Comparative Review and Analysis of State Transit Funding Programs

DETAILS

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NCHRP REPORT 569

Comparative Review and Analysis of State Transit Funding Programs

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FOREWORD

By Christopher W. Jenks
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This report should be of interest to transit system managers, state DOT transit officials, and others interested in the levels and types of state funding provided for public transportation. The report provides supplemental analyses of information collected in the U.S.DOT Bureau of Transportation Statistics' (BTS) annual survey of state public transportation funding conducted for the American Association of State Highway and Transportation Officials (AASHTO) and the American Public Transportation Association (APTA). It includes a variety of peer analyses and offers straightforward visual displays of the results. The report also provides a framework for conducting peer analyses and offers ideas on how the annual survey of state public transportation funding can be improved by AASHTO and APTA in the future so that states may conduct additional meaningful analyses.

Starting with FY 2003, AASHTO and APTA jointly publish an annual *Survey of State Funding for Public Transportation.* This survey is conducted by the U.S.DOT Bureau of Transportation Statistics (BTS) for AASHTO and APTA. Prior to FY 2003, TCRP collected information on state funding for public transportation through its Project J-6, "Quick Response for Special Needs." Information collected for FY 2002 is available in *TCRP Research Results Digest 60: Characteristics of State Funding for Public Transportation—2002.* Although this information is very helpful, there has been a need for more analysis of this basic financial data to better enable states to understand and utilize this funding information.

Under NCHRP Project 20-65(6), ICF International was retained to compare and analyze AASHTO/APTA's basic state funding information collected by BTS for the different public transportation funding programs to better enable states to conduct peer analyses and other comparative state funding reviews and evaluation activities.

To complete the project objective, the research team conducted interviews with a wide range of individuals with strong interest in supplementing the information collected in the annual state public transportation funding survey. The interviews targeted members of the project panel; the AASHTO Standing Committee on Public Transportation (SCOPT); the AASHTO Multi-state Technical Assistance Program (MTAP); the APTA State Affairs Committee; and staff at AASHTO, APTA, and the Community Transportation Association of America (CTAA). Based on these interviews, a number of specific funding comparisons and analyses were identified, conducted, and presented in a visual format for the intended audience.

CONTENTS

SECTION 1

Introduction

1.1 Background and Purpose

The *Survey of State Funding for Public Transportation* is a primary resource for state-level data on transit funding and is used by states across the country to examine their public transportation funding programs in relation to other states. Prepared by the Bureau of Transportation Statistics (BTS) Office of Survey Programs under the auspices of AASHTO and APTA, the *Survey* presents an array of useful information on funding by state. The data, however, are not presented in a way that is easy to make comparisons between states for purposes of benchmarking or conducting peer analyses.

The bulk of the *Survey* is organized by state with two pages per state showing the sources and eligible uses for each state's transit funding. The *Survey* report also provides an overview of state and local ballot initiatives related to transit and contains a set of summary tables displaying information on public transportation funding by state, including the following:

- Historical state and federal funding of public transportation
- Major sources of state transit funding
- Types of expenditures for state transit funding
- Changes in state transit funding levels

Each of these sections presents information in a similar manner to how it is received from the states, with information presented in alphabetical order by state. As a result, states need information on how to conduct valid assessments and comparisons of their programs using data from the *Survey.*

The purpose of this NCHRP report is to develop information to help states conduct additional peer analyses and other comparative assessments of their transit funding programs, relying upon data contained in the *Survey* and other data sources. It presents a framework for using the data in the *Survey* to conduct peer analyses. It demonstrates how the current data in the *Survey* can be presented in a meaningful manner through a visual display of information. Finally, it provides suggestions for enhancing the collection of data for the *Survey* in the future, so as to enable states to conduct additional analyses.

This NCHRP report is structured as follows:

- **Section 1, Introduction,** sets the context for the analysis in this report by describing its purpose, the research approach, and a brief summary of the results of the *Survey.*
- **Section 2, Peer Group Framework and Analysis,** presents a framework for conducting peer analyses using data in the *Survey* and other sources. It identifies options for creating peer groups, describes metrics for analysis, and provides a detailed analysis using one set of peer groups selected by the NCHRP project panel.
- **Section 3, Visual Display of Funding Information,** discusses principles of information design to help effectively communicate information contained within the *Survey.* It includes displays of *Survey* data created by converting tables from the *Survey* into effective graphs and charts.
- **Section 4, Additional Information for the *Survey,*** provides recommendations for enhancements that could be made to the *Survey* in the future to allow for additional comparisons among states and to provide more complete information.
- **Section 5, Conclusions,** concisely presents the results of this project.

Some additional analyses that were requested by the project panel are presented in the appendix. Comparisons of state and federal transit funding over time nationally and for each state, as well as comparisons of highway and transit funding over time nationally and for each state, are shown.

1.2 Research Approach

This report is the culmination of several phases of research. First, the research team conducted interviews with a wide range of individuals from organizations with a strong interest in improving the usefulness of the *Survey* (Task 1). These

individuals included members of the NCHRP project panel, the AASHTO Standing Committee on Public Transportation, the AASHTO Multi-state Technical Assistance Program (MTAP), and the APTA State Affairs Committee and staff at AASHTO, APTA, and the Community Transportation Association of America (CTAA). The research team asked each interviewee for the following:

- Questions they want to see answered by this project
- Potential analyses they want to see in the *Survey*
- Suggestions for additional questions for future versions of the *Survey*

Based on these interviews, the research team's own assessment of the survey data, and input from the project panel, the following analyses were selected as the focus for this study:

- Funding comparisons among peer groups
- Enhanced visual display of information
- Comparisons of state and federal transit funding at a national and state level
- Comparisons of highway and transit funding at a national and state level (Tasks 2 to 3)

These analyses were conducted (Task 4), recommendations were developed (Task 5), and information was packaged in a way that makes analyses dynamic and useful for the intended audience. The result is this report (Task 6).

1.3 Summary of 2004 Survey of State Funding for Public Transportation

This section briefly summarizes the *Survey* to provide some context for the analysis that follows. The 2004 *Survey* was the 24th compilation on state funding of public transportation and was prepared by BTS. The *Survey* is primarily a collection of data without accompanying analyses. It includes four sections:

1. **Introduction and Summary.** This brief section presents a few summary observations regarding the data within the *Survey,* two tables of basic data regarding transit funding over time, an explanation of the survey methodology, and an outline of the organization of the report. Tables 1 and 2 are excerpts from the two tables shown in this section of the *Survey* (Table 1.1 and Table 1.2 of the *Survey*) and are reproduced here for context. These are the tables that are analyzed and improved in Section 3 of this report, and they provide the bulk of the information used for the peer group analyses.
2. **State Transit Program Details.** In this section, which is by far the bulk of the *Survey,* raw data for each state is provided in alphabetical order. States indicate the source, programming, amount, eligible uses, and type of funding for transit in their state. States also provide additional remarks or comments that can provide insight into their particular situation. Although the results of this section are included in the data reported in the *Survey,* and thus analyzed by this report, this section is not specifically re-worked in this report.
3. **Highlights of State Transit Funding.** This section presents several summary tables that are analyzed in detail in this report. The *Survey* itself provides some limited discussion of these tables, including an explanation of their contents and observations of trends and data points. This report attempts to re-work these tables into a more meaningful format where appropriate. Tables 3 through 7 show excerpts from the original tables in the *Survey.*
4. **Overview of State and Local Ballot Initiatives.** This section simply lists all state and local ballot initiatives related

Table 1. Excerpt from Table 1.1 of the *Survey,* State Funding of Public Transit—1990, 1995, 2000, 2003, 2004.

State	1990	1995	2000	2003	2004
AR	$400,000	$331,900	$0	$2,800,000	$2,800,000
Alabama	$453,600	$0	$0	$0	$0
AK	$1,128,607	$0	$0	$0	$0
Arizona	$382,961	$445,000	$329,096	$13,768,000	$20,068,000
California	$113,579,750	$340,162,248	$1,344,778,819	$1,294,100,000	$1,317,933,858
Colorado	$0	$0	$0	$0	$0
Connecticut	$87,614,575	$113,241,041	$163,266,135	$186,100,000	$200,167,000
District of Columbia	$115,007,775	$123,051,000	**NR**	$198,038,000	$208,252,896
West Virginia	$1,261,903[1]	$1,537,898	$1,395,489	$2,200,000	$2,294,162
Wyoming	$0	$976,736	**NR**	$1,500,000	$2,466,127
TOTALS	**$3,742,211,127**	**$4,760,994,970**	**$7,499,314,371**	**$8,993,815,661**	**$9,317,772,184**

1=$374,972 of this figure represents direct state operating assistance to public transit. $697,281 is provided by the WV Dept. of Health & Human Services and the WV Commission on Aging and is used for the provision of specialized services to the elderly and handicapped. $90,000 is used by the small urban and rural properties as fare box revenue to offset operating expenses.

Table 2. Excerpt from Table 1.2 of the *Survey,* Federal and State Funding for Public Transit—1995, 2000, 2003, 2004.

State	1995		2000		2003		2004	
	Federal	State	Federal	State	Federal	State	Federal	State
Alabama	$16,902,560	$0	$49,114,988	$0	$55,708,644	$0	$58,794,397	$0
Alaska	$4,841,362	$0	$40,378,506	$0	$35,037,287	$0	$35,920,706	$0
Arizona	$41,261,418	$445,000	$14,709,692	$329,096	$21,234,890	$13,768,000	$88,099,376	$20,068,000
Arkansas	$8,488,925	$331,900	$48,283,188	$0	$83,400,160	$2,800,000	$23,171,920	$2,800,000
California	$649,601,617	$340,162,248	$803,945,774	$1,344,778,819	$1,037,264,991	$1,294,100,000	$1,037,401,691	$1,317,933,858
Michigan	$85,840,495	$124,400,599	$100,549,339	$187,197,690	$108,026,968	$207,800,000	$118,174,988	$209,652,400
Minnesota	$39,476,237	$47,988,633	$106,819,233	$80,289,455	$143,169,667	$229,200,000	$147,726,131	$214,255,000
Mississippi	$8,142,041	0	$14,673,609	$115,185	$15,681,001	$0	$18,810,488	$800,000
Wisconsin	$54,763,914	$77,321,415	$65,748,459	$100,448,100	$71,247,923	$108,900,000	$69,340,585	$109,077,870
Wyoming	$1,835,208	$976,736	$2,307,708	**NR**	$5,447,663	$1,500,000	$4,935,641	$2,466,127
TOTALS	**$4,470,747,013**	**$4,760,994,970**	**$5,567,260,670**	**$7,499,314,371**	**$6,922,443,161**	**$8,993,815,661**	**$7,021,489,256**	**$9,317,772,184**

Note: Federal fund information provided by the Department of Transportation, Federal Transit Administration.

to transit services as reported by all states. This report does not deal with the information reported in this section of the *Survey.*

Some of the findings reported in the 2004 *Survey* follow:

- Compared to 1990, the total amount of funds programmed for public transit has more than doubled.
- Compared to 2000, funding levels in 2004 increased a total of $1.8 billion.
- Of 45 states reporting data in 2000, 27 states increased their funding, 6 states showed no change in funding, and 12 states showed a decline.
- The most utilized sources for transit funding were the general fund (19 states) and gas taxes (15 states). However, 25 states reported that they used "other" sources for funding.
- Of states providing transit funding, 63% reported specific funding for capital, 61% reported specific funding for operating expenses, and 65% reported funding that could be used for either operating or capital expenses.
- Approximately 2.5 times as many dollars were reported for use on operating compared to capital expenditures.
- Out of a total of 184 funding amounts reported by the 51 programs, about 162 were divided among three classifications: capital expenditures, operating expenditures only, and those funds that could be used for either capital or operating expenses.
- Total transit funding for individual states ranges from zero to $1.811 billion.

Table 3. Excerpt from Table 3.1 of the *Survey,* Major Sources for Overall Transit Funding.

State	General Fund	Gas Tax	Motor Vehicle/Rental Car Sales Tax	Registration/ License/ Title Fees	Bond Proceeds	General Sales Tax	Interest Income	Other
Arizona	0.3%							99.7%
Arkansas			100%					
California		X			X	X		X
Connecticut		X	X	X			X	X
Maryland		29%	31%	17%	18%			4%
Massachusetts	X				X	X		X
Mississippi	100%							
Missouri	100%							
Washington								100%
West Virginia	100%							
Wisconsin		X		X				X
Wyoming							X	100%

Table 4. Excerpt from Table 3.2 of the *Survey,* Types of Expenditures for State Transit Funding.

State	Total Reported	Capital		Operating		Either/Both		Comments
	FY 2004	Amt	%	Amt	%	Amt	%	
Indiana	$36,200,751					$36,200,751	100.0%	
Iowa	$8,600,000					$8,300,000	96.5%	$300,000 (3.5%) for marketing, training, etc.
Kansas	$6,000,000	$2,190,000	36.5%	$3,810,000	63.5%			
Kentucky	$1,400,000	$1,400,000	100.0%					
Maryland	$789,511,418			$9,019,000	1.1%	$780,492,018	98.9%	
Oklahoma	$2,750,000					$2,750,000	100.0%	Funds can be used for other purposes as well.
Oregon	$31,444,655	$9,970,093	31.7%			$21,474,562	68.3%	Some funds can be used for other purposes.
Pennsylvania	$785,151,000	$298,760,000	38.1%	$282,065,000	35.9%	$75,000,000	9.6%	$129.3m (16.5%) for other purposes.
Rhode Island	$36,839,916	$1,202,516	3.3%	$35,637,400	96.7%			
South Dakota	$996,000			$996,000	100.0%			
Tennessee	$38,532,100	$5,036,000	13.1%	$15,554,000	40.4%	$5,744,000	14.9%	$12.2m (31.7%)-planning/training/etc.
Texas	$27,741,068					$27,741,068	100.0%	Funds can be used for other purposes as well.
TOTALS	**$9,317,772,184**	**$1,595,033,377**	**17.1%**	**$4,128,882,967**	**44.3%**	**$3,440,828,583**	**36.9%**	**$153,027,257 (1.6%) for other purposes.**

Table 5. Excerpt from Table 3.3 of the *Survey,* Changes in State Transit Funding Levels, 2003–2004.

State	FY 2004 Funding	FY 2004 Per Capita	FY 2003 Funding	FY 2003 Per Capita	% Change-Total Funding	% Change-Per Capita Funding
Idaho	$312,000	$0.22	$312,000	$0.23	0.0%	-4.3%
Illinois	$778,700,000	$61.25	$754,000,000	$59.59	3.3%	2.8%
Indiana	$36,200,751	$5.80	$34,800,000	$5.62	4.0%	3.2%
Iowa	$8,600,000	$2.91	$9,500,000	$3.23	-9.5%	-9.9%
Kansas	$6,000,000	$2.19	$6,000,000	$2.20	0.0%	-0.5%
Kentucky	$1,400,000	$0.34	$1,400,000	$0.34	0.0%	0.0%
Louisiana	$4,962,500	$1.10	$4,962,500	$1.10	0.0%	0.0%
Maine	$505,000	$0.38	$2,250,000	$1.72	-77.6%	-77.9%
Maryland	$789,511,418	$142.05	$763,500,000	$138.59	3.4%	2.5%
South Dakota	$996,000	$1.29	$923,000	$1.21	7.9%	6.6%
Tennessee	$38,532,100	$6.53	$30,400,000	$5.20	26.8%	25.6%
Texas	$27,741,068	$1.23	$25,700,000	$1.16	7.9%	6.0%
Washington	$29,150,000	$4.70	$39,900,000	$6.51	-26.9%	-27.8%
West Virginia	$2,294,162	$1.26	$2,200,000	$1.22	4.3%	3.3%
Wisconsin	$109,077,870	$19.80	$108,900,000	$19.90	0.2%	-0.5%
Wyoming	$2,466,127	$4.87	$1,500,000	$2.99	64.4%	62.9%

Table 6. Excerpt from Table 3.4 of the *Survey,* Level of Investment Reported by All States and DC, Ranked by Total Funding.

State	FY 2004 Funding	FY 2004 Per Capita Costs	Population Figures
New York	$1,811,372,000	$94.21	19,227,088
California	$1,317,933,858	$36.72	35,893,799
Massachusetts	$1,291,363,175	$201.26	6,416,505
New Jersey	$837,476,000	$96.27	8,698,879
Maryland	$789,511,418	$142.05	5,558,058
Pennsylvania	$785,151,000	$63.29	12,406,292
Illinois	$778,700,000	$61.25	12,713,634
Minnesota	$214,255,000	$42.00	5,100,958
District of Columbia	$208,252,896	$376.23	553,523
Michigan	$209,652,400	$20.73	10,112,620
Connecticut	$200,167,000	$57.13	3,503,604
North Carolina	$154,680,000	$18.11	8,541,221
Virginia	$140,100,000	$18.78	7,459,827
Wisconsin	$109,077,870	$19.80	5,509,026

Source: Annual estimate of the population for the United States as of July 1, 2004 (NST-EST2004-01), produced by the population division, US Census Bureau, released on 12/22/04.

- Changes in overall state funding show a wide variance, ranging from a 69% increase to a 78% decrease.
- Generally, states with more urban characteristics and more extensive public transit services reported higher total and per capita transit funding figures.

As the previous tables and findings show, the *Survey* is not an analytical report. It serves primarily as a database. That database can potentially be tapped to show interesting and informative results that can be useful to practitioners. Therefore, the objective of this report is to present the same data shown previously, augmented in some cases with additional data, in a productive manner. This process begins with a peer group framework and analysis.

Table 7. Excerpt from Table 3.5 of the *Survey,* Level of Investment Reported by All States and DC, Ranked by Per Capita Funding.

State	FY 2004 Funding	FY 2004 Per Capita Costs	Population Figures
District of Columbia	$208,252,896	$376.23	553,523
Massachusetts	$1,291,363,175	$201.26	6,416,505
Maryland	$789,511,418	$142.05	5,558,058
New Jersey	$837,476,000	$96.27	8,698,879
New York	$1,811,372,000	$94.21	19,227,088
Delaware	$72,000,000	$86.71	830,364
Pennsylvania	$785,151,000	$63.29	12,406,292
Illinois	$778,700,000	$61.25	12,713,634
Connecticut	$200,167,000	$57.13	3,503,604
Minnesota	$214,255,000	$42.00	5,100,958
California	$1,317,933,858	$36.72	35,893,799
Rhode Island	$36,839,916	$34.09	1,080,632
Michigan	$209,652,400	$20.73	10,112,620
Wisconsin	$109,077,870	$19.80	5,509,026
Virginia	$140,100,000	$18.78	7,459,827
*Utah**	$0	$0.00	2,389,039

Source: Annual estimate of the population for the United States as of July 1, 2004 (NST-EST2004-01), produced by the Population Division, US Census Bureau, released on 12/22/04. *Does not provide state funding for transit

SECTION 2

Peer Group Framework and Analysis

This section is intended to serve two separate but parallel purposes. The first part of this section provides a framework for creating peer groups. The idea here is to present a tool that can be used by readers to formulate their own peer groups to serve their analysis objectives. The framework itself is presented, followed by examples of potential peer groupings that serve varying purposes. Also shown are the peer groups selected by the project panel for the purposes of this research.

The second part of this section shows the analyses performed on the peer groups selected by the project panel. Some of the most relevant data for each of the peer groups is shown, followed by analyses across peer groups and analyses within peer groups. Each of these analyses provides comparisons of data, from the *Survey* and other data sources, which serve to highlight key issues in transit funding nationwide.

2.1 Framework for Creating Peer Groups

In this section a framework for creating peer groups is provided that can be used to conduct more meaningful peer analyses using data from the *Survey.* The framework includes suggested peer groups, as well as the peer groups selected by the project panel for analysis in this report. In all cases the peer groups would be used to compare the data available in the *Survey*—state transit funding, per capita state transit funding, transit funding sources, and transit funding expenditures. This framework enables the creation of peer groups for the purposes of comparing any of those data.

The framework has three basic steps. The first step in creating a set of peer group states for analysis is to determine the objectives of the analysis, or the types of measures being compared. In general, all peer group analyses are going to compare groups of similar states. Determining the objective of the analysis will lead to the second step: determining the metrics for formulating the peer groups. The metrics are determined by figuring out which similarities the states in an individual peer group should share. Finally, the third step is to develop the peer groups based on the metrics chosen and their relative importance. Figure 1 shows how this overall framework can be visualized.

In the case of the primary set of peer groups desired by the project panel, the **objective** was to provide a general basis of comparison between states. The *Survey* as it is displayed today typically lists states in alphabetical order, which does not provide a good basis for comparison. The objective was to group states into sets of peer groups that provided for a meaningful comparison.

Several different analysis objectives can affect the creation of peer groups of states to compare the *Survey* data. For example, to determine major differences in federal and state transit funding, the key appropriate metric would probably be levels of federal transit funding. States would be grouped by their level of federal funding and then state funding would be compared within and between peer groups.

Different objectives require the use of different **metrics.** For example, if the objective is to compare state transit funding between "transit-dependent" and "non–transit-dependent" states, various metrics that could create such a category would need to be considered. Some potential metrics follow:

- Percent transit journey to work
- Percent zero vehicles in household
- Percent urban square miles
- FTA flex funds

One could develop peer groups on the basis of any one of these metrics individually. However, in many cases it is useful to develop peer groupings on the basis of a set of metrics that together provide for a more meaningful comparison, assigning weights to each metric. In such a case the next step is to determine the relative importance of each relevant metric. In the previous example, transit journey to work is probably the best indicator of transit use, with zero vehicles in household

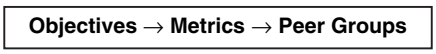


Figure 1. Overall framework.

close behind. The other two metrics are probably not direct indicators of transit use but are definitely related to transit use. They would probably be weighted less in creating peer groups. Therefore, the following relative weights might be assigned:

- Percent transit journey to work (45%)
- Percent zero vehicles in household (35%)
- Percent urban square miles (10%)
- FTA flex funds (10%)

Finally, after the metrics and their relative importance are determined, the next step is to create the actual **peer groups.** When multiple metrics are used, a statistical package such as SAS is useful. The research team used this package to score each state's individual metric by quartile. However, in the absence of such a package, one can still formulate the groups if there are not too many variables by scoring each state using the following formula:

$$\text{Score} = M_1(W_1) + M_2(W_2) \ldots M_n(W_n)$$

Where

M = Metric
W = Weight
N = Number of Metrics

The states can then be sorted by their individual score. Metrics may not always be in the same units; for example, three of the above metrics are percentages while one is a dollar amount. In the absence of a statistical package, all metrics must be converted to the same units. In this case, the dollars could be easily converted to a percentage by measuring FTA flex funds for each state as a percentage of the national total. In other cases, one might have to reverse the direction of a metric. For example, if urban and rural states are being grouped, one of the metrics might be number of rural square miles. However, another metric could be urban square miles. Although these are both important metrics, they measure opposites and therefore one must be reversed in the computation of the score. A sample of fictional scores appears in Table 8.

Peer groups should ideally be developed based on natural clustering of scores. In these sample scores, Hawaii, Oregon and Maine probably would be grouped together. Virginia, Maryland, Colorado, Texas and Florida would also logically fall into the same group. Connecticut and Illinois would be grouped together, although they might be separated if there were other states below Connecticut that were closer to its score.

Table 8. Sample of fictional scores.

State	Score
Illinois	0.91
Connecticut	1.12
Virginia	1.25
Maryland	1.25
Colorado	1.43
Texas	1.57
Florida	1.75
Hawaii	2.20
Oregon	2.25
Maine	2.25

Once the states are scored and sorted, one can easily create peer groups of states based on those scores. Some subjectivity is inevitable at this point, but the goal should be to create less than arbitrary cutoff points so that the formulated groups are as distinct from one another as possible. Here is where the objectives may come back into play, as they can help determine how many peer groups are needed and how different they should be.

2.1.1 Peer Group Possibilities

In this section are outlined potential peer groups that would enable different types of useful comparisons. For each peer group, its value, limitations, and required data sources are identified. Note that peer group formulation is an inherently subjective process. For each set of groups the research team has made several decisions that could arguably have been made another way. These potential peer groups would provide for useful analysis, but in the process of creating one's own peer groups one could just as easily devise something different and equally useful. After the various peer group possibilities are presented, the actual groupings selected for analysis in this report are discussed.

Potential peer groups are presented by the following themes:

- Geographic
- Population demographics
- Urban/rural
- Income
- Transit services

These themes are intended as a sample of potential ideas for how peer groups could be organized. The potential peer groups are based on actual statistics and could be used for analysis if so desired. However, the idea behind this section is to provide a framework for peer group creation that allows

Table 9. Geographic peer groups—summary characteristics.

Value:	May provide insight into geographic differences in state transit funding.
Limitations:	Inherent arbitrary nature of geographic divisions.
Data Sources:	U.S. Census.

users to create their own peer groups that are most relevant for the analysis they are conducting.

Geographic

One of the most obvious and useful sets of peer groups could be organized along geographic lines. (See Table 9 for the value, limitations, and data source for this set.) This peer group set would not necessarily require any data and could be done simply by looking at a map and making judgment calls based on objectives. However, one could use data analysis to create geographic groups that correspond to some extent to demographic similarities. Such an analysis could be used to determine how to group borderline states. For example, to determine whether Ohio has more in common with the states of the Northeast or the Midwest, one could select particular characteristics and weights such as the following:

- Total population over 65 (20%)
- Total population 18 to 64 (20%)
- Total population under 18 (20%)
- Percent transit journey to work (20%)
- Percent zero vehicles in household (20%)

These data taken together will provide a good amount of information about the age and size of the population, as well as an indication of its likelihood to use transit. The resulting peer groups would allow the comparison of transit funding levels between well-defined geographic sectors. This set could be valuable in showing how state funding differs by geography and therefore perhaps in showing the relative cultural or political influences in state transit funding. However, it is limited because many of these geographic distinctions are relatively arbitrary, no matter how many data points are used to refine their differences.

Table 10 is an example of how one could formulate such peer groups based on the method just discussed. One judgment call made above is that Utah and Colorado were both placed in the Southwest group instead of the Western group, because the demographic data that was used showed that they had more in common with the Southwest.

Population Demographics

Another simple but useful potential set of peer groups could assemble groups of states that have similar population numbers. (See Table 11 for the value, limitations, and data sources for this potential set.) The objectives of the analysis in this case would be to see how transit funding differs among states with similar levels of population. This set would use only one statistic—population. Despite its simplicity, however, the comparisons enabled by this set of peer groups can still be useful. In particular, such comparisons could highlight the large differences in transit spending between states of similar population levels. However, other relevant demographics could be added to this formulation process depending on objectives. For example, one might want to know how states with similar levels of population and age of population differ in terms of transit funding. Another possibility is to include race or income indicators to create groups of demographically similar states.

Table 12 groups the states into four peer groups by population. Some outliers are obvious here. For example, the District of Columbia and Rhode Island, despite having small populations, are likely to have very different characteristics than their "peers" in terms of transit funding because they are very urban.

Urban/Rural Character

One of the most logical ways to group states is urbanization. (See Table 13 for the value, limitations, and data sources for

Table 10. Geographic peer groups.

Northeast	Mid-Atlantic	Southeast	Midwest	Southwest	Western	Pacific
Maine	West Virginia	Alabama	Minnesota	Arizona	Montana	California
New Jersey	District of Columbia	Mississippi	Illinois	New Mexico	North Dakota	Washington
New York	North Carolina	Kentucky	Iowa	Oklahoma	South Dakota	Nevada
Pennsylvania	Virginia	Tennessee	Ohio	Texas	Kansas	Oregon
Connecticut	Maryland	Louisiana	Wisconsin	Colorado	Idaho	Hawaii
Massachusetts	Delaware	South Carolina	Michigan	Utah	Wyoming	Alaska
Vermont		Arkansas	Missouri		Nebraska	
New Hampshire		Florida	Indiana			
Rhode Island		Georgia				

Table 11. Population demographic peer groups—summary characteristics.

Value:	May provide insight into how states with similar populations differ in their transit funding.
Limitations:	Population may not be as relevant a factor as other demographics in examining transit funding.
Data Sources:	U.S. Census.

this potential set.) The objective here could be to determine how states with similar levels of urbanization stack up against one another in terms of transit funding. The following categories and weights could be used:

- Percent urban area population (16.67%)
- Percent urban square miles (16.67%)
- Urban square miles (16.67%)
- Rural square miles (16.67%)
- Percent urban vehicle miles traveled (VMT) (33.3%)

This set of peer groups would highlight the differences in state transit funding between predominantly rural and predominantly urban states. The obvious limitation of these data is that they emphasize area over population. Although VMT captures population to some degree, a state with a very populous but geographically small urban area could potentially be grouped into a rural category if the bulk of the area of the state is rural.

Table 14 shows the urban/rural peer groups. The middle group is intentionally large so as to create greater balance on both the urban and rural sides of the table. Note that the "rural square miles" factor had to be inverted to create these groups.

Income

Peer groups can be created based on any chosen demographic. One that might be particularly useful is income,

Table 12. Population peer group.

Small	Medium	Large	Extra-Large
Alaska	Arkansas	Alabama	California
Delaware	Connecticut	Arizona	Florida
District of Columbia	Iowa	Colorado	Georgia
Hawaii	Kansas	Indiana	Illinois
Idaho	Kentucky	Louisiana	Michigan
Maine	Mississippi	Maryland	New Jersey
Montana	Nebraska	Massachusetts	New York
New Hampshire	Nevada	Minnesota	North Carolina
North Dakota	New Mexico	Missouri	Ohio
Rhode Island	Oklahoma	South Carolina	Pennsylvania
South Dakota	Oregon	Tennessee	Texas
Vermont	Utah	Washington	Virginia
Wyoming	West Virginia	Wisconsin	

Table 13. Urban/rural peer groups—summary characteristics.

Value:	Contrasts state transit funding for predominantly rural and predominantly urban states.
Limitations:	Ignores the role of population density.
Data Sources:	U.S. Census.

because of its strong relationship to transit use. (See Table 15 for the value, limitations and data sources for this potential grouping.) Age and race might also be interesting, but income has a more direct link to transit across all states. The objective could be to determine whether states with similar income levels would also have similar levels of state transit funding. The following categories and weights could be used:

- Percent below poverty (33.3%)
- Percent household income below $30,000 (33.3%)
- Average weekly wage (33.3%)

Note that "below poverty" and "household income below $30,000" are two different demographics that provide different information. The poverty line is determined based on the number of people in a household and thus captures poverty at the individual level. Using straight income provides a measure of low-income families who may or may not be in poverty. Also note that the "average weekly wage" factor had to be inverted to create the scoring system for these groups. This set of peer groups would highlight differences between how state transit spending changes with the prevalence of lower-income individuals. One limitation of these groups is that they only provide information about one specific demographic characteristic, which narrows the usefulness of the comparison. Also the groups are necessarily limited by the types of variables used to assess income.

Table 16 shows the income-based peer groups.

Transit Services

Another interesting set of peer groups could use other available transit-related data to group states. This set would enable a comparison of how state funding relates to other available measures of transit use. Table 17 shows the value, limitations, and data sources of this set. The categories and weights could be as follows:

- Percent transit journey to work (25%)
- Percent zero vehicles in household (25%)
- Total FTA funding (25%)
- FTA flex funds as a percentage of FTA funds (25%)

Table 14. Urban/rural peer groups.

Most Rural	Rural	Middle	Urban	Most Urban
Montana	New Mexico	Wisconsin	Arizona	District of Columbia
Wyoming	Iowa	Kentucky	Delaware	Hawaii
North Dakota	Maine	Minnesota	Georgia	Illinois
South Dakota	Alaska	South Carolina	California	Rhode Island
Idaho	Kansas	Nevada	Michigan	Connecticut
Nebraska	Arkansas	Oklahoma	Ohio	Florida
	Vermont	New Hampshire	Pennsylvania	Maryland
	West Virginia	Colorado	Virginia	New York
	Oregon	Missouri		Massachusetts
	Mississippi	Alabama		New Jersey
		Indiana		
		Louisiana		
		North Carolina		
		Texas		
		Washington		
		Tennessee		
		Utah		

The resulting set would group states in terms of their dependence on, and federal funds for, transit. This set would isolate state transit funding as a factor compared to other key transit indicators. The major limitation of course is that this set is likely to be redundant; it will probably provide some cases of outliers that have very different state transit funding levels than their peers, but in most cases one would expect a conforming alignment.

Table 18 shows the devised peer groups based on transit services. The use of the "total FTA funding" metric makes the higher groups lean a bit towards bigger population states; although the District of Columbia and Nevada are in the higher groups.

2.1.2 Selected Peer Groups

This section shows the peer groups selected by the panel. The panel was interested in peer groups that would cut across several categories. Table 19 shows the value, limitations, and data sources of the panel-selected peer groups. The objective was to create similar groups of states for the purposes of comparison. The similarities were intended to be robust across a wide range of characteristics and at least tangentially related to transit funding or use. Therefore, the research team presented the project panel with equally weighted metrics dealing with urbanization, racial diversity, income, transit use, population, prevalence of elderly, and transit funding. Both federal and state transit funding levels were included as metrics, even though the groups might also be compared in terms of these statistics. The idea is that their inclusion helps to magnify the importance of differences in transit funding within peer groups.

Table 15. Income peer groups—summary characteristics.

Value:	Contrasts state transit funding based on household income and wages.
Limitations:	Ignores all other demographics.
Data Sources:	U.S. Census.

The research team had the advantage of being able to use a statistical package, SAS, to analyze the data. SAS took each data point for each state and placed it into one of four groups. The groups were formulated in a straightforward statistical manner, with the data point placed into groups based solely on its percentile. States under the 25th percentile went into a group numbered 0, states between the 25th and 50th percentile went into the next group numbered 1, and so on. The result was a grouping for each data point for each state.

From there the research team took three separate approaches to formulating peer groups. First, all of the group numbers were averaged across all data points for each state, which created distinct groups with the following obvious cutoff points: those averaging below 1, those between 1 and 1.5, those between 1.5 and 2, and those above 2. The second potential set of peer groups was formulated by first grouping different metrics into subgroups. For example, all age-related characteristics were grouped as one, and all FTA data were grouped together. Then averages were computed for each group, and those were averaged together. For the final potential set of peer groups, the research team chose to include data points that it determined to be not only the most useful data, but also those likely to complement one another. For example, a state with a high urban-area percentage is likely to have a low number of rural square miles. Therefore only urban-area percentage and not rural square miles was included in the calculation. This last approach yielded both a four-group and five-group set.

Table 16. Income-based peer groups.

Highest	High	Middle	Low	Lowest
Connecticut	Virginia	California	Arizona	Alabama
Massachusetts	Washington	Georgia	District of Columbia	Kentucky
New Jersey	Hawaii	Indiana	Maine	Louisiana
Alaska	Illinois	Iowa	North Carolina	North Dakota
Colorado	Michigan	Kansas	Rhode Island	South Carolina
Delaware	Nevada	New York	Florida	South Dakota
Maryland	Ohio	Oregon	Missouri	Arkansas
Minnesota	Utah	Pennsylvania	Nebraska	Mississippi
New Hampshire	Vermont		Texas	Montana
	Wisconsin		Idaho	New Mexico
			Tennessee	Oklahoma
			Wyoming	West Virginia

The research team presented each of these potential sets to the project panel, and feedback was strongly in favor of the final set using five peer groups. Therefore, the analysis proceeded using this set of peer groups.

The following metrics were used to choose the peer groups (all weighted equally):

- Percent urban area
- Percent urban VMT
- Percent Hispanic/Latino
- Percent African-American
- Percent household income below $30,000
- Percent transit journey to work
- Total population
- Percent population over 65
- Percent population disabled
- FTA urbanized area formula
- FTA flex funds
- State transit funding

Table 20 presents the results of this chosen grouping method.

It also would be useful to separately take into account the states that own or operate transit service statewide. Therefore these states were separated out into their own additional peer group for the purposes of this analysis. Note that this peer group is not exclusive of the others and comprises Delaware, Rhode Island, Maryland, Massachusetts and New Jersey. Not all of these states fit neatly into this category. Delaware and Rhode Island both operate service statewide, whereas Maryland and Massachusetts focus their state operations in their largest cities (Baltimore and Boston, respectively). New Jersey has one statewide transit operator (New Jersey Transit) that is controlled by the state. When these states are listed in their original peer groups, they are denoted with an asterisk.

Table 17. Transit services peer groups—summary characteristics.

Value:	Contrasts state transit funding for states grouped by other transit-related statistics.
Limitations:	Provides for only one specific useful comparison
Data Sources:	U.S. Census, FTA.

2.2 Peer Group Analysis

This section shows an analysis of the set of peer groups chosen by the project panel. In the last section the focus was on peer group creation, but now that a set of peer groups has been chosen, this section will focus on exactly how to use the groups to create a useful set of analyses. The goal is to better understand how these groups compare to each other and how states within each peer group compare to one another.

Several sets of comparisons are shown in the various subsections that follow. First basic **statistics for each peer group** are presented, which show the score that placed each state in that peer group along with each state's state transit funding, per capita state transit funding, federal transit funding, and per capita federal transit funding (all data are from 2004). The idea behind this comparison is twofold: (1) it provides a more detailed look at how the peer groups were formulated, so that readers can tell how closely related a state is to others within its peer group and (2) it allows for rudimentary comparisons against four key indicators of transit funding levels.

After the peer group statistics, some fundamental comparisons **across peer groups** are presented. Four metrics were chosen for these comparisons: state funding, per capita state funding, federal funding, and state and federal funding shares. These metrics are most relevant for showing differences in state funding levels, which is the primary goal of this research. Federal data are shown primarily for comparison purposes.

Finally, comparisons **within the peer group** are presented. For each peer group key data from the *Survey* itself are compared, including total state and federal funding, per capita state

Table 18. Transit services peer groups.

Lowest	Low	Middle	High	Highest
Nebraska	Alaska	Hawaii	Arizona	California
North Dakota	Arkansas	Louisiana	Georgia	District of Columbia
South Dakota	Kansas	Rhode Island	Minnesota	Massachusetts
West Virginia	Montana	Alabama	Nevada	Ohio
New Hampshire	Oklahoma	Colorado	Texas	Maryland
Vermont	Delaware	Indiana	Connecticut	New Jersey
Wyoming	Idaho	Kentucky	Florida	New York
Maine	Iowa	Michigan	Oregon	Pennsylvania
Mississippi	North Carolina	Missouri	Washington	Illinois
New Mexico	South Carolina	Tennessee		
		Utah		
		Virginia		
		Wisconsin		

and federal funding, state funding sources, and state funding expenditure categories. These comparisons allow states to compare their funding data to those of similar states.

2.2.1 Peer Group Statistics

Table 21 shows the first peer group. The peer group score represents an average of the percentiles of the factors considered in formulating the peer groups. Vermont is a clear outlier in this group, showing a much higher level of state funding both per capita and on a total basis. However, another interesting outlier is Alaska, which is a zero-funding state yet has a much higher level of federal funding than any of its peers.

Table 22 shows Group 2. Note that Delaware, the only statewide transit operator in this group, is a clear outlier among its peers. It has much higher state funding, both per capita and total, than any of its peers, and much lower federal funding. Except for Delaware, Iowa has the highest overall funding in this group. The group also has two states that do not provide funding (Hawaii and Utah), both of which receive relatively high levels of federal funding.

In Group 3, as shown in Table 23, Rhode Island's per capita funding is high compared to its peers even though it ranks lower than the mean in total state funding and is the lowest in federal funding. Rhode Island's uniqueness may be explained by its statewide transit operation. However, Connecticut, Virginia, Wisconsin and Minnesota all have much higher total and per capita funding levels than others in this group, despite their being at opposite ends of the spectrum in terms of peer group scores.

As shown in Table 24, in Group 4, Maryland and Massachusetts, which have state-operated transit systems, are the two top states for state funding. They also rank highest on a per capita basis if the District of Columbia is excluded. (The District of Columbia is unique in being the only "state" containing 100% urban area.)

Table 25 shows the last peer group, Group 5. New York and New Jersey have similar per capita funding levels even though New York has more than twice the state funding and about four times the federal funding. Group 5 can almost be thought of as three sets of pairs—New York/California, Illinois/Pennsylvania and Texas/Florida—as each of these couples share similar federal and state funding levels within the peer group. The only outlier in this sense is New Jersey, which again may be explained by its status as a statewide transit-operator state.

Finally, as shown in Table 26, the transit-operator state peer group shows high variability within itself, with state funding ranging from around $37 million (Rhode Island) to around $1.3 billion (Massachusetts). The main characteristic these states have in common in terms of funding is that all are relatively well funded on a per capita basis. This disparity would be expected as they are all from different peer groups; however, it is unexpected because they tended to be outliers within those groups and may have been expected to be outliers in a similar manner.

Table 19. Panel-selected peer groups—summary characteristics.

Value:	Groups states by multiple factors that are all likely to be related to transit funding.
Limitations:	Includes transit funding itself as a statistic, thus slightly diminishing the value of the resulting comparisons.
Data Sources:	U.S. Census, FTA, *Survey*.

2.2.2 Analyses across Peer Groups

This subsection presents a cross-sectional peer group graphical analysis. It investigates differences among the peer groups along the following dimensions:

- State funding levels
- Per capita state funding

Table 20. Devised peer group formulations.

Group 1	Group 2	Group 3	Group 4	Group 5
New Hampshire	Nebraska	Minnesota	Louisiana	Texas
South Dakota	West Virginia	Wisconsin	Maryland	New Jersey
North Dakota	Iowa	Alabama	Washington	Pennsylvania
Vermont	Kansas	Colorado	Ohio	California
Montana	Mississippi	Oklahoma	Tennessee	Illinois
Maine	Hawaii	Rhode Island	Georgia	Florida
Alaska	Delaware	Indiana	Massachusetts	New York
Idaho	Arkansas	Missouri	Michigan	
Wyoming	Kentucky	Nevada	North Carolina	
	New Mexico	Oregon	Arizona	
	Utah	South Carolina	District of Columbia	
		Connecticut		
		Virginia		

Table 21. Group 1 data.

State	Peer Group Ranking	State Funding (Thousands)	Per Capita State Funding	FTA Funding (Thousands)	Per Capita FTA Funding
New Hampshire	0.42	$225	$0.17	$6,516	$5.01
South Dakota	0.42	$996	$1.29	$3,777	$4.90
North Dakota	0.50	$1,546	$2.44	$4,891	$7.71
Vermont	0.50	$6,103	$9.82	$12,667	$20.38
Montana	0.58	$390	$0.42	$2,812	$3.03
Maine	0.67	$505	$0.38	$14,330	$10.88
Alaska	0.75	$0	$0.00	$35,880	$54.74
Idaho	0.75	$312	$0.22	$11,444	$8.21
Wyoming	0.83	$2,466	$4.87	$4,215	$8.32
Group 1 Average	0.60	$1,394	$2.18	$10,726	$16.78†

† The average per capita federal funding represents a weighted average by population.

Table 22. Group 2 data.

State	Peer Group Ranking	State Funding (Thousands)	Per Capita State Funding	FTA Funding (Thousands)	Per Capita FTA Funding
Nebraska	1.00	$1,500	$0.86	$8,156	$4.67
West Virginia	1.00	$2,294	$1.26	$11,680	$6.43
Iowa	1.08	$8,600	$2.91	$33,553	$11.36
Kansas	1.08	$6,000	$2.19	$21,182	$7.74
Mississippi	1.08	$800	$0.28	$14,638	$5.04
Hawaii	1.17	$0	$0.00	$39,384	$31.19
Delaware*	1.33	$72,000	$86.71	$3,919	$4.72
Arkansas	1.42	$2,800	$1.02	$19,142	$6.95
Kentucky	1.42	$1,400	$0.34	$39,859	$9.61
New Mexico	1.42	$2,402	$1.26	$27,354	$14.37
Utah	1.42	$0	$0.00	$54,227	$22.70
Group 2 Average	1.22	$8,891	$8.80	$24,827	$24.58†

* Operates a statewide transit system.

† The average per capita federal funding represents a weighted average by population.

Table 23. Group 3 data.

State	Peer Group Ranking	State Funding (Thousands)	Per Capita State Funding	FTA Funding (Thousands)	Per Capita FTA Funding
Minnesota	1.50	$214,255	$42.00	$161,613	$31.68
Wisconsin	1.50	$109,078	$19.80	$65,885	$11.96
Alabama	1.58	$0	$0.00	$19,978	$4.41
Colorado	1.58	$0	$0.00	$122,712	$26.67
Oklahoma	1.58	$2,750	$0.78	$28,461	$8.08
Rhode Island*	1.58	$36,840	$34.09	$13,259	$12.27
Indiana	1.67	$36,201	$5.80	$65,326	$10.47
Missouri	1.67	$6,600	$1.15	$95,664	$16.62
Nevada	1.67	$125	$0.05	$52,256	$22.38
Oregon	1.67	$31,445	$8.75	$158,439	$44.08
South Carolina	1.75	$5,864	$1.40	$28,051	$6.68
Connecticut	1.92	$200,167	$57.13	$67,759	$19.34
Virginia	1.92	$140,100	$18.78	$123,435	$16.55
Group 3 Average	1.66	$60,263	$14.60	$77,141	$18.68†

* Operates a statewide transit system.
† The average per capita federal funding represents a weighted average by population.

Table 24. Group 4 data.

State	Peer Group Ranking	State Funding (Thousands)	Per Capita State Funding	FTA Funding (Thousands)	Per Capita FTA Funding
Louisiana	2.00	$4,963	$1.10	$70,321	$15.57
Maryland*	2.00	$789,511	$142.05	$75,132	$13.52
Washington	2.00	$29,150	$4.70	$278,772	$44.94
Ohio	2.08	$18,100	$1.58	$173,992	$15.18
Tennessee	2.08	$38,532	$6.53	$59,619	$10.10
Georgia	2.17	$4,858	$0.55	$141,942	$16.08
Massachusetts*	2.17	$1,291,363	$201.26	$192,082	$29.94
Michigan	2.17	$209,652	$20.73	$113,314	$11.21
North Carolina	2.17	$154,680	$18.11	$77,570	$9.08
Arizona	2.25	$20,068	$3.49	$177,116	$30.84
District of Columbia	2.25	$208,253	$376.23	$286,676	$517.91
Group 4 Average	2.12	$251,739	$70.58	$149,685	$41.96†

* Operates a statewide transit system.
† The average per capita federal funding represents a weighted average by population.

Table 25. Group 5 data.

State	Peer Group Ranking	State Funding (Thousands)	Per Capita State Funding	FTA Funding (Thousands)	Per Capita FTA Funding
Texas	2.33	$27,741	$1.23	$310,673	$13.81
New Jersey*	2.42	$837,476	$96.27	$530,201	$60.95
Pennsylvania	2.42	$785,151	$63.29	$410,761	$33.11
California	2.50	$1,317,934	$36.72	$1,229,826	$34.26
Illinois	2.50	$778,700	$61.25	$515,894	$40.58
Florida	2.58	$96,504	$5.55	$268,159	$15.41
New York	2.67	$1,811,372	$94.21	$2,103,584	$109.41
Group 5 Average	2.49	$807,840	$51.22	$767,014	$48.63†

* Operates a statewide transit system.
† The average per capita federal funding represents a weighted average by population.

Table 26. Transit-operator state peer group data.

State	Peer Group Ranking	State Funding (Thousands)	Per Capita State Funding	FTA Funding (Thousands)	Per Capita FTA Funding
Delaware	1.33	$72,000	$86.71	$3,919	$4.72
Maryland	2.00	$789,511	$142.05	$75,132	$13.52
Rhode Island	1.58	$36,840	$34.09	$13,259	$12.27
Massachusetts	2.17	$1,291,363	$201.26	$192,082	$29.94
New Jersey	2.42	$837,476	$96.27	$530,201	$60.95
Transit-Operator State Average	1.90	$605,438	$112.08	$162,919	$30.16†

† The average per capita federal funding represents a weighted average by population.

- Levels of federal transit funding
- State versus federal funding shares
- Funding sources
- Funding expenditures

Figure 2 compares the peer groups to one another on the basis of state funding for transit. As expected, the larger state peer groups have more funding on average. The figure also tells us that transit-operator states are on average funded at a much higher rate than any peer group other than Group 5, and they are well above the average for all states.

Figure 3 tells a slightly different story. It shows that per capita state funding tends to increase with increasing "size" but only to a point. The largest, most populous and most heavily transit-dependent states have lower per-capita spending on transit than those slightly "smaller" than them.

However, note that the very high per capita spending for Group 4 is attributable mostly to three "states": Maryland, Massachusetts and the District of Columbia. Maryland and Massachusetts are both transit-operator states, which seem to have higher per capita funding than other states by a large margin. The District of Columbia is not only unique in that it is the only 100% urban "state" but it is also on the cusp of being in Group 5. If we remove the transit-operator states from all peer groups, Group 4 still has a higher per capita spending ($48.11) than Group 5 ($43.71). If we then proceed

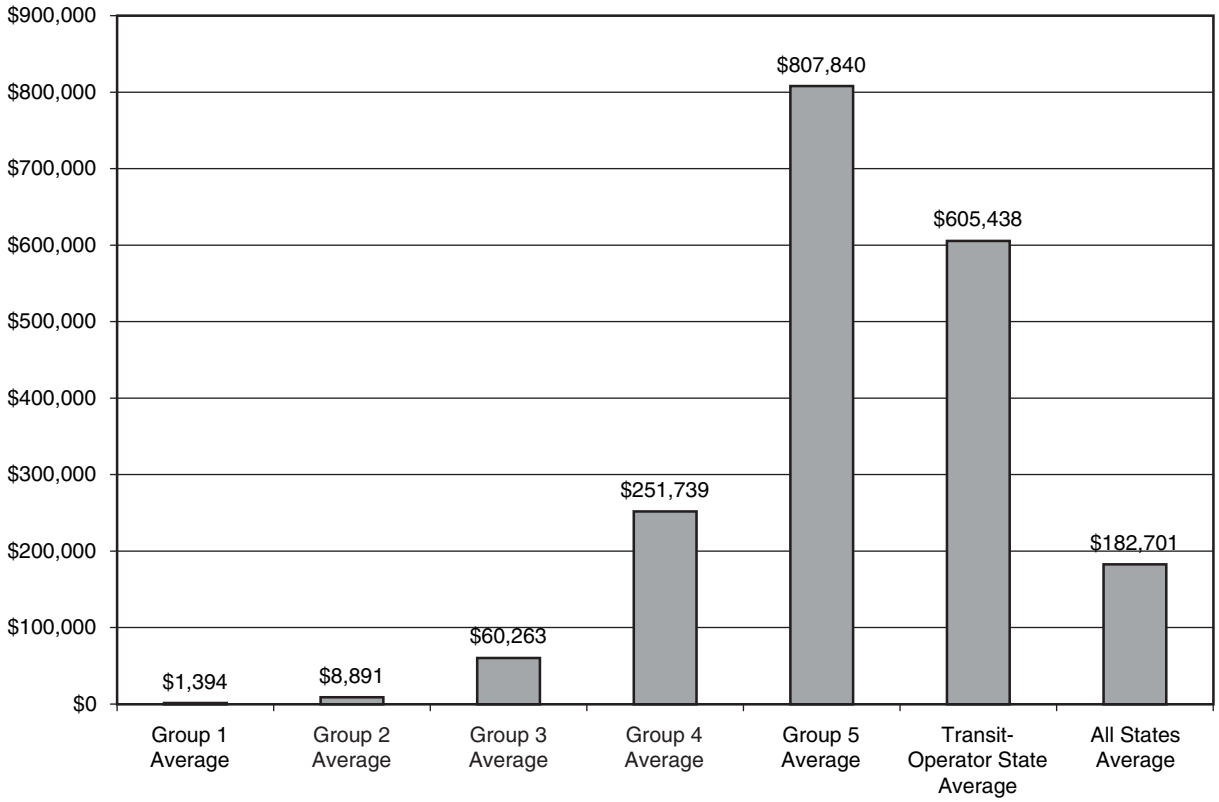


Figure 2. State funding across peer groups (2004 funding in thousands of dollars).

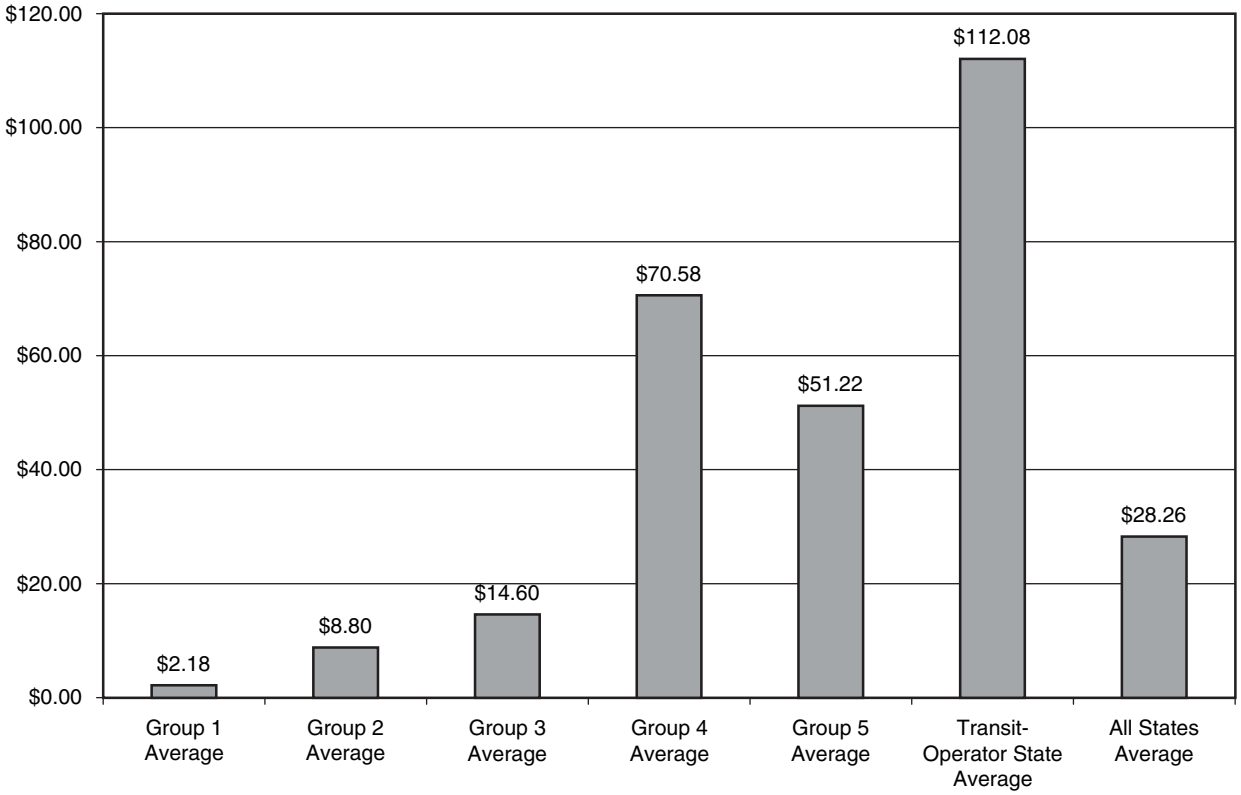


Figure 3. Per capita state funding across peer groups.

to remove the District of Columbia, Group 4 shrinks to lower than Group 3.

Therefore it is important to be cautious when interpreting these statistics. The only statement that can be made with certainty from this figure is that per capita spending tends to increase with peer group "size" and is highest for statewide transit operators.

Figure 4 shows federal transit funding. The striking thing about this figure is how the Group 5 states are dramatically out of line with the level of funding for other states. Transit-operator states and Group 4 states are on par with the average level of federal funding.

Figure 5 shows the percentage of total transit funding for each peer group that is attributable to state and federal sources. The trend here is that as peer group "size" increases, so does the state burden for transit spending. This trend is bucked only by Group 5, but even that group is well ahead of Groups 1, 2 and 3 with more than 50% of its transit funding coming from state sources. By comparison, the Group 1 states have a little more than 10% from state sources. Note also that transit-operator states bear a much heavier burden on average than any other peer group.

Figure 6 shows the funding sources across all peer groups. Every peer group except Group 1 is dominated by general fund revenues, while Group 1 relies more on registration/license/title fees than general funds. The use of motor vehicle/rental car sales tax is much more prevalent among Group 2 than any other group, while Group 3 shows the most prevalent use of both interest income and a general sales tax.

Figure 7 shows funding expenditure categories across peer groups. There seems to be a relative lack of variation across peer groups, but Group 3 contributes by far the most to operating costs exclusively. Group 5 offers the most flexibility in its expenditure, allowing more than 40% of its funds to be allocated to either operating or capital.

2.2.3 Analyses Within Peer Groups

This subsection provides comparative data within each of the peer groups. Specifically, analyses are provided (in graphical format) on total transit funding, state and federal per capita funding, sources of state funding, and state funding category expenditure.

- Figures 8 through 11 provide graphical analyses for Group 1.
- Figures 12 through 15 provide graphical analyses for Group 2.
- Figures 16 through 19 provide graphical analyses for Group 3.
- Figures 20 through 23 provide graphical analyses for Group 4.

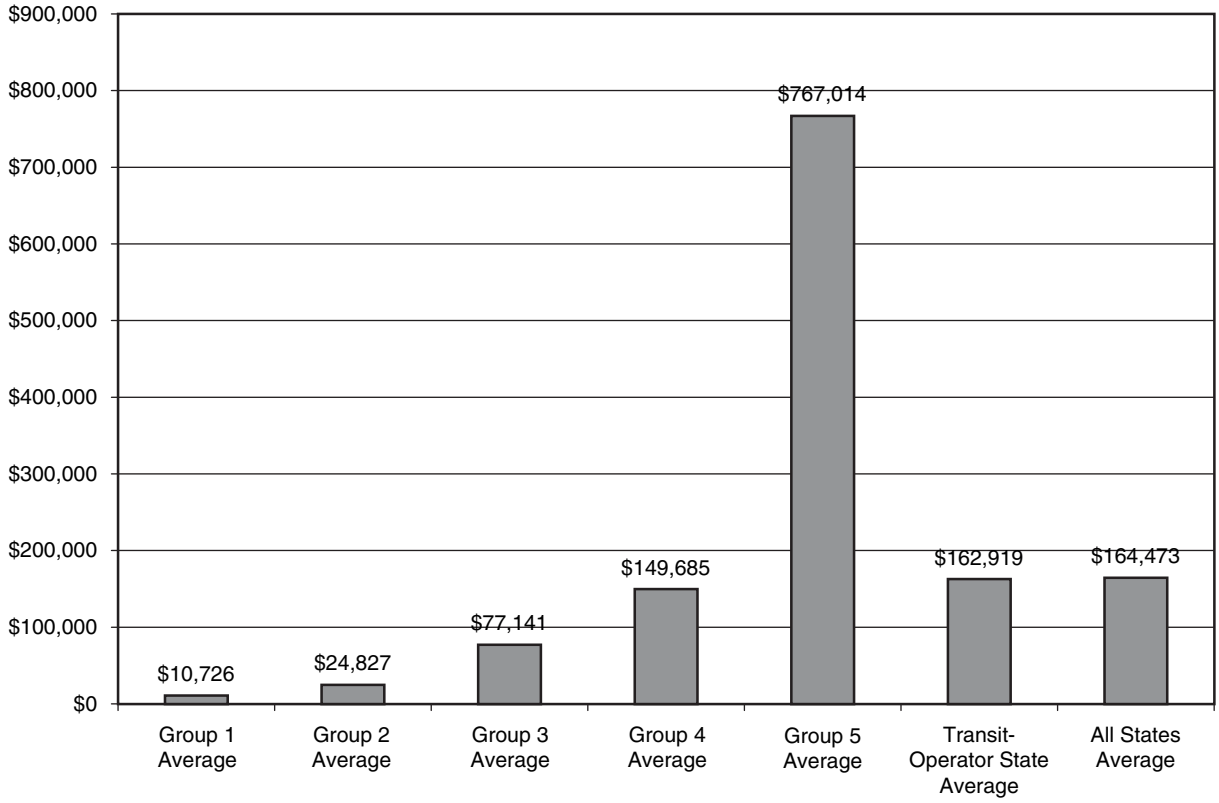


Figure 4. Federal transit funding across peer groups (2004 funding in thousands of dollars).

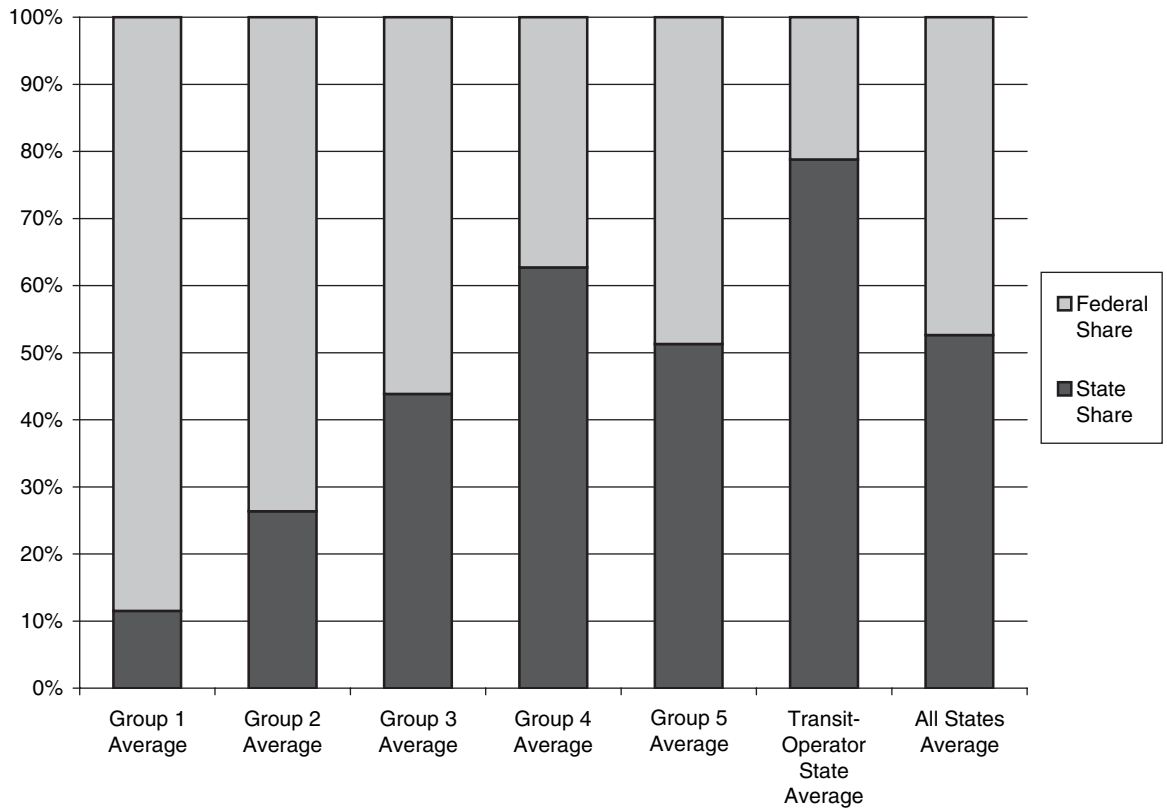


Figure 5. State versus federal shares of transit funding.

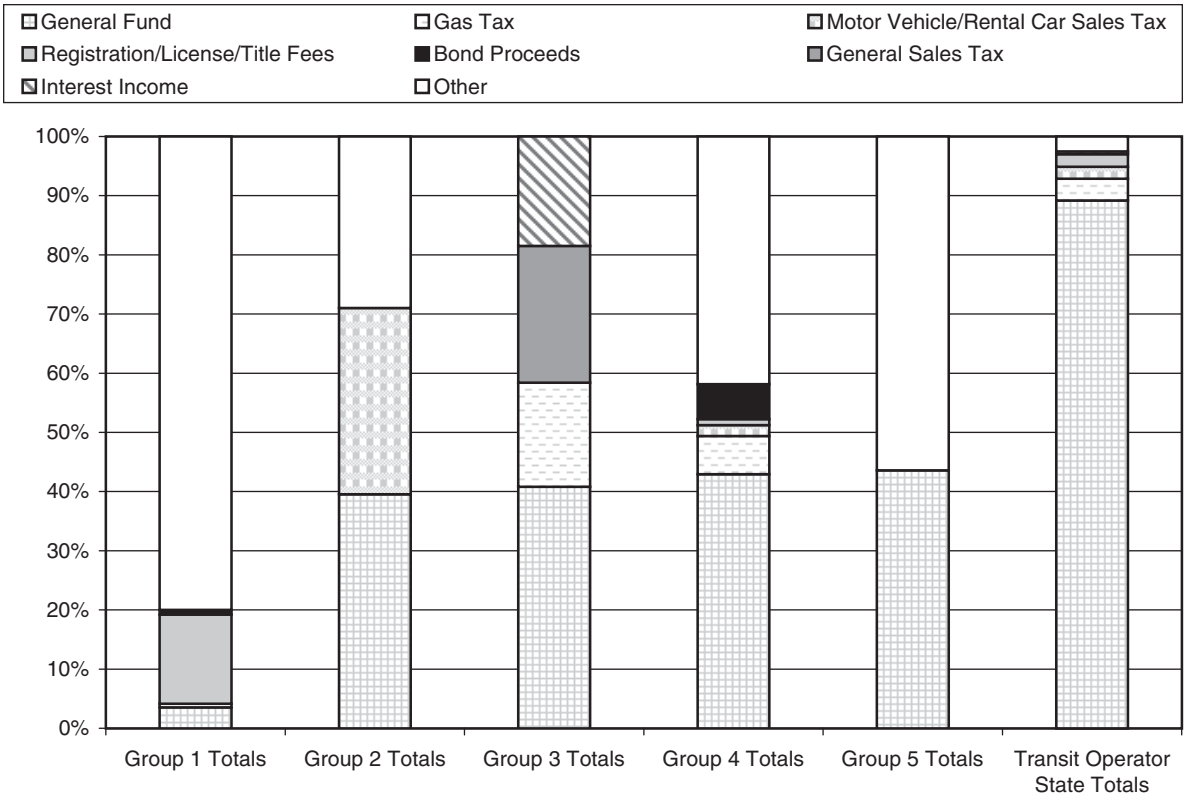


Figure 6. Funding sources, all peer groups.

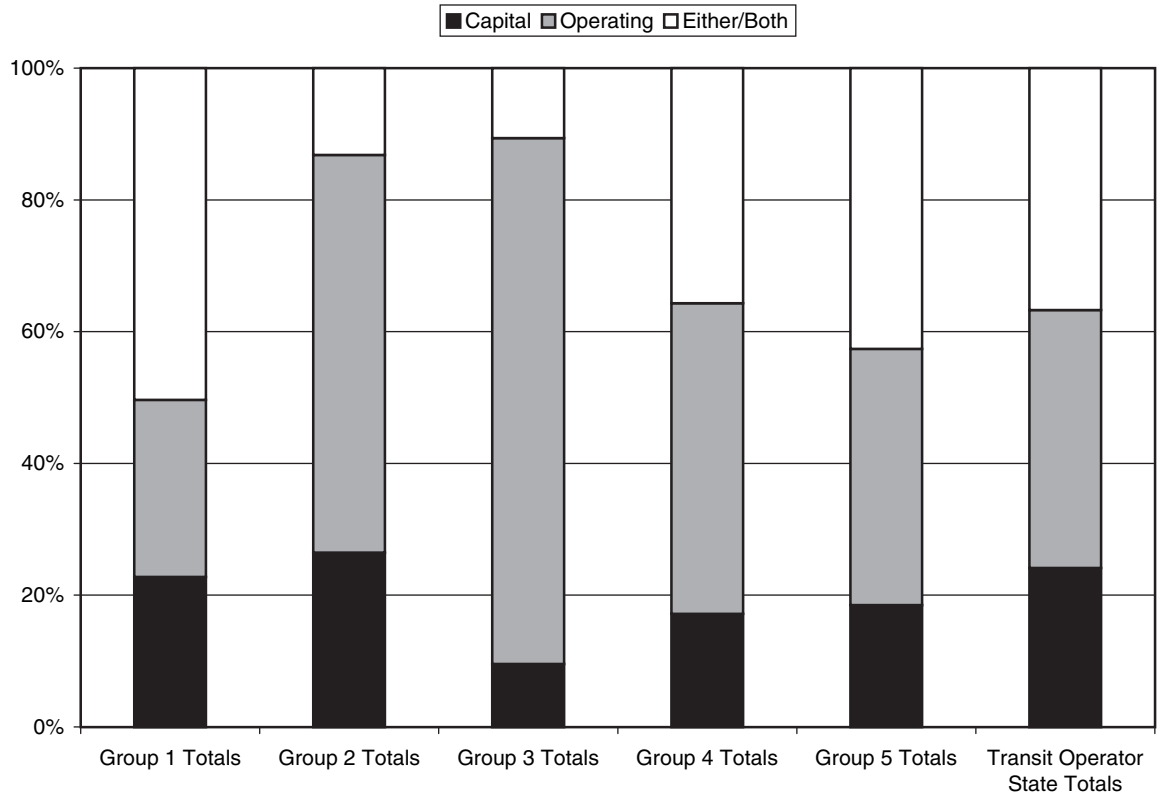


Figure 7. Funding expenditures, all peer groups.

- Figures 24 through 27 provide graphical analyses for Group 5.
- Figures 28 through 31 provide graphical analyses for the transit-operators group.

Figure 8 compares total levels of federal and state funding for transit for Group 1. Most of the states in Group 1 have relatively low levels of total transit funding; **Alaska's** funding is the highest at a little more than $35 million, even though the state does not contribute any transit funding.

As shown in Figure 9, for most states in Group 1, total funding is in line with per capita funding.

As shown in Figure 10, Group 1 states used a fairly wide variety of funding sources. Four states—**South Dakota, Vermont, Idaho** and **Wyoming**—use only "other" sources, such as state highway funds, trust funds, miscellaneous revenue, fees, lottery funds, taxes, tolls, and other assessments.

As shown in Figure 11, **Montana** reported on 19.2% of its funding. Among the other states, Idaho, Wyoming and New Hampshire all devote a substantial portion of their funding to capital, while Maine and South Dakota focus exclusively on operating funds.

As shown in Figure 12, in Group 2, **Delaware**—the only statewide transit operator in the group—has the highest total funding, almost all of which comes from the state. **Utah** and **Hawaii** have comparatively high federal funding, but no state funding. **Iowa** and **Kansas** are two of the biggest contributors on a state level within this group.

As Figure 13 shows, **Delaware's** per capita funding of more than $90 per person is much higher than any other state in the group. **Hawaii** and **Utah** have relatively high per capita funding with only federal funds.

Unlike other peer groups, the "other" category did not dominate funding sources in Group 2 (see Figure 14). **Arkansas** and **Iowa** rely exclusively on a motor vehicle or rental car sales tax. No state uses more than one funding source.

As shown in Figure 15, in Group 2, **New Mexico** had a high proportion of funding to "other" expenditures.

Within Group 3, as shown in Figure 16, **Minnesota** is highest in state, federal, and overall funding. **Connecticut** and **Virginia** are also well above average, especially in terms of state funding. **Wisconsin** and **Rhode Island** (a transit-operator state) have fairly even splits between federal and state funding; the other states rely more heavily on federal funds.

Figure 17 shows that **Connecticut** has the highest per capita funding in this group, followed by **Minnesota** and **Oregon. Rhode Island** is also one of the states with higher per capita funding.

The average in Figure 18 is skewed to some extent because two states do not provide state funding, and four states did not provide information on their sources. **Rhode Island** and

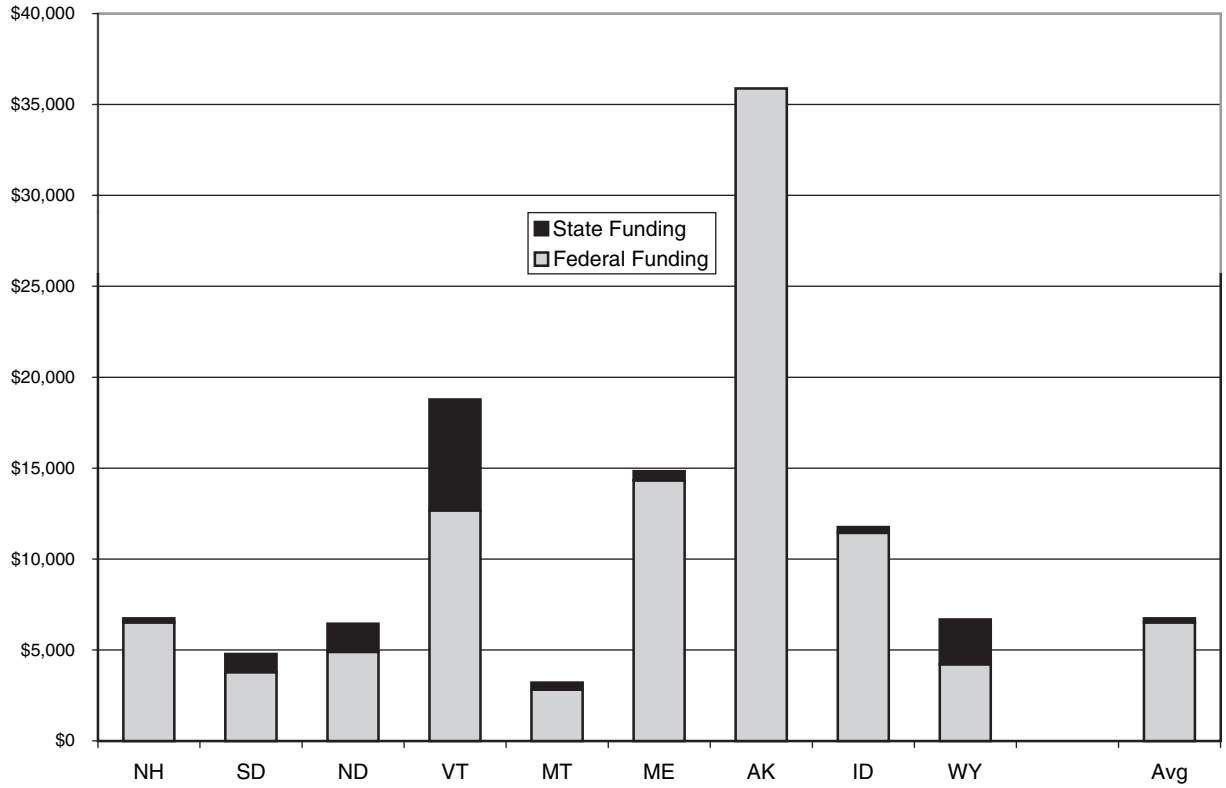


Figure 8. Group 1 state and federal total transit funding (in thousands of dollars).

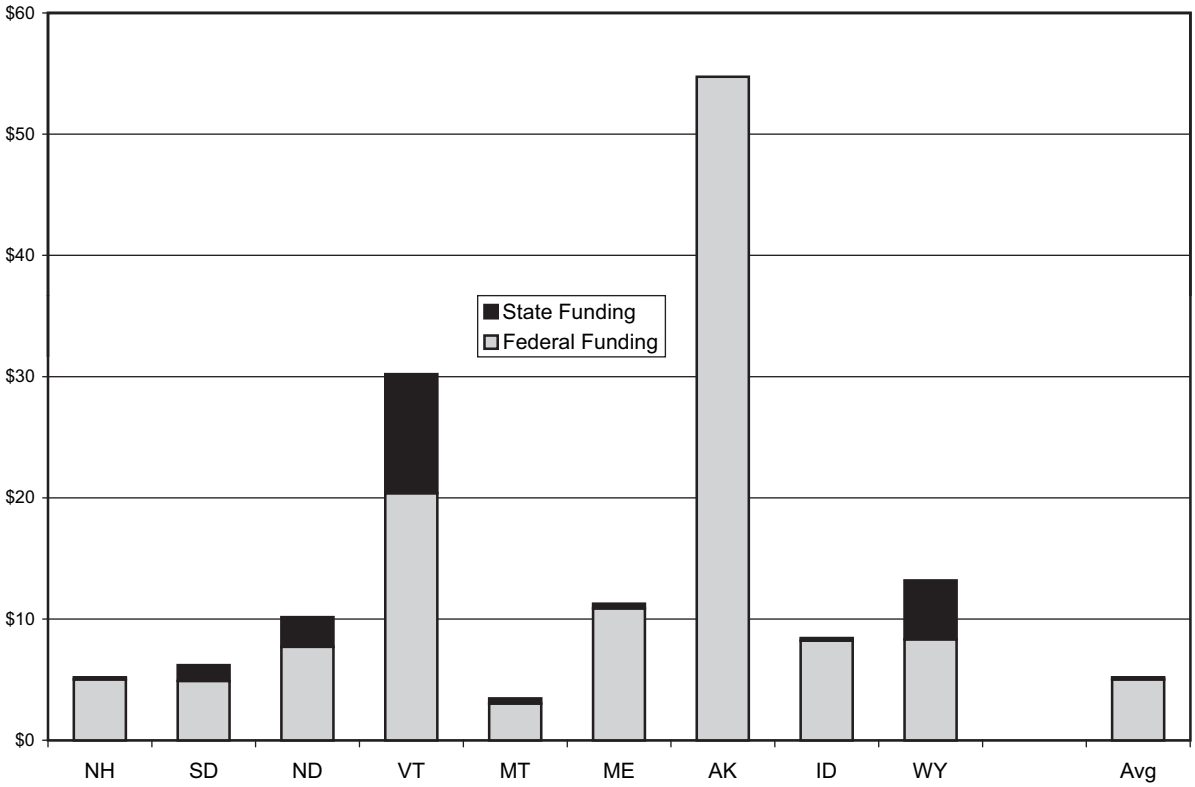


Figure 9. Group 1 state and federal per capita funding.

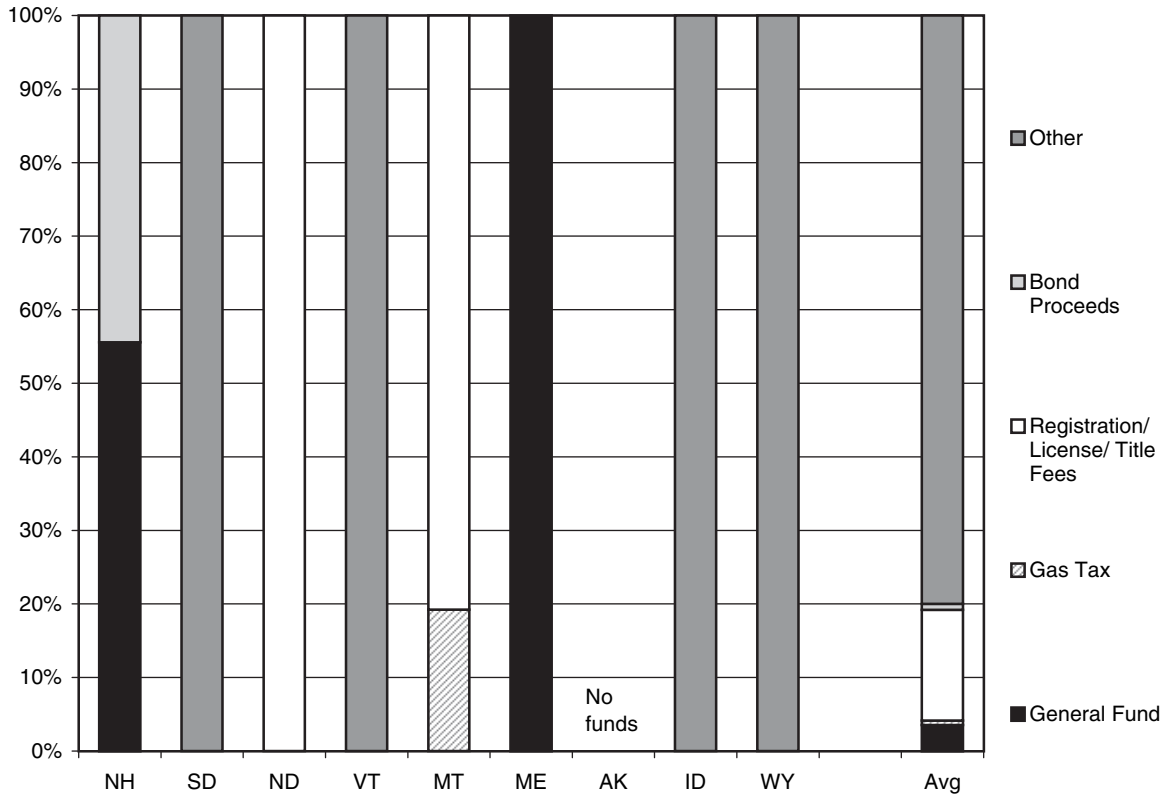


Figure 10. Group 1 sources of state funds.

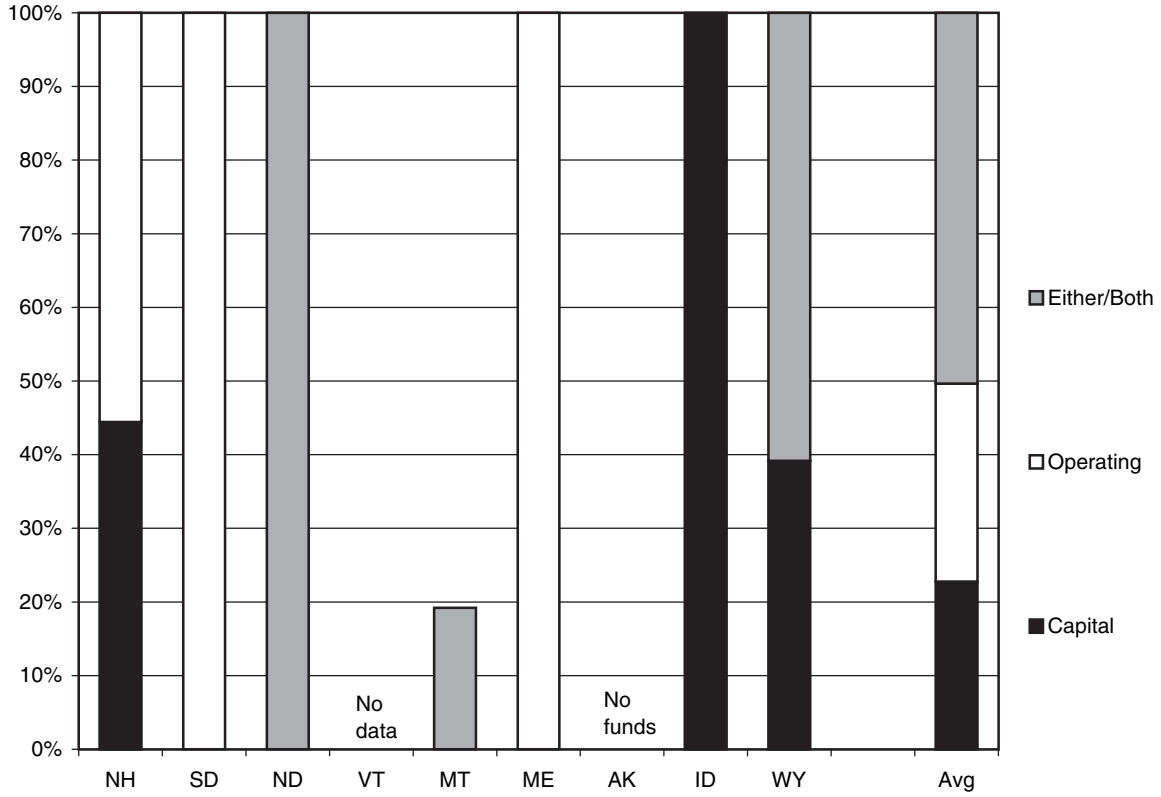


Figure 11. Group 1 state funding expenditure categories.

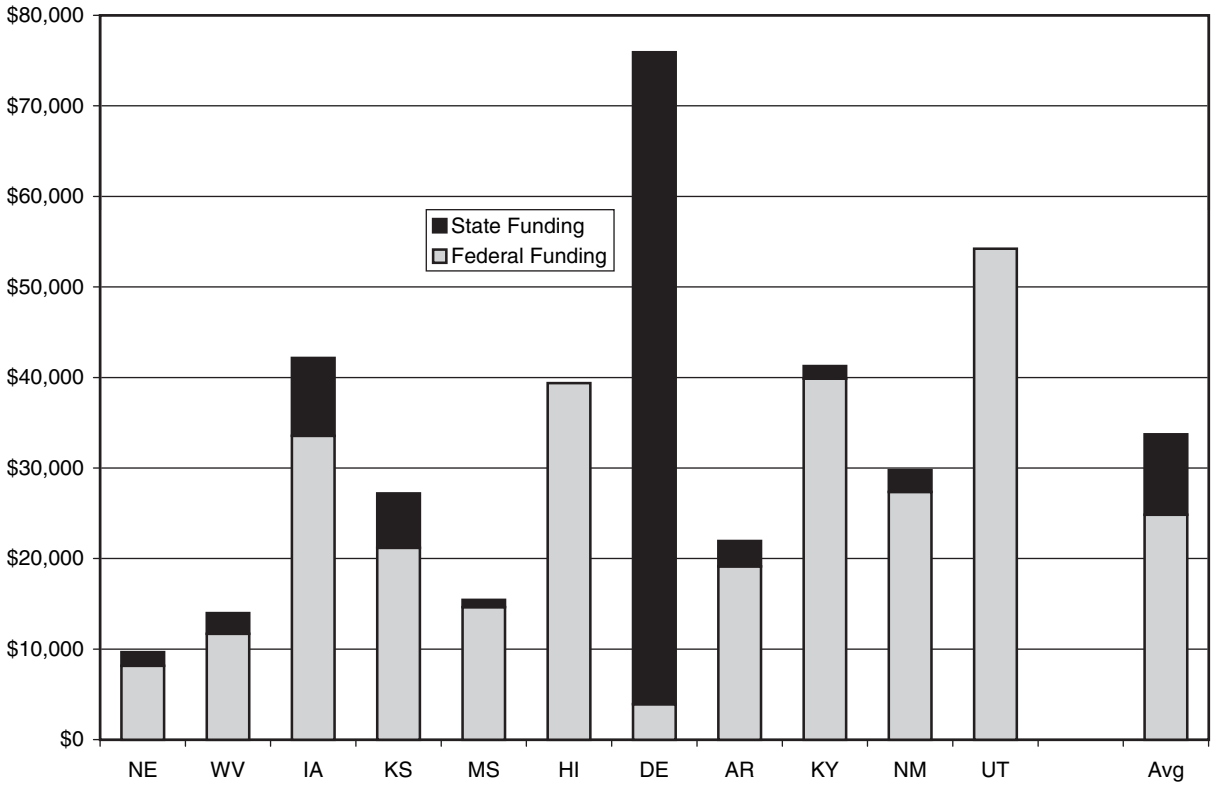


Figure 12. Group 2 state and federal total transit funding (in thousands of dollars).

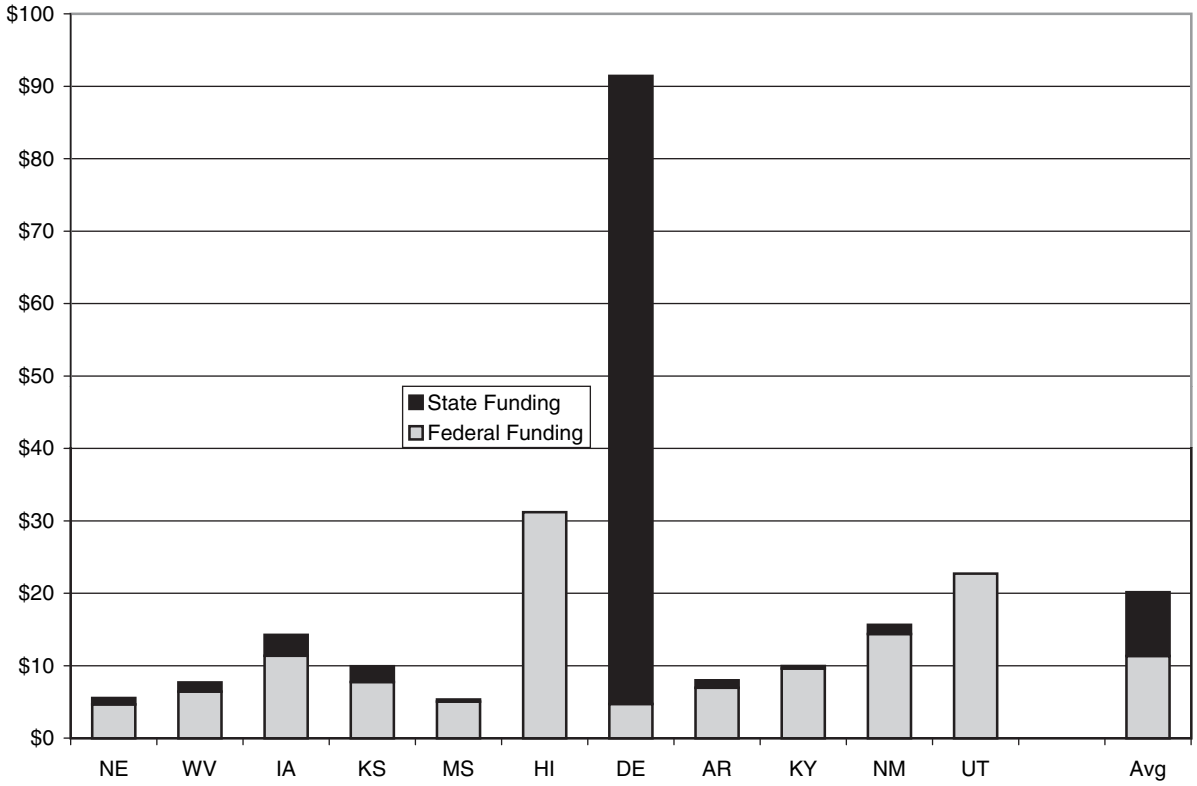


Figure 13. Group 2 state and federal per capita funding.

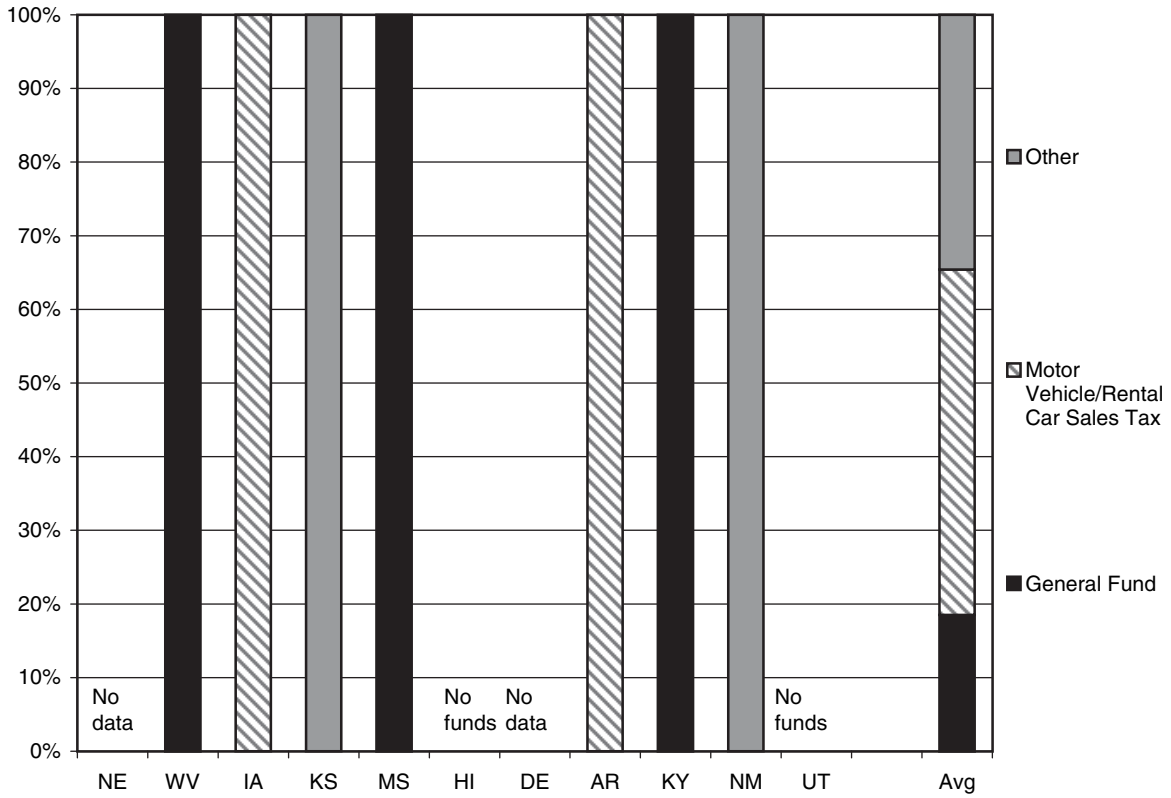


Figure 14. Group 2 sources of state funds.

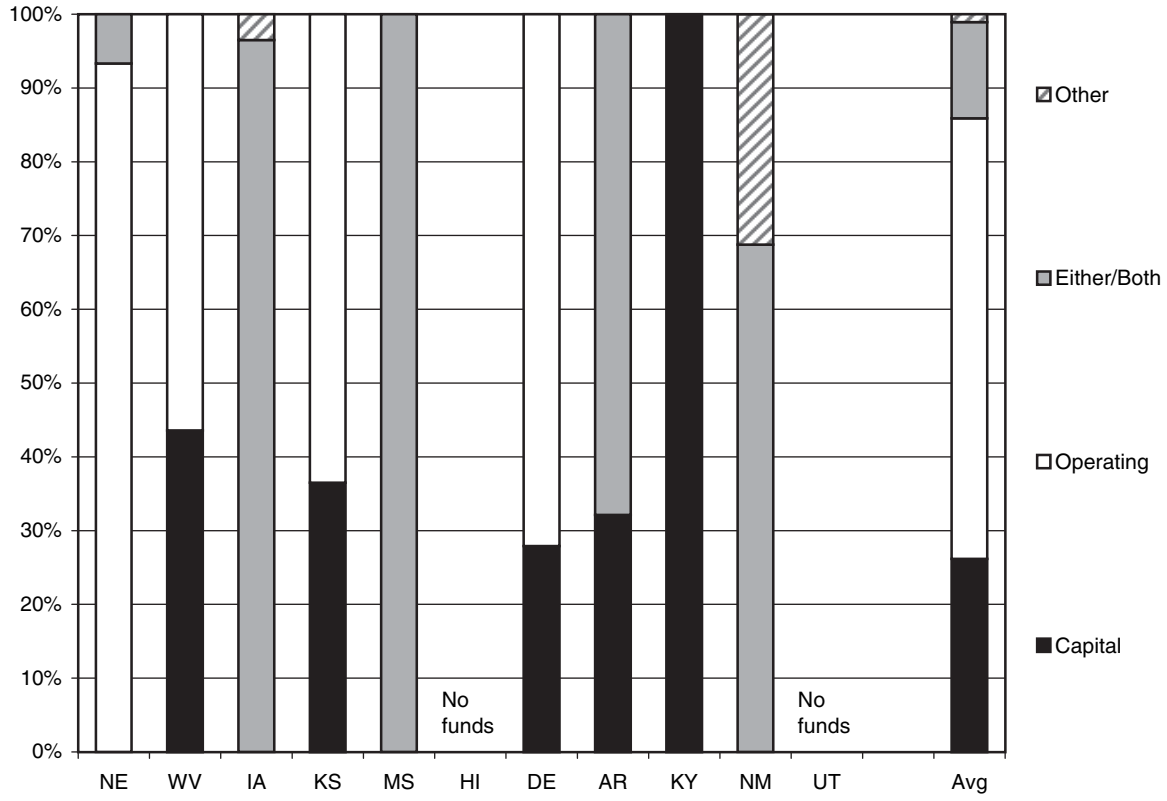


Figure 15. Group 2 state funding expenditure categories.

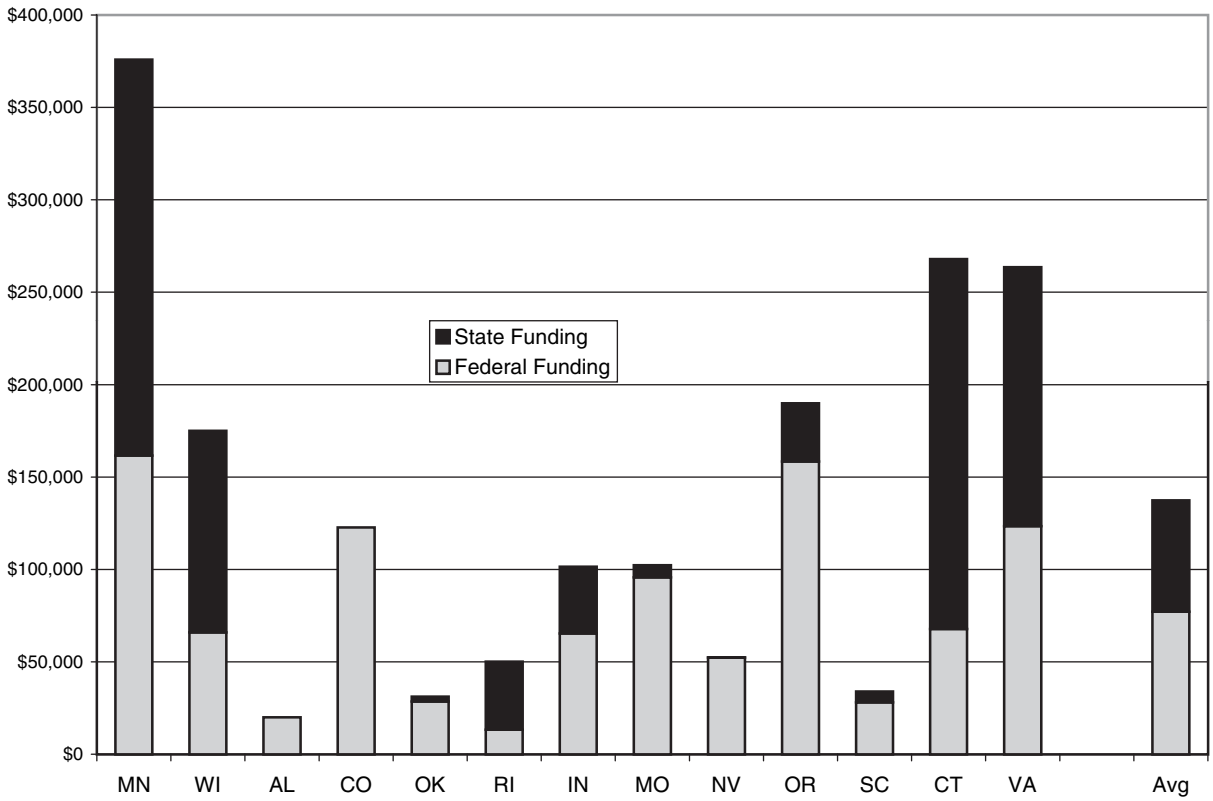


Figure 16. Group 3 state federal total transit funding (in thousands of dollars).

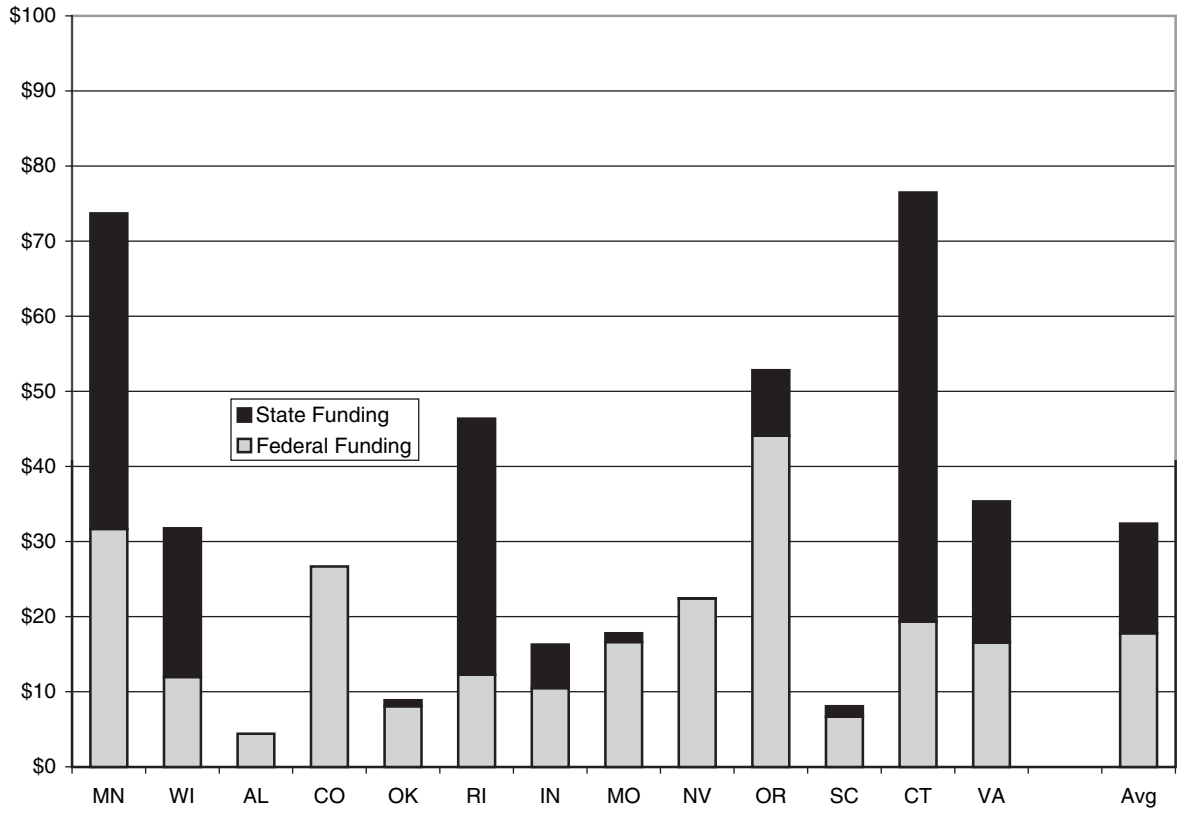


Figure 17. Group 3 state and federal per capita funding.

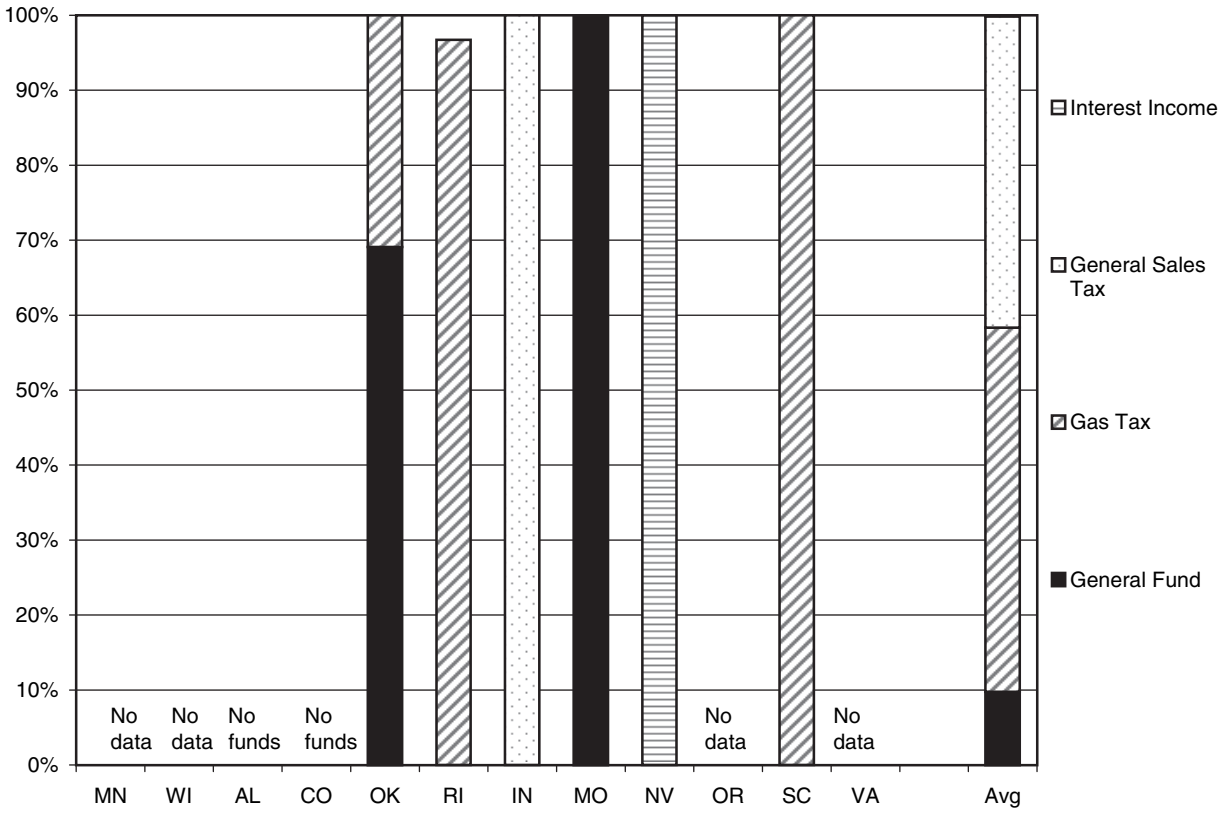


Figure 18. Group 3 sources of state funds.

South Carolina rely exclusively on the gas tax, **Nevada** on interest income.

As shown in Figure 19, **Nevada** uses its state funding exclusively on capital projects; all other states in this group use their funding for operating or both operating and capital.

As shown in Figure 20, the two clear outliers in Group 4 are statewide transit operators—Maryland and Massachusetts—followed by the District of Columbia, an entirely urbanized area. Of the rest, **Washington** and **Michigan** have the highest funding. Washington is mostly federally funded, while Michigan is more heavily state funded.

Figure 21 shows that the **District of Columbia** has the highest per capita funding, with nearly $900 allocated per person (including federal and state funding). **Massachusetts** and **Maryland** are the next highest.

For the states for which data were available, as shown in Figure 22, only **Maryland** (a transit-operator state) had multiple funding sources. Other states relied primarily on the general fund (**Ohio, Georgia** and **DC**), the gas tax (**Tennessee**), or "other" sources (**Louisiana** and **Arizona**).

As shown in Figure 23, **Georgia** used almost all of its funds for capital expenditures, while all other states had more mixed spending patterns.

Figure 24 shows that **New York,** as might be expected, leads Group 5 by a considerable margin in both state and federal funding.

In addition to total funding, as shown in Figure 25, **New York** is also the highest in per capita funding for Group 5. **New Jersey,** a transit-operator state, has the second-highest per capita funding. While **California's** total funding is second to New York's, on a per capita basis it ranks fifth.

As Figure 26 indicates, most states in Group 5 did not have complete information available about the percentage of funding obtained from various sources. (Table 27, presented in Section 3.3, shows that most of these states have multiple funding sources, but the percentages were not specified.)

As shown in Figure 27, most of the states in Group 5 had some combination of capital and operating expenditures.

Figure 28 shows that all statewide transit operators rely much more heavily on state funding than federal funding and do so to a much greater extent than other states.

As shown in Figure 29, the per capita funding among transit-operator states is more comparable than total transit funding.

Data on sources of state funding were available for only three states in the transit-operator group; therefore, whether a different funding source pattern exists for this group than for the states as a whole is difficult to determine, as Figure 30 demonstrates.

While **Rhode Island** used almost all of its funding for operating costs, Figure 31 shows that the other transit operators had a variety of spending patterns.

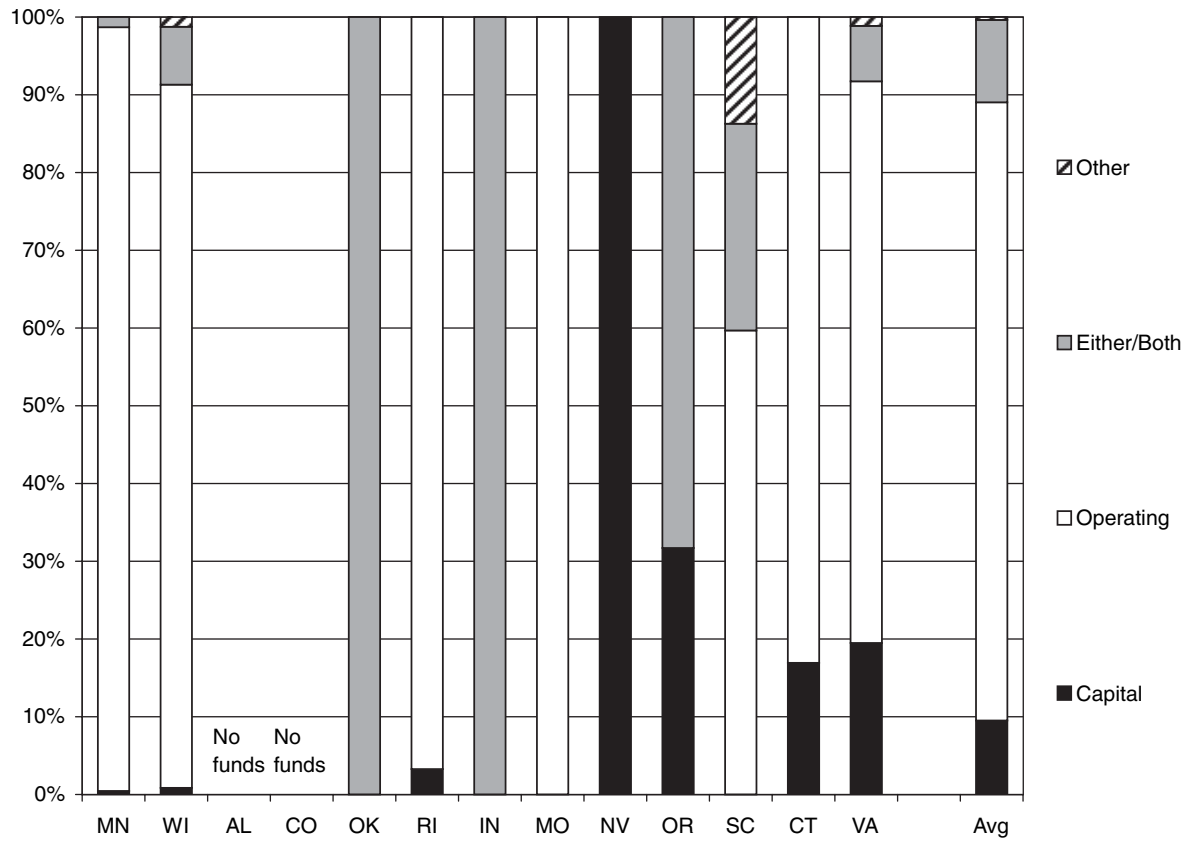


Figure 19. Group 3 state funding expenditure categories.

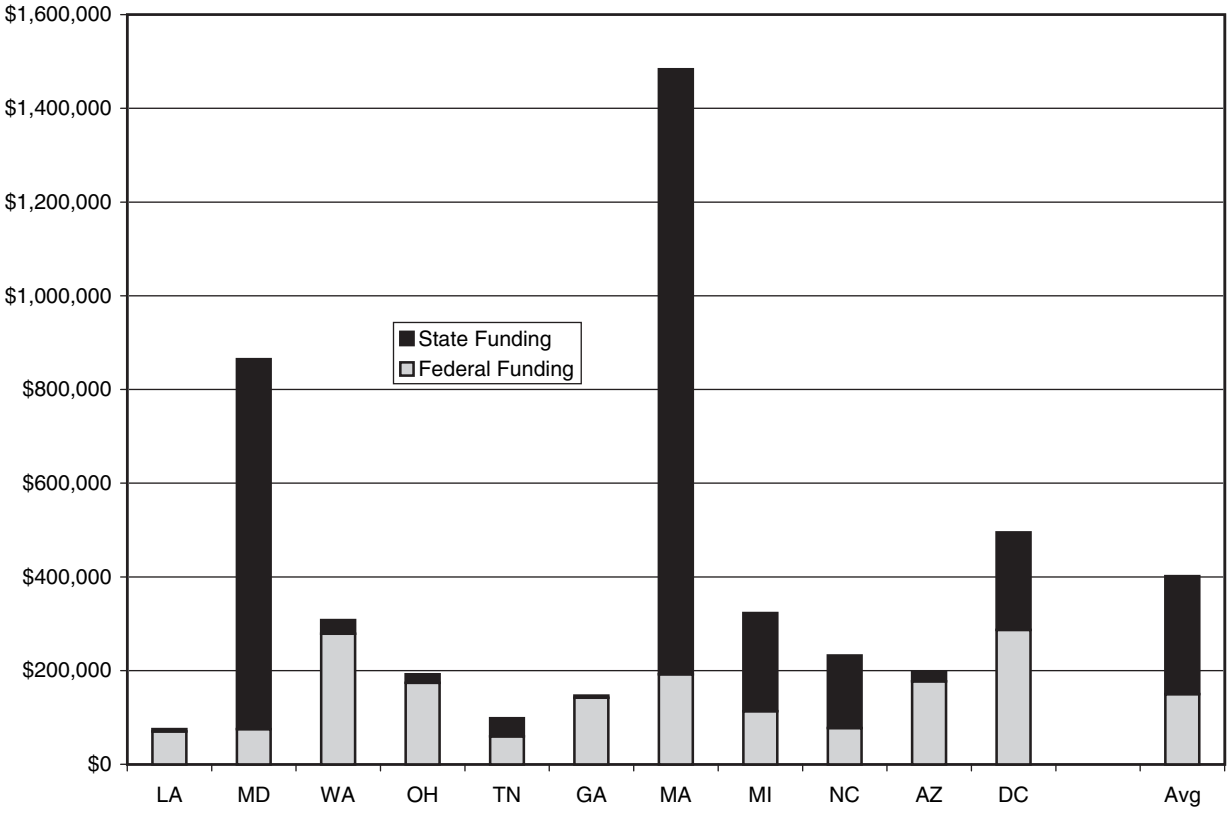


Figure 20. Group 4 state and federal total transit funding (in thousands of dollars).

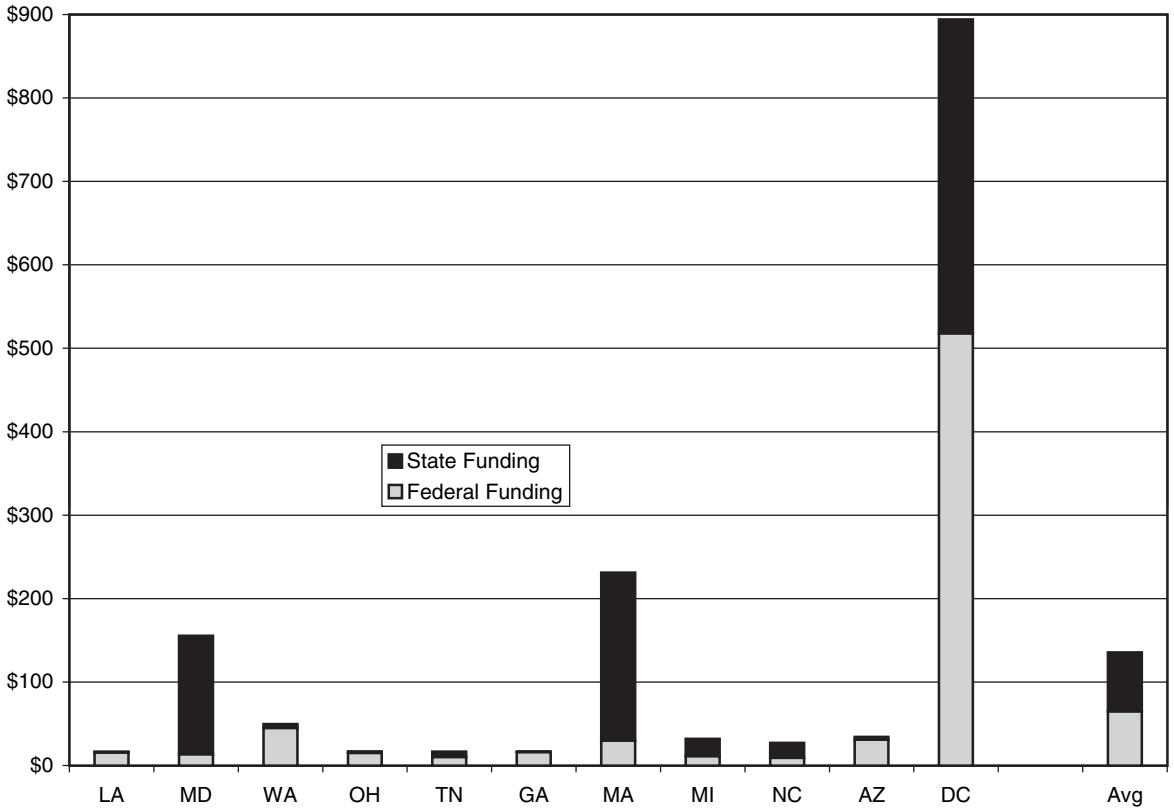


Figure 21. Group 4 state and federal per capita funding.

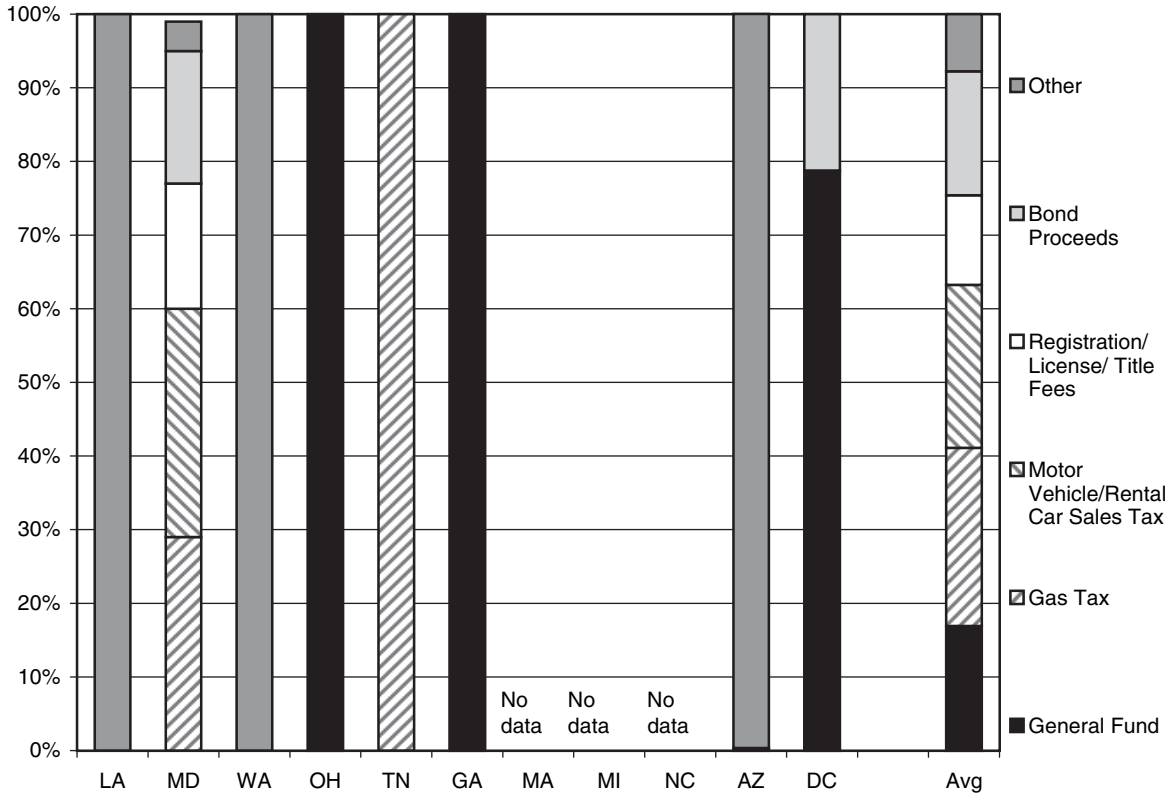


Figure 22. Group 4 sources of state funds.

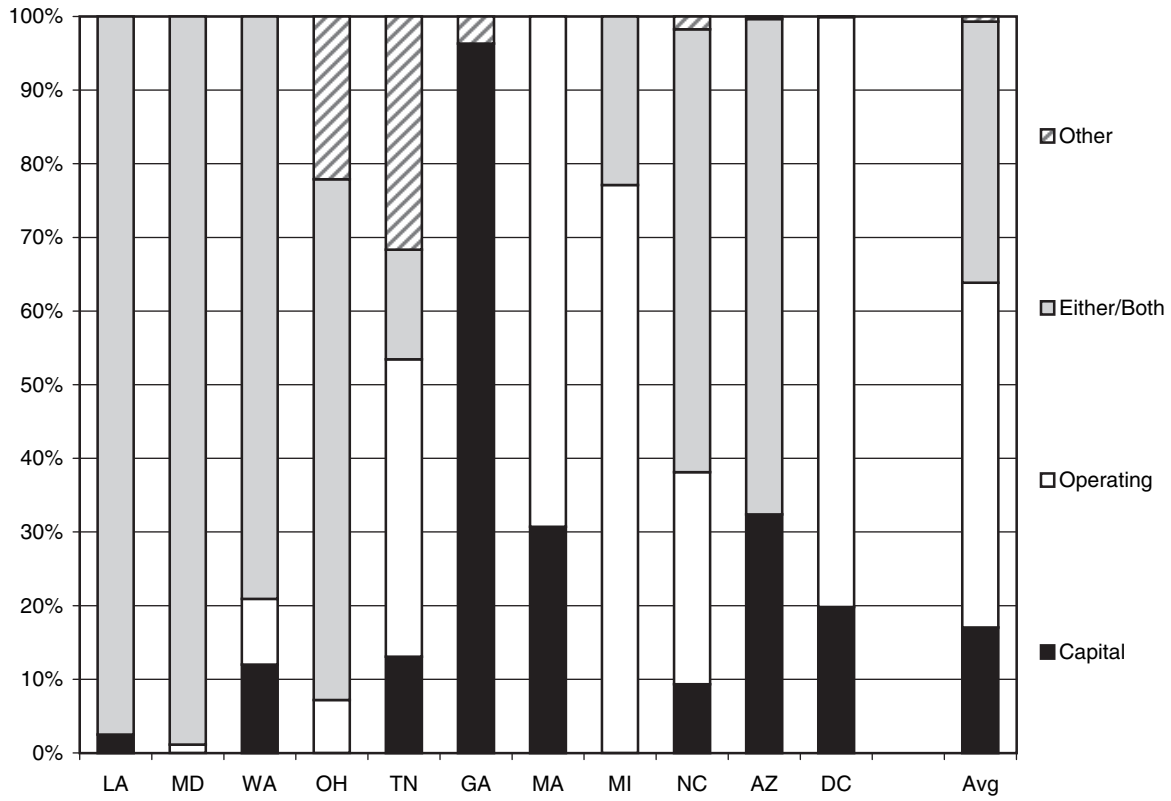


Figure 23. Group 4 state funding expenditure categories.

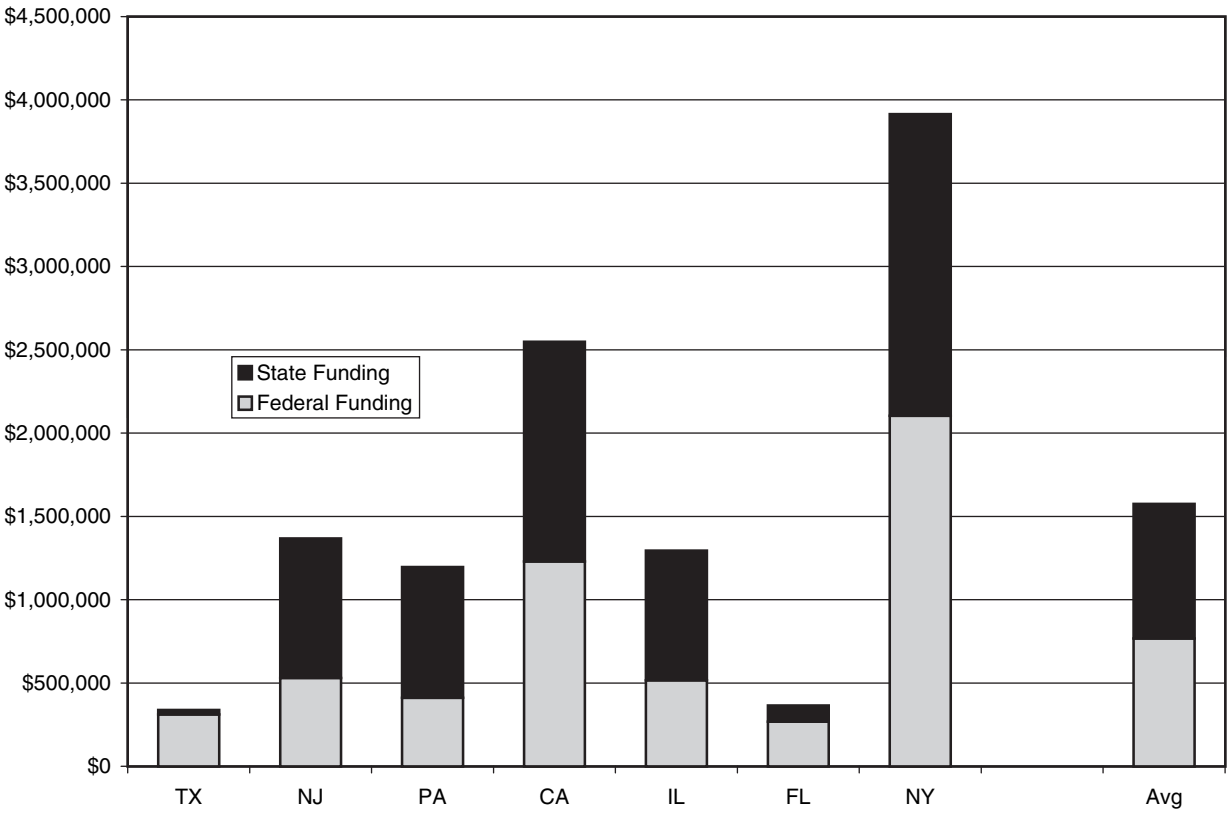


Figure 24. Group 5 state and federal total transit funding (in thousands of dollars).

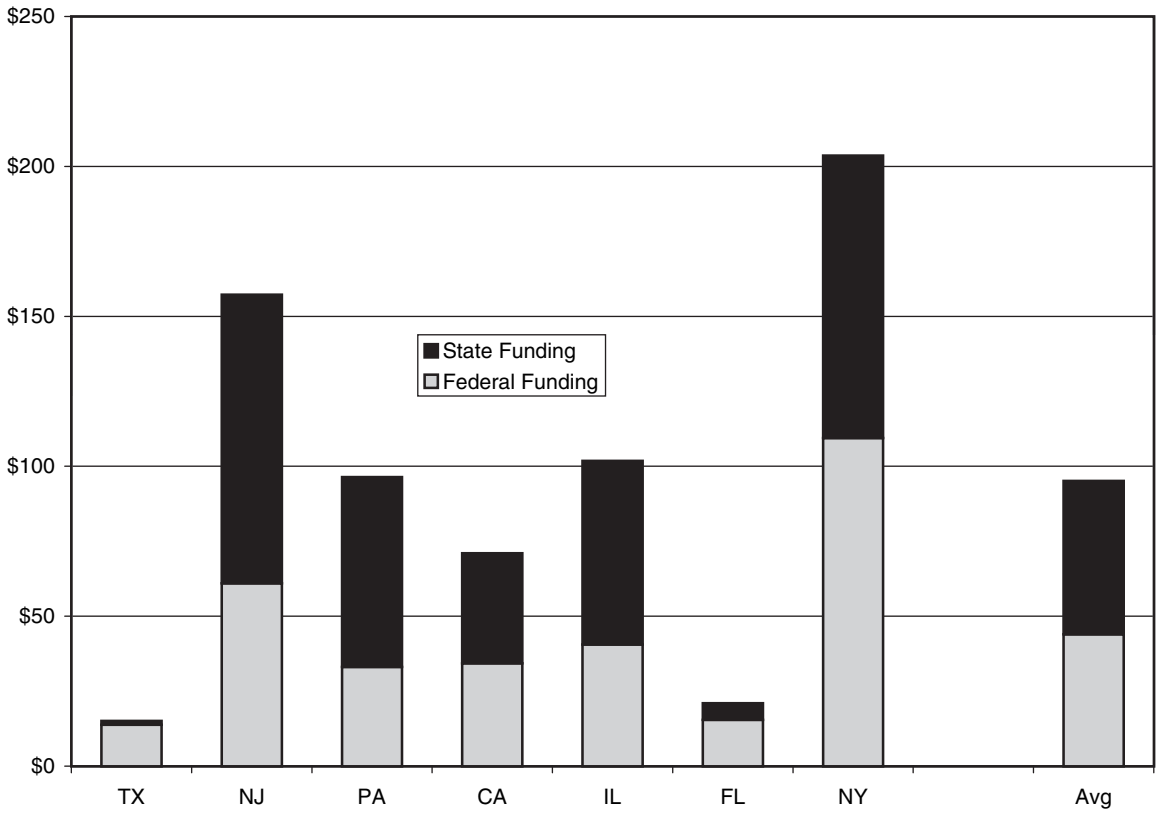


Figure 25. Group 5 state and federal per capita funding.

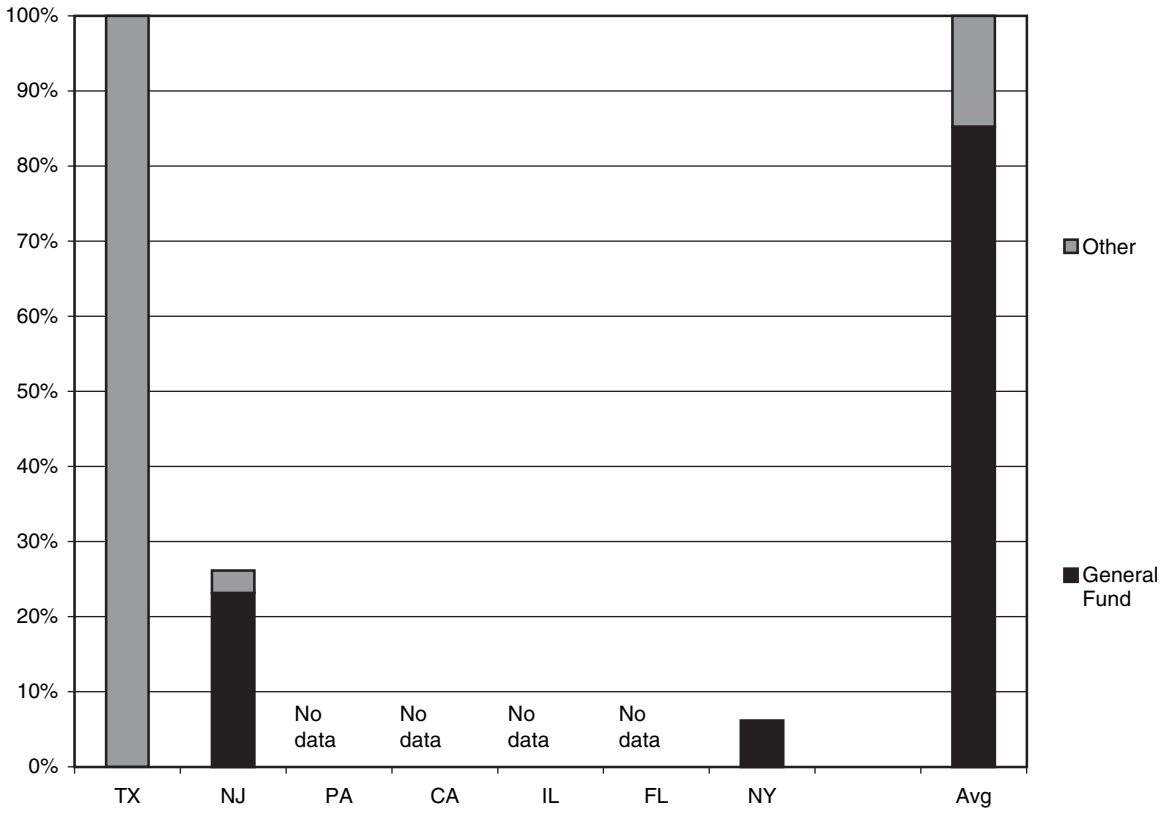


Figure 26. Group 5 sources of state funds.

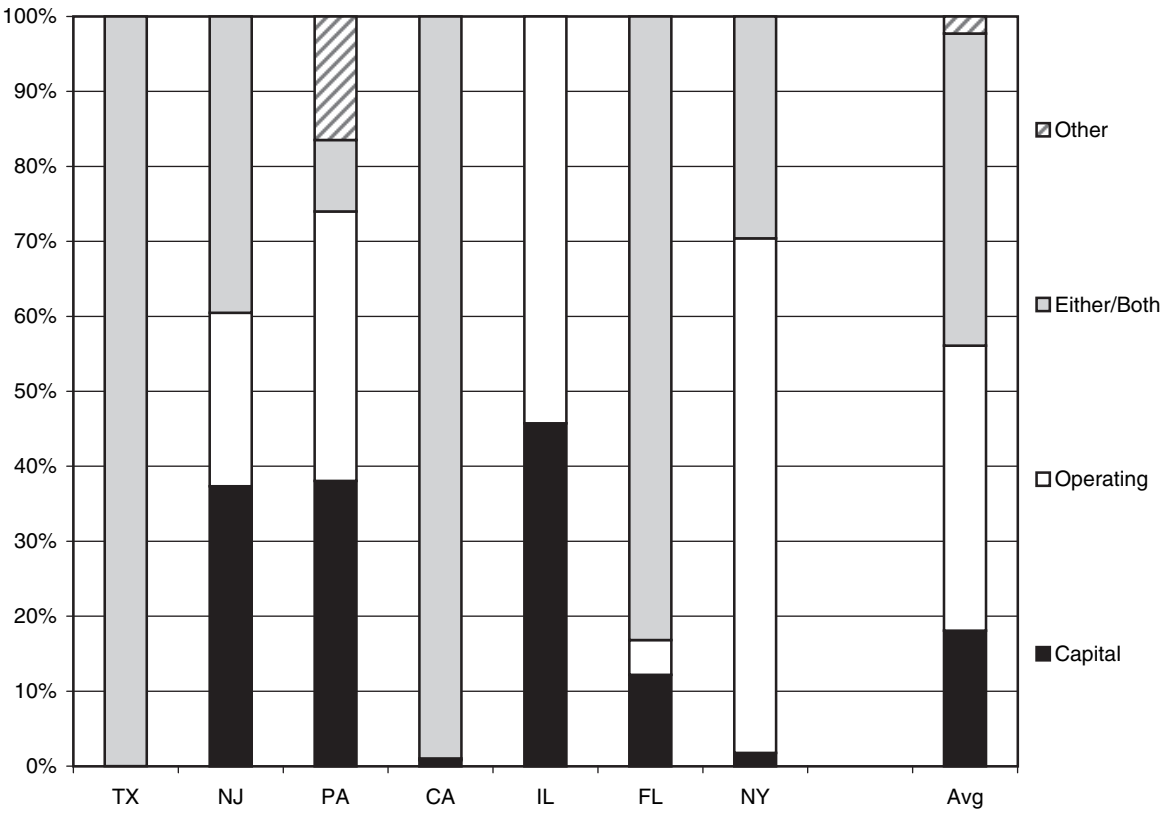


Figure 27. Group 5 state funding expenditure categories.

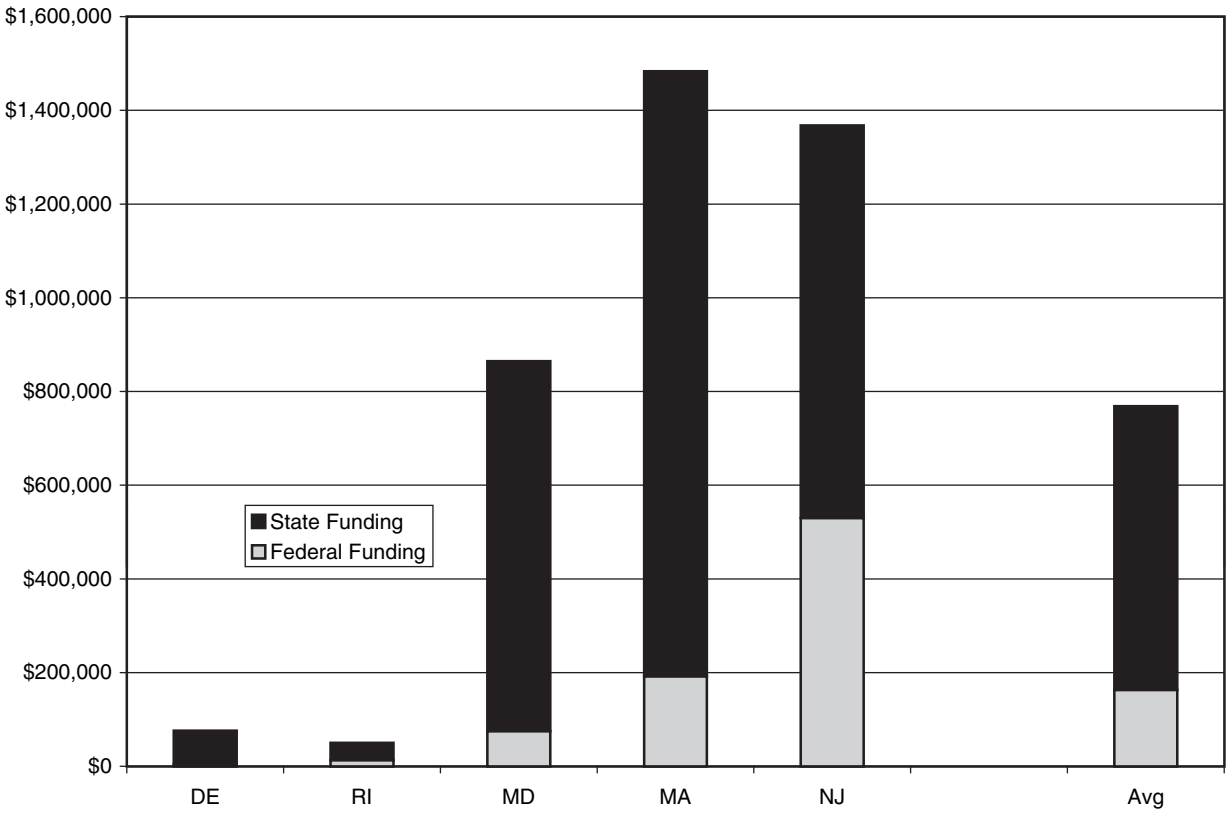


Figure 28. Transit-operator group state and federal total transit funding (in thousands of dollars).

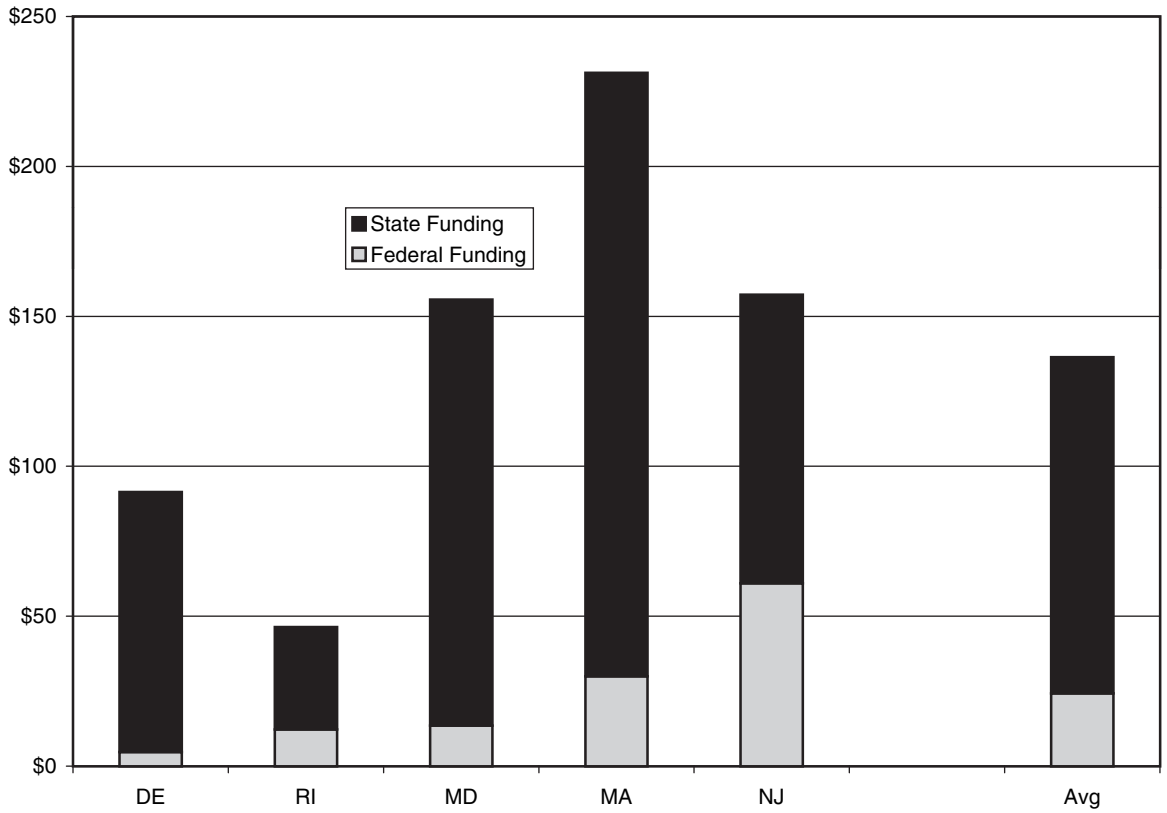


Figure 29. Transit-operator group state and federal per capita funding.

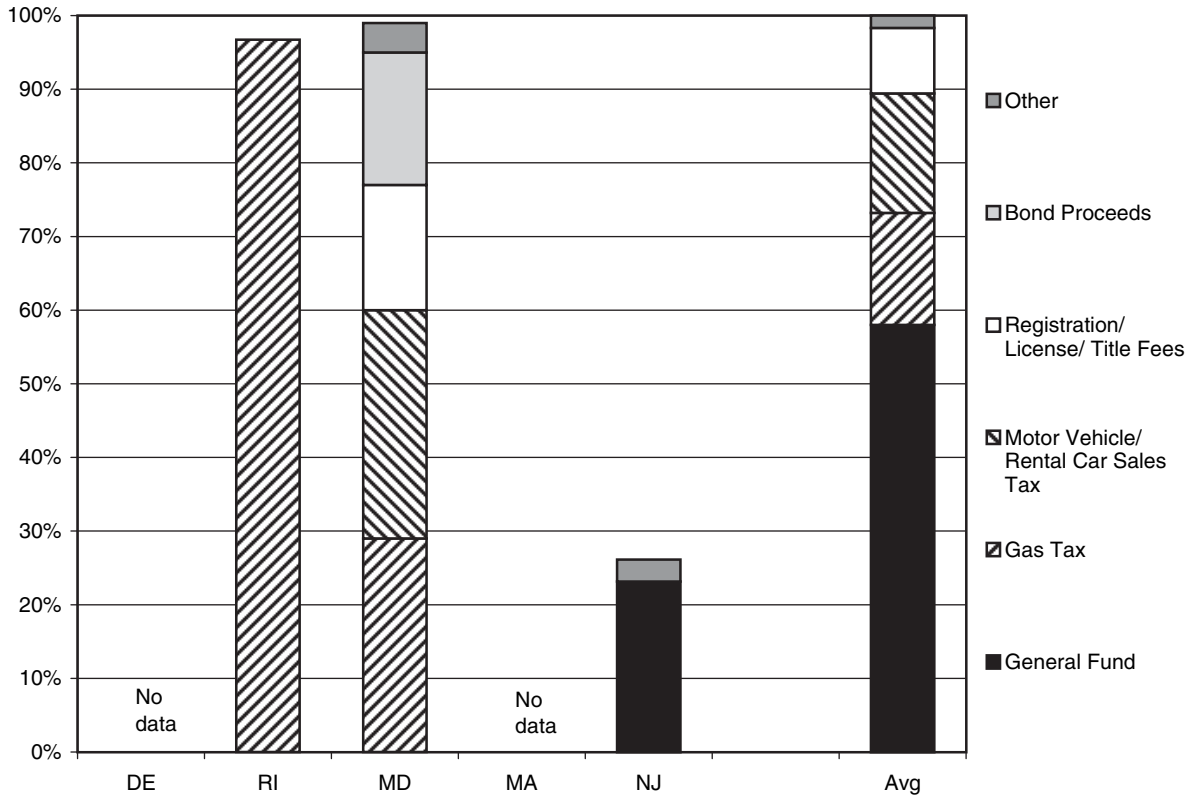


Figure 30. Transit-operator group sources of state funds.

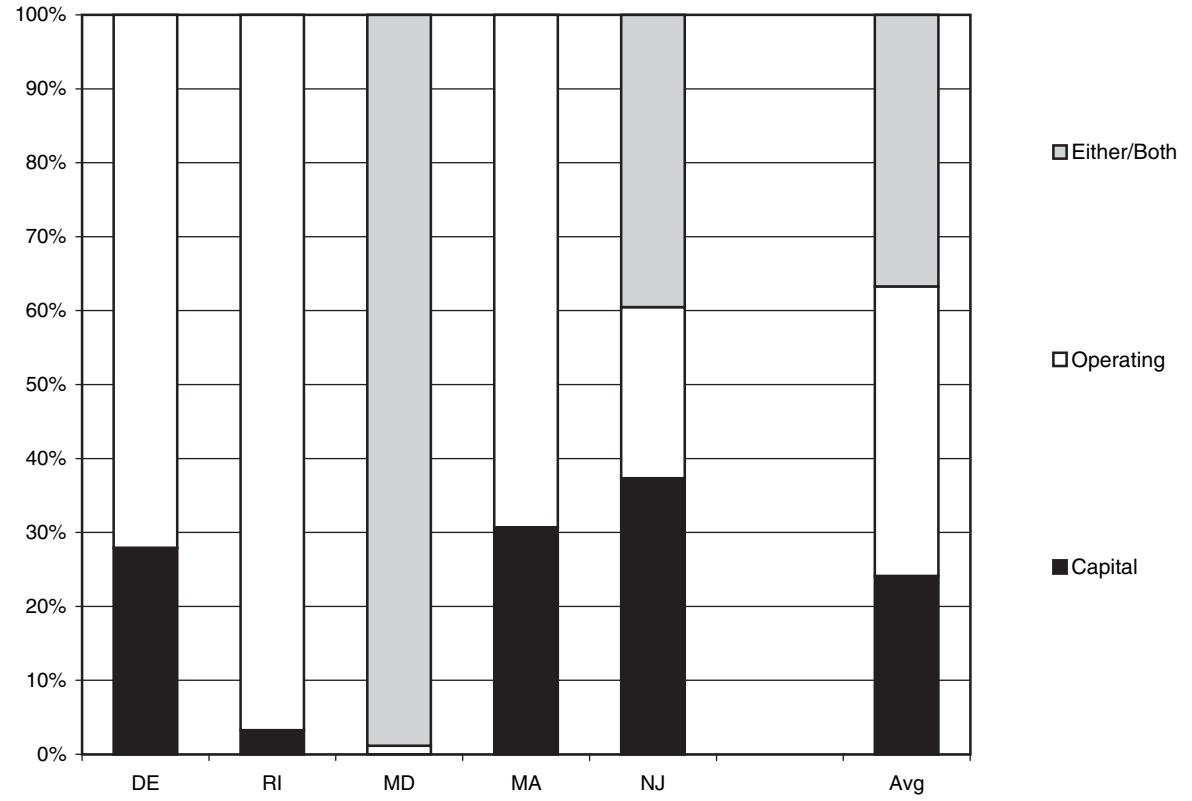


Figure 31. Transit-operator group state funding expenditure categories.

SECTION 3

Visual Display of Funding Information

In the previous section some ways to develop groups of peer states were described and their funding levels were compared. In this section, direct data from the *Survey of State Funding for Public Transportation* will be used to illuminate overall trends across all states. The purpose is to demonstrate how good principles of information design can be used to develop graphics that show the reader trends and context that might be difficult to discern in tables of numbers.

The research team has attempted to display that data here in a useful manner. In particular, the following principles of information design were observed in transforming the tables into graphics:

- **Compare like to like.** The *Survey* shows state funding from 1990 and federal funding from 1995. Showing funding figures for a 15-year period beside figures for a 10-year period would be misleading, because such juxtaposition implies that they are based on comparable data when they are not. Therefore, the research team chose to compare trends in state and federal funding for the same time period, 1995 to 2004. Using the same principle, the research team inflated the figures from earlier years to 2004 dollars so that all monetary units are comparable.
- **Show multiple dimensions of data.** In several cases, the research team organized tables in such a way as to make visible several dimensions of data to facilitate comparisons. For example, one table combines information on funding sources (including percentages from each source where available) and relative level of state funding to enable the reader to see which sources are used most frequently and that states with higher funding levels tend to have a wide range of funding sources. These types of comparison lend richness to the data interpretation that would not be present in a simple pie chart of the frequency of funding sources.

Of course, the visual display is only as good as the data underlying it. In some cases, for example, data from certain states were not available for particular years. In other cases, funding is shown as zero for certain years. If those states provided no funding, the fluctuations in funding over a period of time can be analyzed effectively; however, if those zero amounts really reflect missing data, the analysis will be flawed. Although the data contained in the *Survey* are assumed to be correct, instances where the research team has such concerns will be mentioned throughout the section.

This section relies on information from the following tables in the *Survey:*

- Table 1.1, State Funding for Transit, 1990 to 2004 (data for 1990, 1995, 2000, 2003, and 2004)
- Table 1.2, Federal Funding for Transit, 1995 to 2004 (data for 1995, 2000, 2003, and 2004)
- Table 3.1, Sources of State Funding, 2004
- Table 3.2, State Funding Expenditures by Category, 2004
- Table 3.3, Per Capita State Funding, 2003 and 2004
- Tables 3.4 and 3.5, which both depict funding per capita data from 2004.

This section is structured around some questions that the data can answer:

- Is transit funding by states and the federal government increasing or decreasing?
- Are state and federal funding levels changing in the same way?
- Which states are experiencing the greatest changes in transit funding?
- On a per capita basis, is funding increasing or decreasing?
- What are the most commonly used sources of funds?
- What are the most common expenditure types?

Although information is available in the *Survey* on all 50 states plus the District of Columbia, some states have been excluded from this analysis because of missing data. Where that is the case, the exclusion is noted in the text.

All figures in this section are adjusted for inflation. Inflation is calculated such that a 1995 dollar is worth $1.21 in 2004.

3.1 Trends in State and Federal Transit Funding

Tables 1.1 and 1.2 from the *Survey* contain information on overall levels of state and federal funding for the years 1990 (state only), 1995, 2000, 2003, and 2004. Many of these absolute numbers are provided in Section 2. The figures in this subsection compare state and federal funding and indicate whether funding is increasing or decreasing.

Although states provide more total funding than the federal government, the figures are skewed by a few very large states. Most states received more federal than state funding for transit in 2004. States provided a total of $9.3 billion in transit funding in 2004, while federal funds totaled $7 billion. However, the 7 largest states—New York, California, Massachusetts, New Jersey, Pennsylvania, Illinois and Maryland—collectively had $7.6 billion in state funding, while the remaining 43 states and the District of Columbia had $1.7 billion. Almost $4 billion—more than half of all federal funds spent on transit—went to those seven states.

Figure 32 shows the percentage of federal and state funding for each state. The states are arranged in order from highest total funding level to lowest.

Among the states that contribute substantially to funding transit, many increased their share from 1995 to 2004. Figure 33 shows the ratio of federal to state funding for 1995 and 2004 on a dollar basis. If the state falls at $1, it means that the state provided an equal amount of funding to what the federal government provides. Figure 33 compares the ratios for 1995 to those in 2004; 1995 values are graphed on the x-axis, 2004 values on the y-axis. If the data point falls above the diagonal line, it means the state increased its share of transit funding vis-à-vis the federal contribution from 1995 to 2004.

As Figure 33 indicates, 13 states provided more than $1 for every dollar of federal funding in either 1995 or 2004. The clear outlier in this group is Massachusetts, which in 2004 provided almost six times as many transit dollars than the federal government ($1.3 billion as opposed to $221 million in federal funding). Most of the states in the $1 to $2 range

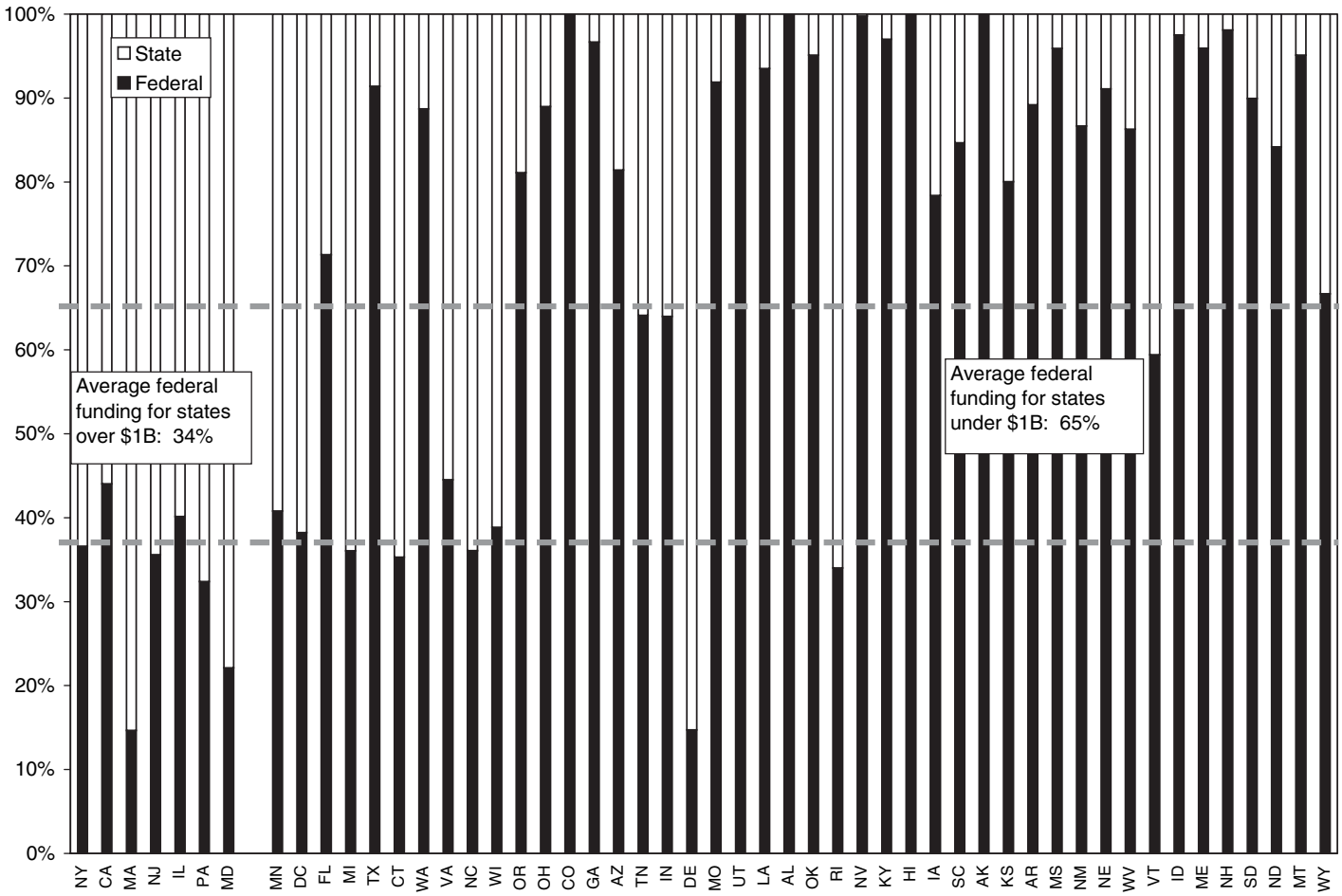


Figure 32. Percentage of federal and state funding by state (2004).

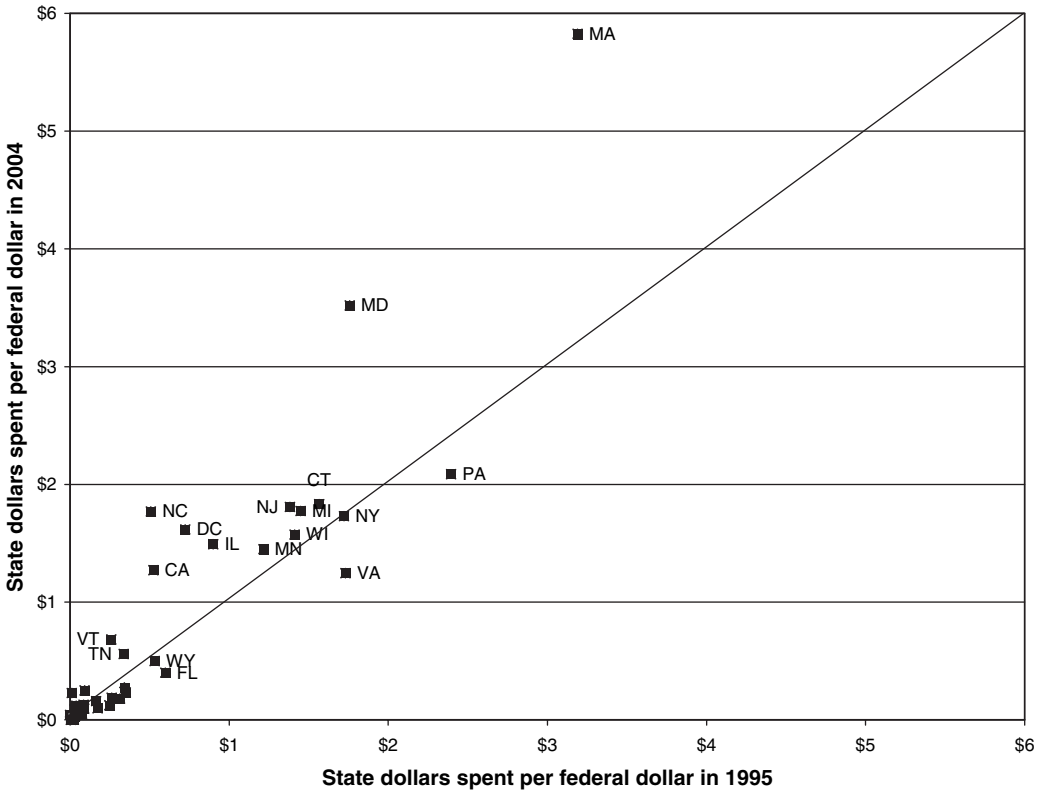


Figure 33. Ratio of total federal to state funding by state (1995–2004).

in Figure 33, those that provide between one-half and two-thirds of total transit funding, had a higher ratio in 2004 than in 1995, which means that those states increased their proportion of funding relative to federal funding. However, the majority of states provide far less at the state level than what the federal government provides, as shown by the data points clustered near $0 on the axes.

While both state and federal funding are generally increasing, state funding is on the whole increasing more quickly. Figures 34 and 35 display the compound annual growth rates (CAGR) in state and federal transit funding. The CAGR is calculated based on the difference between funding levels in 1995 and 2004, and describes what the annual rate of growth would have been if it had grown at a steady rate each year.

Although the *Survey* provides this information for states for the period 1990 to 2004 and for federal funding for the period 1995 to 2004, in keeping with the principle of comparing like to like, the period 1995 to 2004 was used for both figures. The figures include only 39 states and the District of Columbia: four states had no state funding during this period (Alabama, Alaska, Colorado and Hawaii); three states (Idaho, Mississippi and Utah) had no state funding in either 1995 or 2004, making a meaningful increase or decrease impossible to calculate; and four states (Delaware, Indiana, Louisiana and New Mexico) have no data available for 1995.

When adjusted for inflation, all but six states increased their transit funding over the 10-year period. The national average is 3.9%. The states with the largest increases—Arizona and New Hampshire—do not fall into the same peer group, so it is difficult to detect a particular trend here.

Figure 35 shows similar data to that in Figure 34 for federal funding for all 50 states and the District of Columbia. The two states that saw the largest percentage increases in federal funding are Alaska and Colorado.

Figure 36 compares the percentage changes in federal and state funding between 1995 and 2004 depicted in Figures 34 and 35 (note that only states in Figure 34, which shows changes in state funding, are included). For example, if federal funding increased by 3.5% and state funding increased by 1%, that state would be shown in Figure 36 as having a 2.5% greater increase in federal funding. As Figure 36 indicates, approximately two-thirds of the states saw greater increases in state funding than in federal funding over this period. However, Figure 36 does not address changes in the absolute dollar amount of state versus federal funding, simply the rates of change over the period. A state with a larger percentage increase in state funding might have seen a larger dollar increase in federal funding, depending on the level of funding in 1995.

Figure 36 shows the difference between state and federal funding growth rates from 1995 to 2004. Nationally, state funding grew at 5.5% while federal funding grew at a rate of 2.9%, for a difference of 2.6%. For states in the top portion of the figure, (Nevada through West Virginia), growth in federal funding for their state has outpaced state funding in the last 9 years.

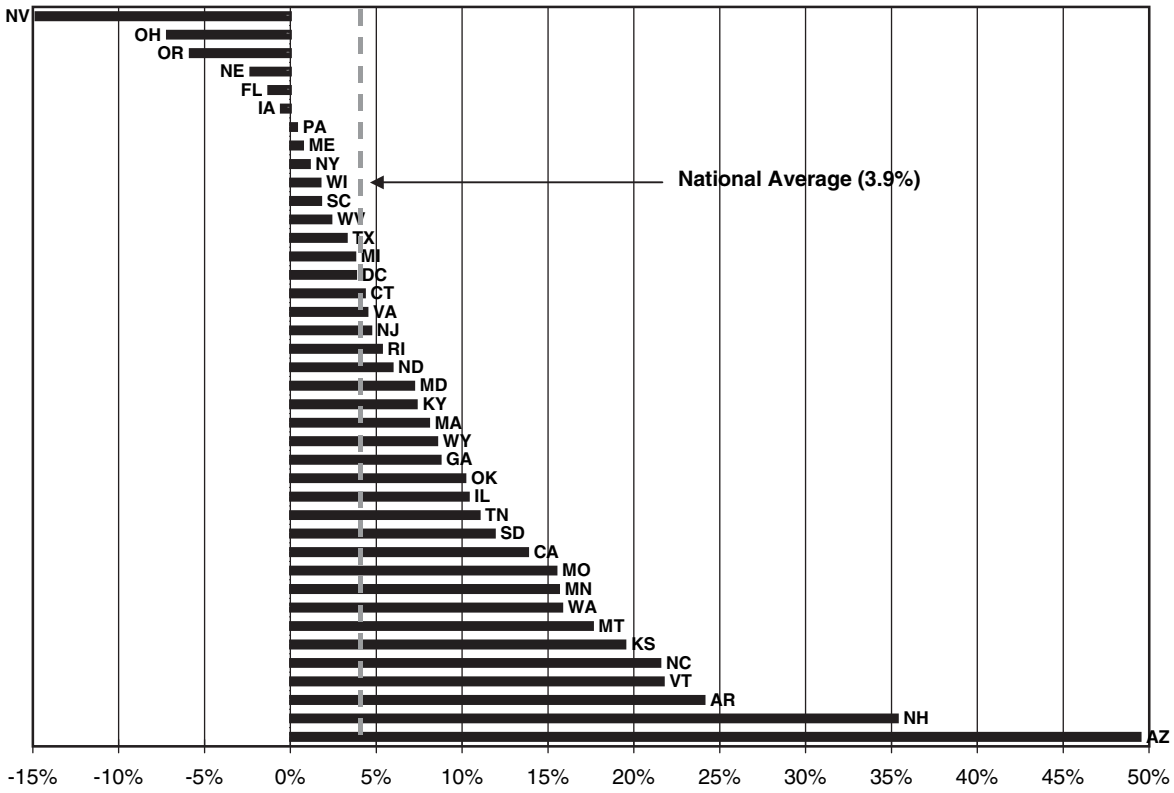


Figure 34. CAGRs for state transit funding adjusted for inflation (1995–2004).

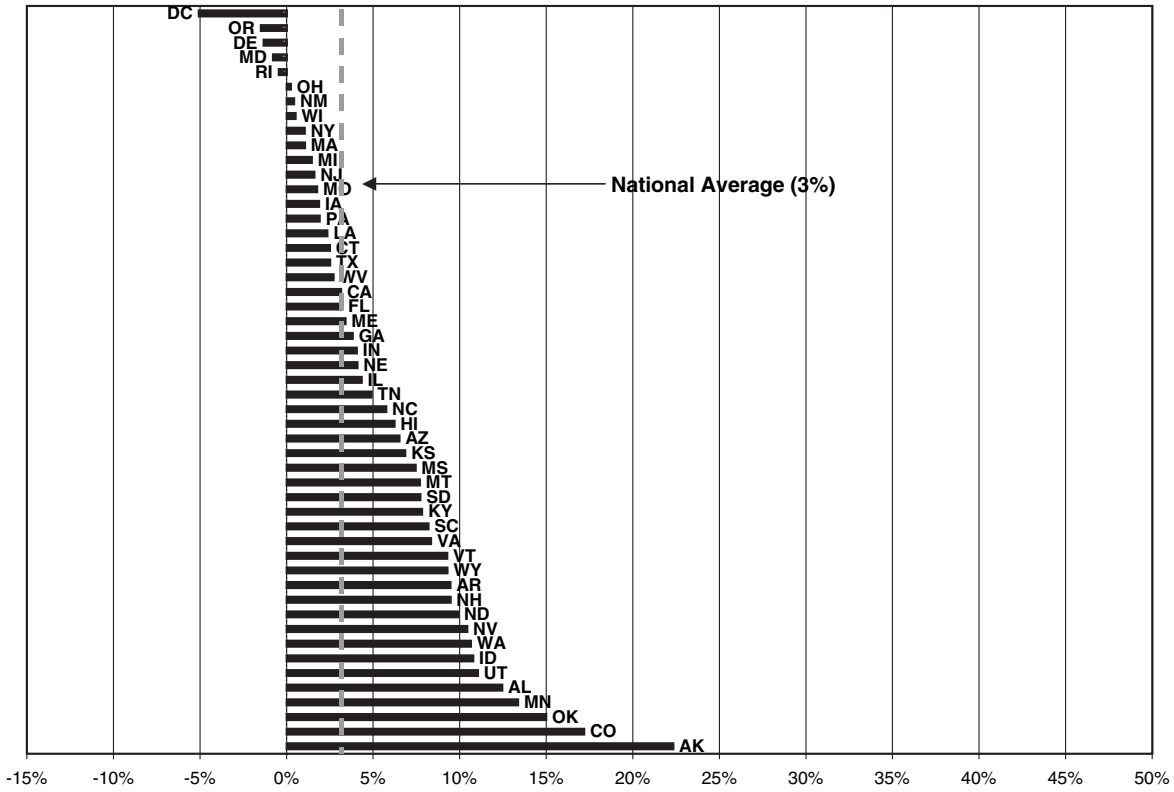


Figure 35. CAGRs for federal transit funding adjusted for inflation (1995–2004).

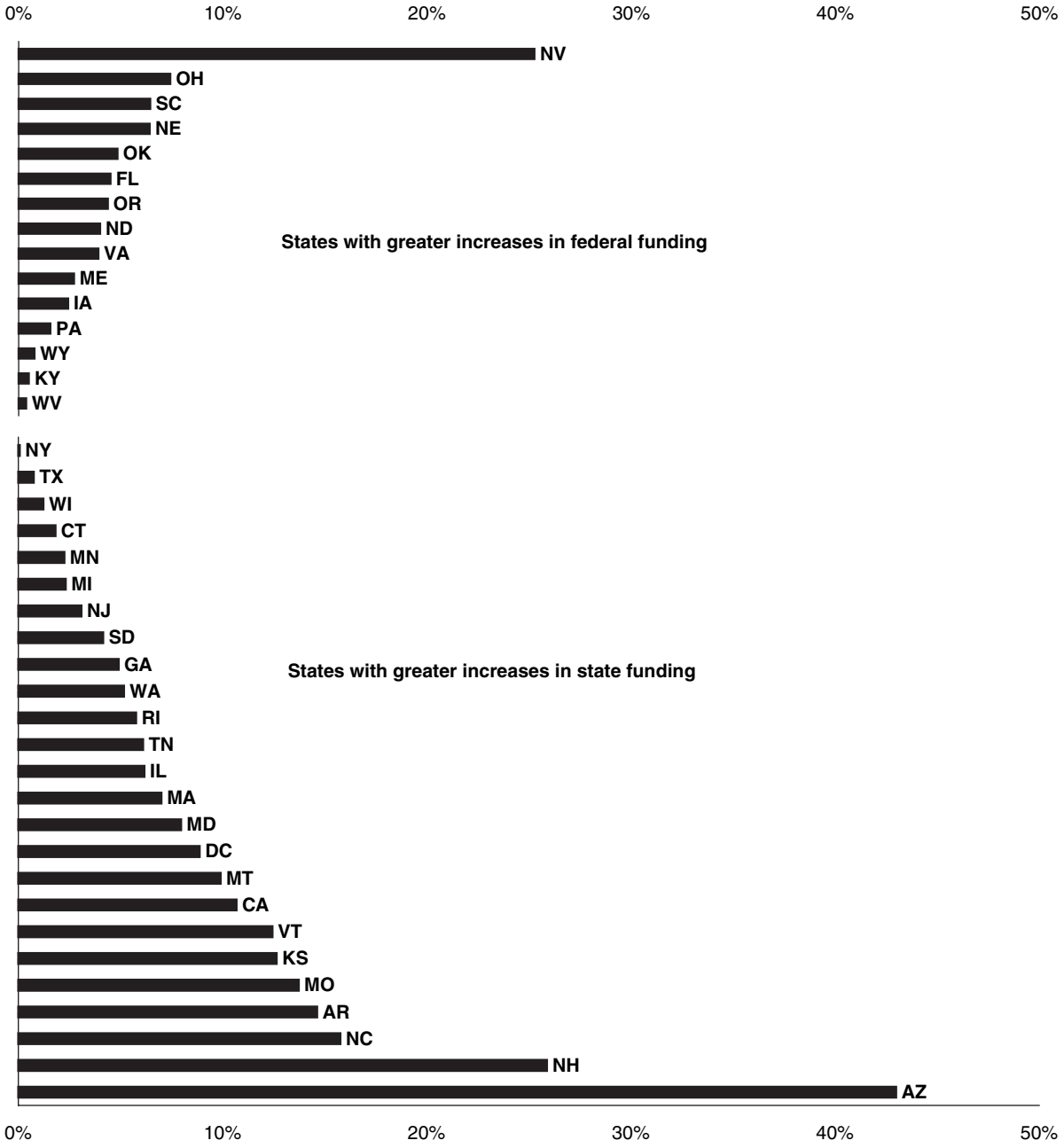


Figure 36. Difference between state and federal CAGRs (1995–2004).

For example, federal funding for Nevada grew annually by 25% more than state funding.

Nine states are not included in this figure. New Mexico, Louisiana, Indiana and Delaware did not report state funding in 1995. Hawaii, Colorado, Alaska and Alabama all had no state funding in 2004. Mississippi had no state funding in 1995.

While increasing more quickly than federal funding on average, state funding tends to fluctuate more year by year. Fluctuations in funding were calculated based on the 4 years of data available in the report: 1995, 2000, 2003 and 2004. After adjusting the funding for inflation, the research team calculated a simple measure for each state: the maximum funding amount less the minimum funding amount, divided by the average funding. This calculation yields a percentage measure of how much the high and low years of funding differs from the average. A figure of more than 100% means that the difference between the high and low number was more than double the funding average. For example, if a state had on average $3 million in funding but a high of $3.5 million and a low of $2.5 million, the fluctuation measure would be 33% ($3.5 million minus $2.5 million, divided by $3 million).

If the high were $5 million and the low $2 million, the fluctuation measure would be 100%: the higher the percentage, the greater the amount of fluctuation. Measures were calculated for both state and federal funding.

Figure 37 shows the difference in the fluctuation for state and federal funding. Although only 6 states showed federal funding fluctuation of more than 100%, 19 states had fluctuation of more than 100% in state funding. Figure 37 clearly shows that for most states, their federal funding stream is more constant than their state funding.

Several states (e.g., New Mexico, Utah and Mississippi) had high fluctuations because in several years they did not receive state funding. Delaware, Indiana and Louisiana had no data available in several years, so volatility was calculated on the basis of available data for the remaining years.

3.2 Per Capita Funding

States that operate transit provide significantly higher per capita funds than those that do not. Per capita funding information is based on Table 3.3 of the *Survey.* As Figure 38 shows, the five states that operate transit—indicated by the larger squares—provided significantly higher funding than states of similar population levels. The "state" that provided the highest level of per capita funding is the District of Columbia, with an entirely urbanized population; it is not shown in Figure 38 because it would obscure the detail for the other states. New York, which has the highest transit ridership of any state, also provided a significant amount of per capita funding.

Figure 39 graphs the same state per capita funding levels against federal per capita funding. (The District of Columbia is also not shown on this figure, for the reason noted previously.) Figure 39 shows that the states with the highest levels of per capita federal funding are Alaska, New York and New Jersey. Note also that while federal per capita funding is within a much smaller band than state funding (the highest federal funding per capita is about $55, while nine states have state per capita funding above $50), the states are more evenly distributed along the x-axis, meaning that federal per capita funding varies less from state to state.

3.3 Sources of Funds

Half of the states rely on a single funding source. The higher the state's funding, the more likely it is to rely on multiple sources. Table 27 is based on information in Table 3.1 of the *Survey.* It shows all states and the sources of their transit funds. The table includes 45 states and the District of Columbia; Alabama, Alaska, Colorado, Hawaii and Utah did not provide any transit funding in 2004.

The total dollar value of funds attributed to a source, $1.59 billion, represents only about 17% of all state funds

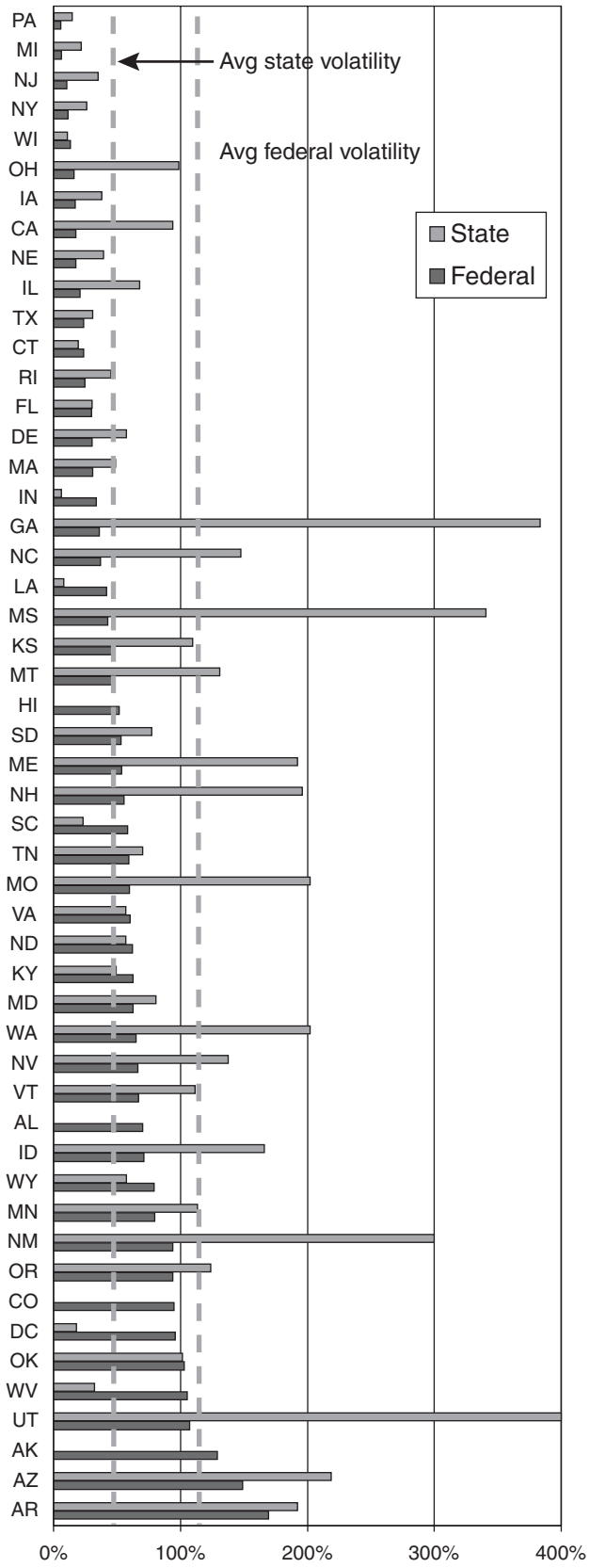


Figure 37. Difference between state and federal fluctuation measures (1995–2004).

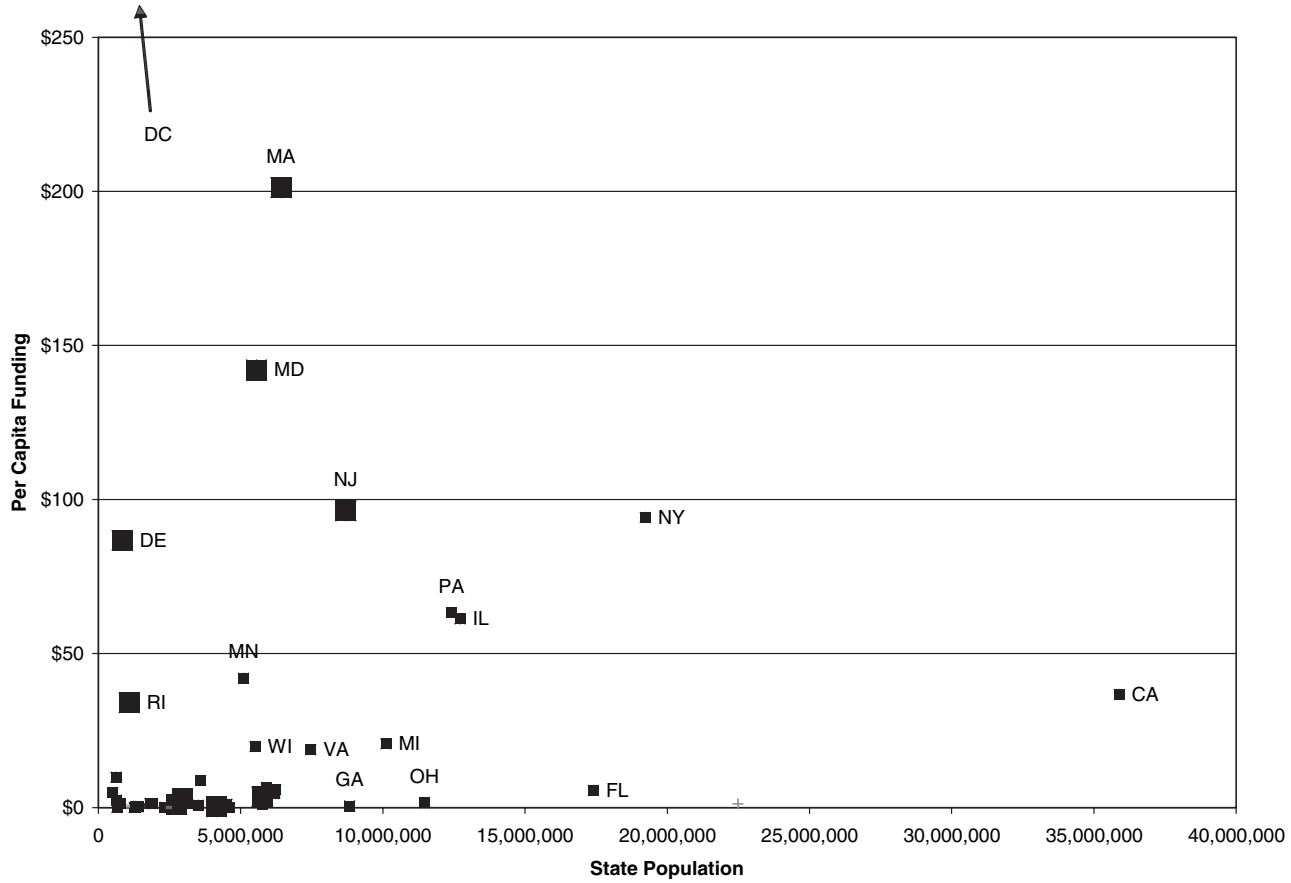


Figure 38. Per capita funding by population and transit operator status (2004).

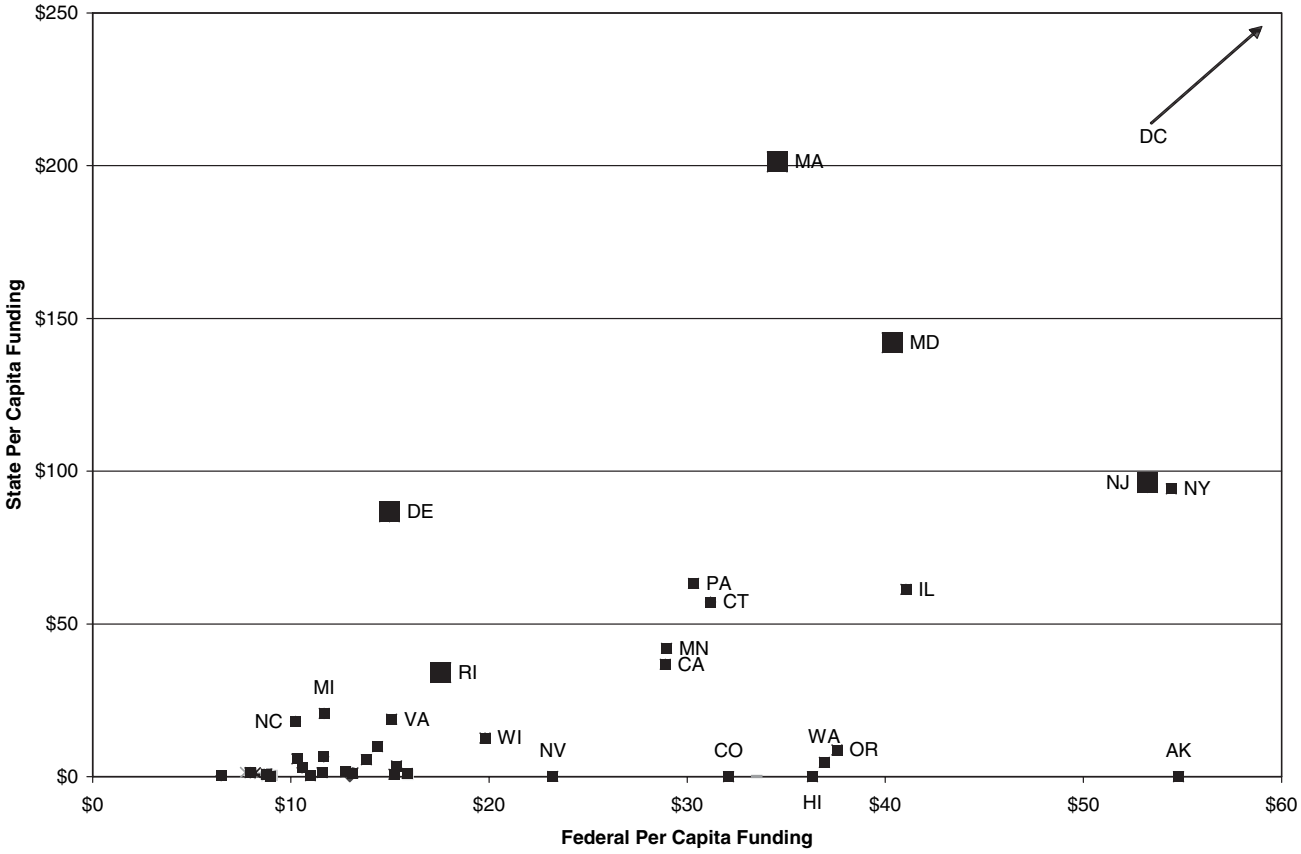


Figure 39. Federal and state per capita funding by transit-operator status (2004).

Table 27. Funding sources for all states with transit funding (2004).

	State	Other	General Fund	Gas Tax	Motor Vehicle/ Rental Car Sales Tax	Bond Proceeds	Reg/ License/ Title Fees	General Sales Tax	Interest Income
States with less than $100 million in funding	Nevada								100%
	New Hampshire		56%			44%			
	Idaho	100%							
	Montana			19%			81%		
	Maine		100%						
	Mississippi		100%						
	South Dakota	100%							
	Kentucky		100%						
	Nebraska	X	X						
	North Dakota						100%		
	West Virginia		100%						
	New Mexico	100%							
	Wyoming	100%							
	Oklahoma		69%	31%					
	Arkansas				100%				
	Georgia		100%						
	Louisiana	100%							
	South Carolina			100%					
	Kansas	100%							
	Vermont	100%							
	Missouri		100%						
	Iowa				100%				
	Ohio		100%						
	Arizona	99.7%	0.3%						
	Texas	100%							
	Washington	100%							
	Oregon	X	X	X		X			
	Indiana							100%	
	Rhode Island	X		97%		X			
	Tennessee			100%					
	Delaware	X		X			X		
	Florida			X	X		X		
States with over $100 million in funding	Wisconsin	X		X			X		
	Virginia	X		X	X			X	X
	North Carolina	X							
	Connecticut	X		X	X		X		X
	District of Columbia		79%			21%			
	Michigan	X		X	X		X		
	Minnesota		X		X				
	Illinois		X			X			
	Pennsylvania	X	X		X	X		X	
	Maryland	4%		29%	31%	18%	17%		
	New Jersey	3%	23%	X				X	
	Massachusetts	X	X			X		X	
	California	X		X		X		X	
	New York	X	6%					X	

for transit ($9.32 billion). This is generally because the states with higher transit funding did not supply a breakdown of their sources in the *Survey*.

In general, states with higher overall amounts of funding relied on a larger number of sources than states with lower amounts of funding. Table 27 lists all states in order from the lowest to highest total state funding ($125,000 for Nevada to $1.81 billion for New York), and the data clearly show a pattern of higher numbers of funding sources for the higher funded states. Although it is a somewhat arbitrary dividing line, states with less than $100 million in funding had on average 1.5 funding sources, while those with more than $100 million had an average of 3.4 sources. Only one state in the latter group, North Carolina, relied on a single source of funding. (An "X" indicates that the state reported funding from the source, but did not specify a percentage.)

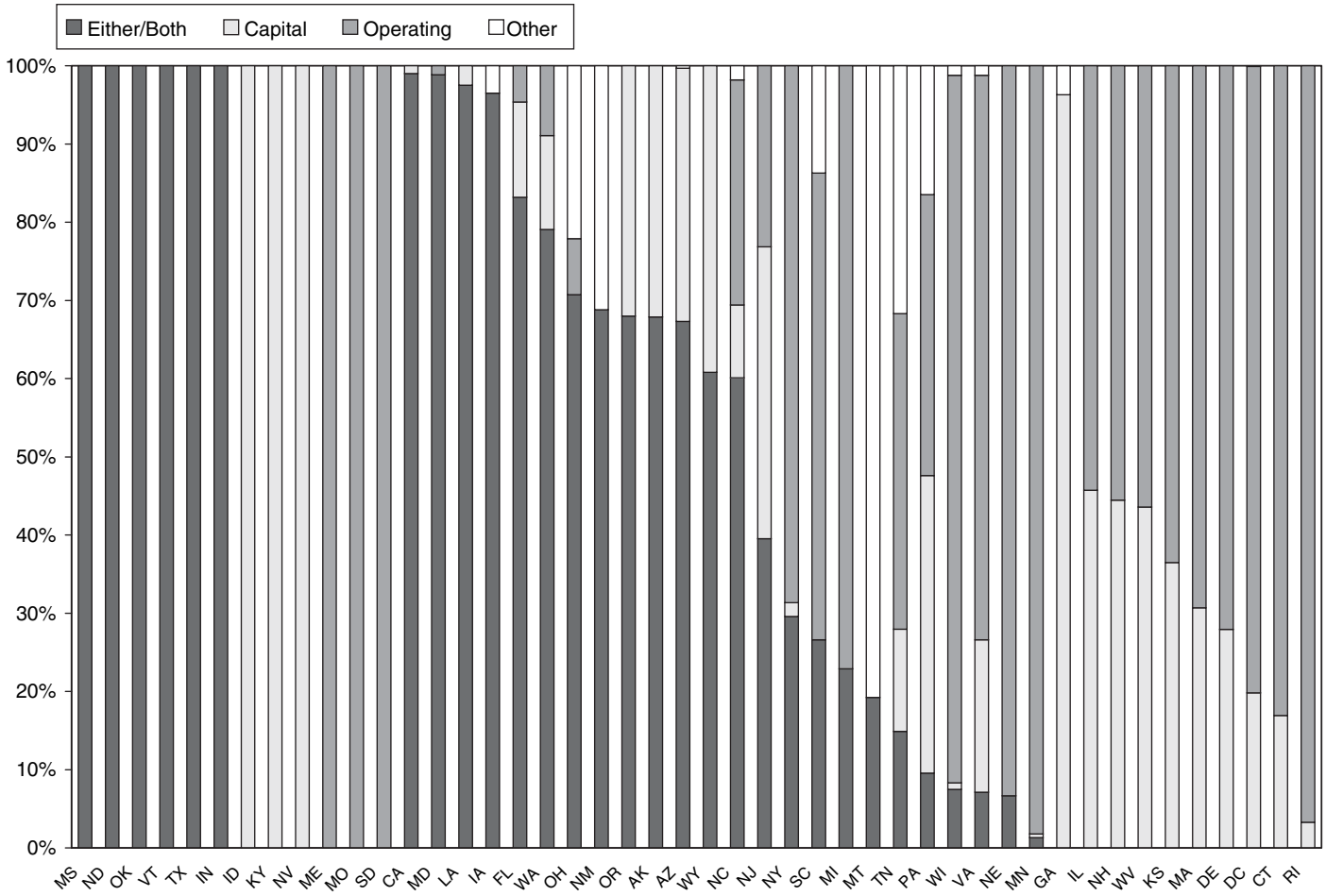


Figure 40. Distribution of state transit spending (data from Table 3.2 of the* Survey*).

The largest single source of funds, claimed by 25 states, is "other." Given that the remaining choices cover a wide variety of funding sources, either a key source is missing from the survey or states do not appropriately assign their funding between the available choices. The research team recommends contacting several of the states before the next survey is conducted to try to determine the issue. The survey is not particularly useful when such a high proportion of states use the "other" response.

Of the 46 states, 24 relied on a single source of funds. Of those, seven relied on the general fund; two each on the gas tax and motor vehicle sales tax; one each on license fees, general sales tax, and interest income; and ten on "other" sources.

3.4 Funding Categories

Most states have a fair amount of funding flexibility, but some states restrict their funds to either capital or operating. Figure 40 shows the distribution of categories of funding expenditures. "Either/both" means that funds are flexible, while funds designated "capital" or "operating" can be used only for those expenses. "Other" funds are often designated for planning studies or administration.

Figure 40 shows that 12 states allocated all of their funding to one category, while the others allocate it among two, three, or four categories.

SECTION 4

Additional Information for the *Survey*

This section presents the suggestions the research team developed for enhancing future versions of the *Survey.* These suggestions were developed in concert with the analysis of the survey data. Many of the suggestions come from the interviews of state DOT officials and others who are regular users of the *Survey* and thus keenly aware of its contents and limitations. Other suggestions derive from work on the *Survey*—when the research team occasionally came across missing or obfuscated data that could potentially be remedied through an improved survey method.

The research team was careful to balance the need for new suggestions with restrictions on the number of questions that can potentially be asked, because response rates for the *Survey* may drop if the burden of responding is seen as too high. Therefore only the suggestions that could likely be accomplished without increasing this apparent burden are provided.

The suggestions are listed below in order of perceived priority and fall into five separate categories:

- **Consistent reporting.** In the course of the interviews with state DOT personnel intimately involved with the *Survey,* the issue of consistent data reporting arose. Apparently some states are reporting local funding sources in the survey, while others are not. For example, one state reports local assessments from regional transit authorities. These municipalities pay an annual assessment for the reimbursement of the net operating deficit. Other states do not report similar assessments. The survey should clearly indicate whether such funding should be reported.

  However, this issue goes deeper than just local funding. In general, the survey needs more detailed definitions across the board for respondents. Even a concept as simple as "state funding" must be defined explicitly. Similarly, questions should distinguish between enabling legislation and actual funding—some states seem to be confusing the two when they report their data and both are useful data points.
- **Alternative funding.** Another issue brought up by interviewees was the idea that states should give more information regarding how they obtained "alternative" sources of funding for public transportation. Anything that is not a sales tax or a set-aside could be considered an "alternative" source and information about how these funds were obtained would be quite useful. For example, states that use a gas tax or registration fee could indicate the rates of these assessments and how they are collected. States could also be queried about the potential costs and benefits of different funding sources. This information could be useful to other states attempting to obtain new sources of funding.
- **Reporting of funding sources.** This related issue is by far the biggest issue encountered in this analysis, namely missing capital and operating data. Some states reported sources for only some of their funding, not the total amount. Other states do not report percentages for funding sources at all. Most states report a large portion of their sources as coming from the "other" category, which provides very little information about the funding source. The survey should contain a standardized system that clarifies how this portion of the survey should be completed. It should be made clear that all state funds should be accounted for, and explanations should be provided for ambiguous categories.
- **Transfers between transit programs.** Interviewees also suggested that one additional item the survey might cover would be transfers of funding between transit programs. Transfers are not currently tracked, and this survey might be a good place to present this information. Tracking could be accomplished with a question on the survey requesting data on how much funding was transferred and between which programs. Although data on funding transfers be-

tween highways and transit via the Surface Transportation Program is already available from FTA, they could also be included in the survey.

- **Breakdown by location.** One interviewee suggested that states could break down where they are spending their funds geographically. This type of breakdown could probably be accomplished simply by asking states how much funding they spend in rural, compared to urban, areas, perhaps with a separate category for the larger urban areas.

SECTION 5

Conclusions

This report has taken the data from one BTS survey and presented it in a manner that should be useful in making comparisons between states. The key analysis performed herein was a peer group analysis, where the research team assembled states into one set of peer groups and compared their state and federal transit funding levels. However, this project went beyond simply creating and analyzing one set of peer groups. The goal was to create a tool that provides a framework for readers to create their own peer groups in the future, for the purposes of analyzing this or any other state-level data. Moreover, the research team suggested some additional peer group sets that could prove relevant depending on the objectives of a given analysis.

The research team also took the data presented in the *Survey,* as already displayed in tables, and reorganized it to present it in a form that revealed additional information to the reader. The *Survey* is full of data presented alphabetically by state in table form. This table form makes the data difficult to use beyond the level of the individual state. Using principles of information design, the research team reformatted some of these tables into figures that display the information in a useful and visually appealing manner.

Finally, overall trends in state, federal, highway, and transit funding were analyzed. These data-intensive analyses utilized some of the information in the *Survey* as well as outside data to provide an overall picture of transportation funding trends at the state and federal levels. These analyses can be viewed in the appendix.

The *Survey* as it stands today is useful for looking up data for individual states, but it provides little comparative informational analyses. This report's presentation of the data, in the form of peer group comparisons and visual displays, helps states compare their transit funding levels in additional meaningful ways. This report also presents suggestions for ways to enhance the collection of this type of data in the future. Through these suggestions, as well as the principles and analyses outlined in the report, the research team hopes that future versions of the *Survey* will be enhanced.

APPENDIX

National and State-by-State Funding Comparisons

This appendix displays two types of time-series comparisons:

- Transit funding from state and federal sources over time
- Transit and highway funding from federal sources over time

The appendix first displays these comparisons at the national level. It then displays comparisons of relative funding growth rates on a state-by-state basis.

Funding Trends at the National Level

This section focuses on funding trends at the national level, first showing the transit funding amounts from state and federal sources over time. It then turns attention to federal funding only, comparing trends in federal highway and transit funding over time.

To compare transit funding amounts coming from state and federal sources, two figures have been developed: Figure A1 shows capital expenditures from each source, and Figure A2 shows operating expenditures from each source. In creating these figures, the state funding category was defined to include "capital assistance," "operating assistance," and "capital or operating assistance" data from the *Survey of State Funding for Public Transportation.* For the purposes of comparison, the "capital or operating assistance" number was divided in half and added to the "capital assistance" and "operating assistance" numbers, respectively. State funding data were unavailable for 1997, 2001 and 2002, and were therefore omitted. Federal funding data were obtained from FTA.

The figures show two trends. First, state capital funding has not kept up with federal capital funding, as the gap between them has grown dramatically in the last 12 years. Second, at the same time, funding for transit operating assistance provided from state sources has increased as federal operating assistance has dropped in recent years.

Figure A3 was created to compare funding from federal sources only, showing federal spending on transit and highway expenditures from 1992 to 2004. Data for this figure were obtained from FHWA's *Highway Statistics* and FTA. In pure dollar terms, FHWA spending has seen a greater increase during this time, going from $17.7 billion to $22.1 billion, a $4.4 billion increase, while FTA spending increased from $3.5 billion to $6.2 billion, a $2.7 billion increase.

In comparing highway and transit funding amounts over time, growth rates might also be of interest, in addition to overall amounts of funding. To compare trends in funding growth rates, Figure A4 was created, displaying the compound annual growth rate (CAGR) for federal highway and transit funding amounts. The sources for these data were FTA and FHWA's *Highway Statistics.* To add an additional dimension for comparison, the figure also displays national growth rates for vehicle miles traveled (VMT) and transit ridership over the same time period. Data for these comparisons were taken from the Bureau of Transportation Statistics' *National Transportation Statistics* and from APTA, respectively. The figure shows that while national VMT and transit ridership have grown at relatively similar rates, FTA spending has grown at a higher rate than FHWA spending.

Funding Growth Trends by State

This section of the appendix shows two comparisons for each state and the District of Columbia: the growth rates of transit and highway funding from federal sources only, and the growth rates of transit funding only from state and federal sources. Figures showing the comparisons are grouped by state and ordered alphabetically. Funding amounts from state sources were obtained from the *Survey of State Funding for Public Transportation;* funding amounts from federal sources—in particular, FHWA and FTA obligations—were obtained from FHWA's *Highway Statistics* and FTA. In cases

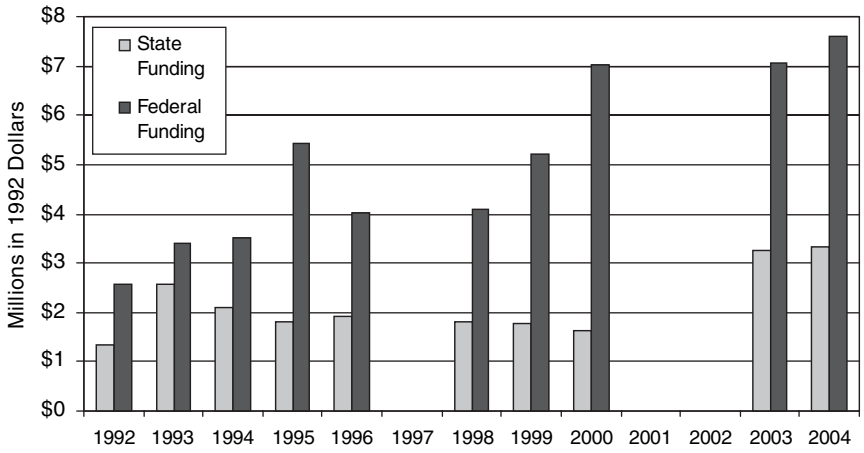


Figure A1. Capital funding for transit from state and federal sources (1992–2004).

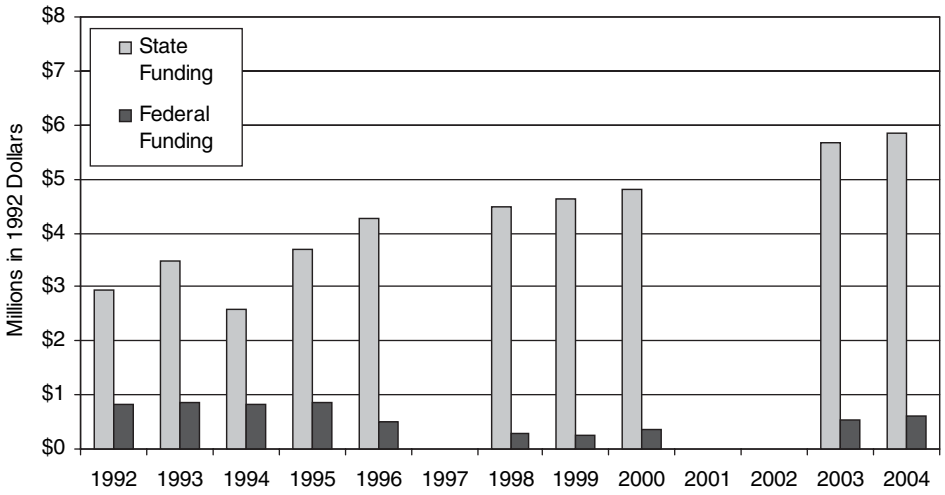


Figure A2. Operating funding for transit from state and federal sources (1992–2004).

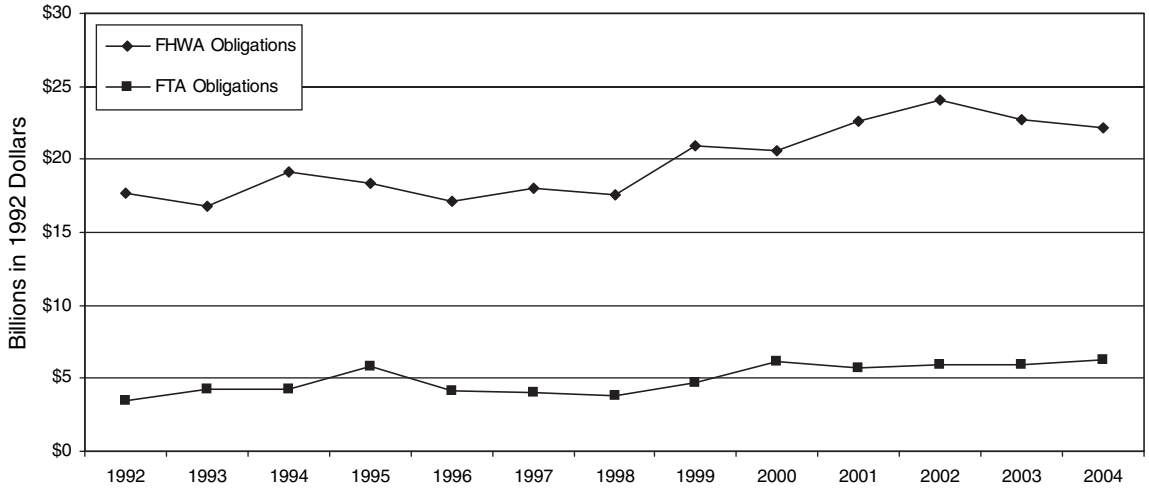


Figure A3. Highway and transit funding from federal sources (1992–2004).

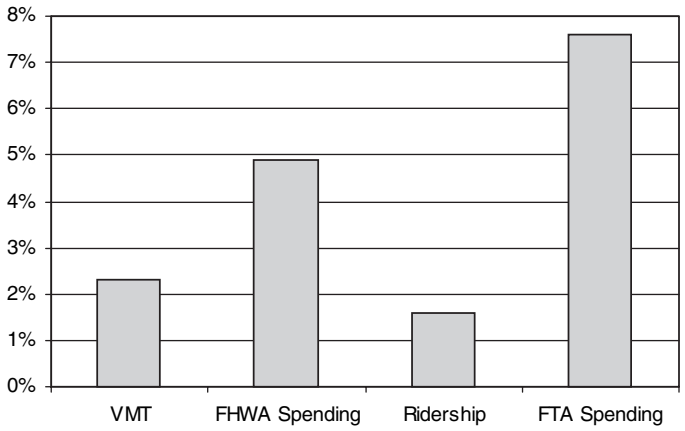


Figure A4. Compound annual growth rates for highway and transit indicators (1992–2003).

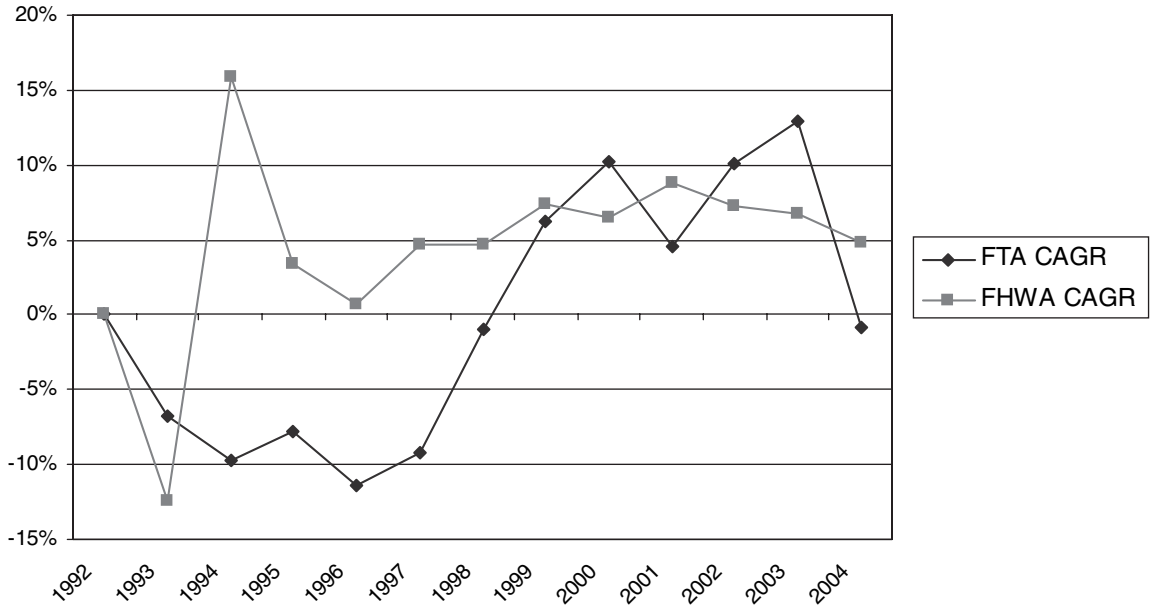
where amounts were missing for particular years, data points for those corresponding years were omitted from the graphs. Sometimes state data were insufficient overall to create a graph, in which case that particular comparison was omitted altogether.

The figures in this section use CAGR to show trends in transit and highway funding. CAGR is typically used to measure the growth rate of an investment, but it is also useful here because it shows steady growth over time. It describes the rate at which something would have grown over a certain period of time if the growth rate had been steady during that time.

For example, if the growth rate in transit funding for a state between 1995 and 1996 was 20%, and the growth rate between 1996 and 1997 was 50%, the CAGR between 1995 and 1997 would be 34%. Had growth been steady between 1995 and 1997, funding would have grown at a rate of 34% annually. In the context of many years of growth, CAGR can smooth out growth rates in a way that clarifies overall trends. In the case of this particular set of funding data, it makes trends much more visible. Regular growth rates in transit funding tend to vary wildly from year to year and thus do not provide a good sense of the general trend, but CAGR smoothes out those variations and provides a better sense of the overall direction of funding trends.

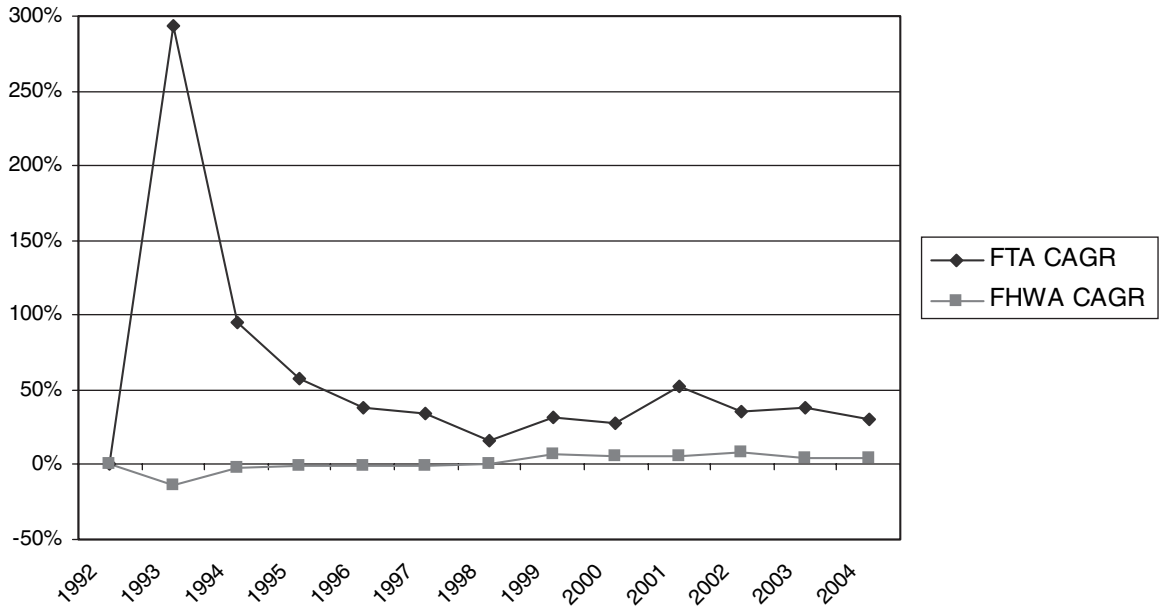
Alabama: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



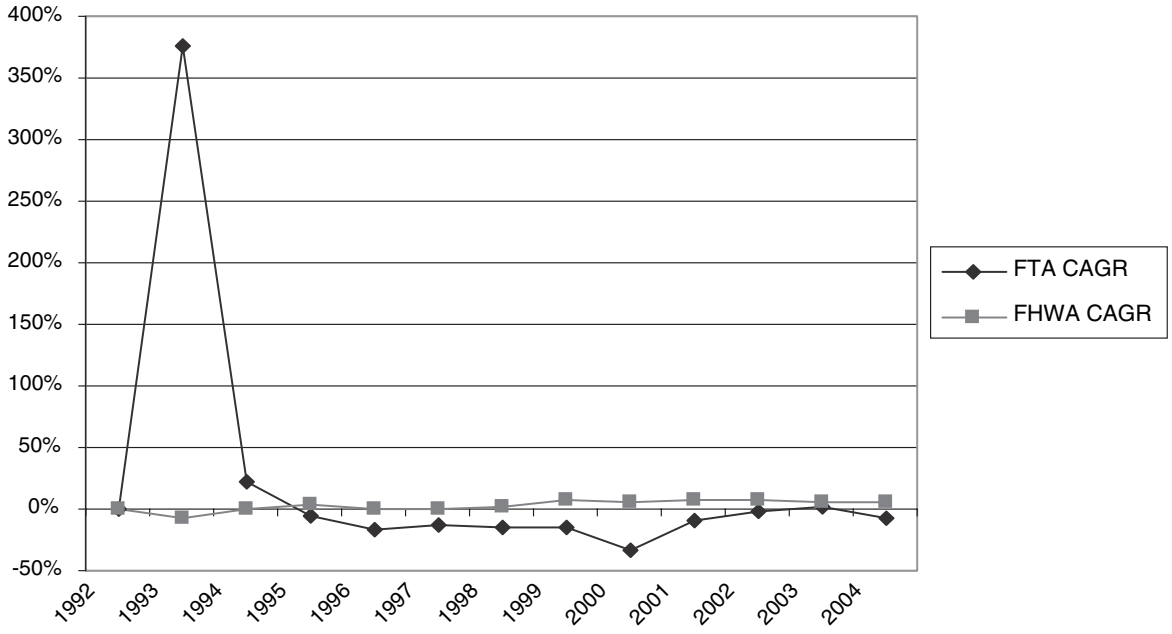
Alaska: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

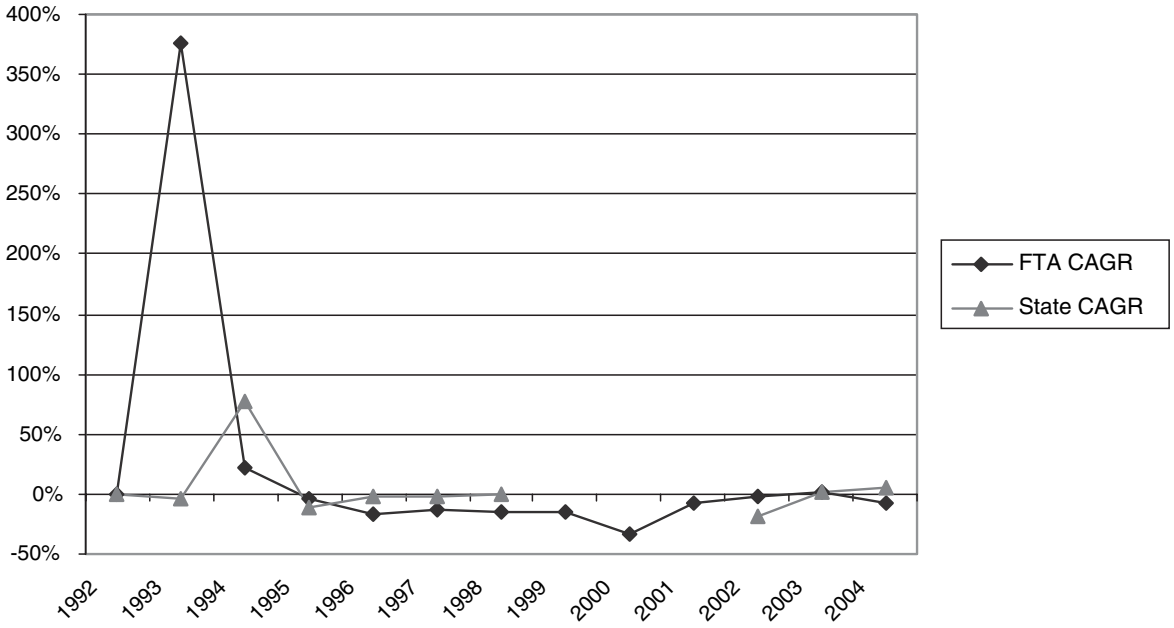


Arizona: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

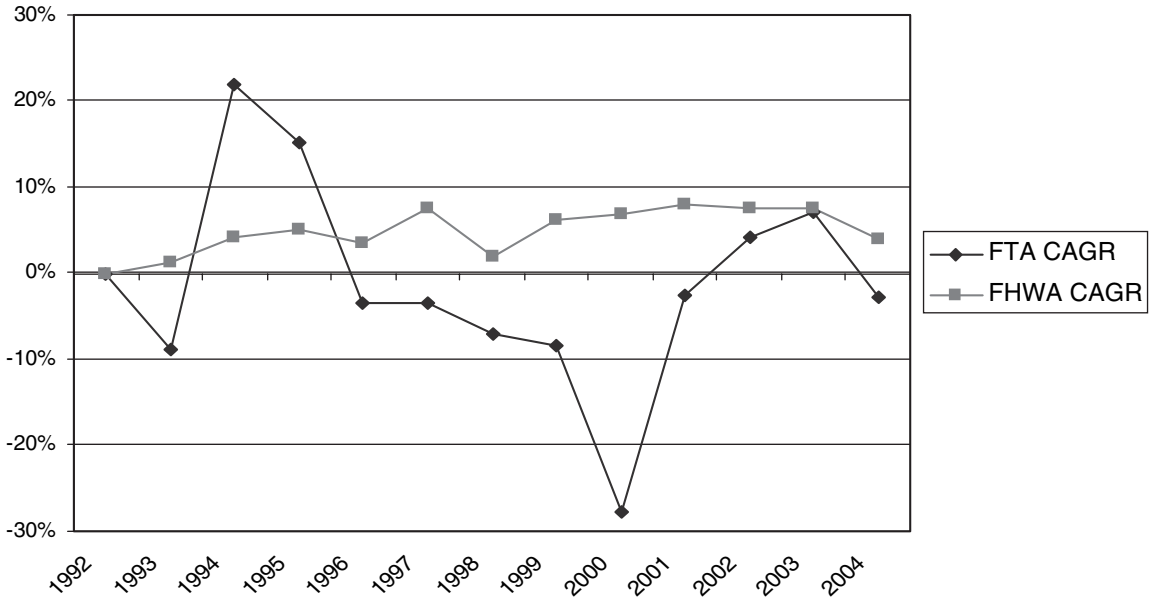


Federal and State Transit Funding

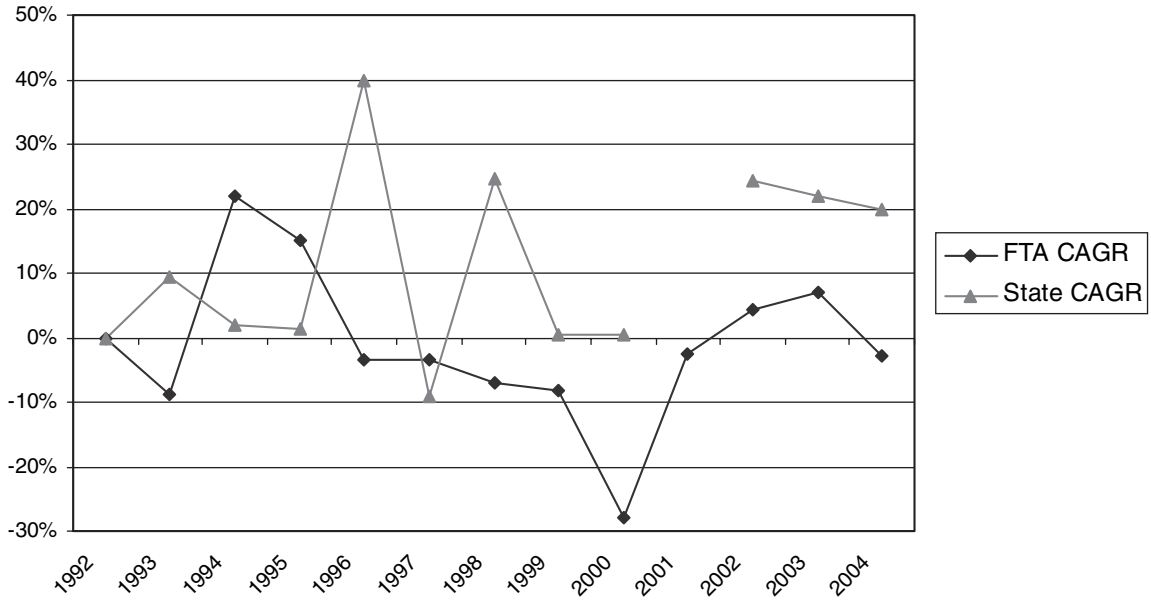


Arkansas: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

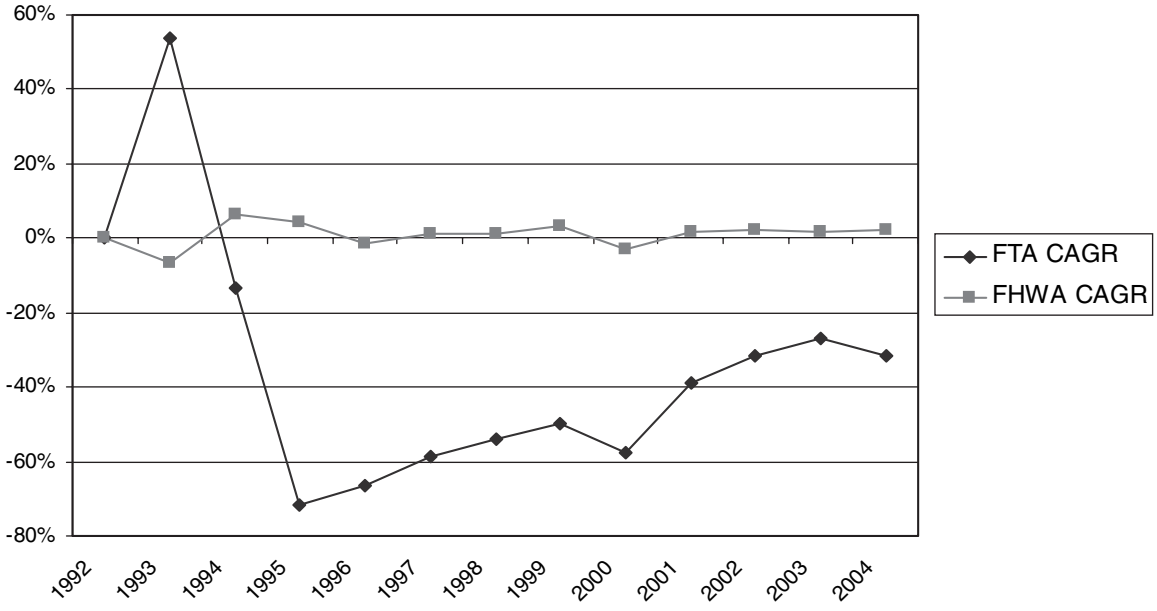


Federal and State Transit Funding

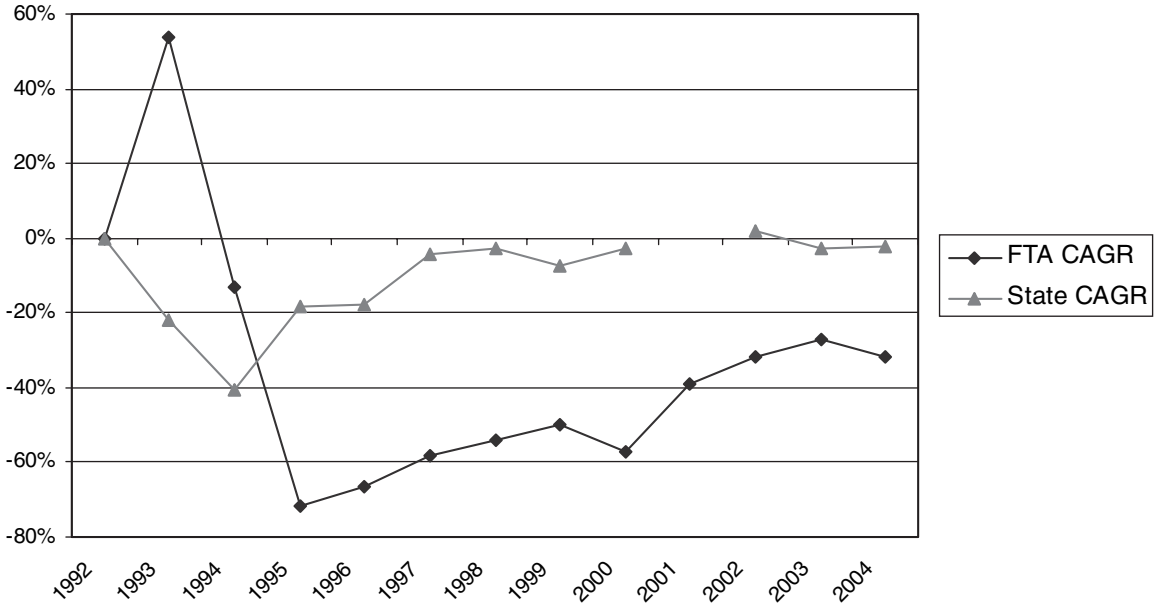


California: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

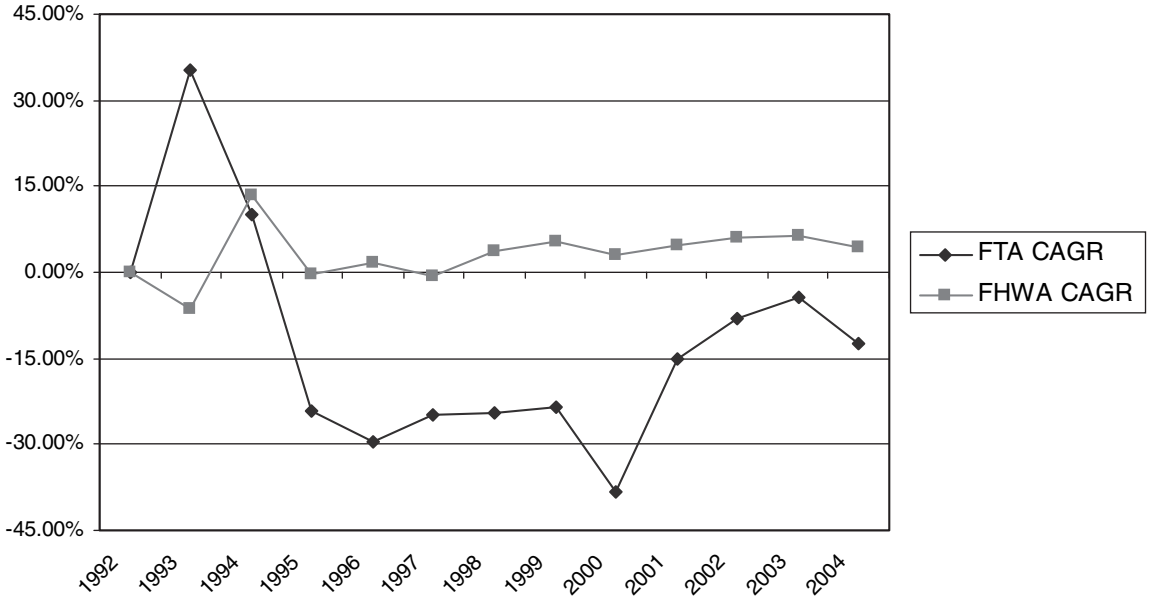


Federal and State Transit Funding



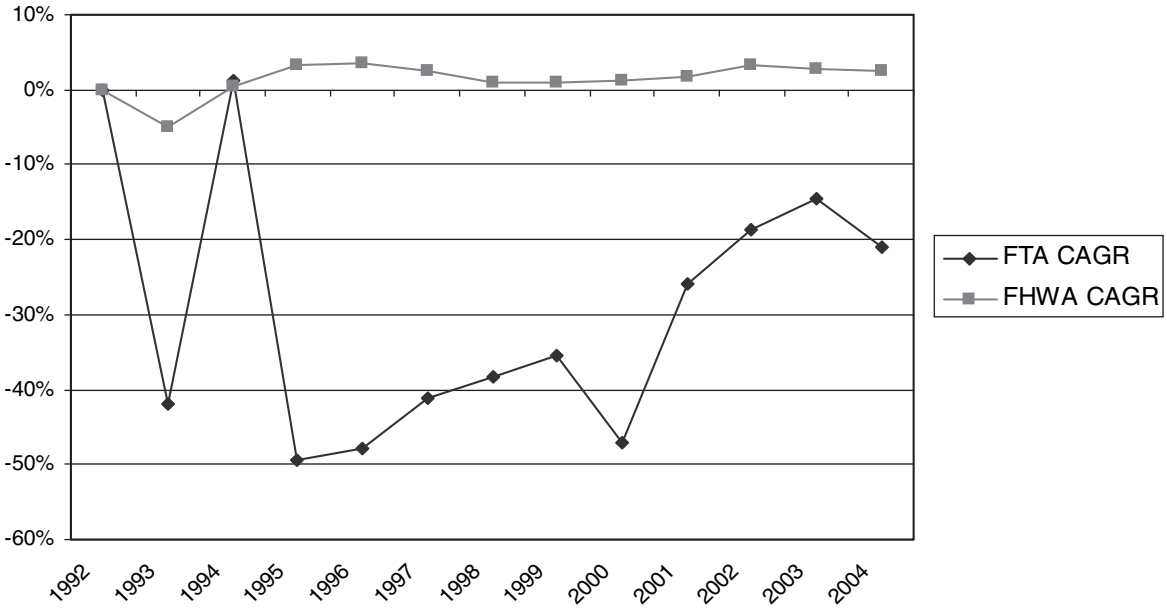
Colorado: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

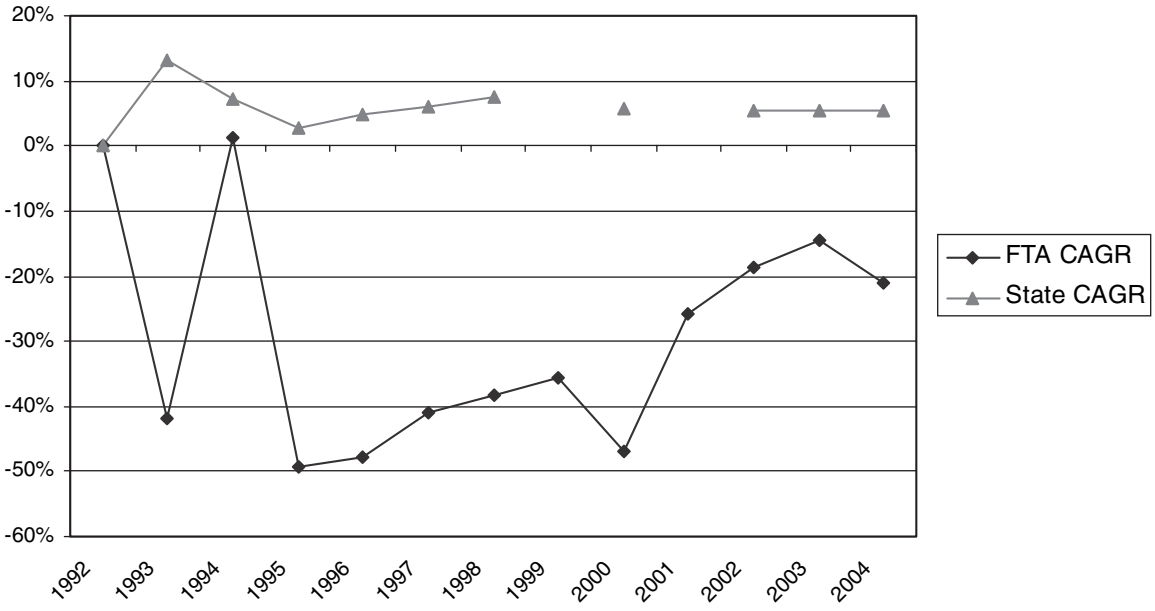


Connecticut: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

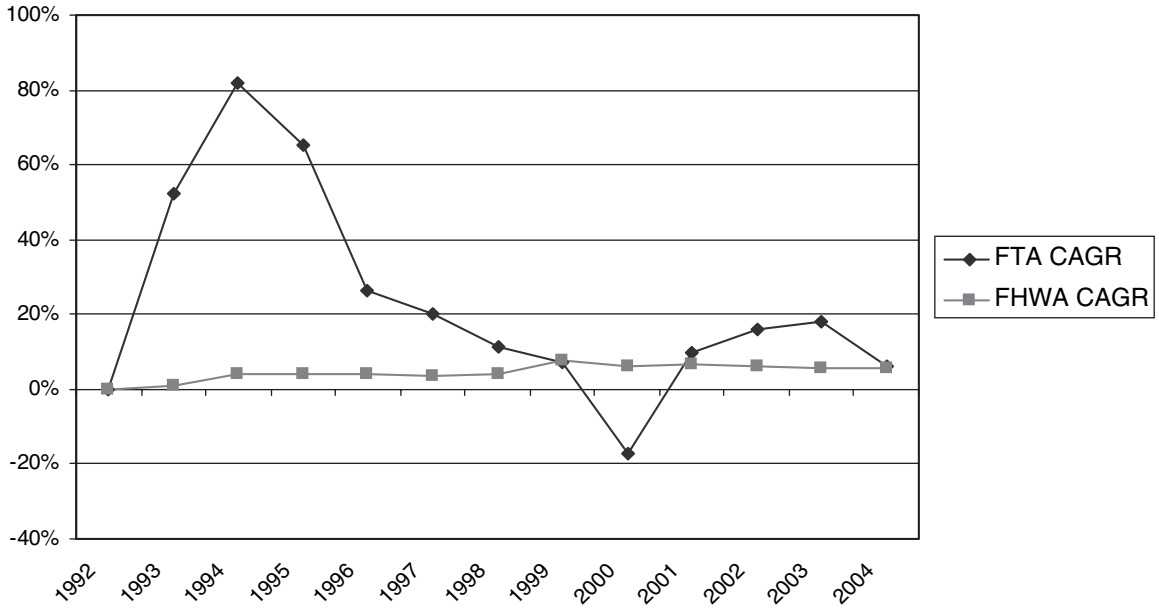


Federal and State Transit Funding

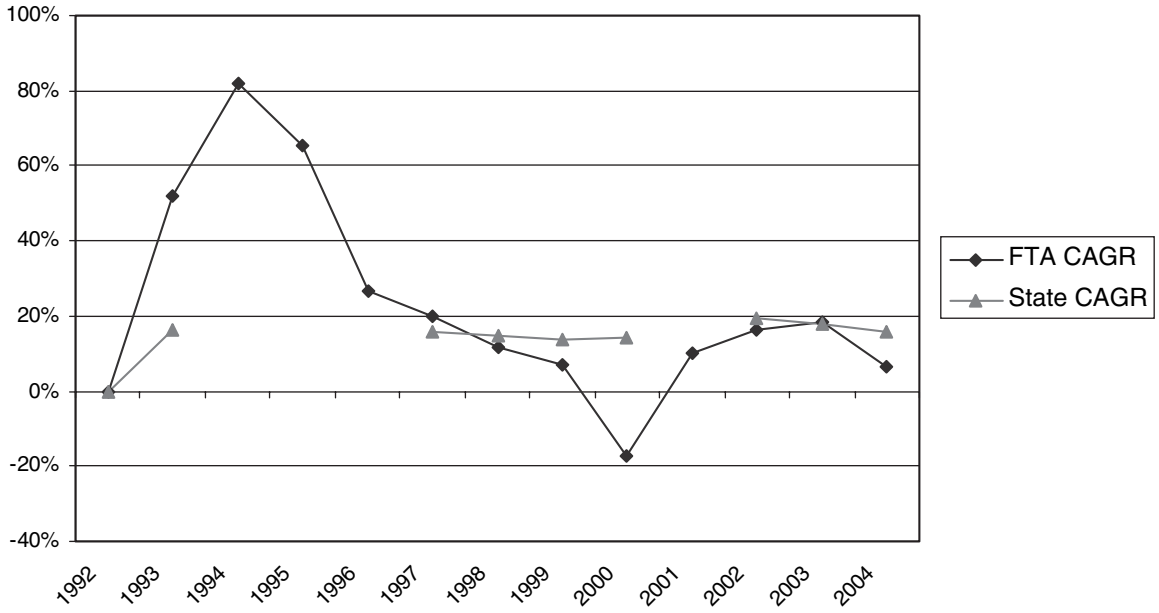


Delaware: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

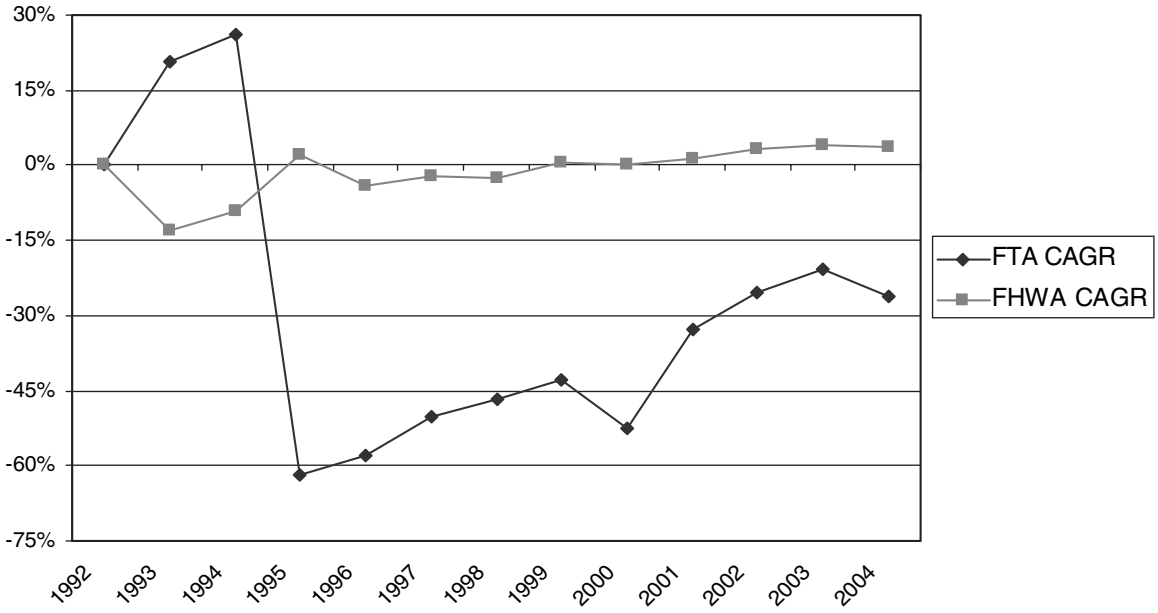


Federal and State Transit Funding

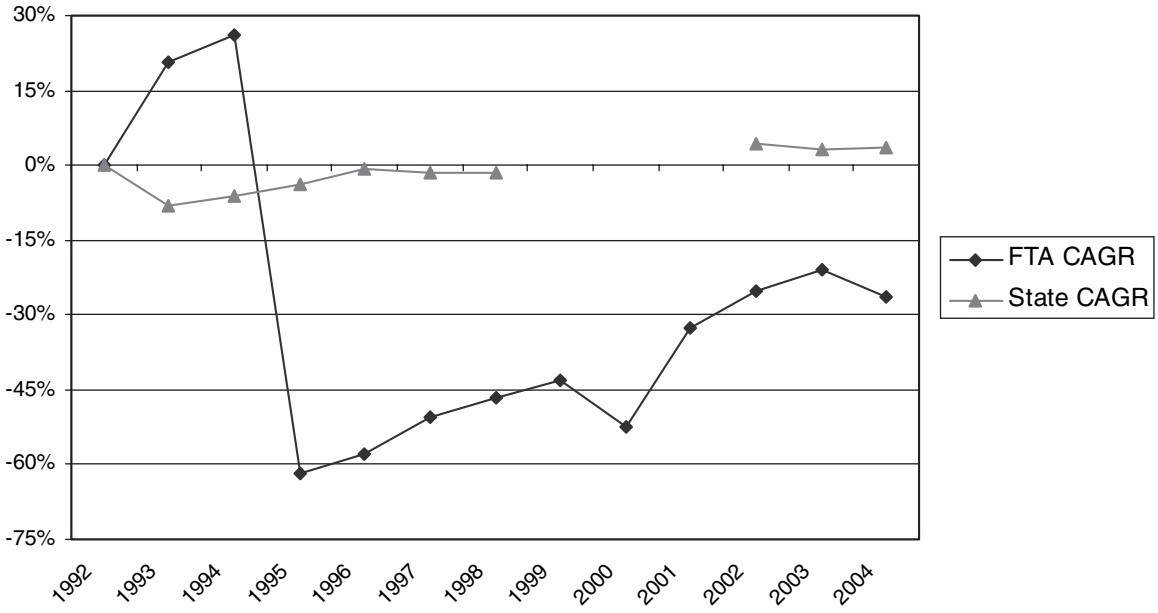


District of Columbia: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

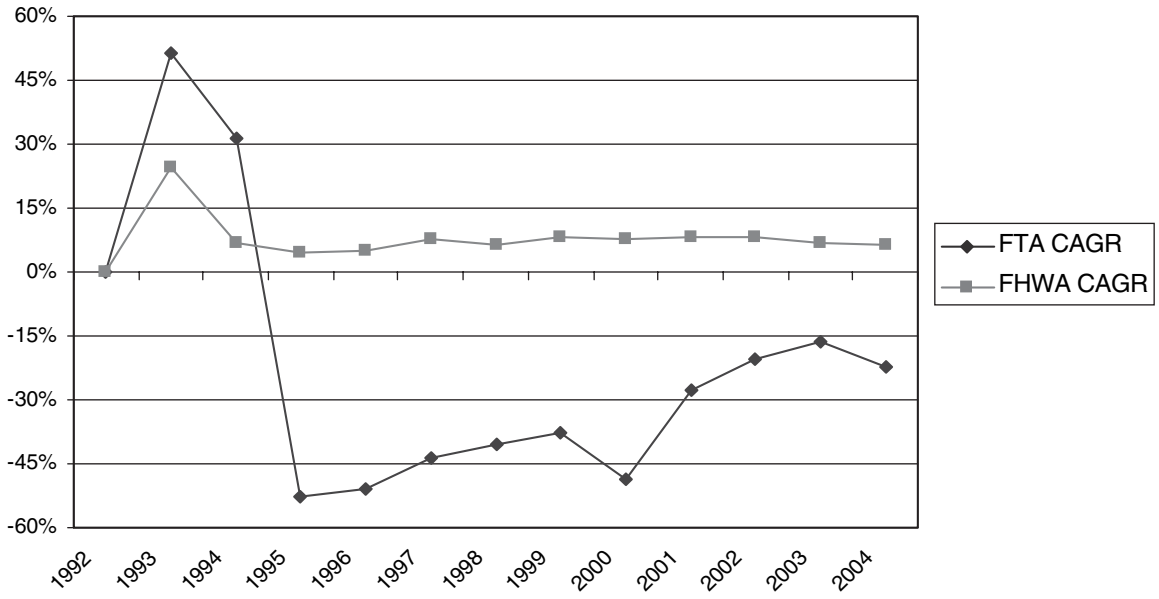


Federal and State Transit Funding

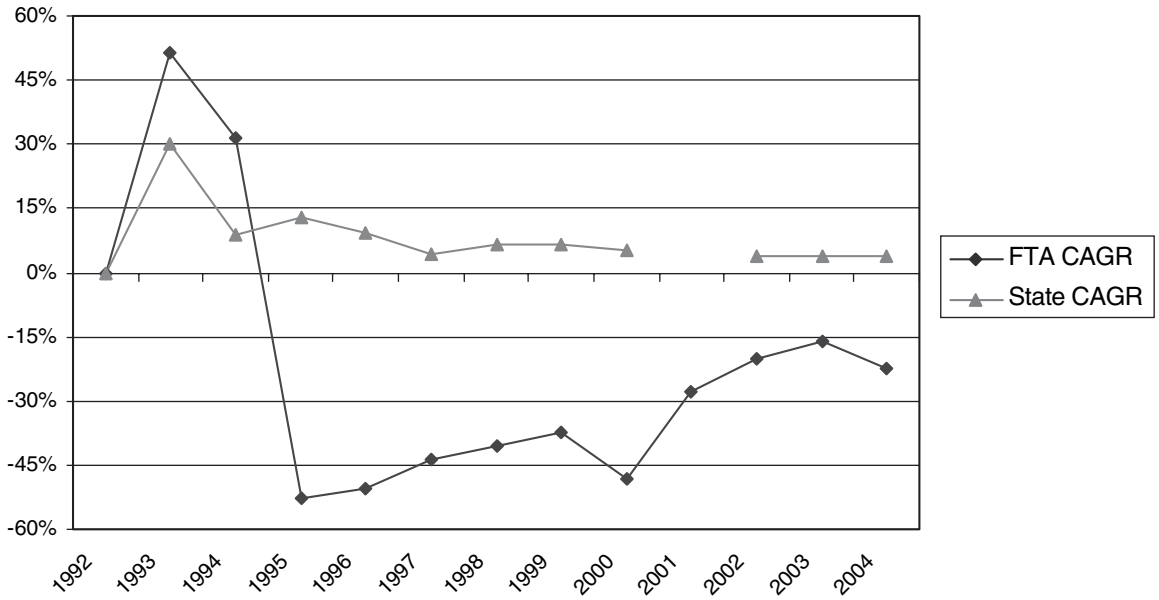


Florida: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

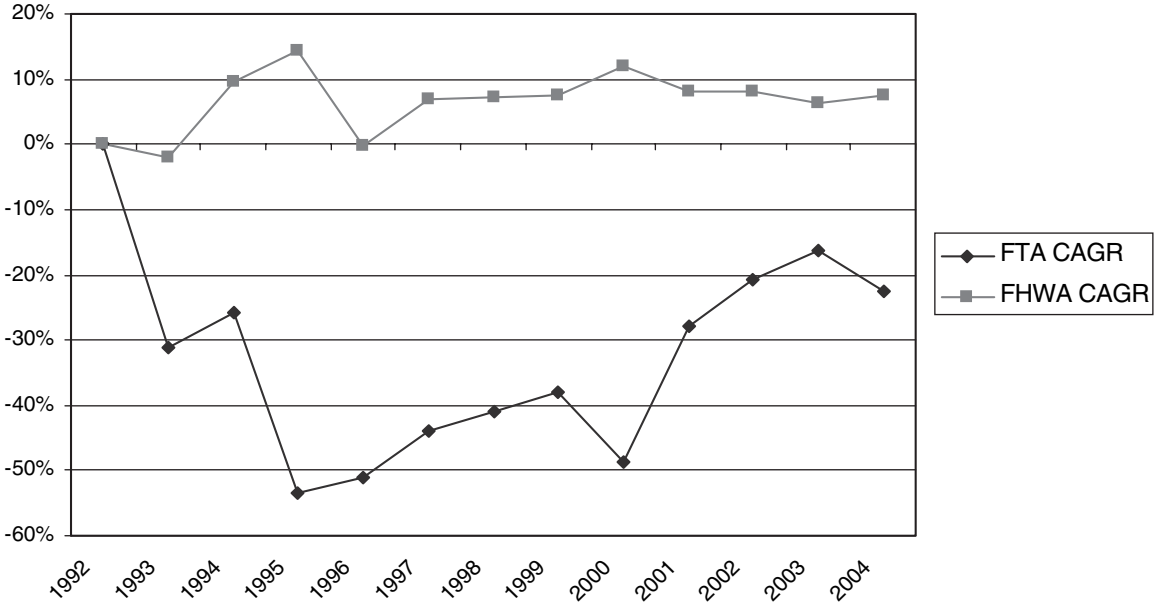


Federal and State Transit Funding

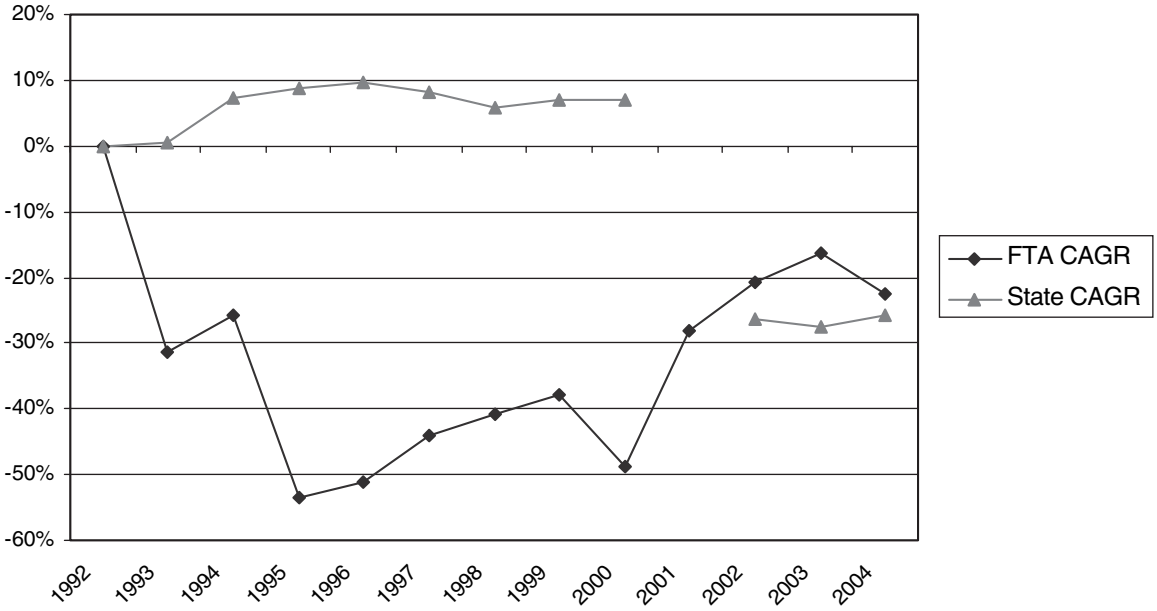


Georgia: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

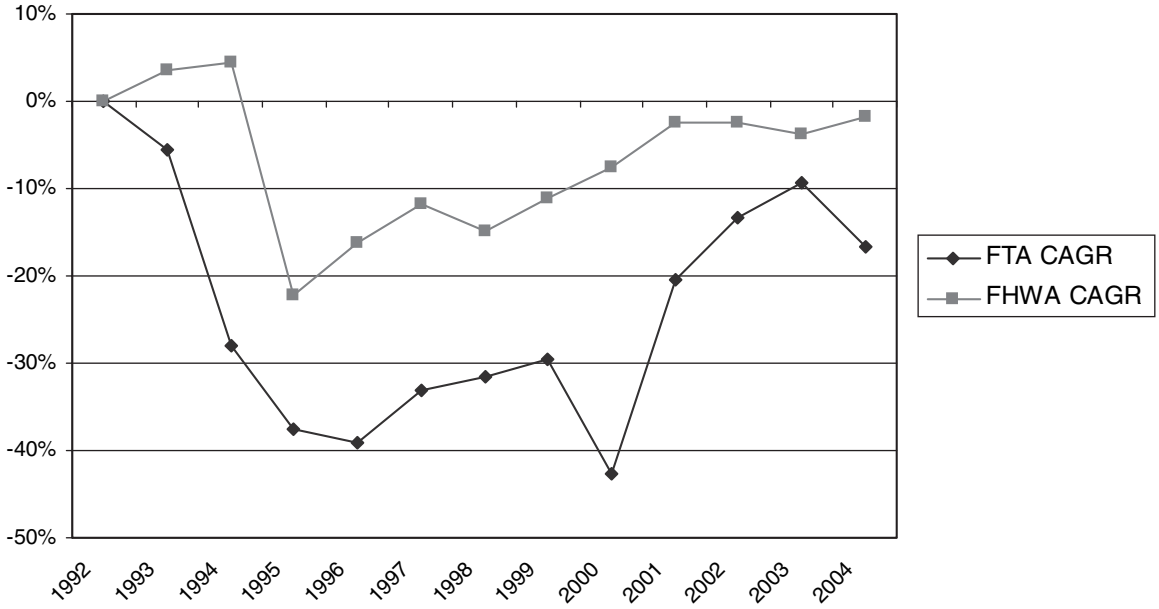


Federal and State Transit Funding



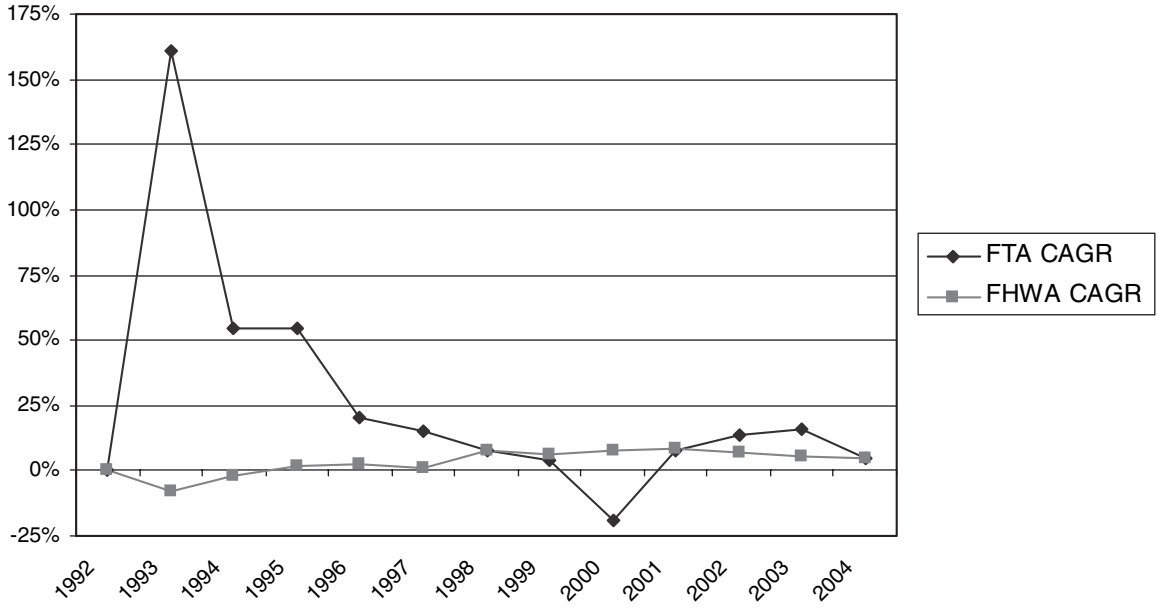
Hawaii: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



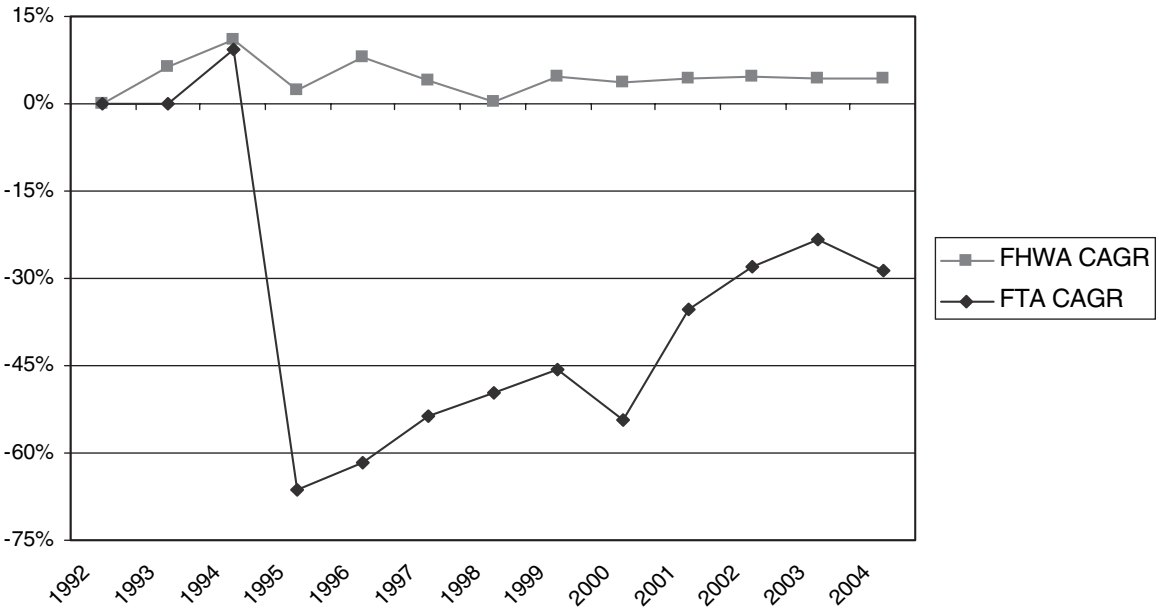
Idaho: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

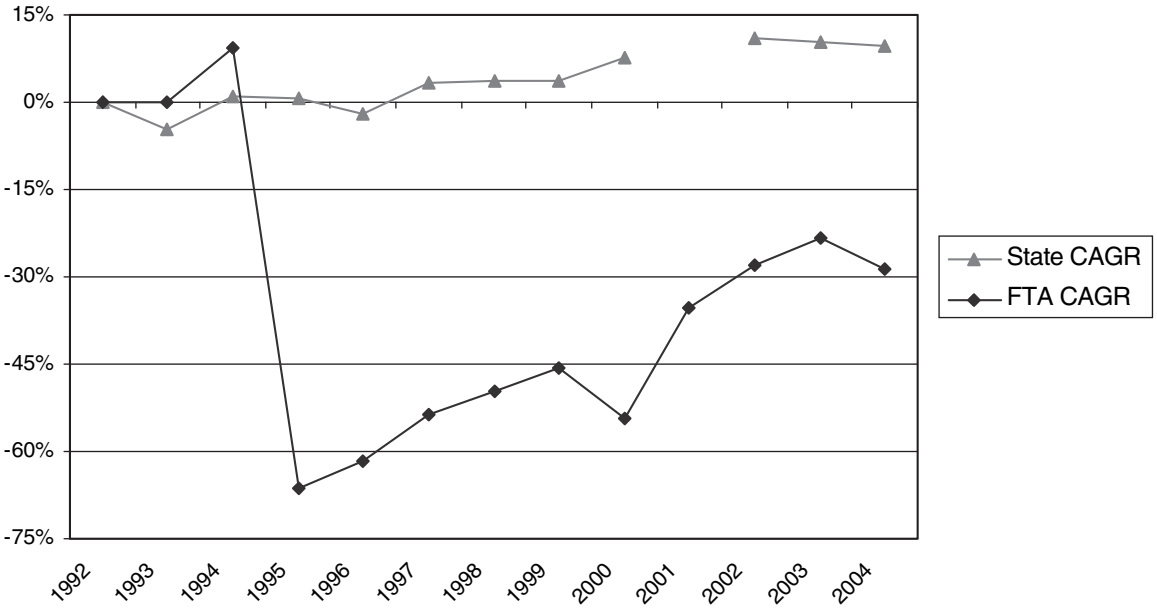


Illinois: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

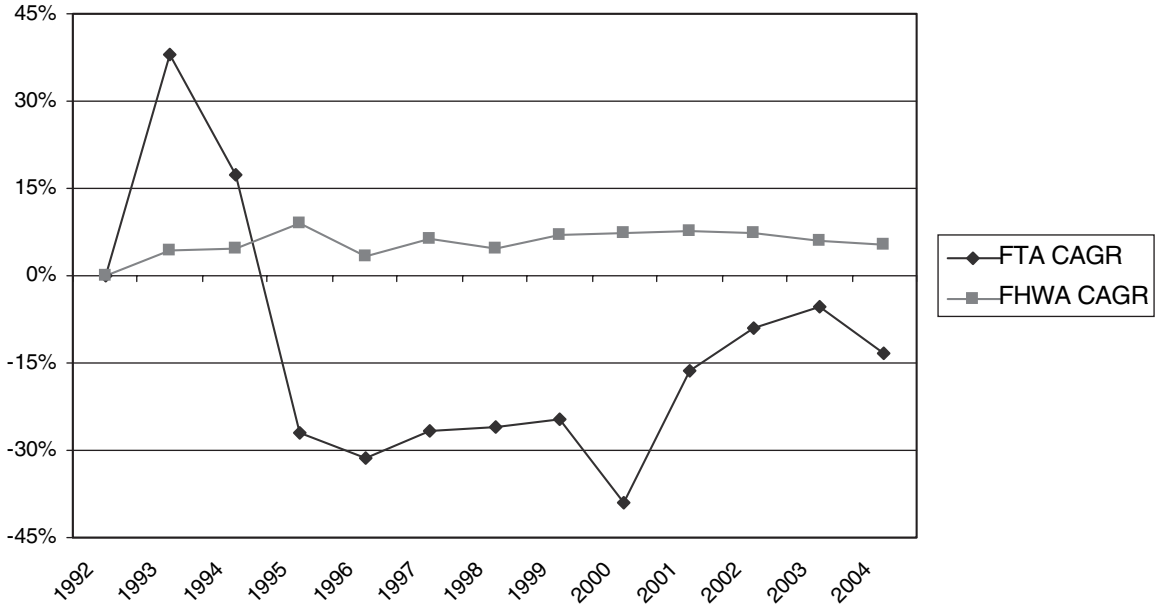


Federal and State Transit Funding

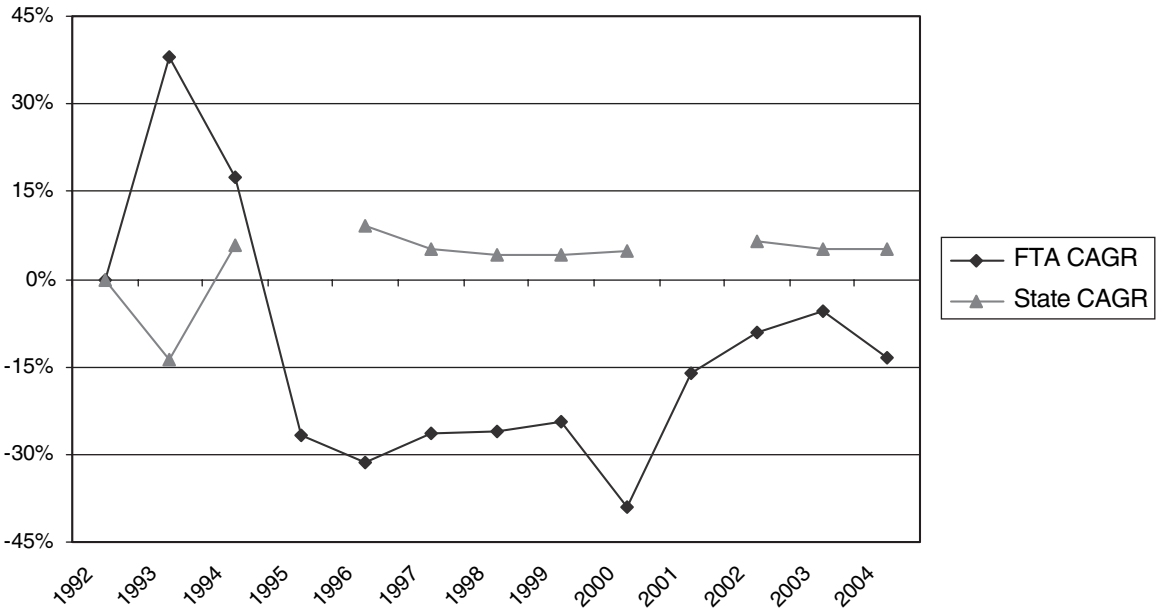


Indiana: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

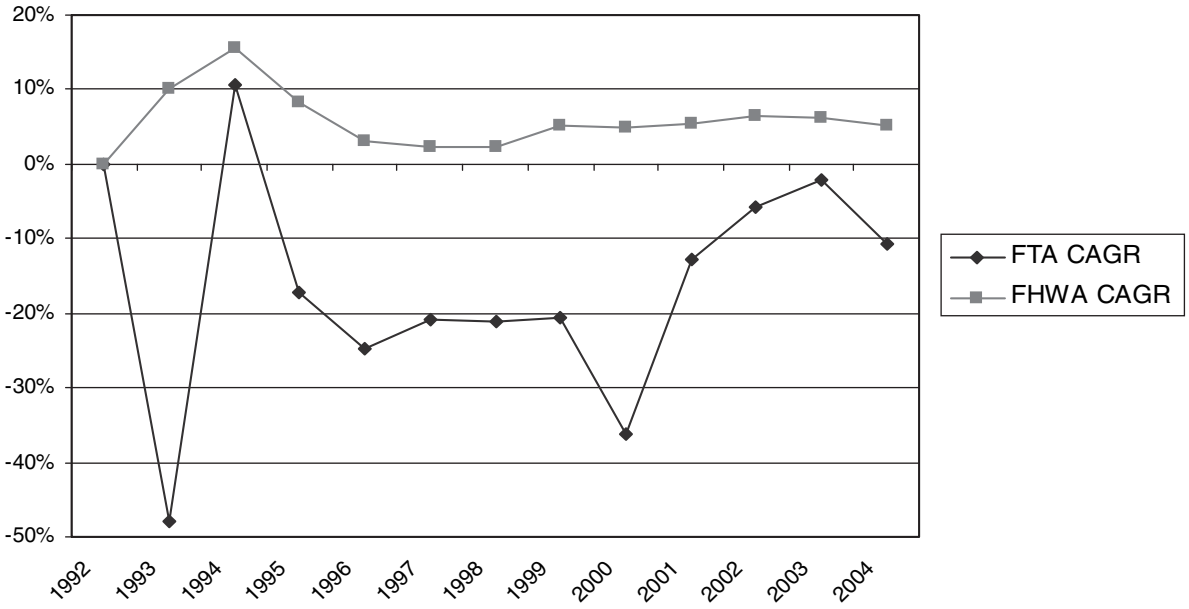


Federal and State Transit Funding

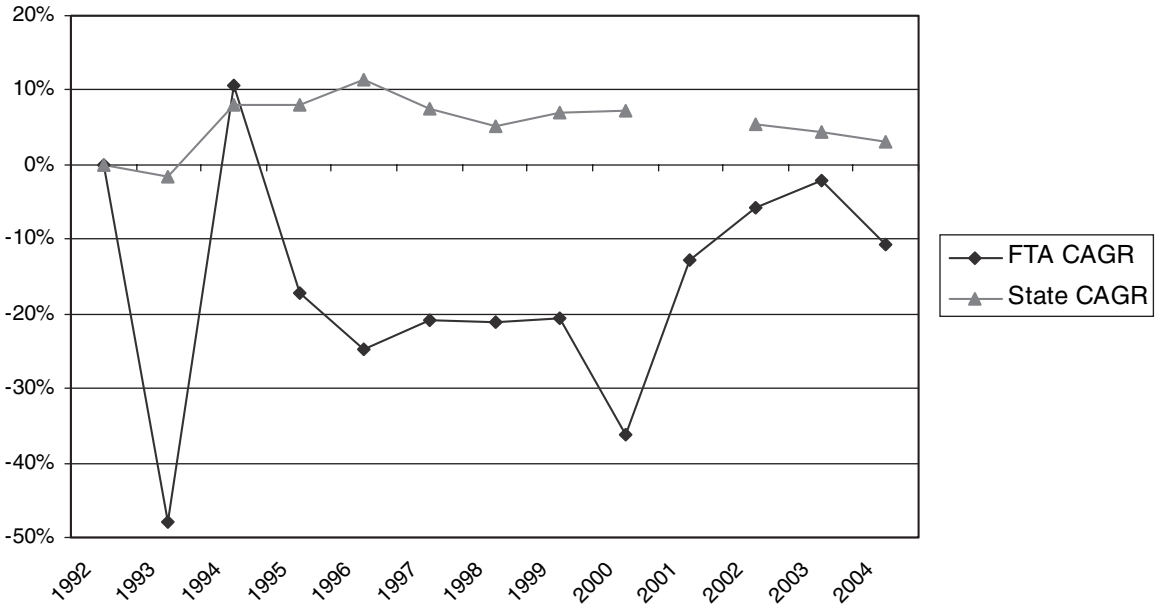


Iowa: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

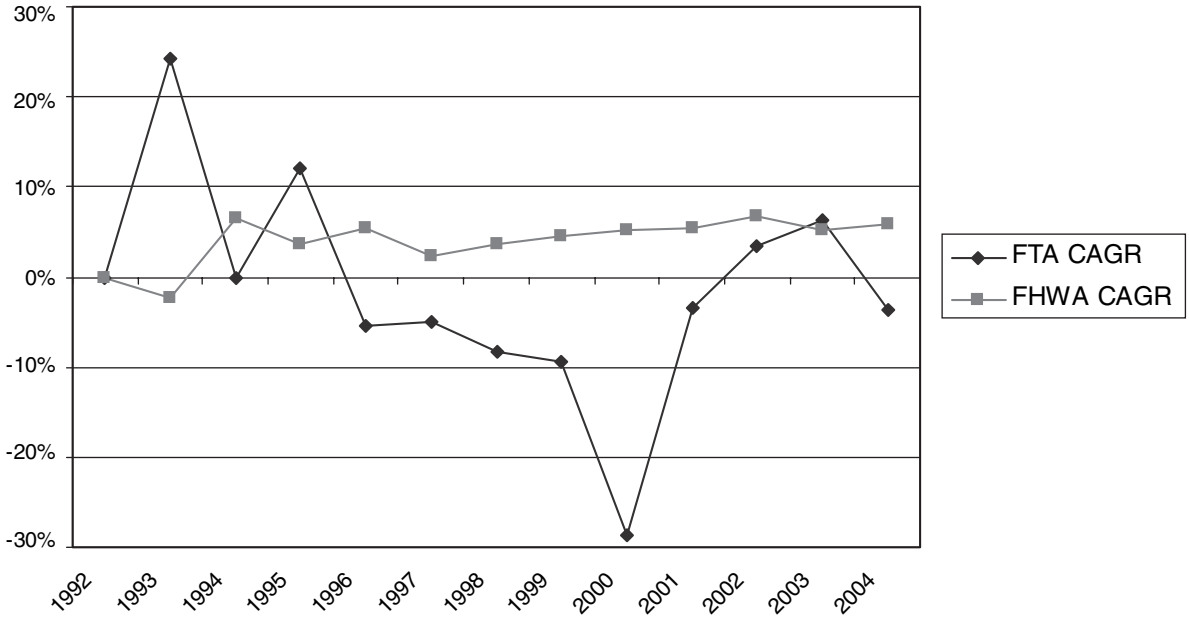


Federal and State Transit Funding

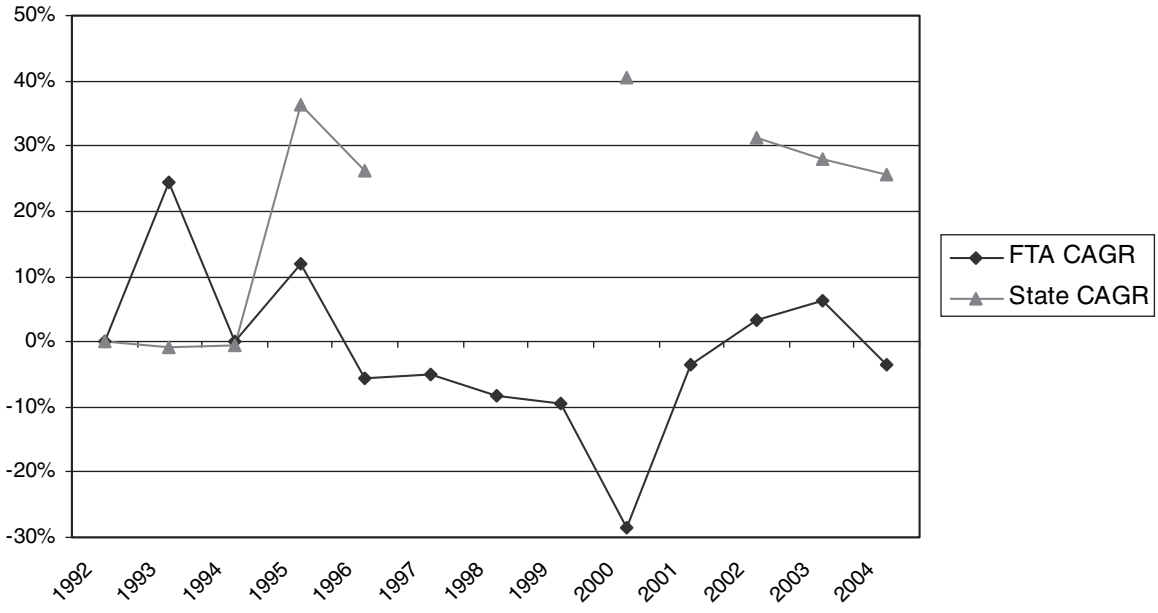


Kansas: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

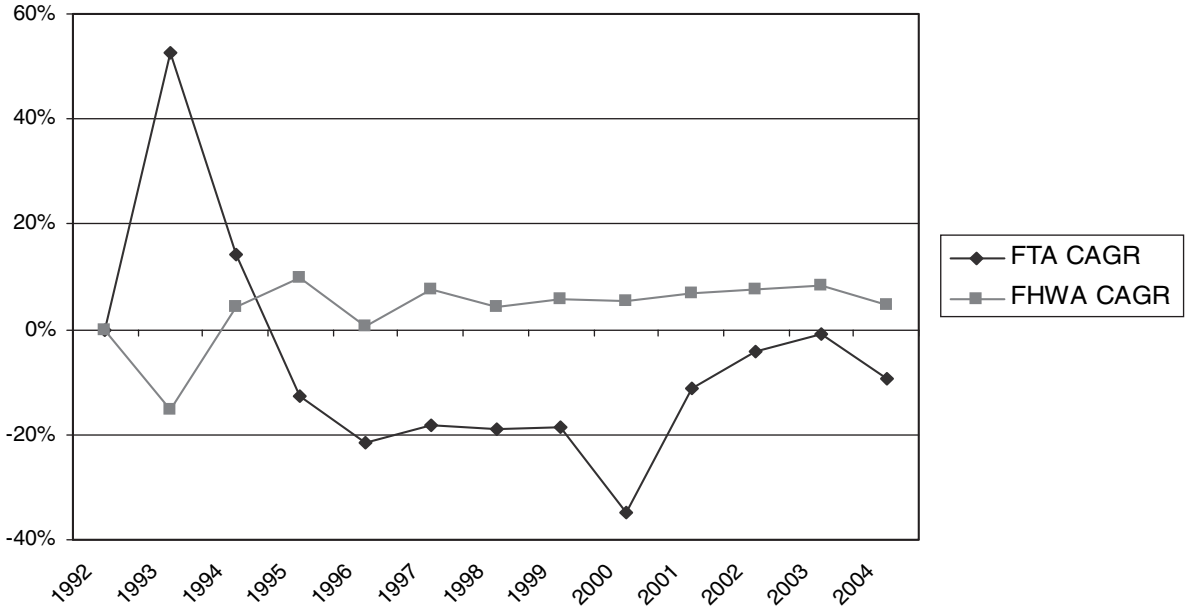


Federal and State Transit Funding

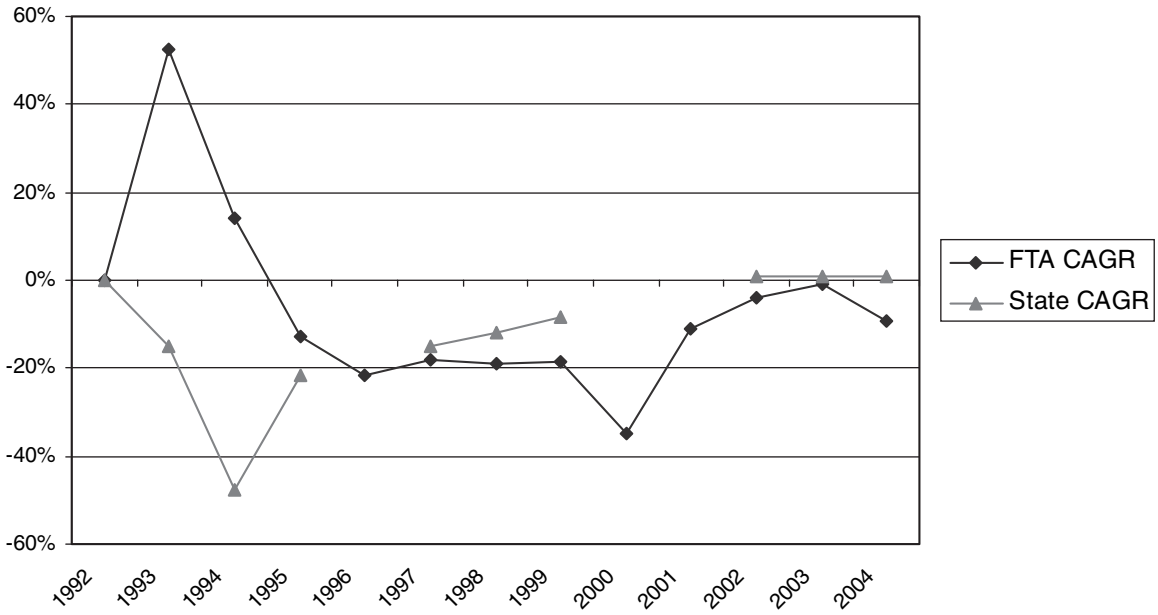


Kentucky: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

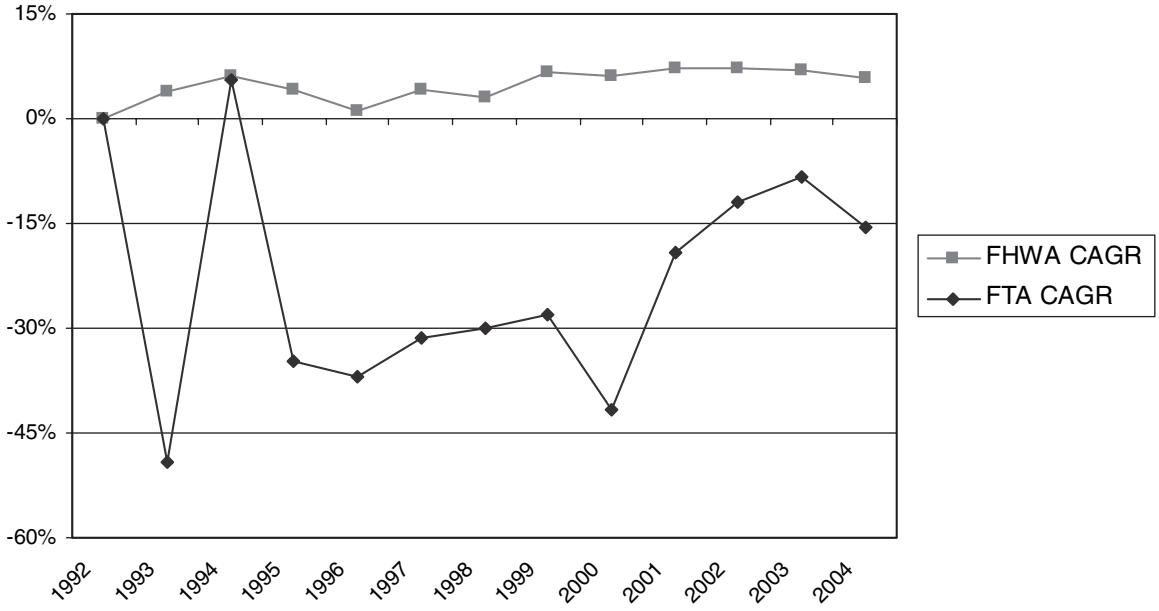


Federal and State Transit Funding



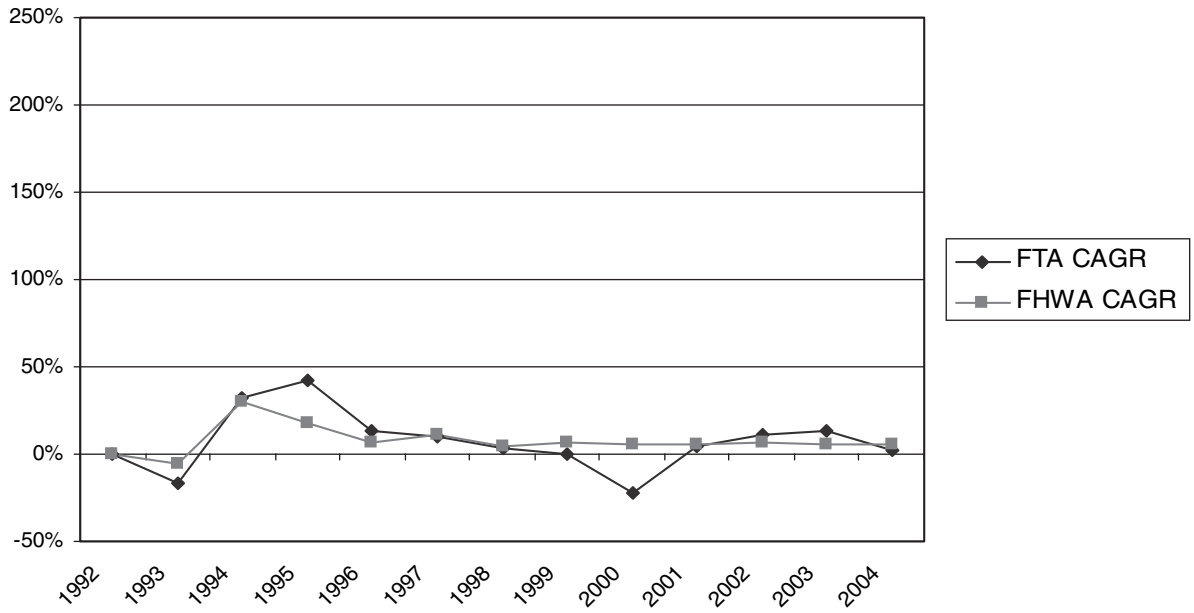
Louisiana: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

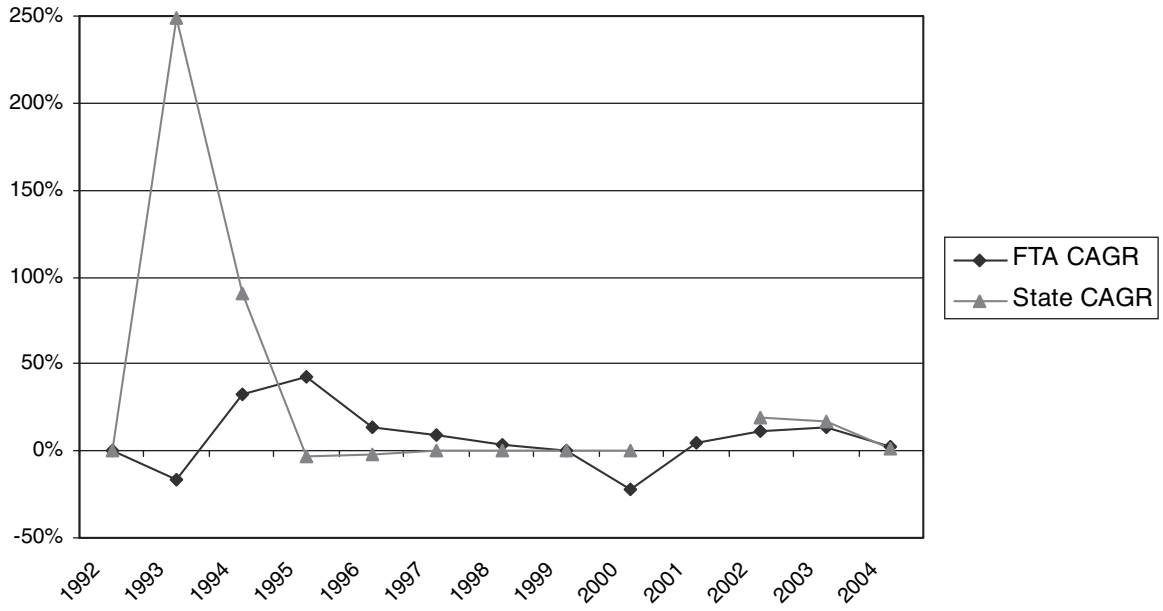


Maine: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

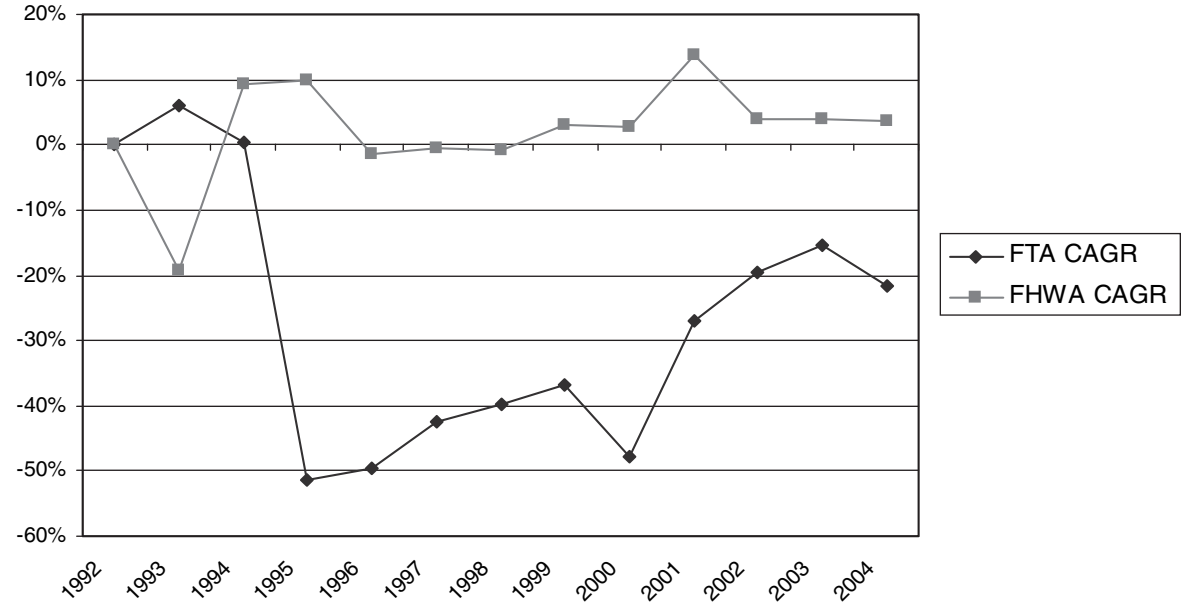


Federal and State Transit Funding

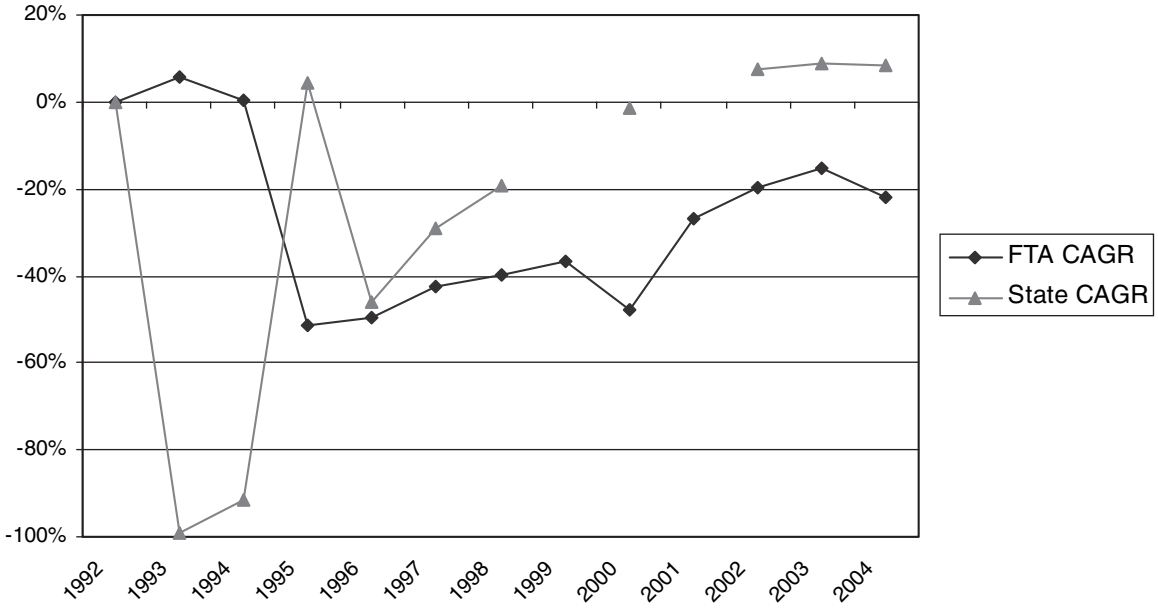


Maryland: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

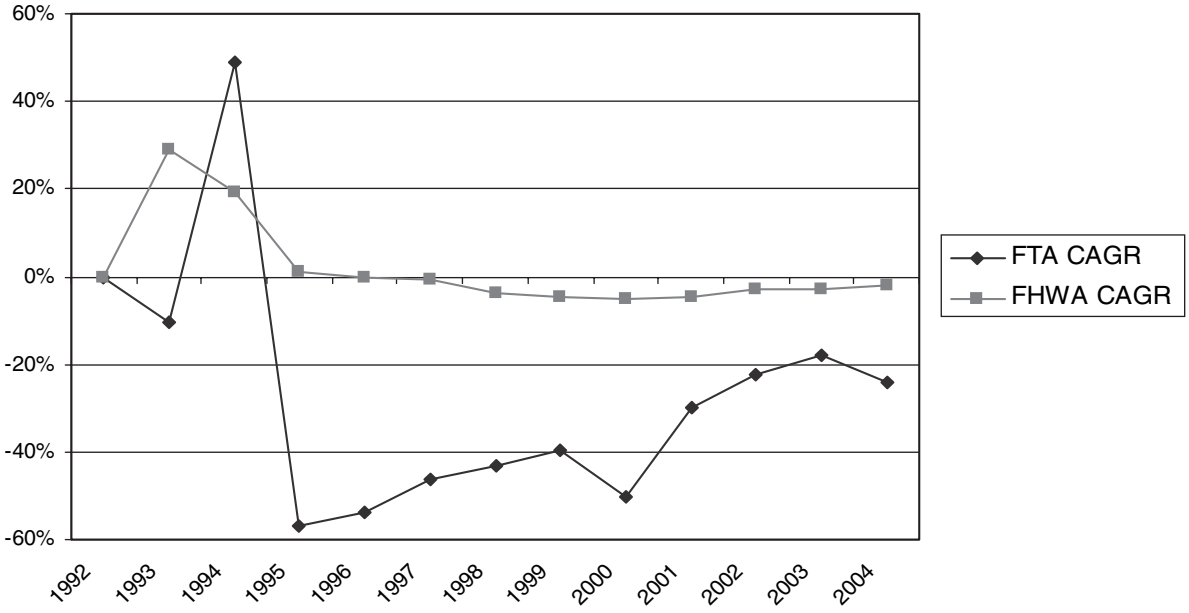


Federal and State Transit Funding

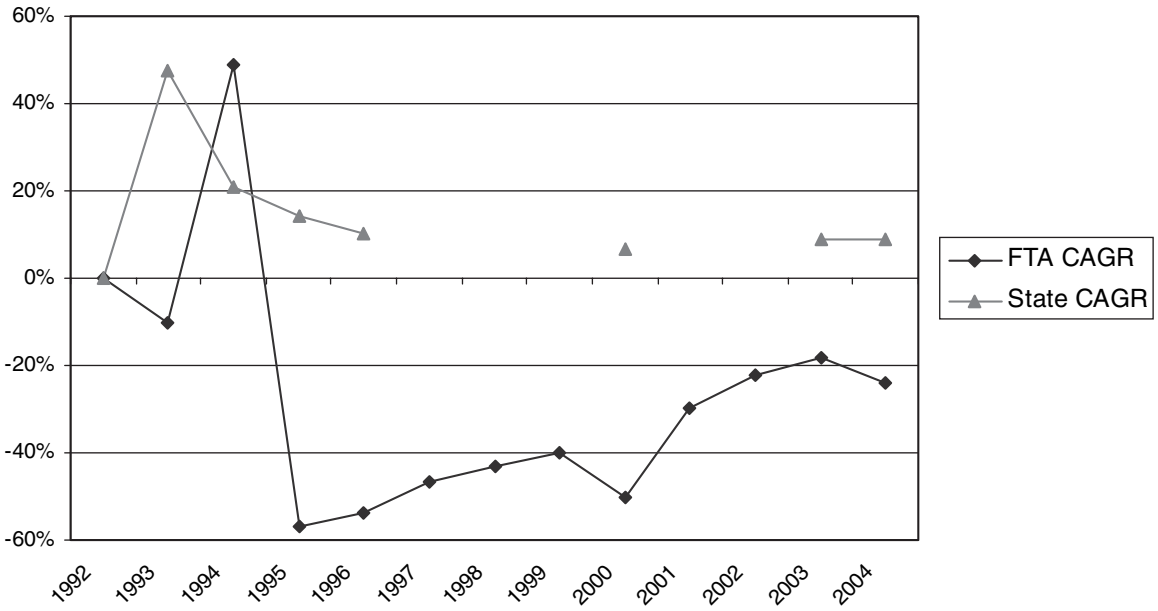


Massachusetts: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

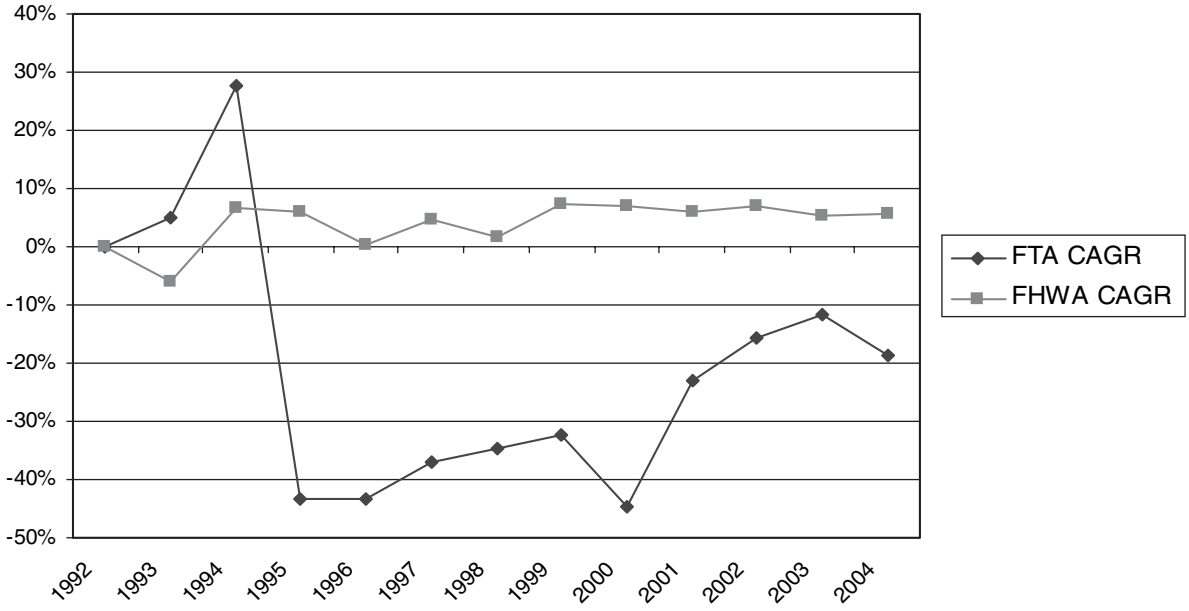


Federal and State Transit Funding

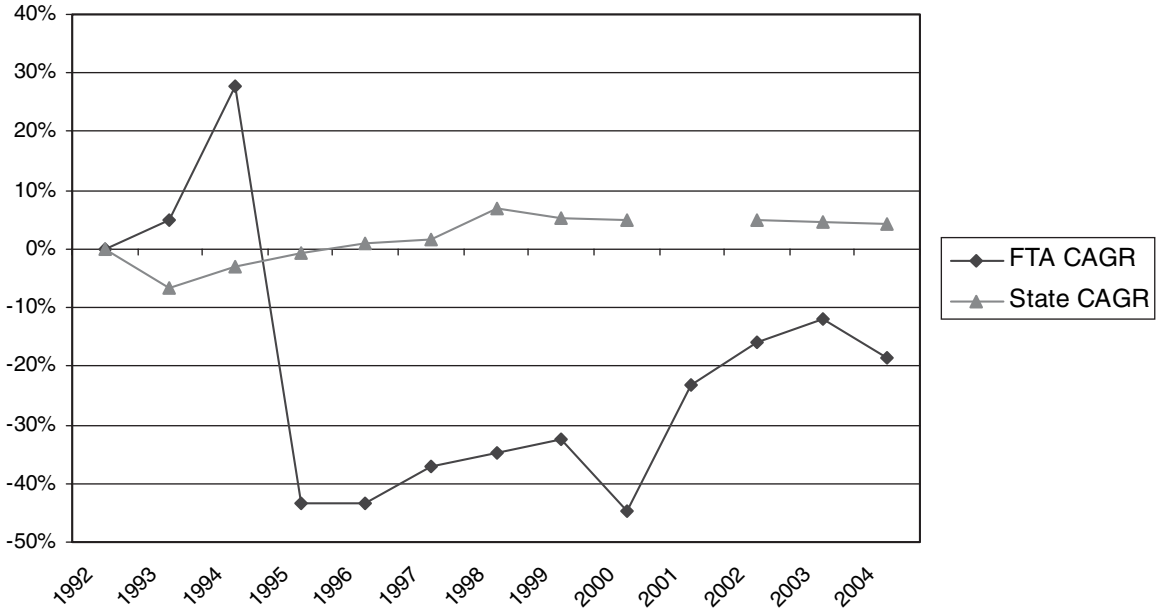


Michigan: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

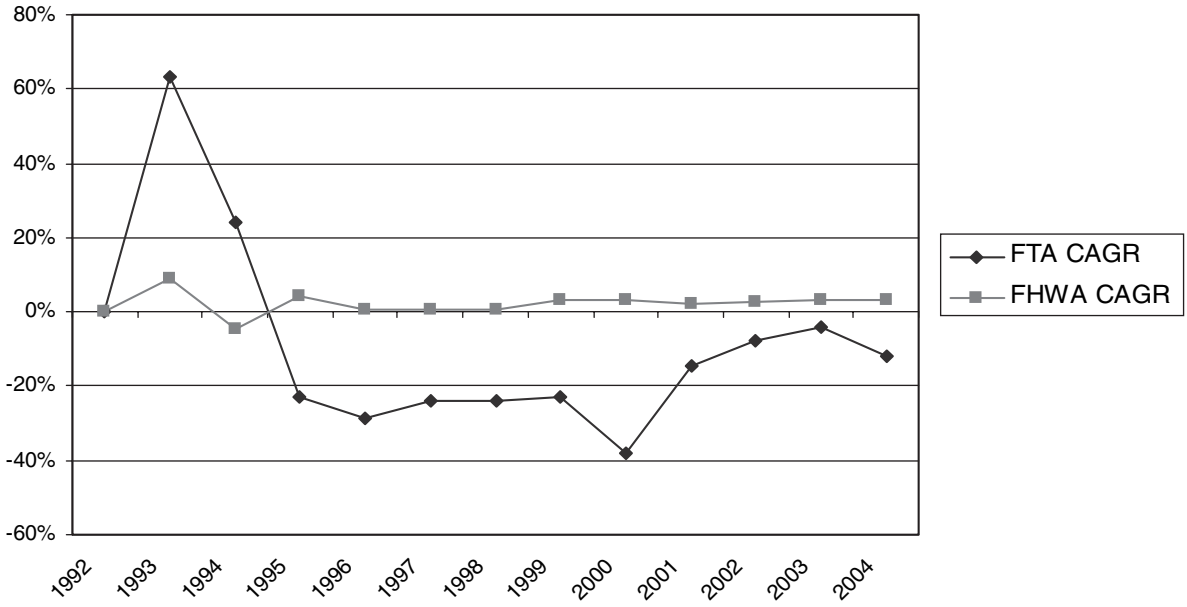


Federal and State Transit Funding

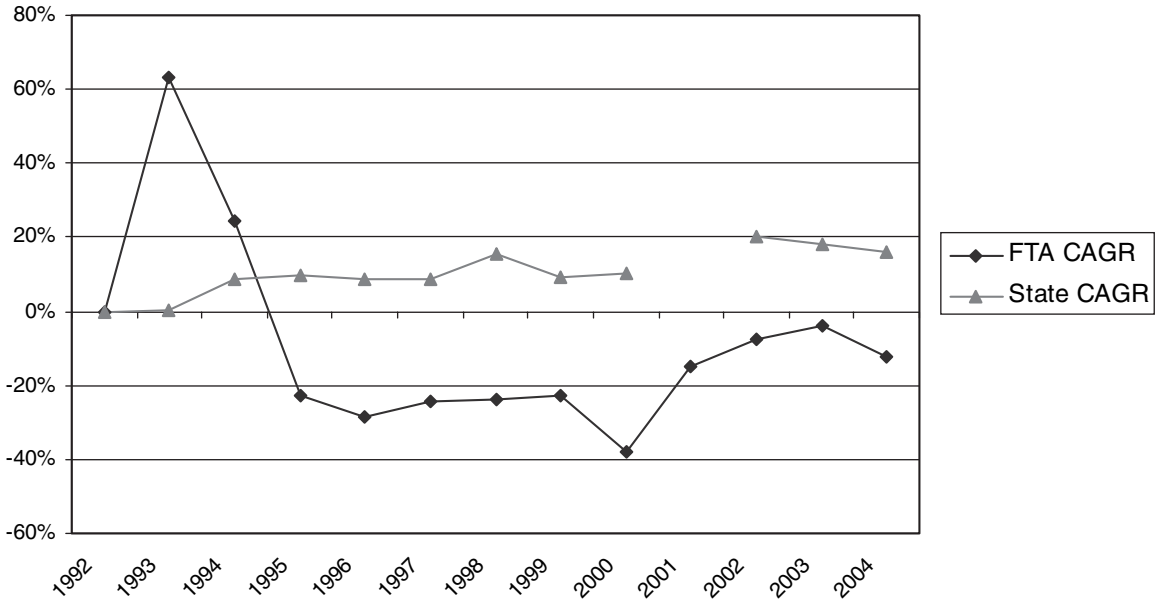


Minnesota: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

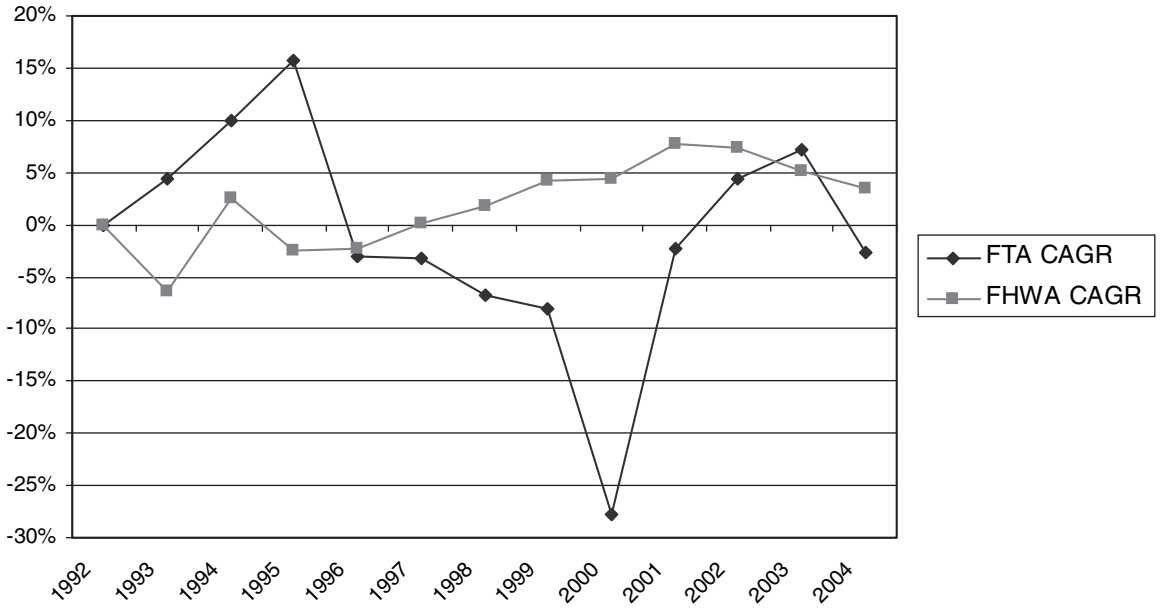


Federal and State Transit Funding



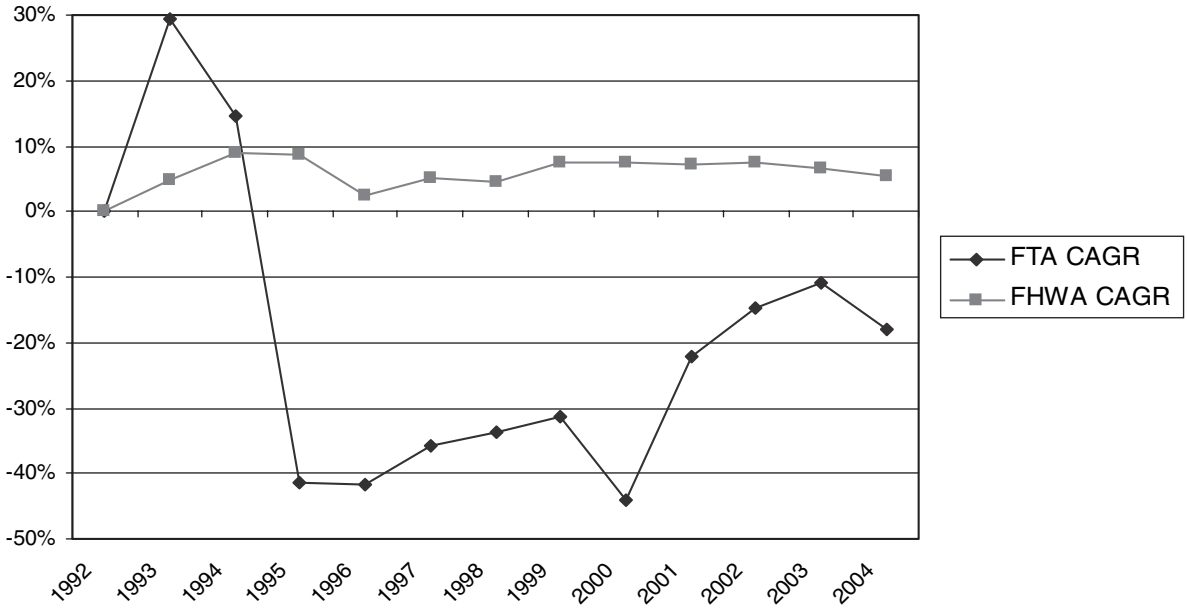
Mississippi: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

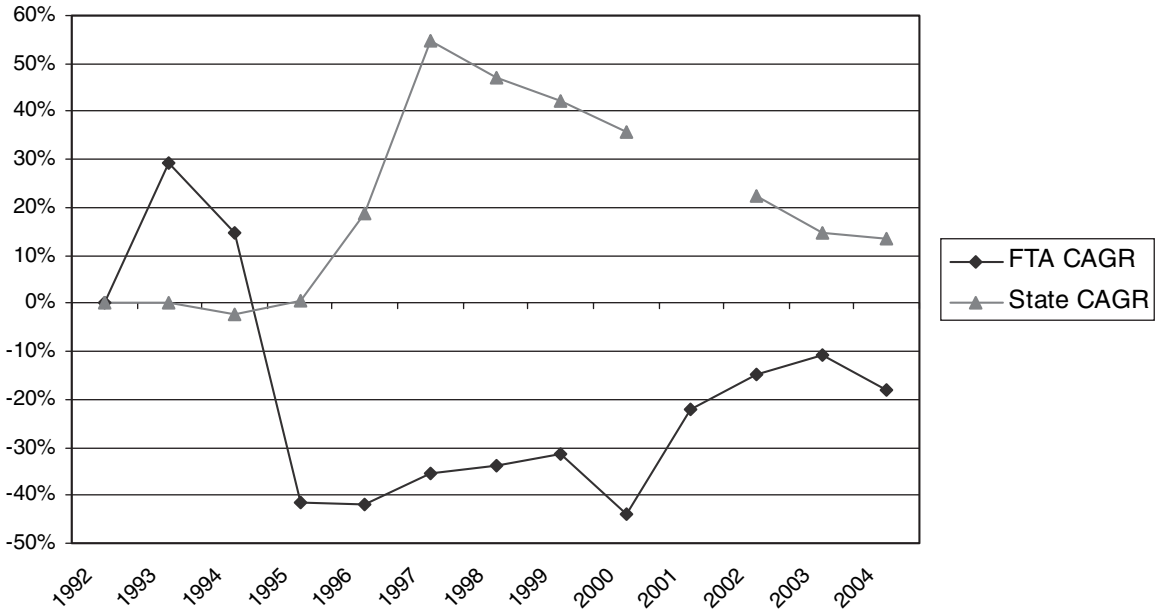


Missouri: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

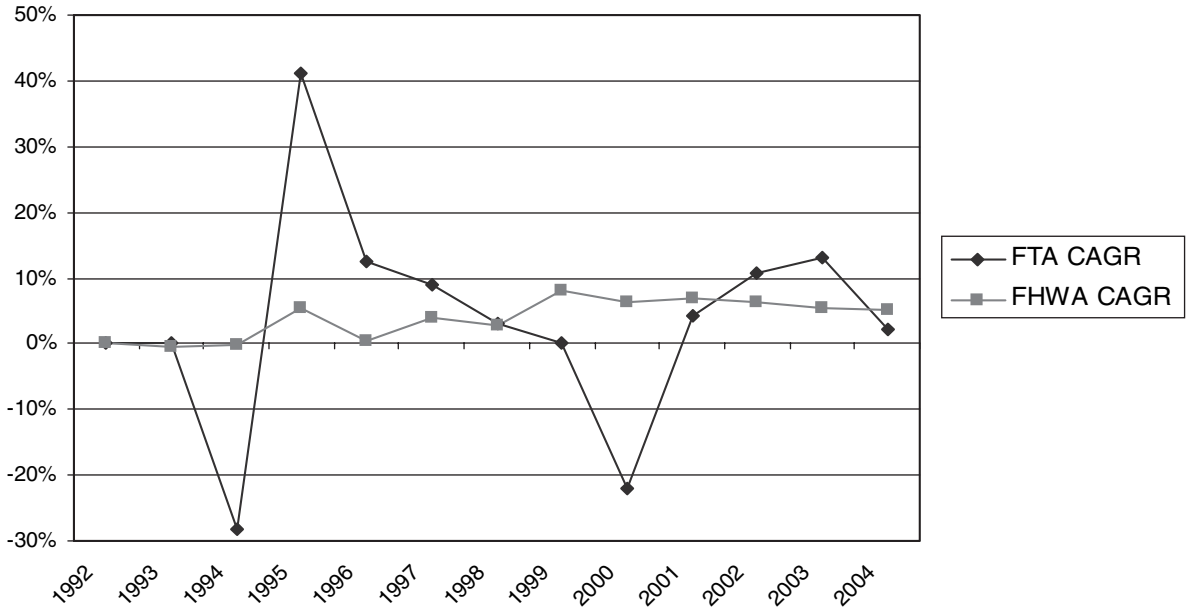


Federal and State Transit Funding

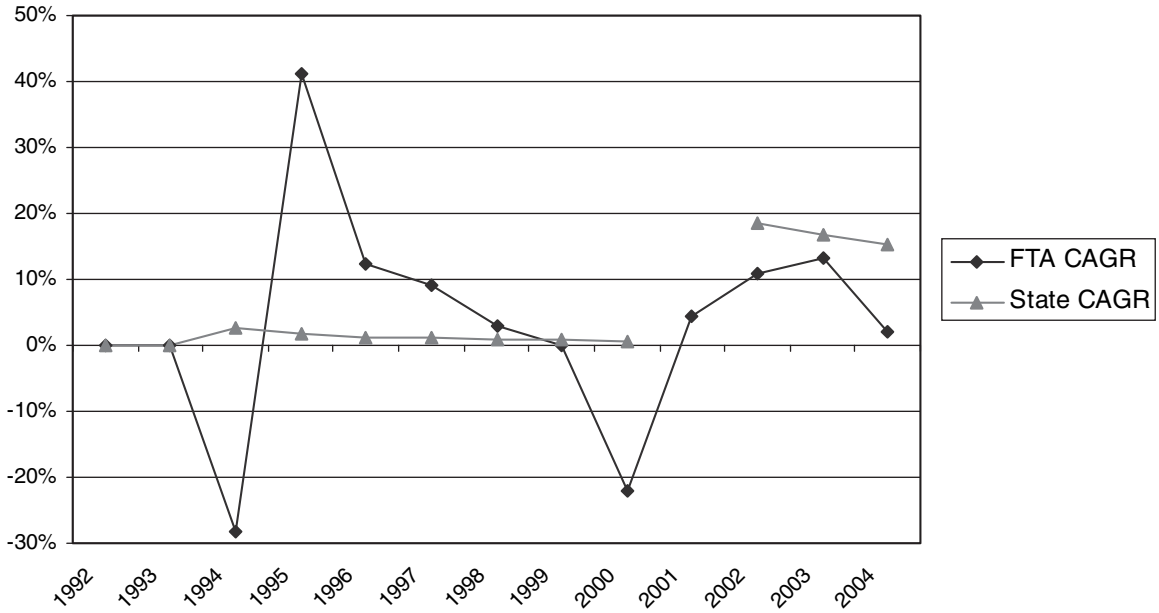


Montana: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

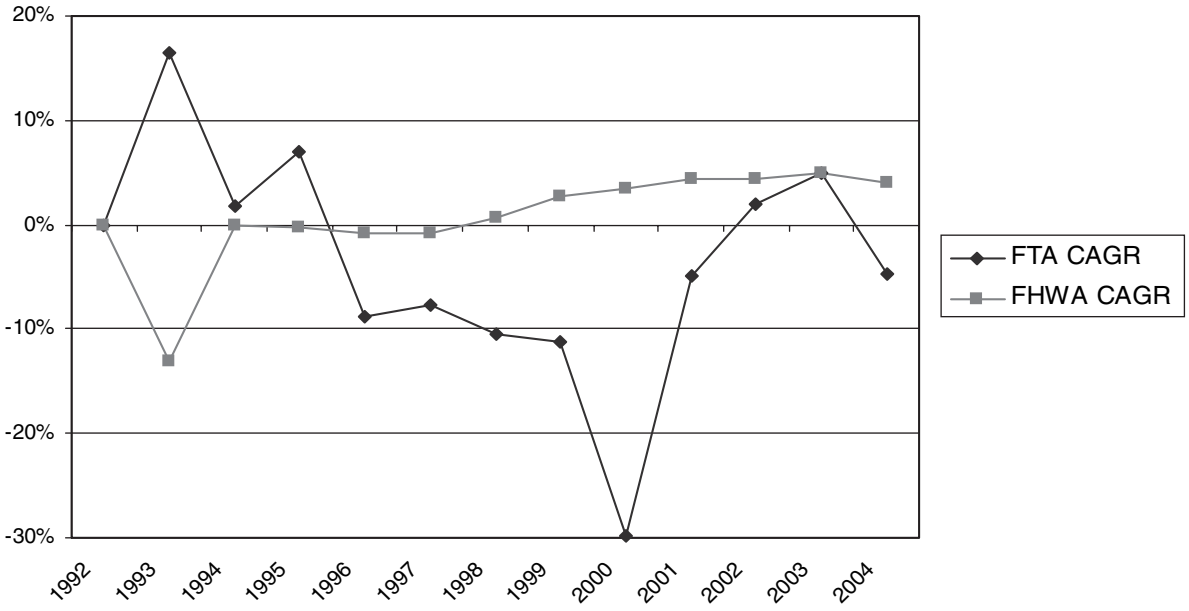


Federal and State Transit Funding

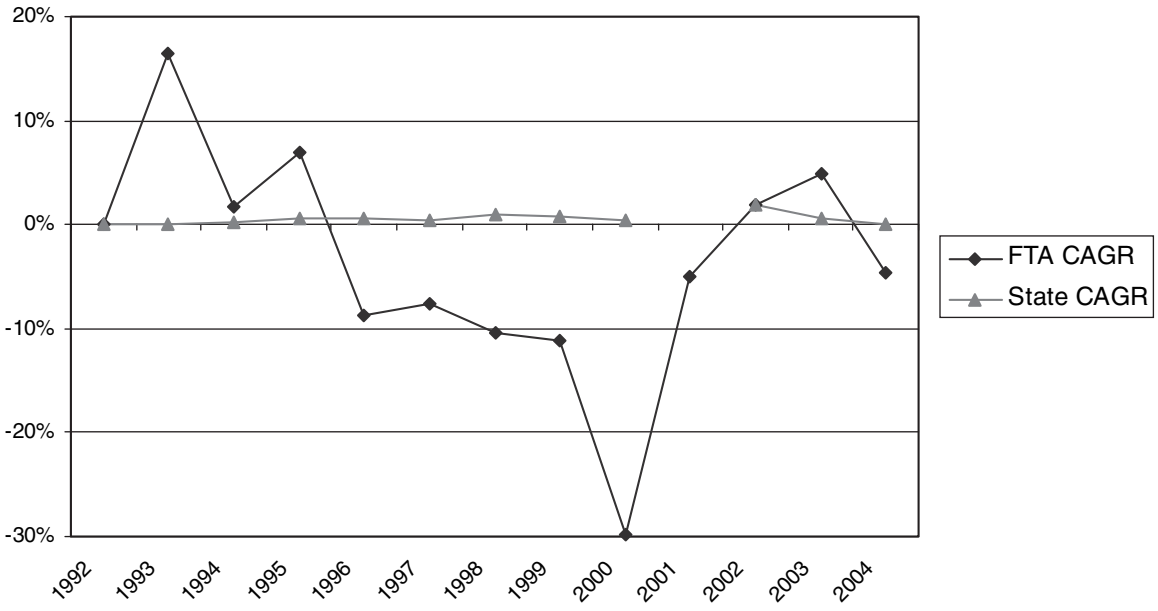


Nebraska: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

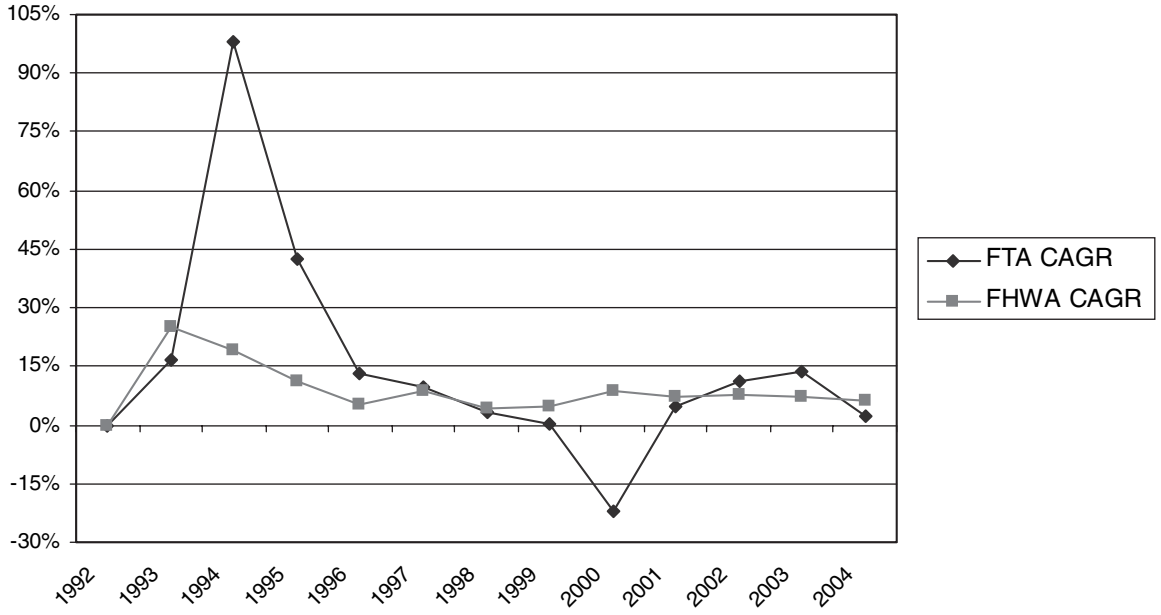


Federal and State Transit Funding



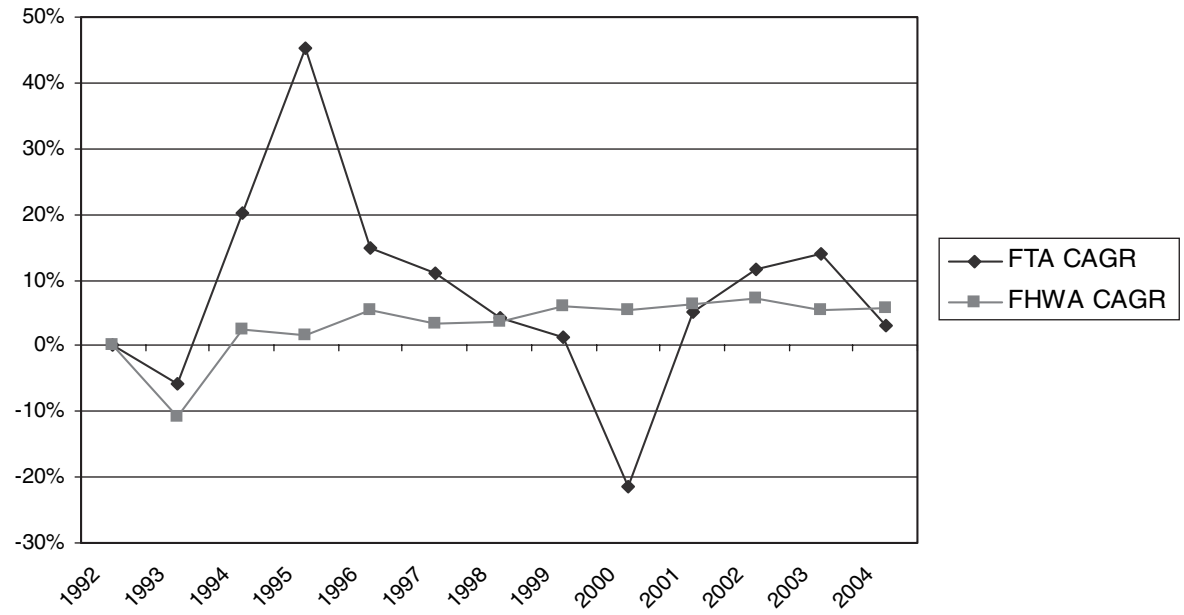
Nevada: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

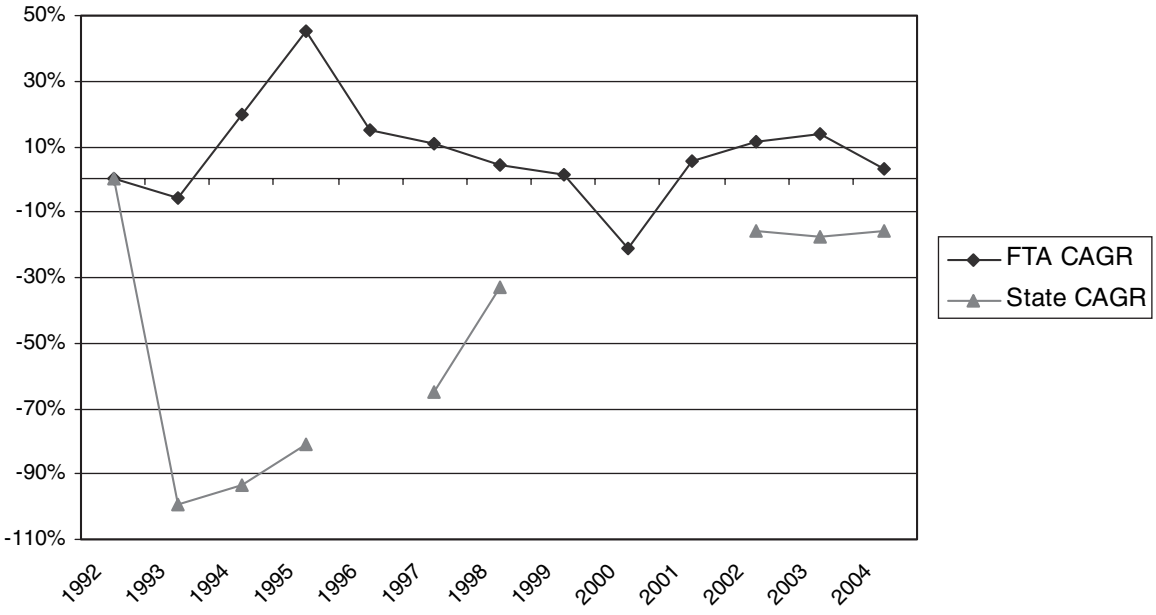


New Hampshire: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

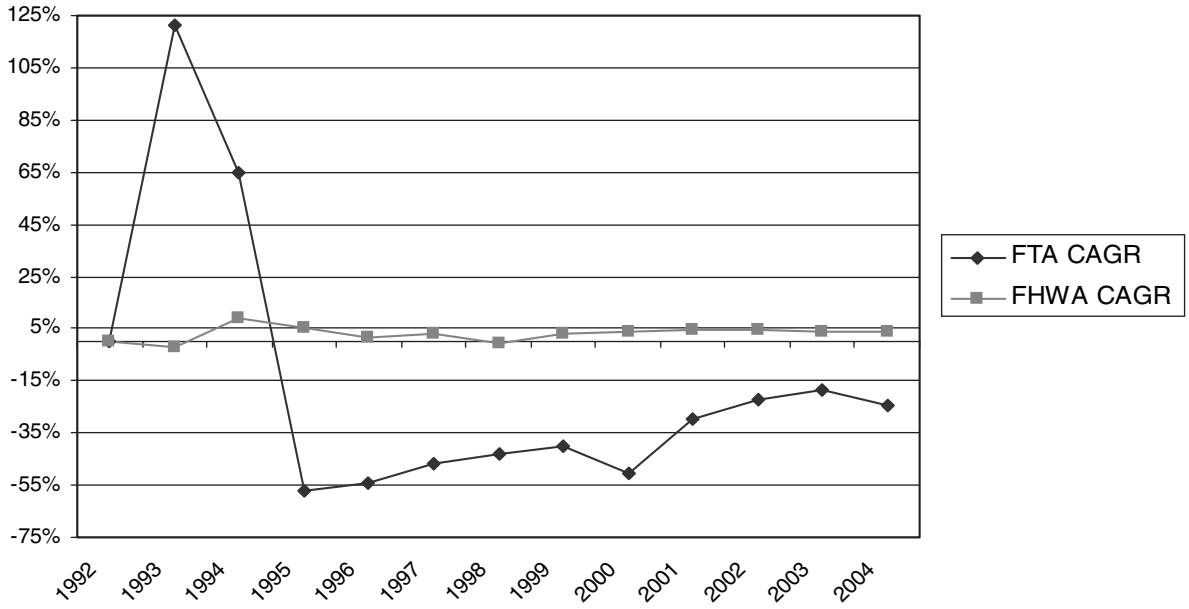


Federal and State Transit Funding

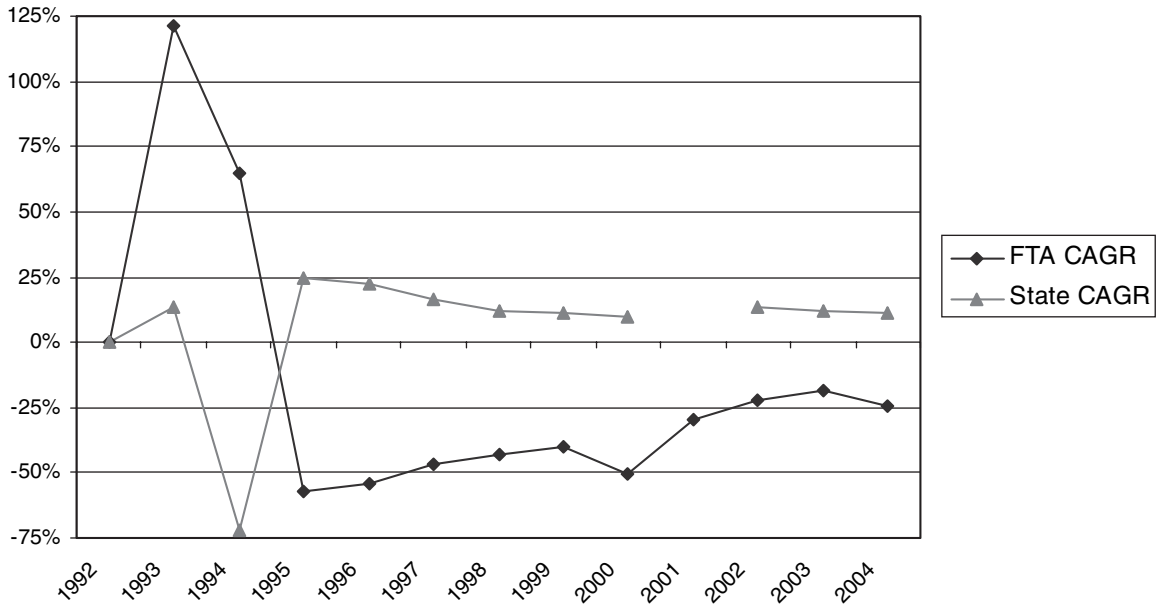


New Jersey: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

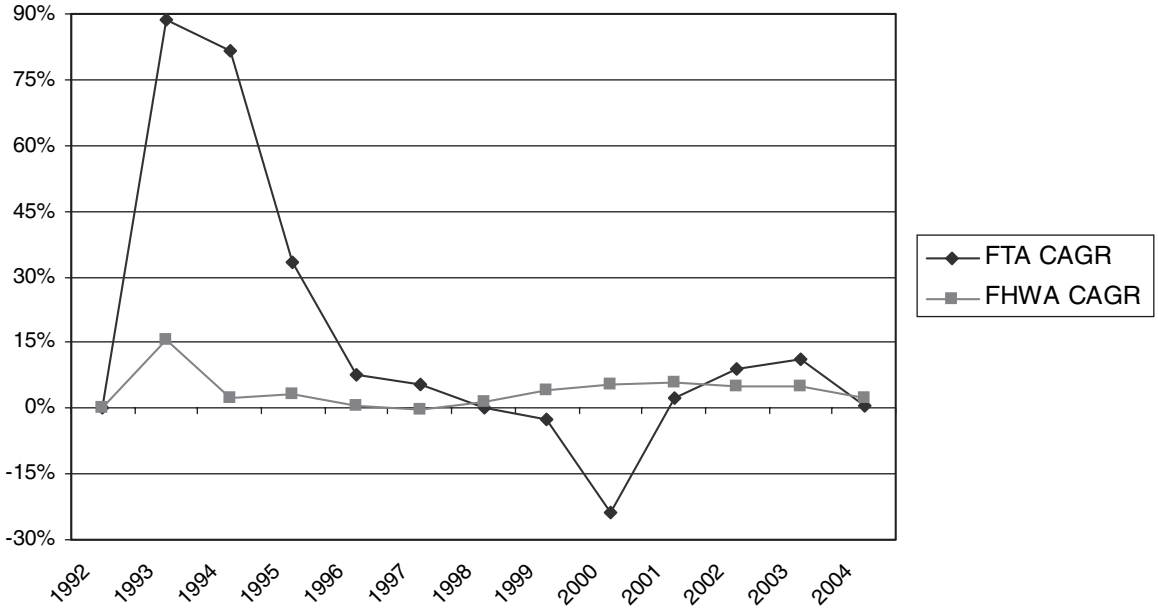


Federal and State Transit Funding



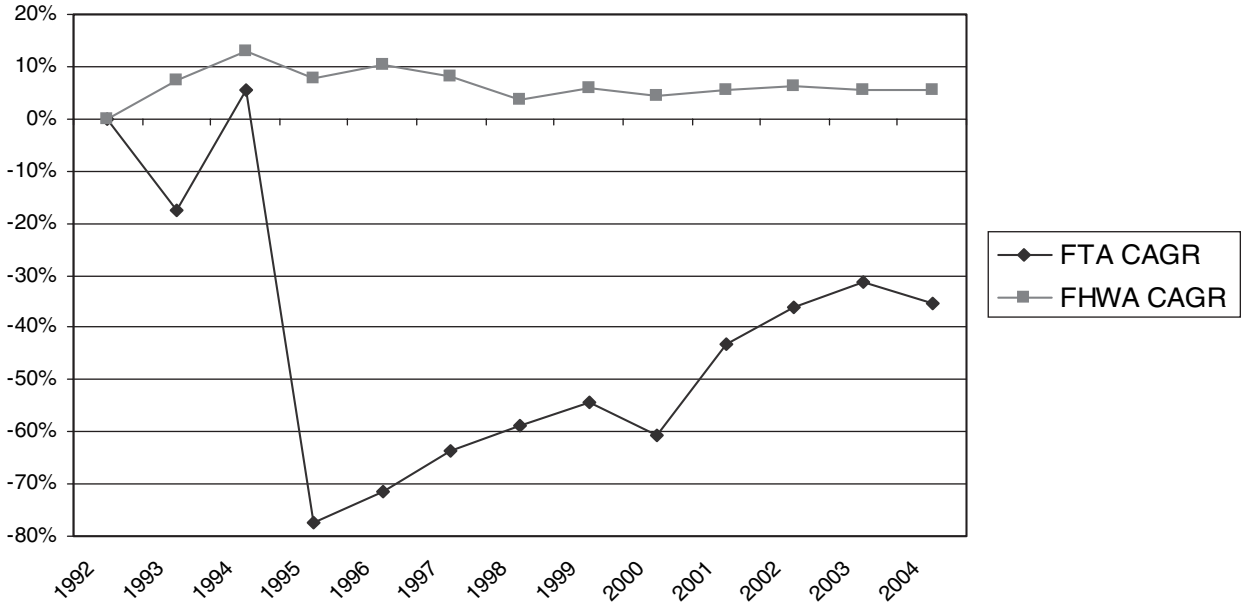
New Mexico: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

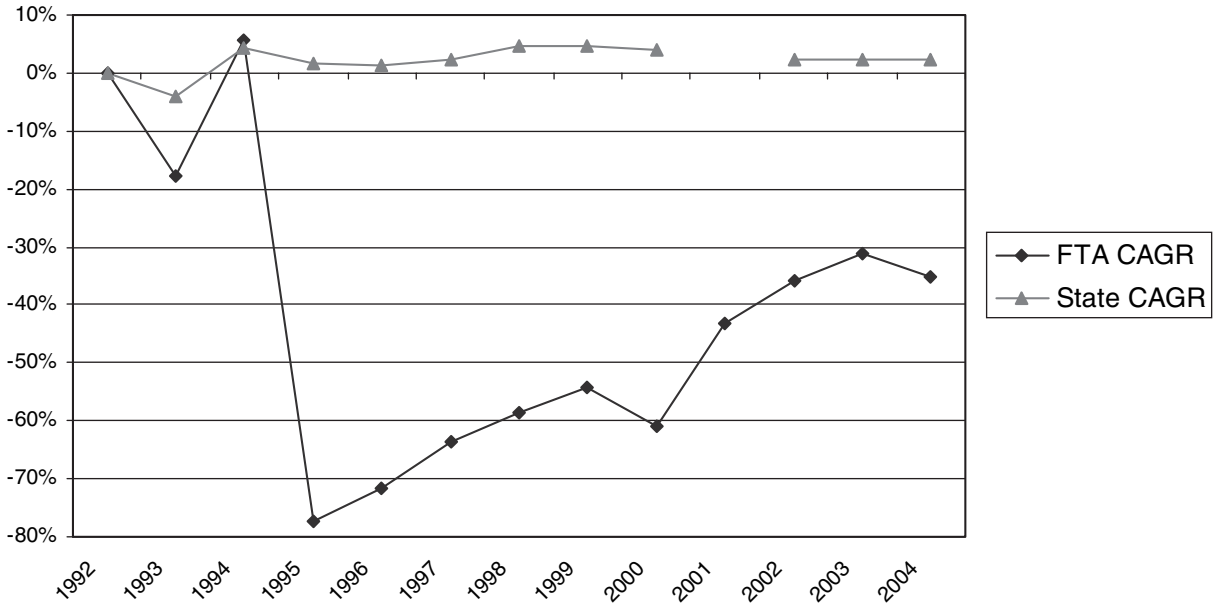


New York: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

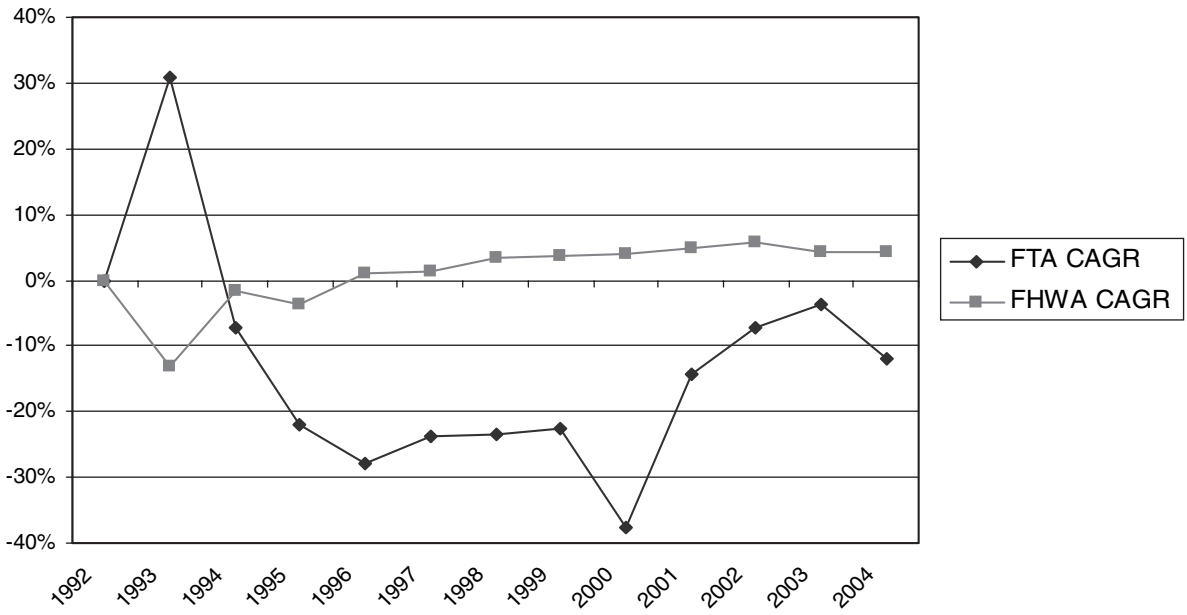


Federal and State Transit Funding

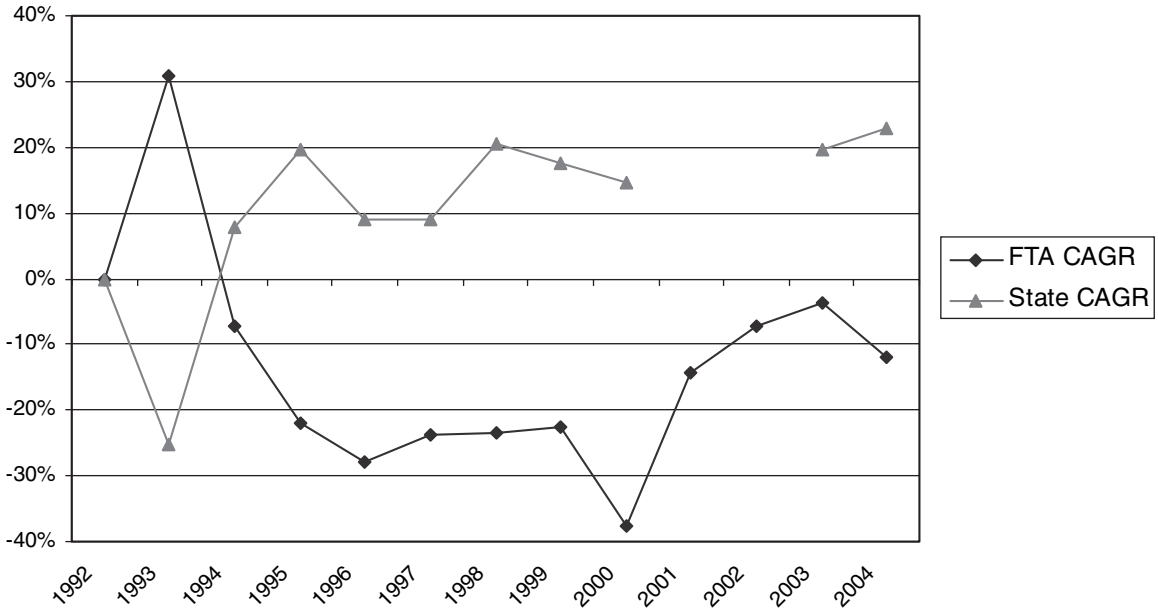


North Carolina: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

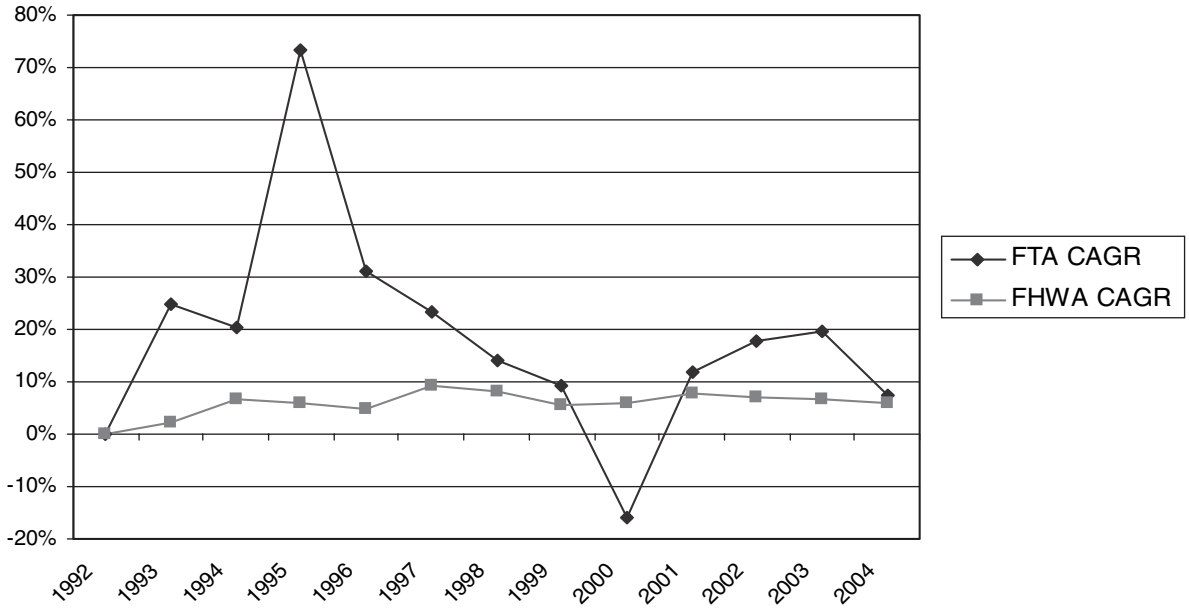


Federal and State Transit Funding

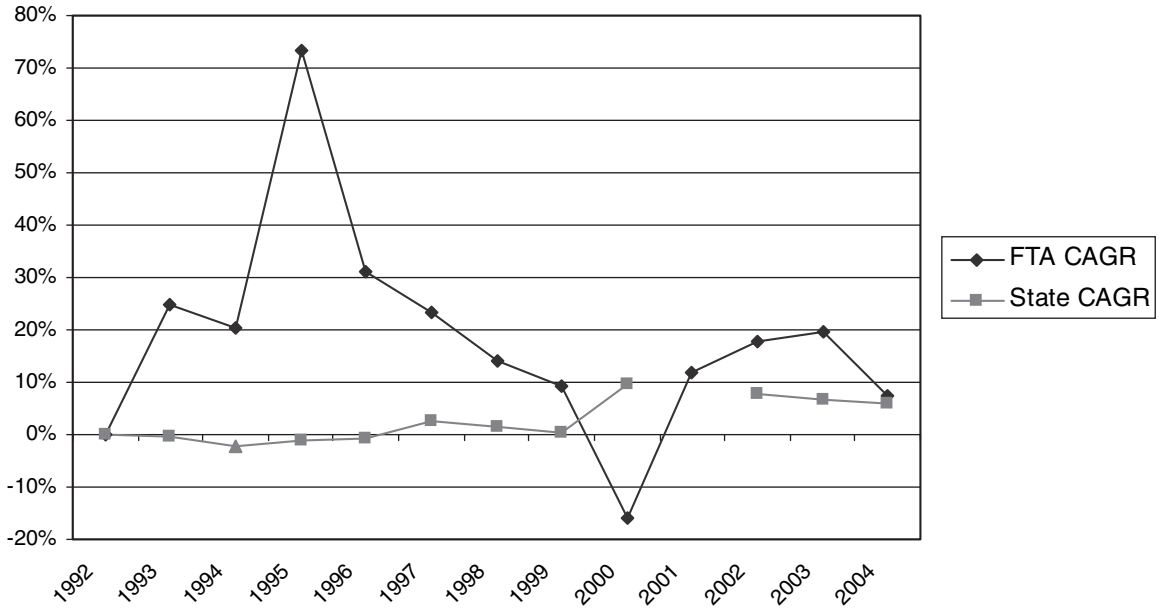


North Dakota: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

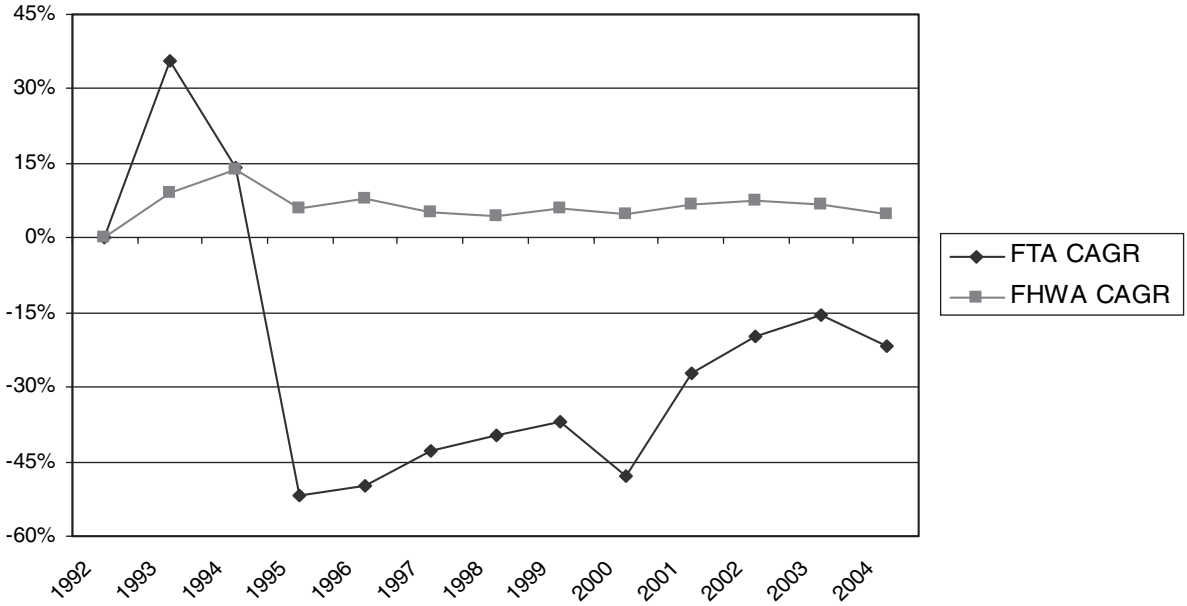


Federal and State Transit Funding

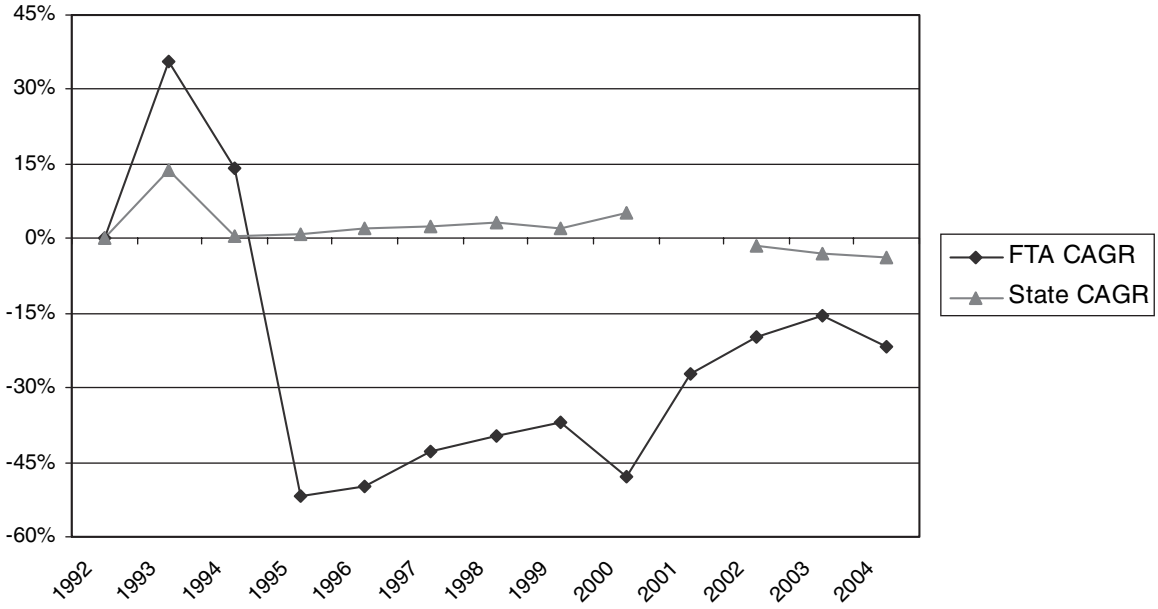


Ohio: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

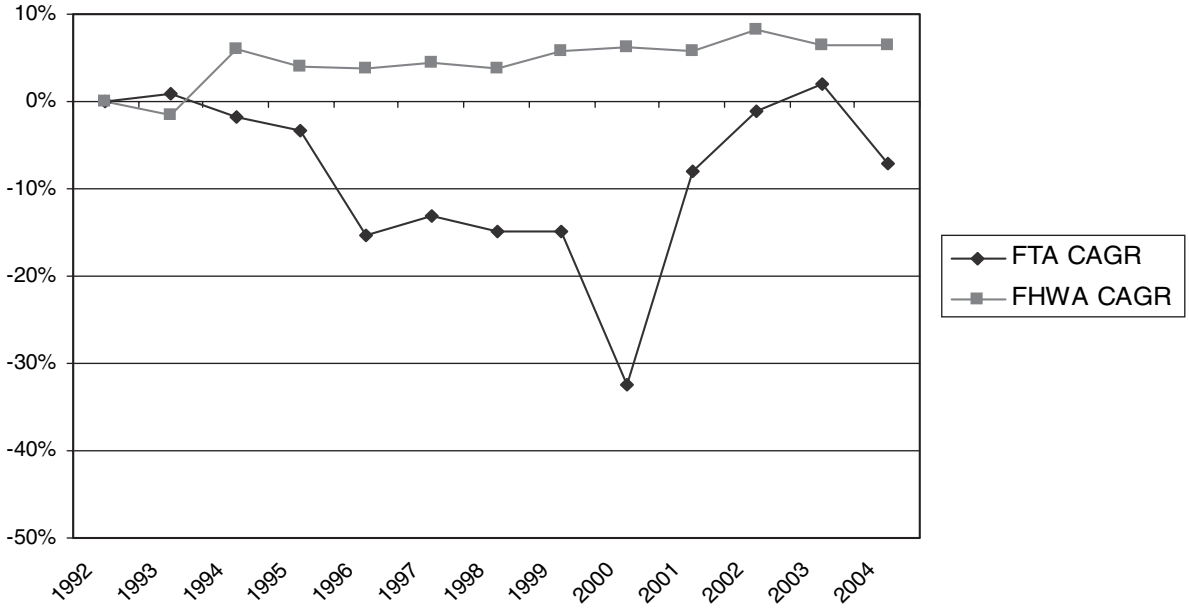


Federal and State Transit Funding

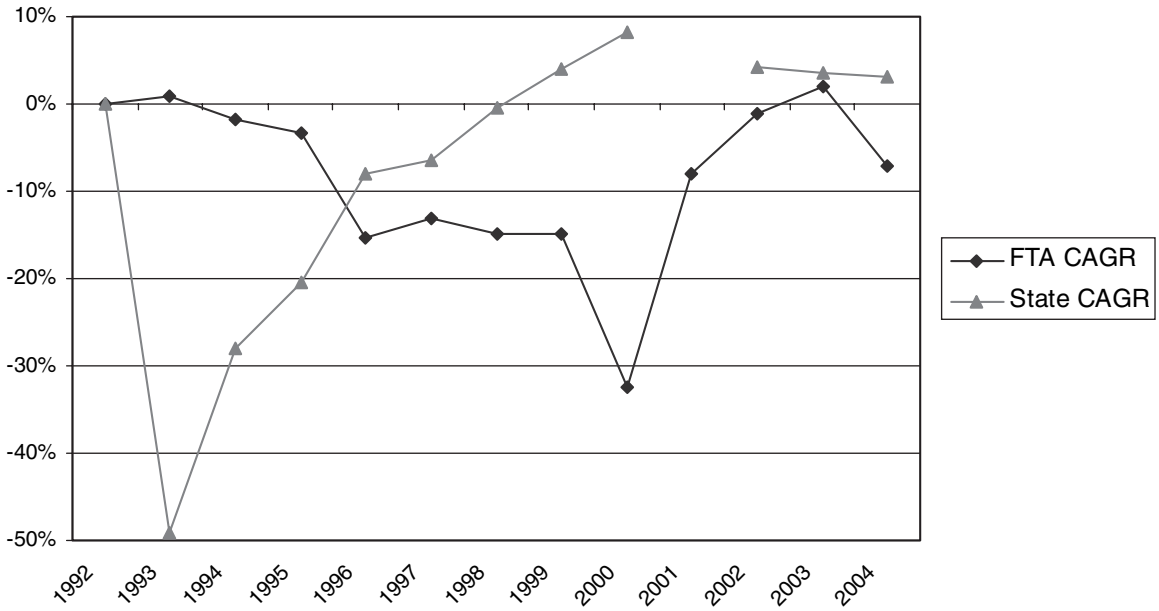


Oklahoma: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

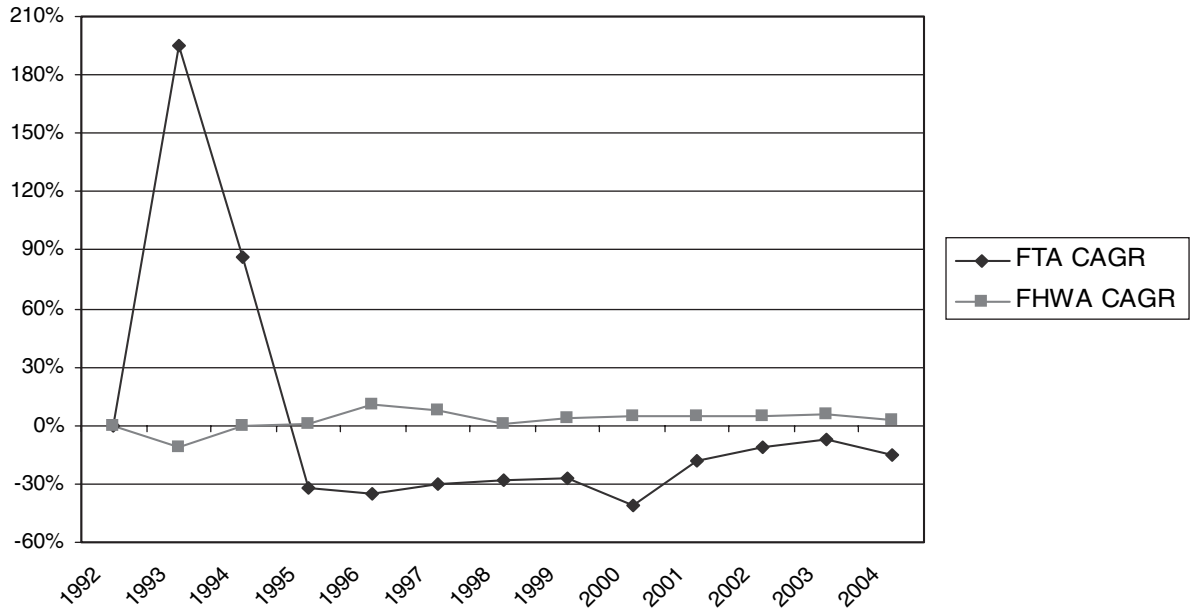


Federal and State Transit Funding

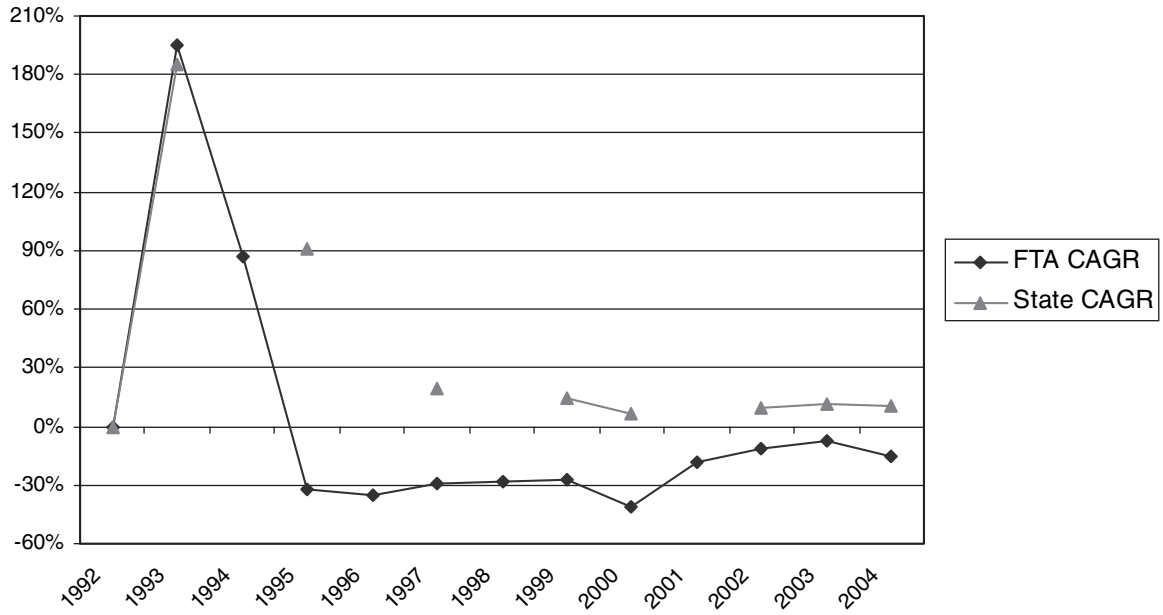


Oregon: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

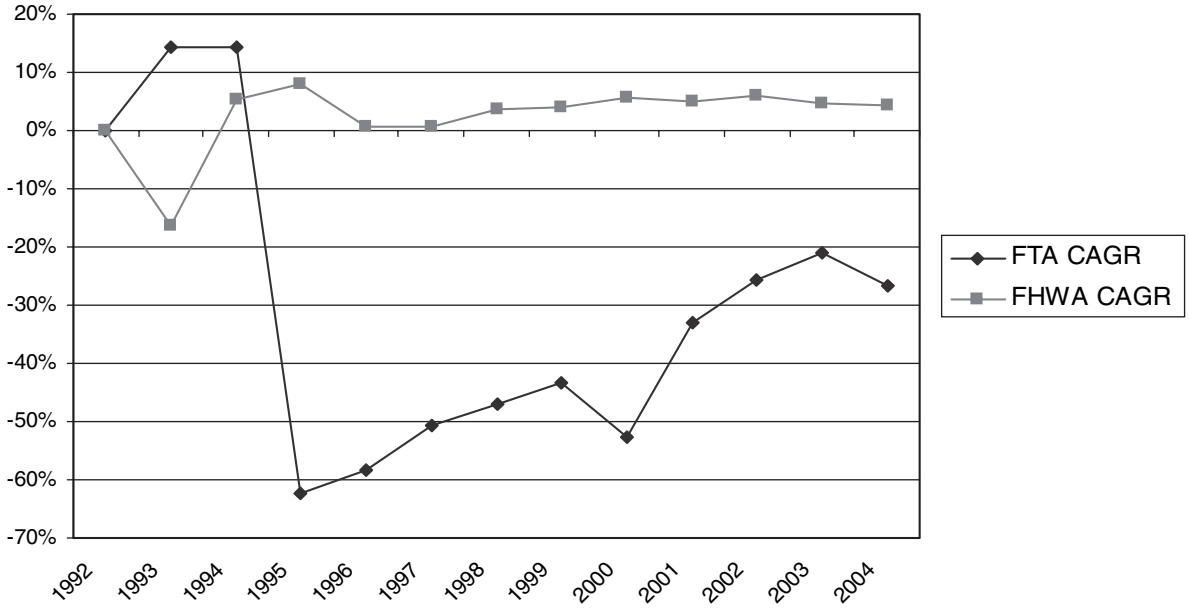


Federal and State Transit Funding

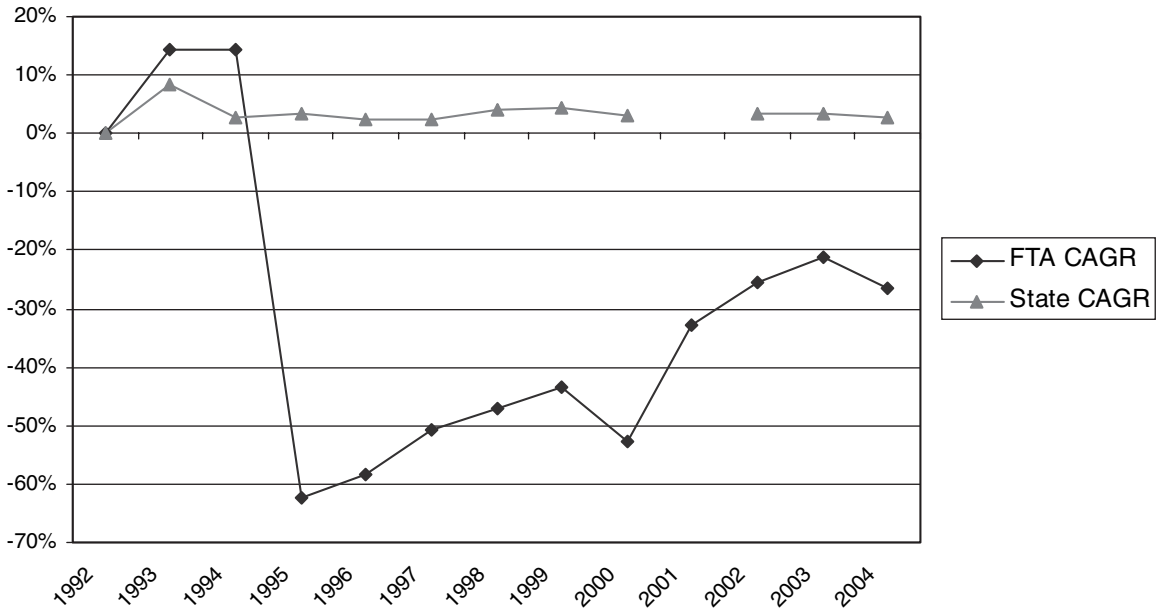


Pennsylvania: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

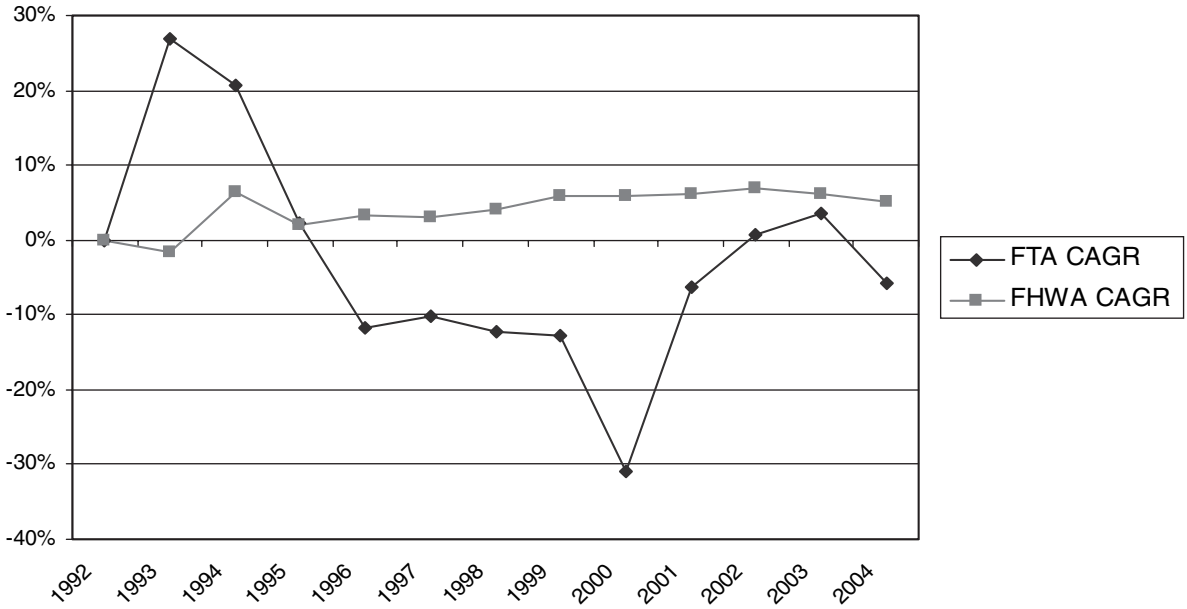


Federal and State Transit Funding

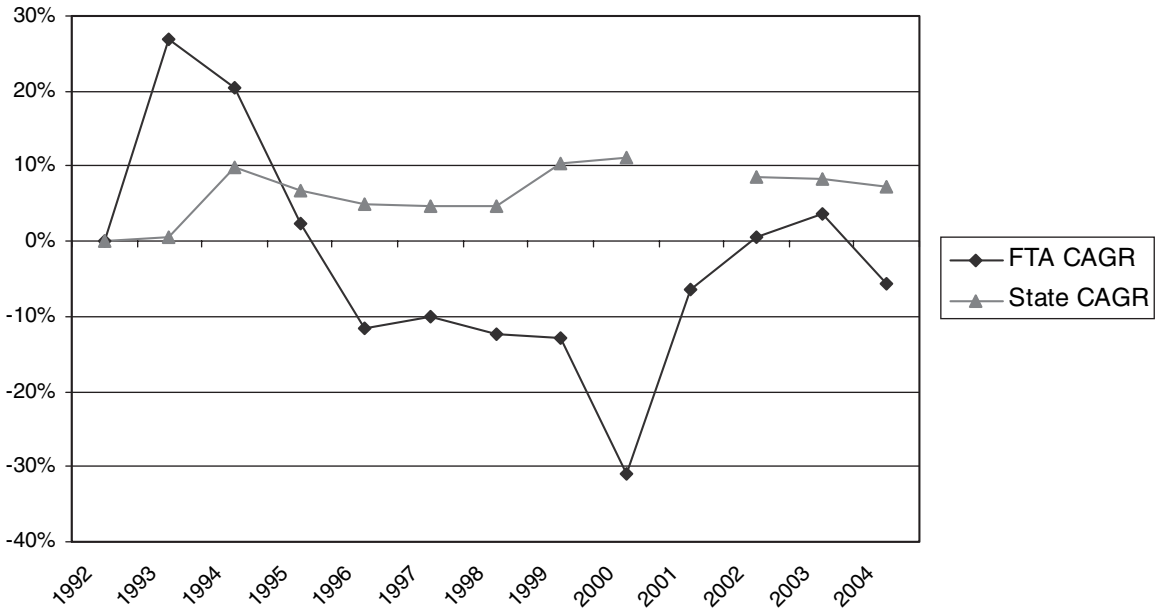


Rhode Island: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

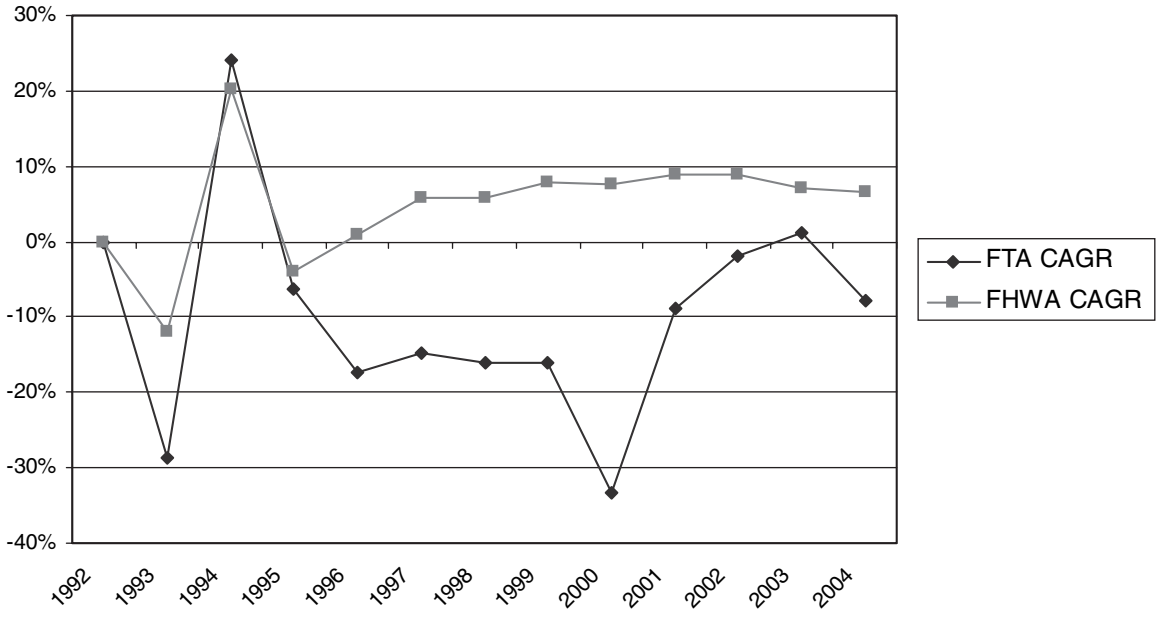


Federal and State Transit Funding



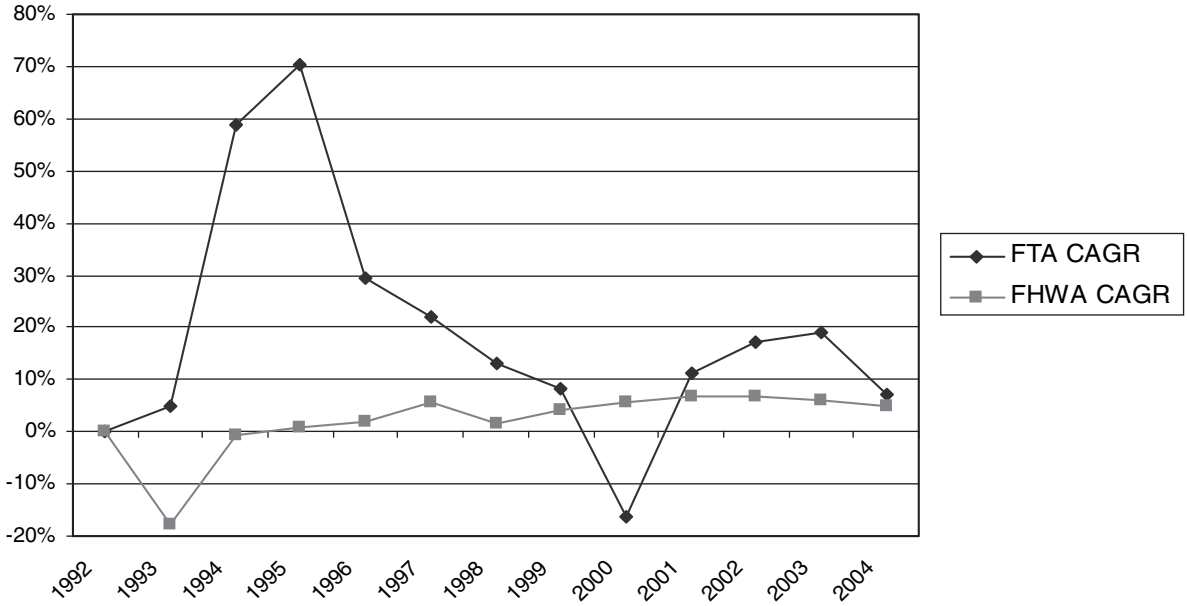
South Carolina: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



South Dakota: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



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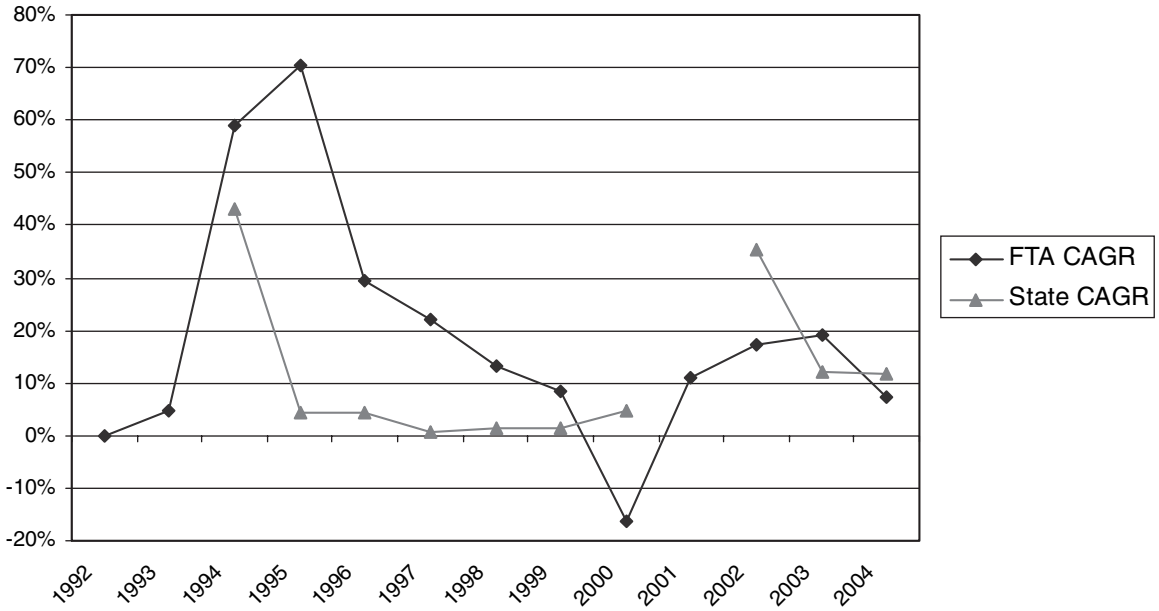
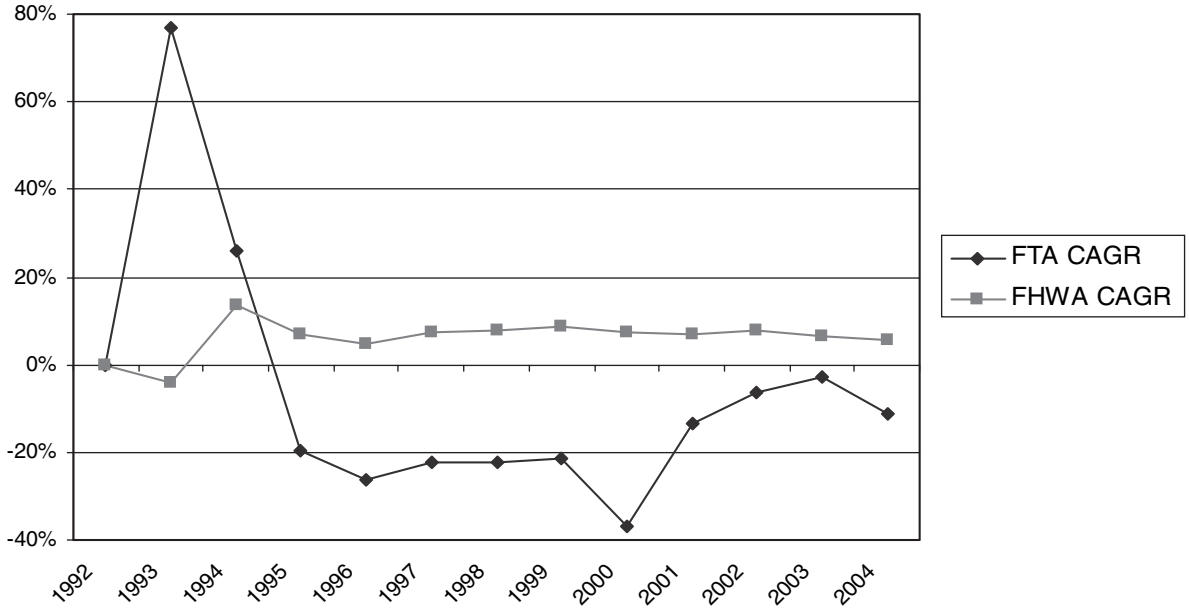


Tennessee: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



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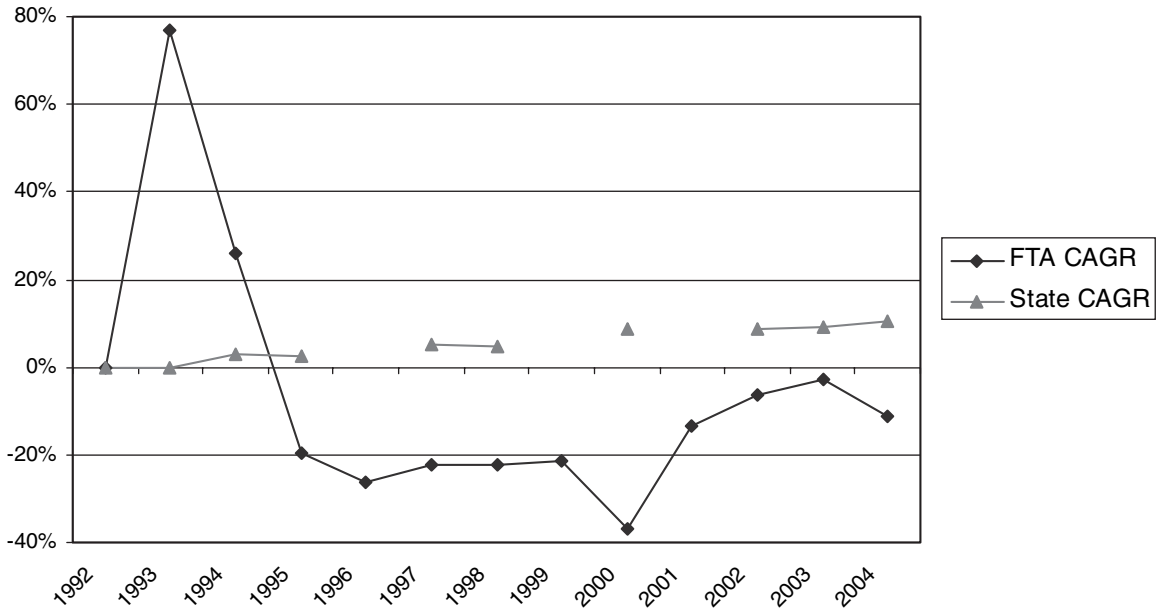
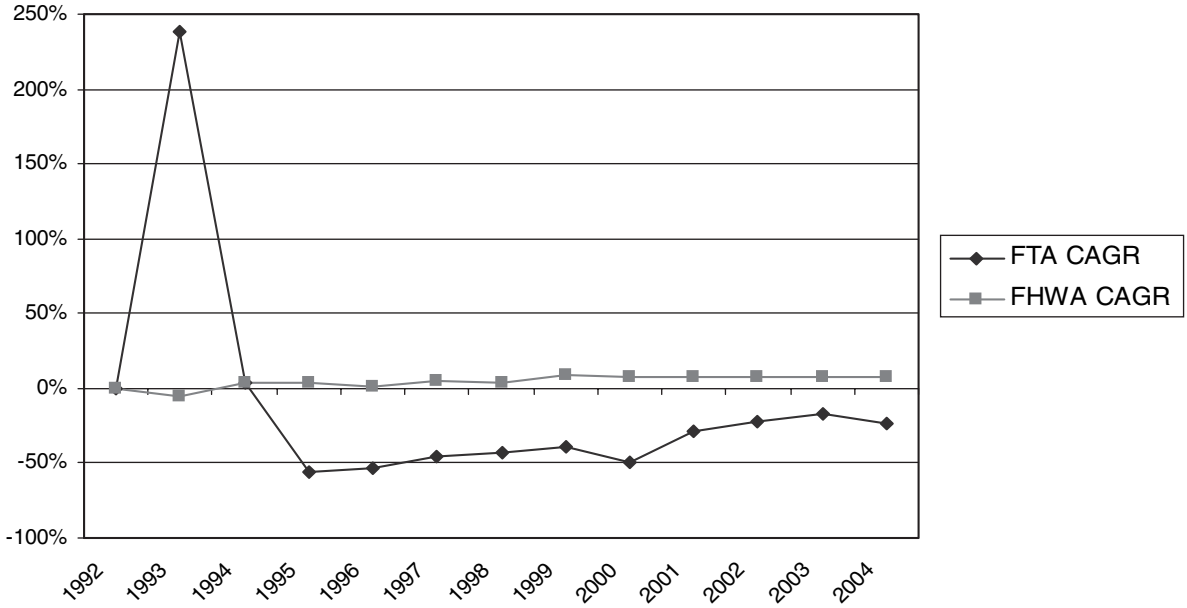
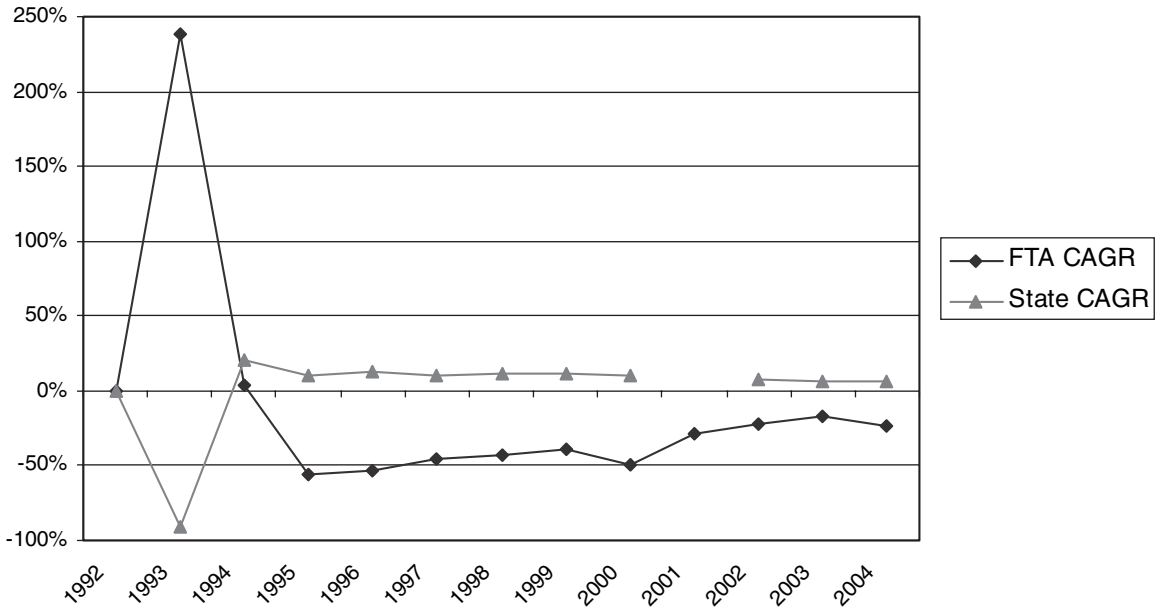


Texas: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

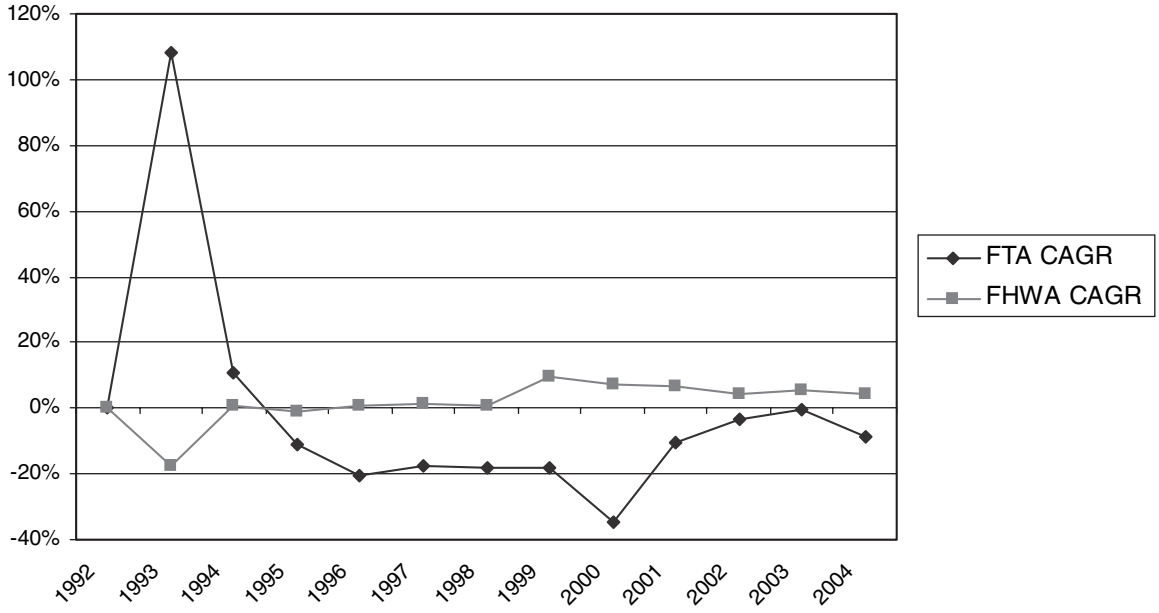


Federal and State Transit Funding



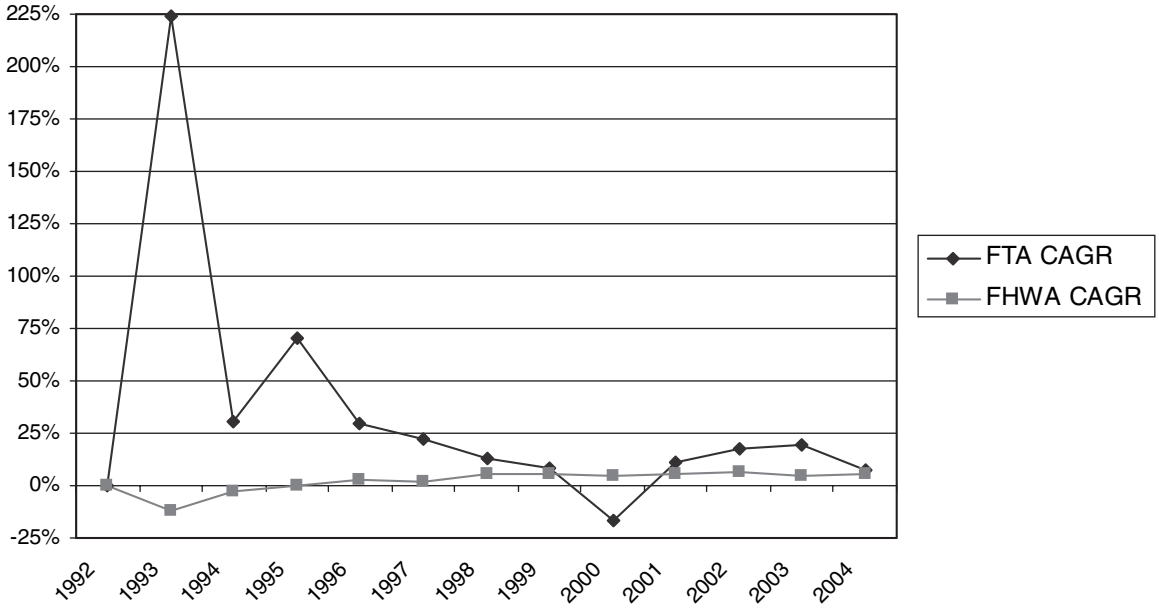
Utah: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



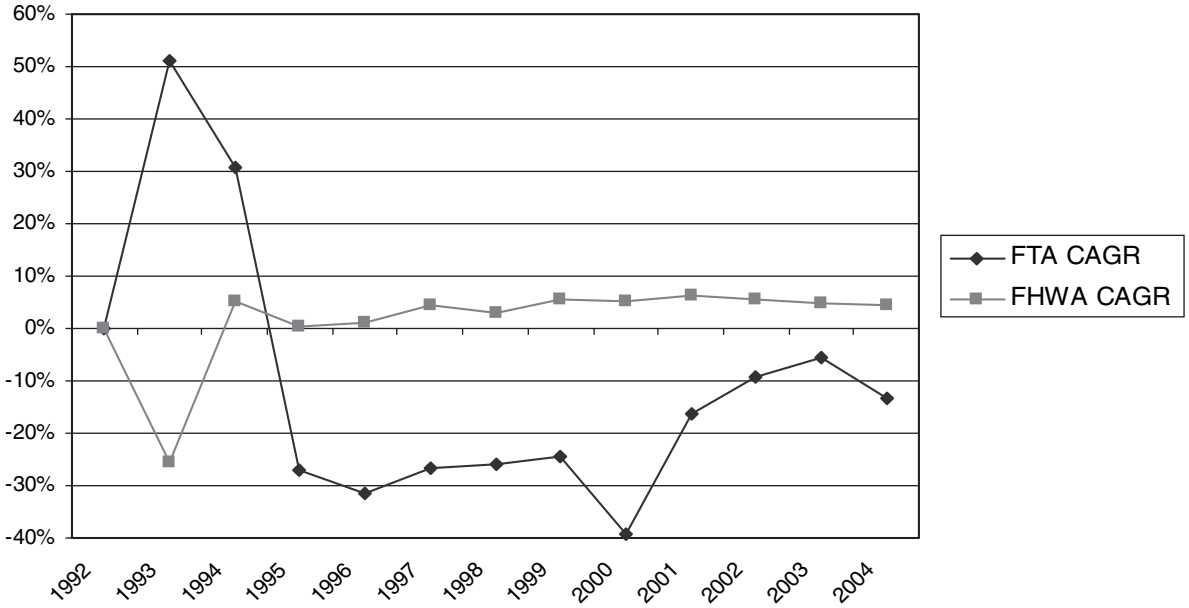
Vermont: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

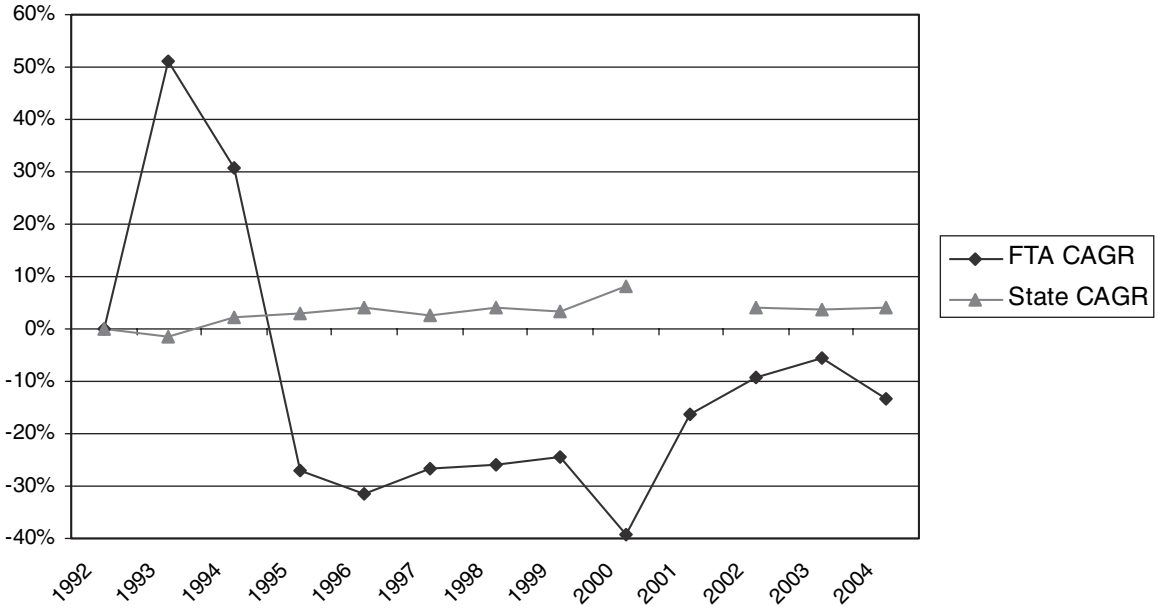


Virginia: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

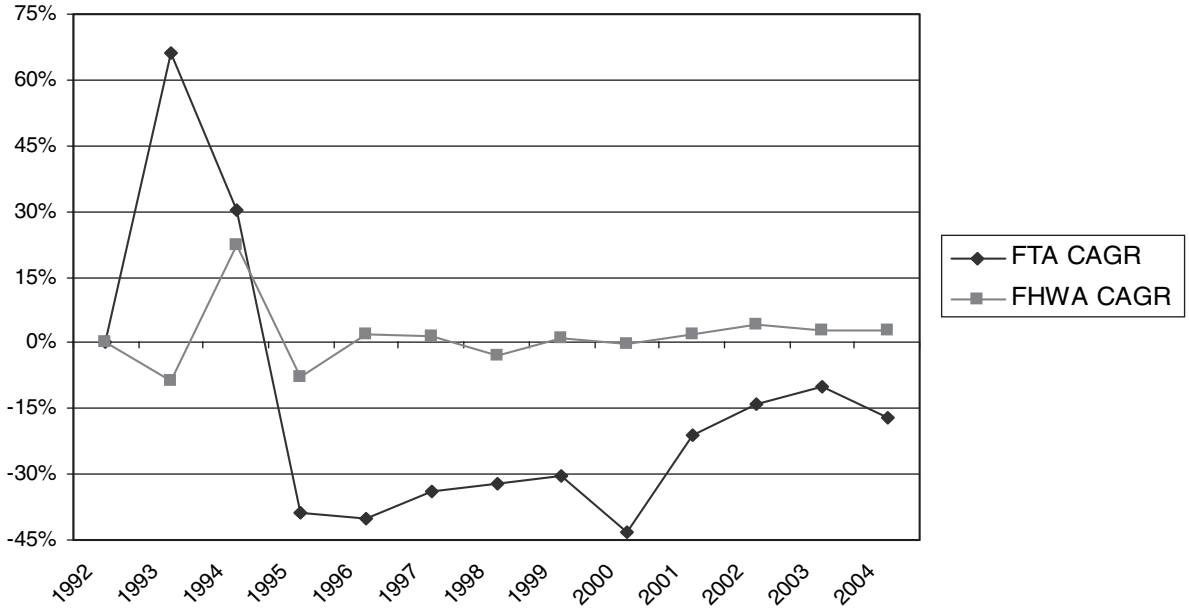


Federal and State Transit Funding

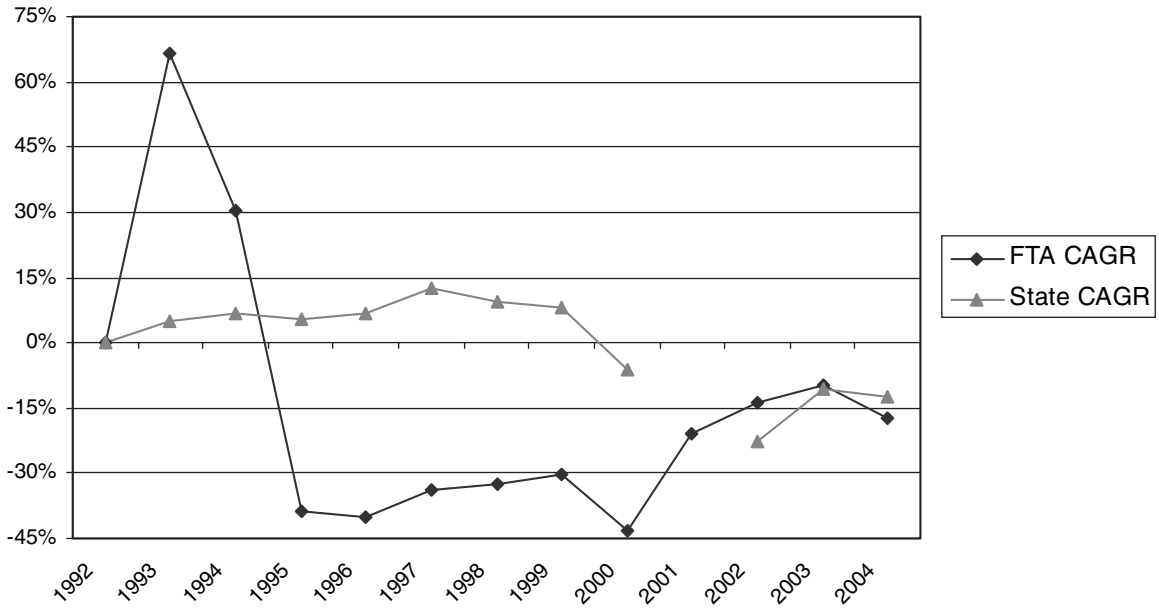


Washington: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

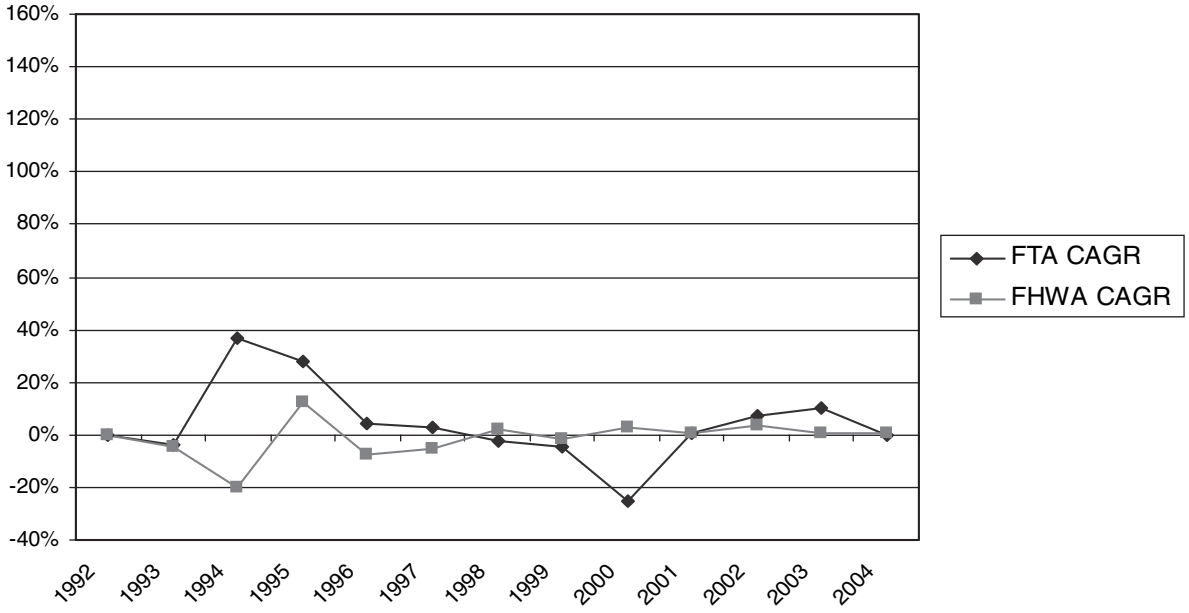


Federal and State Transit Funding

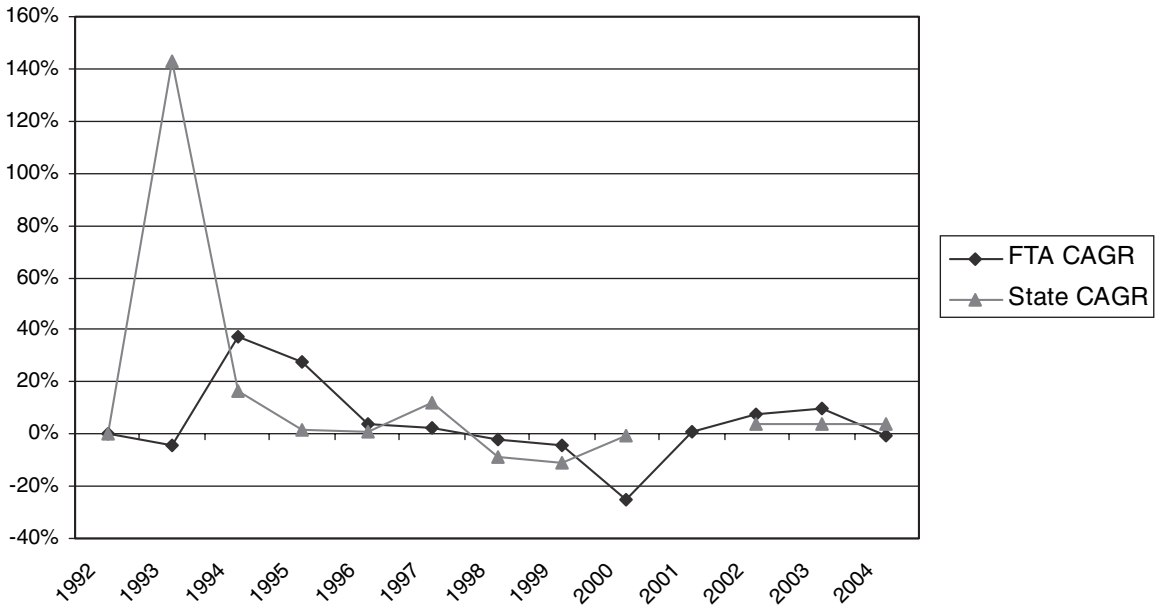


West Virginia: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

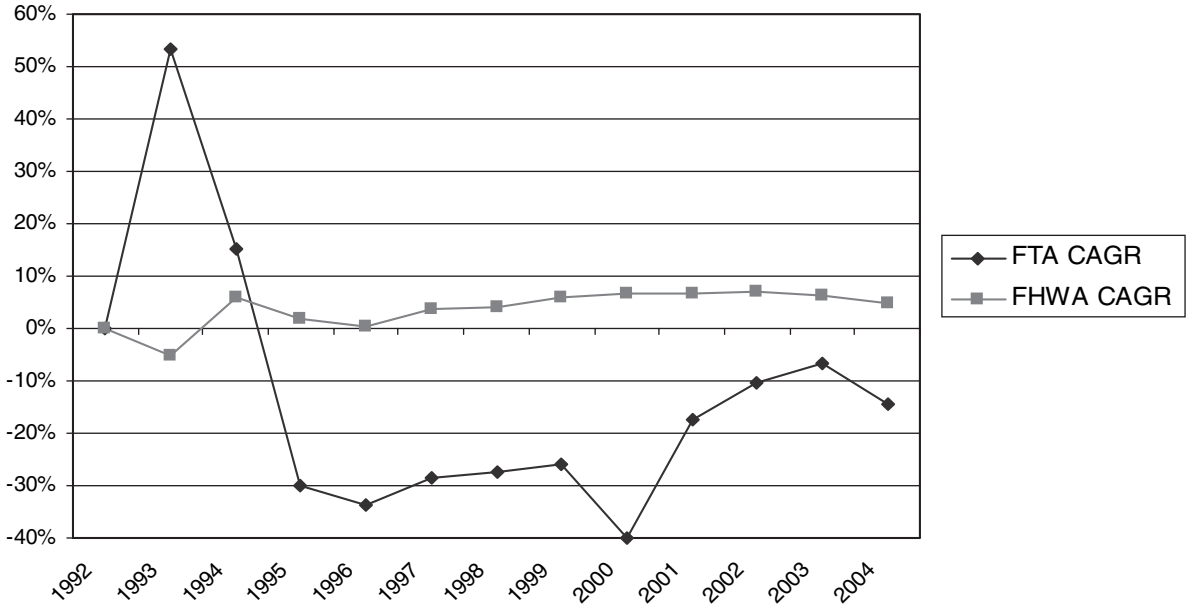


Federal and State Transit Funding

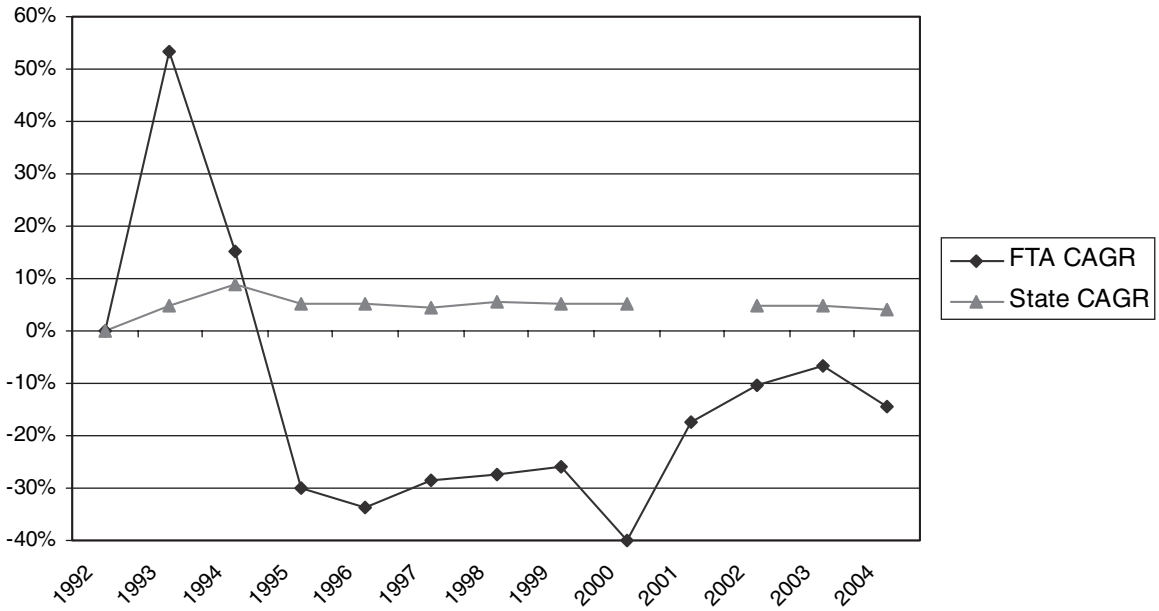


Wisconsin: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding

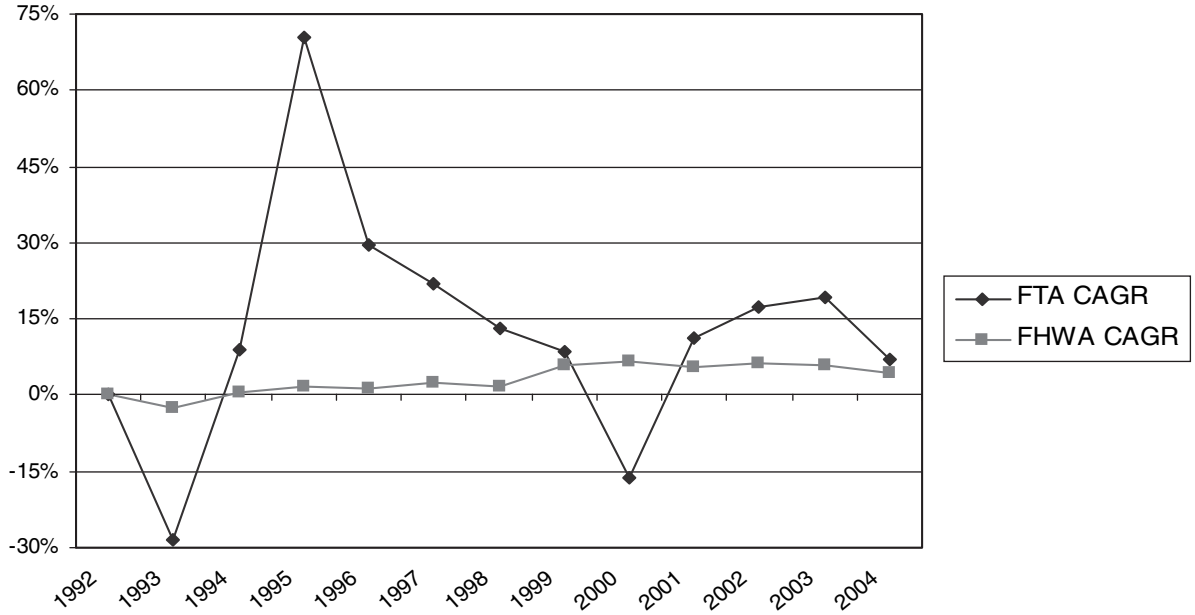


Federal and State Transit Funding

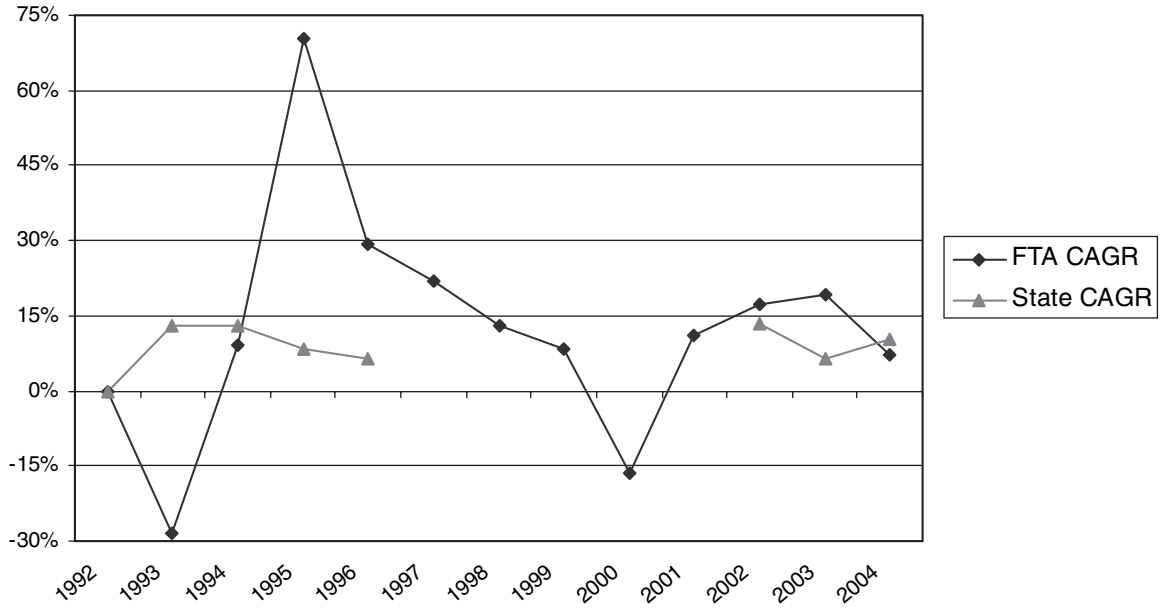


Wyoming: Comparison of Compound Annual Growth Rates

Federal Transit and Highway Funding



Federal and State Transit Funding



Abbreviations and acronyms used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation