across state lines to live in states that align more closely with their political ideology. For all these reasons, it is important to consider the effects of states' socio-economic characteristics, in order to understand each state's capital spending behavior.

Fisher and Wassmer (2015a) examined the determinants of states' capital spending behavior in the years between 2000 and 2012 and found that a state's income, population density, population growth, magnitude of federal grants, and depreciation of assets are associated with increased capital spending.[5] This estimated increase in aggregate capital spending also applies to the subcategories of capital spending on highways and on K–12 education. Institutional and political factors also seem important, as both the absence of a state government debt limit and more "liberal" political views are associated with higher capital investment.[6]

New England's low level of normalized capital spending is not sufficiently explained by differences in the demand for public services or the costs of producing these services.

Many of these findings are consistent with expected results, including an increase in state and local capital spending associated with an increase in the K–12 enrolled population, and a decrease in spending associated with an increased population aged 65 and older. Population density and the percentage growth in population over the previous decade were found to have a relationship with increased public capital spending. Between two states with equal populations, the one that has recently experienced population growth is estimated to have higher capital spending per person.

Despite the large impact of the expected economic and institutional factors, substantial unexplained differences among the states remain. In other words, there seem to be many state-specific influences on capital spending that are not apparent and not captured by the traditional components of either the demand for state and local public services or the costs of producing these services. Some states invested in capital to a greater degree than would be expected based on their economic and political characteristics, whereas others invested less than expected.

Another way of seeing how the New England states underperformed expectations of state and local capital spending is to compare actual spending on capital goods by these entities with the capital spending by state and local governments predicted by a model of economic and political influences, as Table 3 shows for the year 2010. Connecticut, Massachusetts, and Rhode Island spent substantially less than expected, based on the model that was estimated using data for all U.S. states, New Hampshire spent about the expected amount, and Maine and Vermont spent more. For comparison purposes, the table also reports the results for North Dakota and Nebraska, two states for which real capital spending outperformed expectations by the highest margins, and

5 The variables included in the regression are state and local per capita capital spending, population density, previous-decade percentage population growth rate, percentage of population attending K–12 public schools, percentage of the population over age 65, percentage of the population who are homeowners, per capita gross state product, federal grants per capita, American Recovery and Reinvestment Act (ARRA) investment funds per capita, expenditure of states as a percentage of state and local expenditures, "liberal" citizen ideology scores, road conditions, whether the state has a debt limit, and average weekly wages.

6 These results are consistent with the findings of previous regression studies, including those by Poterba (1995) and Temple (1994).

Table 3

Actual vs. Estimated Per Capita State and Local Outlay, 2010

New England States and Selected Other U.S. States

(Dollars)

	Estimated Real Per Capita Capital Outlay	Actual Real Per Capita Capital Outlay	Difference
CT	1,744	900	-844
MA	1,606	961	-645
ME	258	682	424
NH	604	643	39
RI	1,046	695	-352
VT	352	786	434
ND	179	1,711	1,531
NE	279	1,612	1,333
NJ	1,969	996	-974
CA	1,167	1,269	102

Source: U.S. Census Bureau and authors' calculations.
Note: Estimates based on regression analysis reported by Fisher and Wassmer (2014).

the results for New Jersey, the state with greatest shortfall against expectations based on these socio-economic characteristics.[7] Even for Maine and Vermont, two New England states for which actual spending exceeded the expected amount, the differences were much smaller than for the states of Nebraska and North Dakota. Thus, even in these two New England states, capital spending per person was far below such spending in the states with the largest positive difference between actual and expected real capital spending. The comparison between actual and forecast spending shows that the economic, social, and political characteristics included in the Fisher and Wassmer analysis and used in previous research do not fully explain the observed lower levels of per capita state and local capital expenditure in the New England states relative to all states.

Differences in Capital Spending by State and Local Governments

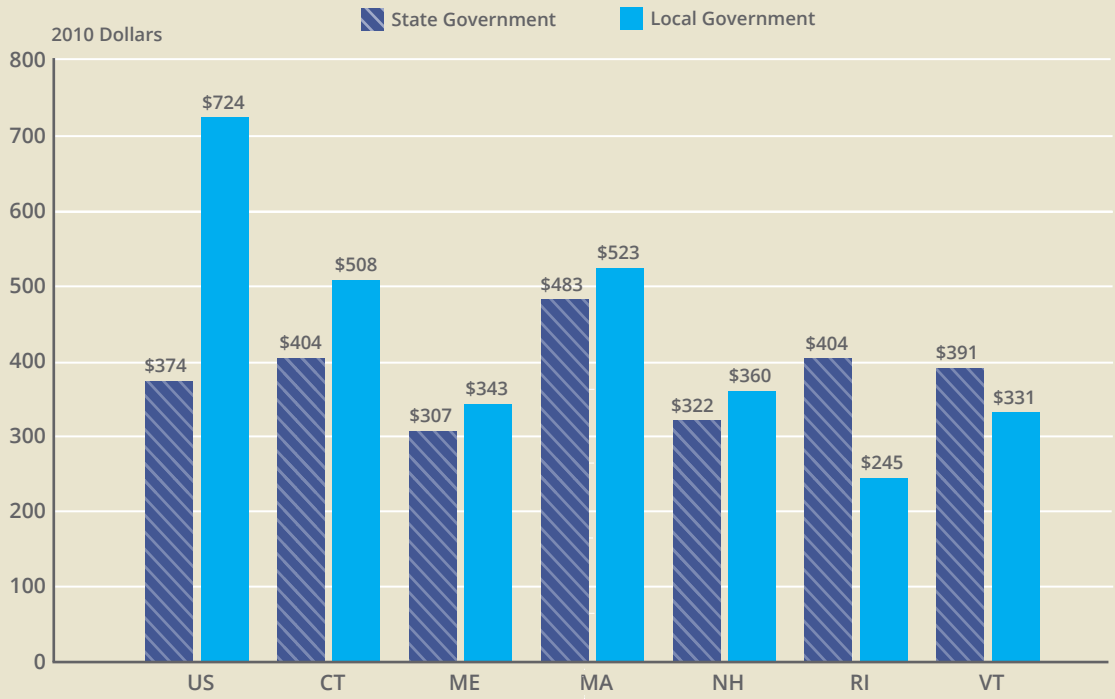
When comparing capital spending across states, it is important to understand the relative roles of state and local governments. State governments play a larger and more important role in both overall state and local government spending and in capital spending in the New England states than in the nation as a whole, as Figures 4 and 5 illustrate, so a comparison of state-government-only capital spending with capital spending by states outside the region or with the national average can be misleading.

For example, the census data show that state governments across the nation are responsible for about one-third of state and local capital spending on average, but for more than 45 percent of subnational government capital spending in every New England state except Connecticut, and for more

7 The results for California are also reported because California served as the comparison state in the regression analysis.

Figure 4

Average Real Per Capita Capital Expenditure
State vs. Local Governments, 2000–2012



Source: U.S. Census Bureau.

than half of such spending in Rhode Island and Vermont. Moreover, in 2000–2012, state capital expenditures per person exceeded the U.S. average in four of the New England states, while per capita local government spending on capital investment fell short of the U.S. average in every New England state.

It is possible that the greater role of state government in financing capital investment is partly responsible for the apparently low normalized level of capital spending in the New England states. Leyden (1992) and Silvio and Sonstelie (1995) have shown that an increase in state government responsibility for financing education can lead to an overall decrease in the average level of education spending in a state. Essentially, this occurs if the median desired level among all voters in a state is below the average of the desired spending amounts in all local school districts in the state. Such an outcome can arise if individuals who prefer high levels of spending locate together, creating localities with high selected levels of spending. A similar result could arise for capital investment. Indeed, the research by Fisher and Wassmer (2015a) shows that a greater fiscal role of state government is associated with higher capital spending on highways, but with lower capital spending on K–12 education. It may be that support wanes for services that are perceived as providing only local benefits if provision of those services is centralized.

The relatively large role of state government in New England may contribute to lower levels of normalized capital spending.

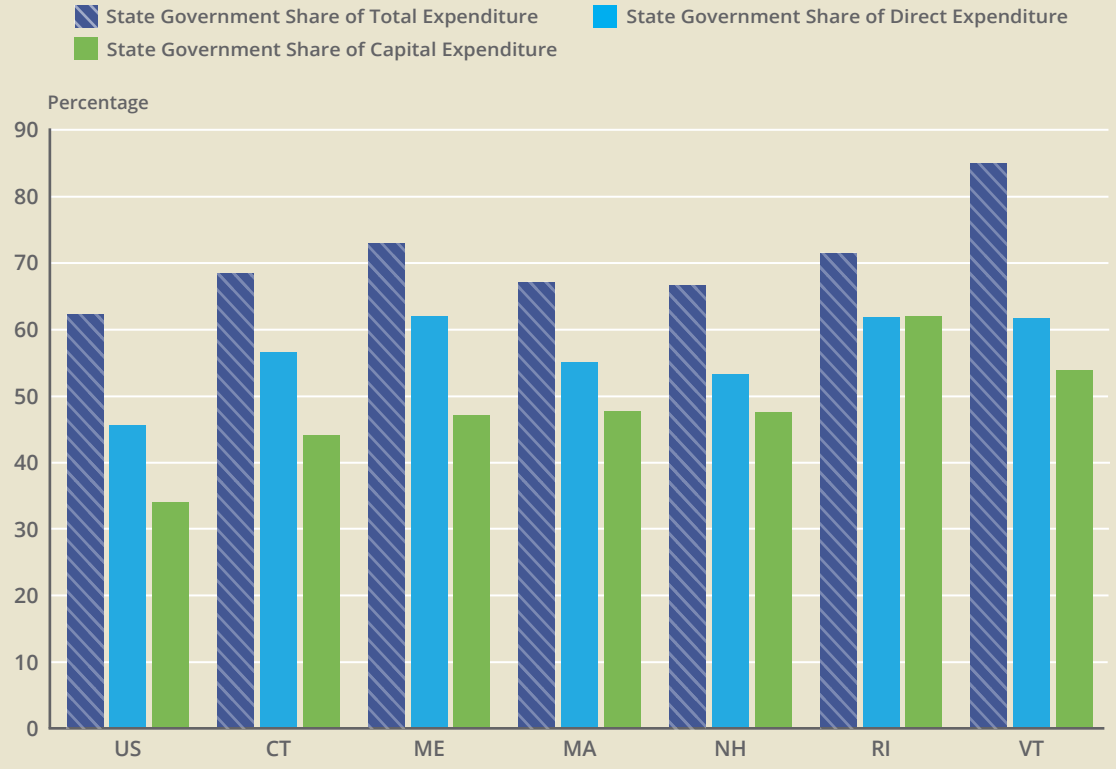
Quality of Public Capital Stock

One possible explanation why normalized state and local government capital spending in the New England states has been less than in other states in recent years stems from the quantity and quality

Figure 5

Relative State Government Role in Capital Spending

New England States vs. U.S., 2000–2012



Source: U.S. Census Bureau.

of the existing stock of public infrastructure in the region. If the quantity and quality of public infrastructure in New England is relatively high compared with its amount and condition in other states as a result of past infrastructure spending, then additional spending in recent years (since 2000) may not have been required. Therefore, it seems worthwhile to examine the nature of the existing public infrastructure stock in the region. Overall, the available evidence does not seem to support the view that additional capital spending by state and local governments in New England would have been unnecessary because of an unusually high quantity or quality of existing public capital. In some cases, the status of infrastructure as of 2012 was found to be better in the New England states than was typical in other states, whereas in other cases it was worse.

Regarding roads and bridges, the infrastructure analysis shown in Table 4 suggests that Rhode Island stands out among the New England states as having made subpar investments in transportation. The census data show that over the years 2000–2012, Rhode Island ranked fifth among the six states in average annual real capital spending per person on roads, with spending of $188, above only the $183 spent by Connecticut. In terms of the mix of capital spending, Rhode Island also ranks low, with 16.7 percent of capital outlays going toward highways, compared with a national average of 25 percent.[8]

8 The 16.7 percent of capital outlays for highways in Rhode Island is greater than the 16.1 percent in Connecticut and the 16.4 percent in New Hampshire, but less than in the other New England states.

Quality Measures of the Public Capital Stock

For highways, and education—the two largest categories of state and local capital spending—measures of the quality of state and local capital stock exist but are quite limited. The most commonly used measures are those for transportation facilities, especially roads and bridges. According to data reported to the U.S. Department of Transportation, which show the percentage of travel on roads classified by roughness categories, the New England states fare better than the average of all states in the quality of some road facilities and worse in others. The consistent evidence from these data is that road quality is substantially worse in Rhode Island than nationally, with a higher percentage of travel on rough roads and a lower percentage of travel on the smoothest roads.

A recent report card on America's Infrastructure (American Society of Civil Engineers 2013) singled out roads in Connecticut and Rhode Island as being of low quality: 73 percent of roads were rated "poor or mediocre" in Connecticut, 70 percent were so rated in Rhode Island. In the same ASCE report, a higher percentage of bridges were identified as structurally deficient in Maine (14.8 percent), New Hampshire (14.9 percent), and Rhode Island (20.6 percent) than nationally (about 11 percent). According to a summary of these results compiled and reported by Weiner (2015), the New England states as a whole do not differ substantially in this respect from the average of all states nationally. However, two New England states, New Hampshire and Rhode Island, have both a higher-than-average percentage of poor or mediocre roads and a higher-than-average percentage of structurally deficient bridges.

Interstate quality measures of public school facilities are noticeably lacking, despite the fact that this category represents the second largest share of state and local government capital expenditure nationally (about 20 percent). Apparently, the U.S. General Government Accountability Office last undertook a nationally comprehensive analysis of public school facilities in 1995. In 2013, a group of private associations called upon Congress to update this report, to no avail—at least to date (Shelter 2013). The U.S. Census Bureau reports annually, by state, on several categories of capital expenditure by public schools, but does not provide comparable measures of the existing capital stock.

The report card analysis by the American Society of Civil Engineers (ASCE) includes both actual capital outlays for construction and acquisition of structures over the period 2005–2008 and an estimate of school infrastructure funding needs, but the ASCE admits that "due to the absence of national data on school facilities for more than a decade, a complete picture of the condition of our nation's schools remains mostly unknown" (American Society of Civil Engineers 2013). The ratio of actual past spending to future "needs" provides a rough measure of how well a state is addressing the need for investment in school infrastructure. According to the 2013 report card, capital outlays for schools in Connecticut, New Hampshire, and Rhode Island during that period equaled at least 90 percent of future needs, whereas in Massachusetts, Maine, and Vermont, school capital outlays were equal to only 67 percent, 46 percent, and 57, respectively, of the amounts needed to finance future needs.

Regarding schools, Massachusetts, Maine, and Vermont appear to have had the largest gaps between estimated need and actual investment among the New England states. According to the census data, real average annual capital expenditure per capita for K–12 education for 2000–2012 was substantially lower in these three states than the average nationally. The percentage of capital investment for elementary and secondary education was also substantially lower among these states than nationally, although not the lowest among the New England states.

Table 4

Percentage of Travel by Road Quality
New England States vs. United States

	Good Quality		Poor Quality	
	Two Lowest Roughness Categories		Two Highest Roughness Categories	
	Rural	Urban	Rural	Urban
CT	**68.2**	54.5	1.9	**2.4**
ME	72.8	**61.2**	1.2	**3.1**
MA	79.4	56.1	2	**4.4**
NH	82.3	**80.8**	2.1	**1.3**
RI	**63.9**	**41.8**	**7.8**	**5.8**
VT	**85.3**	**63.2**	1.8	3.1
US	77.2	50	1.5	3.7

low relative to U.S. average high relative to U.S. average

Source: U.S. Department of Transportation, Highway Statistics, 2013.

Use of Capital Budgets

There is evidence that states with capital budgeting processes spend more on public capital than states that include capital expenditure in the regular budget process. In New England, capital budgets exist in all the states (although in Maine the capital budget is included in the operating budget), and borrowing for capital expenditure is common. Thus, although prior research suggests that capital spending would be favored in New England, observation finds the opposite.[9]

James Poterba (1995) analyzed differences in state and local government capital spending per capita (excluding highways) in 1962 for the 48 contiguous states and reported that states with public capital budgets spent more on public capital than states with unified budgets, and that pay-as-you-go requirements, which preclude borrowing, reduced capital spending. The impact of the pay-as-you-go constraint was particularly relevant to expected spending levels even when state and local government capital spending were combined.

A recent national report (National Association of State Budget Officers 2014) suggests that, despite some important differences, the capital budgeting process used in several New England states does not differ systematically from that used by states in other parts of the nation. All the New England states except Maine have a multiyear capital improvement plan: it covers five years in Connecticut, Massachusetts, and Rhode Island, six years in New Hampshire, and 10 years in Vermont. Four New England states enact a biennial capital budget (which, in Maine, as noted above, is part of the operating budget); the two exceptions, Massachusetts and Rhode Island, use an annual capital budget.

Differences in Services Structure

One possible explanation for the apparently low amounts of capital spending among the New England states shown by the census data is that the structure of services provided through state and

9 Fisher and Wassmer (2015a).

local governments in New England differs from the structure represented in the national averages. For instance, spending by public state colleges and universities is counted as part of state government expenditure in the census statistics. It could be the case that capital spending for higher education is relatively less important in the New England states than nationally. According to the data shown in Tables 1 and 2 and Figure 2, this does not appear to have been the situation for the New England states as a whole. Although relatively high in Vermont and low in Rhode Island, the overall normalized level and importance of capital spending for higher education in the New England states is not appreciably different from the national average. Thus, differences in the way higher education services are provided in the New England states compared with states in other regions do not seem to explain the generally low level of capital spending in the New England states as observed in the census data.

Concerns about debt reduction and control may have contributed to the relatively low level of normalized capital investment by New England states.

Another possible difference between the New England states and others is the way that utility services (electricity, natural gas, water, sewerage) are provided. Indeed, the data shown in Tables 1 and 2 suggest that capital spending per capita for utilities is relatively lower in the New England states than the national average, except in Massachusetts. The information in Figure 6 confirms that real per person capital spending for utilities is lower overall in the New England states than in other states and that excluding capital spending for utilities reduces the gap in capital spending between the New England states and all U.S. states for the years 2000–2012. Thus, part of the observed difference in the level of state and local capital spending in the New England states compared with other states apparently stems from the way that utility services are organized in New England. However, as shown by the analysis reported by Fisher and Wassmer (2015b) and by the data in Figure 6, per capita capital spending in the New England states remains below the average for all states even if capital spending for utilities is excluded.

Political Characteristics

Based on state reports, it appears that debt reduction and debt control have been a primary focus in at least several of the New England states. A focus on debt reduction and control may have contributed to the apparently relatively low level of capital investment by states in New England during the period studied.

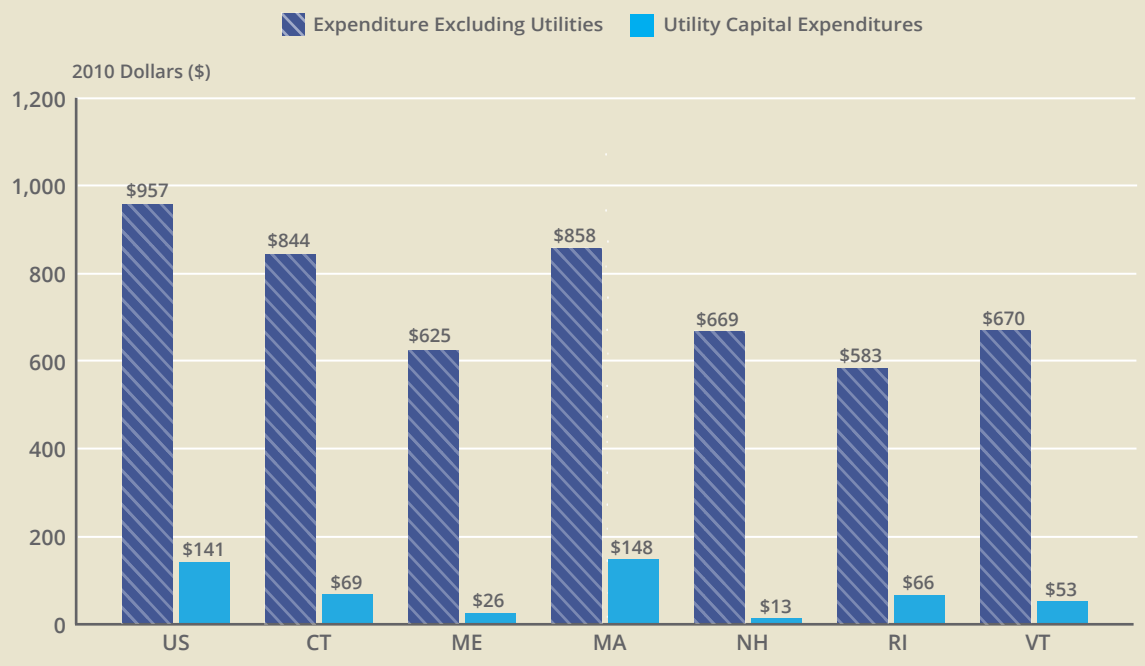
A Rhode Island state constitutional amendment adopted in 2006 required that the Rhode Island Capital Plan Fund be used exclusively for capital investment rather than for debt service and debt reduction, which had previously been allowed. The report notes that past practice had resulted in "…numerous planned capital projects being deferred" (State of Rhode Island and Providence Plantations 2014). Current law allows up to 3 percent of revenues to be used for capital spending after the Budget Reserve Fund reaches 5 percent of revenue. As a result of this policy change, actual and proposed capital investment in FY 2013–2015 was much greater than in prior years. Therefore, it seems possible that use of Capital Plan funds for debt reduction in past years may have contributed to a reduction in capital spending.

However, the Rhode Island FY 2015 capital budget noted that "The Governor's Capital Improvement Plan reflects a policy of controlling Rhode Island's capital debt by limiting the issuance of new debt, reallocation of current resources to preserving and improving infrastructure, and controlling capital expenditures to a level that is affordable." A reduction in state debt relative to personal income was noted as a positive development. The state's capital budgeting goals set out by the Governor's Office included goals to "Implement a debt reduction program in order to reduce Rhode Island's net

Figure 6

Average Annual Real Per Capita Capital Expenditure Excluding Utilities

New England States vs. U.S., 2000–2012



Source: U.S. Census Bureau.

tax supported debt" and "Ensure that Rhode Island's annual capital budget and capital improvement plan is affordable and finances only necessary capital projects." Debt control seems to have remained a primary consideration.

The Report on Capital Spending and Borrowing in the Commonwealth of Massachusetts, 2013–14 outlined a similar focus on debt in Massachusetts, at least during the administration of Governor Patrick (Commonwealth of Massachusetts 2014). Beginning in 2007, the administration self-imposed the limit that debt service not exceed 8 percent of budgeted revenue and the amount of outstanding debt not grow by more than $125 million per year (on average over several years). The report noted that "Most of the capital plans issued by the Patrick Administration have been limited by the restraint on growth caused by the requirement that new debt cannot exceed $125 million per year because this requirement operates to limit the capital budget to debt retired by the Commonwealth plus $125 million."

The allowed $125 million annual increase was less than $19 per capita. To put this in context, the U. S. Census reports that in 2012 outstanding long-term state government debt in Massachusetts was almost $12,000 per capita. In 2012, retired Massachusetts state government long-term debt ($9.6 billion) was greater than newly issued state long-term debt ($9.2 billion), meaning that the net new long-term debt issue amount was negative.

The Massachusetts constitution requires that any borrowing be approved by a two-thirds vote of the General Court, and state law limits the annual growth of new general obligation debt to 5 percent, although some state borrowing is exempt from this limit by court action (Commonwealth of

Massachusetts 2014). Furthermore, the expiration dates of authorized but unused debt authority are often extended, so the state had substantial authorized but unused debt authority in FY 2008 through FY 2013.

Vermont employs a Capital Debt Affordability Advisory Committee (CDAAC), chaired by the State Treasurer, to make recommendations about state general obligation borrowing for capital expenditure purposes. The 2014 report noted, "The State's annual cost of debt service as a percentage of revenues is perhaps the single most important affordability metric…" The report further noted, "For a number of years Vermont has pursued a strategy to achieve a triple-A rating from all three nationally recognized credit rating agencies. To facilitate this goal, CDAAC and the State have employed conservative debt load guidelines that are consistent with the measures that the rating agencies use to measure debt burden." In addition, a 10-year state capital program plan is revised annually and submitted for approval by the legislature. The transportation agency produces a separate transportation capital plan (State of Vermont 2014).

IV. Capital Investment and Borrowing

The focus on debt reduction noted in the previous section of this report is perhaps not surprising in light of the facts about outstanding state and local debt in New England. As with capital spending, the New England states differ among themselves in levels of debt, as shown in Table 5. Relative to all U.S. states, Connecticut and Massachusetts, and on some measures Rhode Island, tend to be high-debt states, whereas Maine, New Hampshire, and Vermont tend to be low-debt states. Connecticut and Massachusetts have relatively high debt levels, whether measured relative to population, income, or state and local government revenue, for both aggregate long-term debt and long-term debt excluding

Table 5 Outstanding Long-Term State and Local Debt, 2012
New England States vs. United States

		CT	ME	MA	NH	RI	VT	US
Debt Per Capita	(Dollars)	11,698	6,498	14,278	8,124	11,248	7,034	9,298
Debt Per Capita Excluding Debt for Private Purposes	(Dollars)	8,193	4,374	9,838	4,852	6,361	4,401	7,383
Debt as a Percentage of Personal Income	(Percentage)	19.4	16.3	25.1	16.2	24.4	15.8	20.9
Debt as a Percentage of Personal Income Excluding Debt for Private Purposes	(Percentage)	13.6	11.0	17.3	9.7	13.8	9.9	16.6
Debt as a Percentage of Annual State-Local Revenue	(Percentage)	105.1	73.3	129.3	98.6	105.5	59.2	95.5
Debt as a Percentage of Annual State-Local Revenue Excluding Debt for Private Purposes	(Percentage)	73.6	49.3	89.1	58.9	59.7	37.1	75.9

Source: U.S. Census Bureau.

private purposes. Rhode Island appears to be a special case, with relatively high long-term debt in aggregate, but relatively low debt when long–term debt for private purposes is excluded. This kind of debt for private purposes includes state or local government loans to private businesses as well as borrowing for other private purposes, including subsidizing low-income housing and providing student loans. This practice is used by state and local governments partly as an economic development tool. Thus, it appears that the state and local governments in Rhode Island have used government borrowing authority to support private ventures to an unusually high degree relative to borrowing for traditional public purposes. Both Massachusetts and Rhode Island have relatively high levels of outstanding long-term debt compared with all U.S. states, whether measured relative to population, income, or state and local revenue. Long-term debt generally refers to future financial obligations that extend beyond a 12-month period.

As part of the American Recovery and Reinvestment Act, state and local governments were given authority from April 2009 through December 2010 to issue Build America Bonds (BABs), which were taxable bonds, but with a direct federal government subsidy of 35 percent of interest payments. Research reported by Fisher and Wassmer (2014) and others shows that the existence of BABs lowered borrowing costs for subnational governments relative to the costs of issuing traditional nontaxable municipal bonds.

States differ substantially in the degree to which they made use of BABs. Subnational governments in California issued almost 21 percent of all Build America Bond volume, an amount that was more than 50 percent greater than California's share of outstanding debt in 2007 (which reflected the past borrowing behavior of California). The large-population states of New York, Illinois, Ohio, and Washington (all states with a relatively substantial historic share of aggregate debt) made even greater

Table 6

Build America Bond (BAB) Issue Volume during 2008–2010 Compared with Historic Use of Debt

New England States and Selected Other U.S. States

	Share of BAB Issue Volume 2008–2010	Share of Outstanding Debt, 2007	Ratio of BAB Volume to Debt	Percentage of U.S. Population 2007
CT	1.06	1.36	0.78	1.19
MA	2.68	3.72	0.72	2.16
NH	0.20	0.43	0.46	0.44
VT	0.07	0.17	0.42	0.21
ME	0.05	0.33	0.15	0.45
RI	0.01	0.44	0.02	0.36
NJ	4.09	3.56	1.15	2.92
NY	11.45	10.77	1.06	6.43

Source: Fisher and Wassmer (2014).

relative use of BABs. Some small states, such as Utah and Hawaii, also made extensive relative use of BABs. Research by Fisher and Wassmer (2014) shows that states with greater population, higher state income, relatively low fiscal surpluses, greater outstanding debt, and a more centralized fiscal structure tended to use Build America Bonds relatively more than other states.

All the New England states made relatively less use of the federal Build America Bond option than would be suggested by their use of long-term debt overall, as Fisher and Wassmer (2014) describe and as Table 6 shows. Rhode Island was the state that used the BABs option least, with about 0.01 percent of all BAB bonds issue volume, compared with about 0.44 percent of outstanding long-term state and local debt in 2007. Even Massachusetts, which had 3.7 percent of outstanding long-term state and local debt nationally in 2007, issued only 2.7 percent of BAB volume.

Connecticut is the New England state with perhaps the least easily understood behavior. Governments in the state borrowed unusually high amounts in the years 2008–2010, as shown by Fisher and Wassmer (2014). Governments in Connecticut were responsible for 1.68 percent of all state and local long-term borrowing nationally in 2008–2010, a greater percentage than the state's share of outstanding long-term debt. Yet despite this relatively high level of borrowing, governments in Connecticut were relatively low issuers of BABs. Over these three years, governments in Connecticut issued more than $18 billion of new long-term debt and retired more than $11 billion. Thus, a substantial amount of borrowing by Connecticut governments during these years represented new debt. Of the approximately $7 billion of new, net, long-term issues, only about $2.5 billion came in the form of BABs.

Not surprisingly, there appears to be some degree of correlation between capital spending and borrowing. Among the New England states, Connecticut and Massachusetts have high levels of outstanding debt on a normalized basis and have had the highest per capita capital expenditure since 2000. On the opposite end of the spectrum, governments in Rhode Island have relatively high outstanding normalized long-term debt levels and yet have had relatively low levels of capital expenditure since 2000—indeed the lowest in per capita terms among all the U.S. states. This is consistent with the evidence that overall state and local outstanding long-term debt is relatively high in Rhode Island, but outstanding long-term debt for traditional public purposes, including investment in public capital, is relatively low.

V. Conclusions and Observations

The relatively low levels of state and local government capital expenditure for the New England states shown by U.S. Census data for 2000–2012 do not seem to be explained by any single factor, although political considerations seem to be important. There is some evidence that capital investment policy in many of the six states has been dominated by concern about the level of state government debt. To the extent that attaining low debt levels has been the focus of policy attention and debt and capital investment are considered jointly, attempts to lower state government debt may have contributed to lower investment in public capital.

The relatively low level of capital spending among the New England states generally is confirmed even when population growth rates and other social and economic characteristics expected to influence the level of capital spending are considered.

The relatively low level of capital spending also does not seem to be the result of a different organization of higher education or public utilities in the New England states than nationally. Nor is there evidence that the existing public capital stock in the New England states is of sufficient quantity or quality that additions to the stock are not warranted.

State governments in New England are relatively more important in making capital expenditures and issuing debt than is the case nationally. The greater role of state governments in making capital expenditures may have the effect of reducing the overall level of such spending.

One should not characterize all of the New England states as being equal in their spending and borrowing characteristics, even on a normalized basis. The raw data show that capital spending per capita has been relatively low in Maine, New Hampshire, Rhode Island, and Vermont compared with such spending in the other two states in the region; relatively low compared with state income in Connecticut, New Hampshire, and Rhode Island; and relatively low compared with total state and local spending in Maine, Rhode Island, and Vermont. According to the econometric analysis reported by Fisher and Wassmer (2015a), capital spending after adjustment for economic and political differences among the states is notably low in Rhode Island, Connecticut, Massachusetts, and New Hampshire. Taking all of the evidence into account, the single outlier state is Rhode Island, which is shown to have had relatively low state and local government capital expenditure by every measure. Recent behavior concerning capital spending also differs among the region's states. In 2012, Connecticut and Massachusetts acted to increase state and local government capital spending substantially, whereas the other four New England states decreased capital spending that year. For Maine and Vermont, the decrease in 2012 broke a three-year trend of rising per capita capital spending.

Although the behavior of the New England states varies, capital expenditures in each state impact the economy of the region as a whole. The spillover effects of infrastructure and other capital investments are strengthened when neighboring states also invest in capital. For these reasons, capital spending around New England is a regional concern.

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Appendix: Alternative Definitions of Capital Spending

For the purpose of drawing interstate comparisons of capital spending, the data about capital spending collected and reported by the U.S. Census Bureau have the following advantages over the data published by individual states.[10] The census data:

- Follow a consistent definition of capital spending, even though individual states may identify capital spending differently,
- Are adjusted for differences in how states report spending, to allow consistent comparisons among the states,
- Are reported for both state and local governments in each state, permitting an examination of overall public capital investment in a state regardless of the institutional structure.

Such considerations can be important. In its 2014 Report on Capital Budgeting in the States, the National Association of State Budget Officers (NASBO) reports the degree to which the definition of capital expenditure differs among the states. For instance, in Massachusetts capital expenditures are defined as "Expenditures related to the construction, substantial improvement, or acquisition of capital assets," whereas in New Hampshire, capital expenditures are defined as "1) New construction with at least a 20-year life and costs in excess of $50,000; 2) An addition to an existing facility with a least a 20-year life and costs in excess of $50,000; 3) An improvement or repair to a facility which exceeds routing maintenance, has at least a 20-year life and costs in excess of $50,000; 4) Equipment not related to a specific construction project with an expected life of at least 15 years and costs in excess of $25,000. High-cost equipment with a low life expectancy

Table A1

Comparison of State Capital Spending, Alternative Sources
New England States vs. United States
(Dollars)

	Per Capita Capital Expenditure State Government *National Association of State Budget Officers, 2012*	Per Capita Capital Expenditure *State Government Census, 2012*
CT	881	459
ME	246	343
MA	433	543
NH	170	346
RI	416	411
VT	584	405
US	284	384

Source: National Association of State Budget Officers and U.S. Census Bureau.

10 The Census Bureau defines state and local capital expenditure as "[D]irect expenditure for construction of buildings, roads, and other improvements undertaken either on a contractual basis by private contractors or through a government's own staff ...; for purchases of equipment, land, and existing structures; and for payments on capital leases" (See http://www.census.gov/govs/school/definitions.html).

may be requested, provided the amortization period is consistent with the life expectancy." Long-term leases are counted as capital expenditure only in Massachusetts and Rhode Island, whereas long-term leases are primarily treated as operating expenses in the other New England states.

In addition, transportation capital spending is not included in the state government capital budget in 19 states (including Vermont), only 29 states include information technology in the state capital budget, and in 26 states spending on public university infrastructure is funded with state general fund dollars (as opposed to being funded separately by the universities with university resources). And even the NASBO report focuses only on state government capital spending and does not take account of local government capital budgeting practices.

The importance of these differences is shown by the data in Table A1, which compares state government (only) capital spending for 2012 as reported by NASBO and the U.S. Census Bureau. For the aggregate of all states, the census measure is greater because some entities (public universities for instance) are counted as part of state government in the census data but are not counted as part of the state government budget by individual states (which report the data to NASBO). For the New England states, however, the NASBO measure is greater for three of the states, reflecting the different state definitions and procedures.

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