



U.S. Department of Transportation
Federal Highway Administration

State Motor-Fuel Tax Trends in the 1990's: Why has the Pace of Rate Increases Declined?

A TRANSPORTATION POLICY DISCUSSION PAPER

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STATE MOTOR-FUEL TAX TRENDS IN THE 1990'S
WHY HAS THE PACE OF RATE INCREASES DECLINED?

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**STATE MOTOR-FUEL TAX TRENDS IN THE 1990'S
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EXECUTIVE SUMMARY

States have not been raising their motor fuel taxes as often in recent years as they did during the 1980's and early 1990's. From 1980 to 1991 State motor fuel tax rates grew at an unprecedented rate, more than doubling. This rate of growth was not sustained during the period from 1991 to 1997, as the number and magnitude of State motor fuel tax increases have declined sharply. In 1991, 23 States increased their gasoline tax rates, bringing the weighted average gasoline tax rate for the nation up by 13.45 percent. In the six years since 1991, 29 States increased their tax rates, increasing the weighted average tax rate by only 8.83 percent (1.42 percent annually).

This paper attempts to explore possible reasons why States have not increased their taxes since 1991 at the same rate as they did from 1980 to 1991. This analysis focuses on the differences between the 1980's and the 1990's that may have led to a decline in tax rate growth, and on the factors that may have led to the unprecedented pace of gasoline tax increases in the 1980's.

- The weighted average gasoline tax rate for the U.S. grew by an average annual rate of 7.11 percent from 1980-1991. Prior to 1980, the largest growth rate that had ever occurred was a 5.59 percent increase in 1953. Since 1991, the weighted average gasoline tax rate has grown by only 1.42 percent, which is below the historic trend of growth, from 1960-1980 of 1.65 percent.
- From 1980 to 1991, an average of 18.1 States per year increased their gasoline tax rates. In 1980 alone, 26 States increased their rates. Prior to 1980, the largest number of States to increase their rates in a single year was 13, which occurred on three occasions (1949, 1955, and 1969). Since 1991, the average annual number of States increasing their rates was 9.8. While below the average of the 1980's, this number is well above the historical average seen prior to 1980.
- If viewed on a tax revenue basis rather than a tax rate basis, the difference between the 1980's and 1990's is much less pronounced. State motor-fuel tax revenue grew 7.54 percent annually from 1980 to 1991, and 5.22 percent annually since 1991. The revenue growth rate in the 1990's is higher than that of the 1970's.
- During the 1980's, increases in fuel efficiency caused the average annual increase in fuel consumption to drop to 1 percent. This put pressure on States to raise tax rates maintain revenue growth. Since 1991, the number of motor-fuel gallons taxed has increased twice as rapidly than during the 1980's, enabling States to generate more revenue without raising tax rates. This increase in taxable gallonage was due both to increases in fuel consumption and to improved fuel tax compliance.
- State motor-fuel tax revenue's share of State highway funding declined during the 1970's but partially rebounded, as a result of the tax rate increases of the 1980's. Since 1991, motor-fuel tax revenue's share has stabilized, meaning that motor-fuel taxes have kept pace with the growth of other revenue sources and of highway expenditures.
- Combined Federal and State gasoline taxes have risen more quickly since 1991 than they did in the 1960's and 1970's. The 4.3 cent tax Federal gasoline tax rate increase in October 1993 may have crowded out some State increases that would ordinarily have occurred.
- Federal funding increases during the 1970's may have allowed States to ignore the negative impact that increased fuel efficiency was having on their motor fuel tax revenues. When the growth in Federal funding slowed during the 1980's, this put pressure on States to raise taxes to

offset the slow growth in fuel consumption. In the 1990's, increased Federal funding and increases in gasoline tax revenue due to increased motor-fuel consumption reduced pressure on States to increase rates.

- As retail gasoline prices per gallon rose from 35.7 cents to \$1.221 during the 1970's, the share of retail prices attributable to State gasoline taxes dropped from 19.6 percent to 6.8 percent. Thus, the 7.11 percent average annual increase in State gasoline tax rates had only a 0.67 percent average annual impact on retail prices.
- Despite a combined 19.4 cent increase in Federal and State gasoline taxes from 1980 to 1991, retail prices of motor fuel fell from \$1.22 to \$1.19. The declining prices may have made it easier politically for States to raise their taxes during this period.
- In constant dollar terms, motor-fuel tax revenue growth was 2.48 percent from 1980-1991, which is not abnormally high compared to prior periods.

While this analysis does not attempt to establish a direct cause and effect relationship between the factors listed above and the timing and magnitude of specific motor-fuel tax rate increases in individual States, these national level trends may provide some insight into the pressures that influence the State decision-making process. The dramatic difference between the pace of State motor-fuel tax rate increases in the 1980's and 1990's may have been influenced by a number of catalysts dating back to the 1970's.

During the 1980's pressure mounted on States to increase their gasoline tax rates to address mounting revenue problems. Declines in the growth rate of motor-fuel consumption in the 1970's and 1980's, reduced the rate of motor fuel tax revenue growth below historic levels. At the same time, State revenue needs increased, as Federal funding growth declined, and inflation made highway capital outlay and maintenance more expensive. This increase in State's motivation to increase gasoline tax rates coincided with an increase in their ability to do so. Retail motor fuel prices declined during the 1980's after sharply increasing during the 1970's. The large State gasoline tax increases imposed during the 1980's had a much smaller relative impact on retail prices than they would have had in earlier decades when prices were lower. These tax rate increases were masked by the overall retail price declines during this period.

Since 1991, taxable motor-fuel consumption growth has increased, due to improved tax compliance and a reduction in the pace of fuel efficiency improvements, reversing the trend which caused revenue problems in the 1970 and 1980's. The resulting increases in motor fuel tax revenue, along with increased Federal funding and lower inflation have reduced pressure on States to increase gasoline tax rates. States' ability to raise gasoline taxes may have been constrained somewhat by increases in retail gasoline prices and in the Federal gasoline tax rate. These factors may have combined to reduce gasoline tax rate growth below historic levels.

STATE MOTOR-FUEL TAX TRENDS IN THE 1990'S WHY HAS THE PACE OF RATE INCREASES DECLINED?

INTRODUCTION

BACKGROUND

From 1981 to 1991 State motor fuel tax rates grew at an unprecedented rate, more than doubling. This rate of growth was not sustained during the period from 1992 to 1997, as the number and magnitude of State motor fuel tax increases have declined sharply. This paper attempts to determine the rationale for States failing to continue to increase their taxes in the 1990's at the same rate as in the 1980's.

SCOPE OF ANALYSIS

This paper examines historic trends in State motor-fuel tax increases, to identify some of the factors that may influence their timing and magnitude. However, no direct causal analysis was done to determine why specific rate changes in individual States occurred at a particular time. Each State government is subject to a variety of local factors that may influence considerations of when or if tax rates should be changed, which may outweigh any overall trends observed at the national level.

METHODOLOGY

This paper uses two key statistics to evaluate historic trends in State motor-fuel tax rates. The first, the number of States that increased their rates each year, measures the extent of rate increases and is an indication of how widespread tax increases are at a given point of time. The second, the weighted average State tax rate measures the magnitude of State tax rate increases that occurred, and reflects both the size and relative significance of individual State tax rate increases. While these two statistics tend to show strong correlation with each other, historically they have varied.

Highway Statistics includes two measures of the "average" State motor-fuel tax rate. The first is the "mean," a simple arithmetic average of the tax rates of the 50 States and D.C. The second, more commonly cited figure, is the "weighted average" tax rate, which weights the rates in each State by the fuel consumption in the State. The weighted average represents the average amount of State tax imposed on each gallon of fuel consumed in the country. In this paper, all references to the average rate refer to the "weighted average" unless the term "mean" is specifically cited.

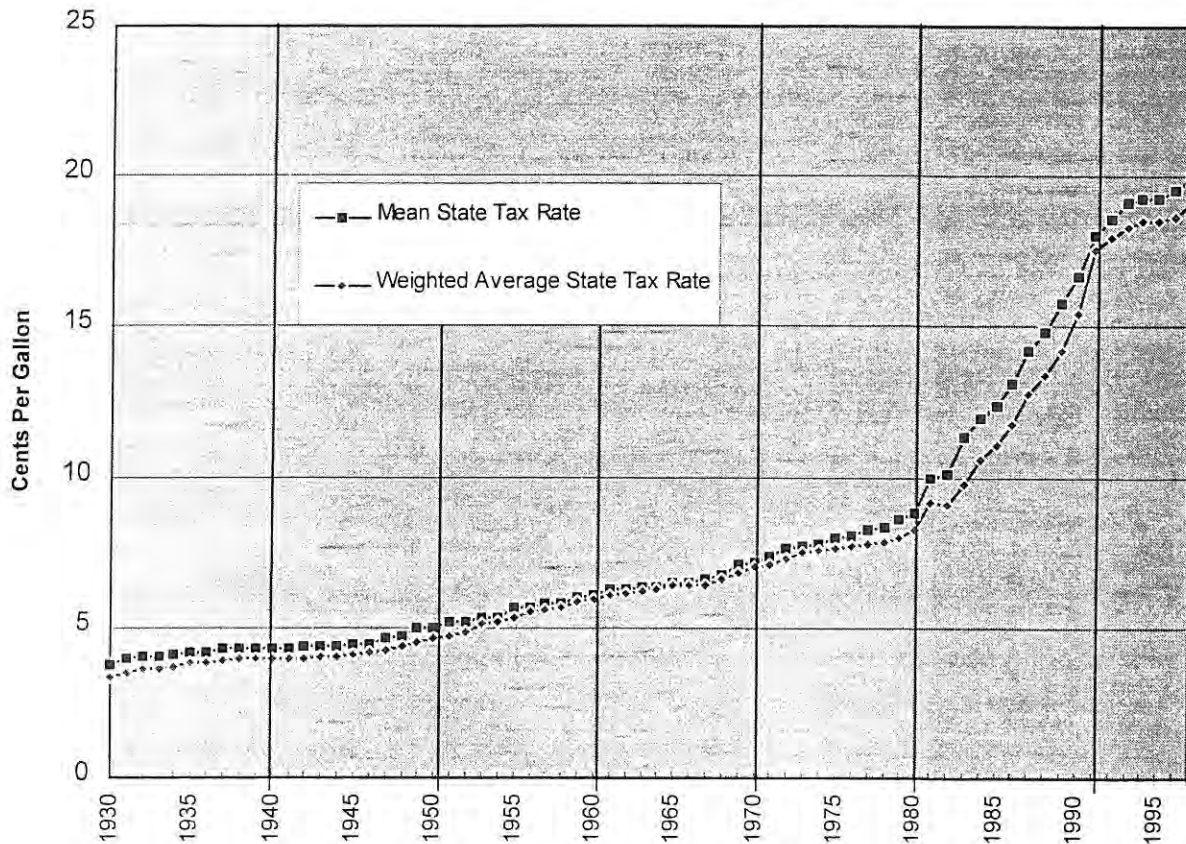
Historic data for the weighted average State tax rate are available back to 1930, so the historic charts in this paper go back to that year. For analysis purposes, the data have been summarized into seven time periods. The first five are based on decades (i.e., 1930-1940, etc.). The sixth extends 11 years from 1980-1991. 1991 data were included in this group, because the major motor fuel tax increases that characterized the 1980's extended until that year. The seventh period extends from 1991 to 1996 (or 1997, if data are available).

In order to simplify the historical analysis, this paper focuses on State gasoline tax rates, rather than rates for all types of motor fuel.

PART I. HISTORIC TRENDS IN STATE GASOLINE TAX RATES

Exhibit 1 shows the weighted average and mean State gasoline tax rates over time. It is interesting to note that since data became available in 1930, the weighted average rate has always been lower than the mean rate, which would indicate that larger States with a higher share of total fuel consumption have tended to impose lower gasoline taxes than smaller States with a lower share of fuel consumption. Tax rates for individual States for 1980-1997 are included in Appendix A.

Exhibit 1: Average State Gasoline Tax Rates



Source: Highway Statistics Summary to 1995 and Monthly Motor Fuel Report

Trends: 1930-1980

The slopes of the lines in Exhibit 1 show that State gasoline tax rates increased at a relatively stable pace from 1930 to 1980, compared to the increases from 1980 to 1991. This can be seen in more detail in Table 1, which shows the average annual rate of growth in the weighted average State gasoline tax as well as the average annual number of States that increased or decreased their tax rates. The average annual rate increase was 2.48 percent from 1950 to 1960, but remained in a range from 1.6 to 1.7 percent for the other four decades (1930-1950 and 1960-1980). The largest annual increase in State gasoline tax rates during this period occurred in 1953, when rates increased 5.59 percent over the previous year.

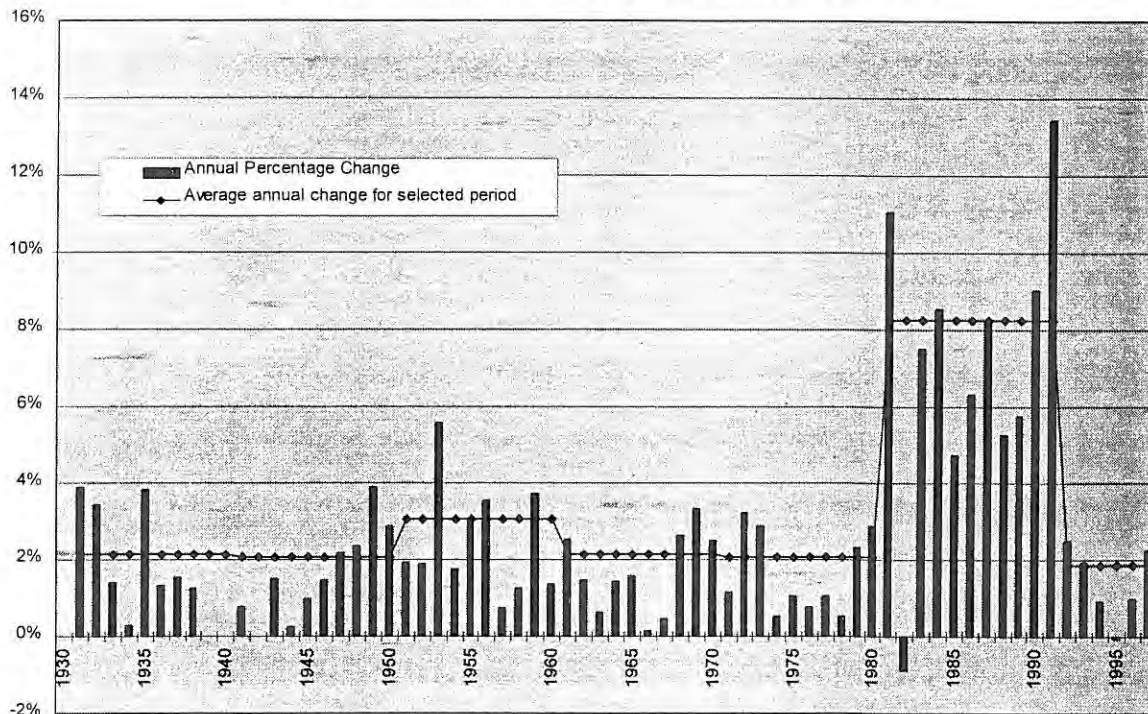
The average annual number of States increasing their tax rates grew during the time period, from 2.9 between 1930 and 1940 to 6.1 between 1970 and 1980. The greatest number of States to increase their rates within in a single year was 13, which occurred in 1949, 1955, and 1969.

Years	Weighted Average State Gasoline Tax		Average Annual Number of States Changing Rates	
	Rate at End of Period	Annual Rate Increase	Rate Increases	Rate Decreases
1930-1940	3.96	1.69%	2.9	0.3
1940-1950	4.65	1.62%	3.7	0.3
1950-1960	5.94	2.48%	5.3	0.6
1960-1970	7.01	1.67%	5.3	0.4
1970-1980	8.24	1.63%	6.1	0.1
1980-1991	17.55	7.11%	18.1	0.7
1991-1997	19.10	1.42%	9.8	2.3

Trends 1980-1991

In 1981, an unprecedented 26 States increased their gasoline tax rates, driving the weighted average tax rate up by 11.04 percent, almost double the largest rate increase that had ever occurred previously. Rates dipped slightly in 1982 by -0.87 percent, but rebounded in 1983, and grew sharply for the remainder of

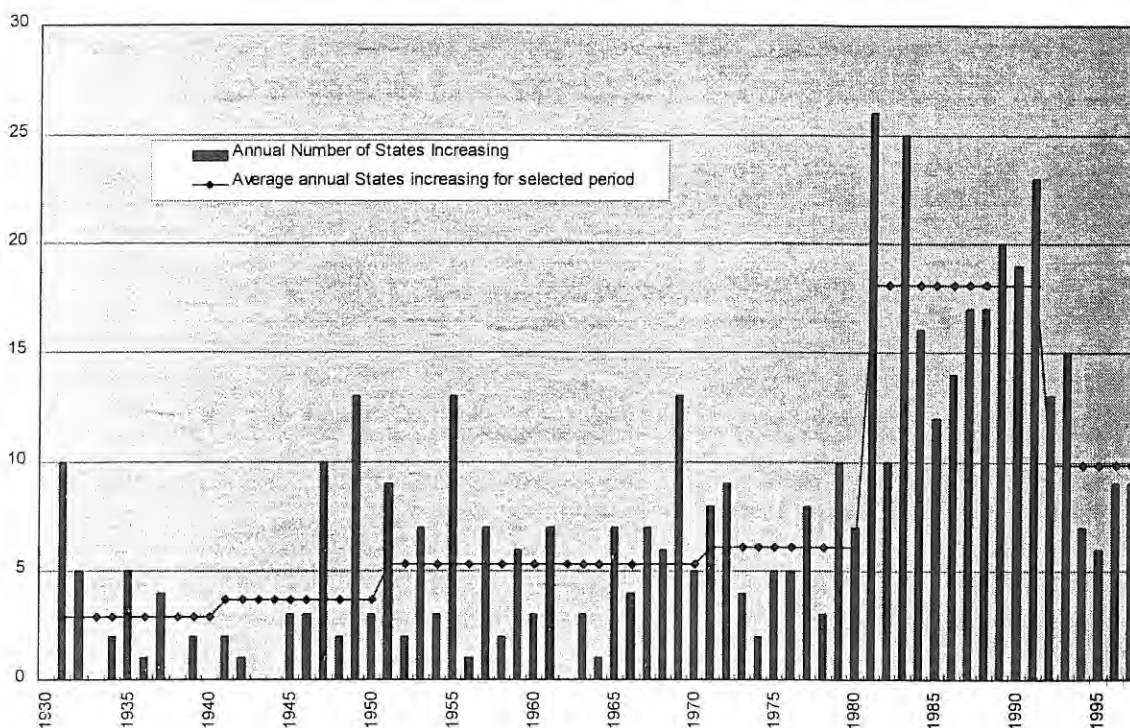
Exhibit 2: Annual Percent Change in State Motor-Fuel Tax Rates



this 11-year period, culminating in the largest annual percentage increase of all time, 13.45 percent in 1991. As can be seen in Exhibit 2, the growth in tax rates during this period was remarkably consistent. Of the top eleven largest percentage increases of all time, ten occurred during the eleven-year period 1980-1991. The average annual rate of growth for this period was 7.11 percent, which exceeded the largest single year increase that had occurred previously, the 5.59 percent increase in 1953.

All but two States increased their tax rates during the 1980 to 1991 time period. Texas quadrupled its gasoline tax rate from 5 to 20 cents, during these eleven years, while Colorado and Nevada and Ohio tripled their rates. Over this eleven-year period, an average of 18.1 States increased their tax rates annually, which was higher than the highest pre-1980 single year total of 13 States. In nine of the eleven years, more than 13 States increased their rates. In four of these years, 1981, 1983, 1989, and 1990, 20 or more increased their gasoline tax rates. Exhibit 3 shows the number of States that increased their tax rates each year from 1930-1997.

Exhibit 3: Number of States Increasing State Motor-Fuel Tax Rates



1991-1997

As shown in Table 1, from 1991 to 1997, growth in the weighted average State gas tax rate slowed to an average annual rate of 1.42 percent. In 1995, the weighted average actually fell by 0.05 percent. This was only the second decline that had occurred since this data series began in 1930. (See Exhibit 2).

The number of States increasing their tax rates also declined, down to an average of 9.8 per year. While this number is higher than the pre-1980 average, it includes some increases in variable rate gasoline taxes that were imposed since 1980. Thus, the number of new legislated gasoline tax increases is actually smaller, and more in line with the pre-1980 trend. Only six States increased their rates during 1995, the smallest number since 1978. (See exhibit 3). During the six-year period, twenty-two States have not increased their rates.

Another striking feature of the 1991-1997 period is the number of States that have decreased their motor-fuel tax rates. An average of 2.3 States annually reduced their taxes during this six-year period (though this was offset by increases in some of these States in other years during this period). This is a much higher rate than had occurred previously. Some of these declines are partly the result of declines in variable rate taxes, in response to declines in motor fuel prices. Others occurred due to the expiration of temporary taxes levied prior to 1991.

Impact of Variable Rate Taxes

The tax rates of eleven States contain a variable component that can change without any legislative action. However, several of these States have set a floor, a minimum tax rate, that is so high that a tax change is rarely triggered. In 1997, only four of the variable tax States actually changed their rates. Nebraska's rate is indexed to the average cost of motor fuel purchased by the State, and declined in response to declining fuel prices. Florida's, New York's, and Wisconsin's rates are indexed to the CPI, and all three rates increased.

By providing a mechanism for small automatic tax rate increases, the existence of variable rate taxes tends to raise the average number of State tax increases per year, while lowering the average size of each tax increase. This is one explanation for the average number of State tax rate increases in the 1990's being higher than in the 1970's, while the average annual rate increase was lower in the 1990's.

Variable rate taxes, particularly those that are indexed to the CPI rather than motor fuel prices, provide a gradually increasing revenue stream. However, in the three States with CPI-linked rates, only a portion of the tax rate is variable; the remainder is fixed. Therefore, even these States are subject to pressure for legislated tax increases.

PART II: STATE MOTOR-FUEL TAX REVENUES

The amount of revenue generated by State motor-fuel taxes is determined by two factors: the tax rates imposed by the States, and the volume of fuel that is taxed. When fuel consumption increases, States will receive more motor-fuel tax revenue, even if tax rates remain the same.

Table 2 compares the average annual changes in gasoline tax rates and motor-fuel tax revenues over time. While gasoline tax rates have grown only 1.42 percent annually since 1991, fuel tax revenues have grown much more quickly, at a 5.2 percent annual rate. If viewed on a tax revenue basis rather than a tax rate basis, the difference between the 1990's and the 1980's is much less pronounced. The 1980-1991 average annual growth rate for State motor-fuel tax revenues of 7.54 percent is only slightly higher than the 1950-1960 rate. While the growth rate since 1991 is lower than that of the 1980's it is still higher than the 3.97 percent rate of the 1970's.

Years	Average Annual Growth Rates				
	Weighted Average State Gas Tax Rate	State Motor Fuel Tax Revenues	Fuel Consumption	Vehicle-Miles of Travel	Implied Miles Per Gallon
1930-1940	1.69%	5.76%			
1940-1950	1.62%	6.67%	4.95%	4.25%	-0.66%
1950-1960	2.48%	7.48%	4.96%	4.60%	-0.34%
1960-1970	1.67%	6.63%	4.78%	4.44%	-0.33%
1970-1980	1.63%	3.97%	2.22%	3.25%	1.01%
1980-1991	7.11%	7.54%	1.02%	3.25%	2.21%
1991-	1.42%	5.22%	2.67%	2.71%	0.03%

Source: Highway Statistics 1996 and Summary to 1995

As shown in table 2, since 1991, motor-fuel consumption has increased more than twice as rapidly than it did during the 1980's, which enabled States to generate more revenue without raising their tax rates. Fuel consumption has increased by 2.67 percent annually from 1991-1996. During the 1980's, fuel consumption only increased 1.02 percent annually, well below the historic average.

It is interesting to note that fuel consumption and vehicle miles of travel (VMT) diverged during the 1980's. The average annual growth in VMT was 3.25 percent, the same as during the 1970's. However, fuel consumption grew at a much lower rate. The reduction in the average annual fuel consumption growth rate was largely a result of increases in fuel efficiency. From 1980 to 1991 average MPG for all vehicles grew from 13.3 to 16.9, an annual improvement of 2.21 percent.

Caveat on MPG data: fuel tax compliance

Since 1991, MPG has remained at 16.9, growing at a scant 0.03% percent annual rate. It is important to note that while this statistic is primarily a measure of fuel efficiency, it can also be influenced by fuel tax

compliance. VMT data based on traffic counters would tend to capture all highway travel, while fuel consumption data based on State motor-fuel tax records wouldn't pick up gallonage on which the fuel tax was evaded. In 1990, FHWA began the Joint Federal / State Motor Fuel Tax Compliance Project, which forged alliances among the IRS, State revenue agencies, other Federal and State regulatory and enforcement agencies, and petroleum industry members, in an effort to reduce motor-fuel tax fraud. The initiatives of the Joint Project have led to a significant reduction in fuel tax evasion, particularly for diesel fuel, which has led to an increase in gallonage taxed and revenue raised at both the Federal and State levels. The increase in gallons taxed has depressed implied MPG growth during the 1990's.

Implications of Growth in Fuel Consumption on Gasoline Tax Rates

Growth in fuel consumption tends to have two opposite impacts on gasoline tax rates. Increases in fuel consumption result in increased revenues, which would tend to reduce the pressure for States to increase their tax rates. However, increases in fuel consumption are generally caused by increases in travel. Increases in VMT also cause highway investment requirements to increase to accommodate the new traffic, which puts pressure on States to generate more revenues for use on highways. Since State gasoline taxes are a major source of revenue for State highway programs, this increases the pressure for States to increase their taxes.

Due to improved fuel efficiency during the 1980's, average annual fuel consumption growth was less than half the rate of VMT during this period. The average annual increase in fuel consumption during the 1980's was 1.02 percent, down from 2.22 percent in the 1970's. This meant that the revenue stream from motor-fuel taxes would grow more slowly, in the absence of tax rate increases. The average annual growth rate in VMT during the 1980's was 3.25 percent, the same as in the 1970's. The combination of lower fuel consumption and steady VMT growth rates would appear to have put pressure on States to raise fuel taxes in order to increase revenue to finance increased spending.

Since 1991, the average annual growth in fuel consumption has risen to 2.67 percent, while the average annual growth in VMT has dropped to 2.71 percent. This has tended to increase the revenues available for expenditure on highways, while reducing the growth rate of highway investment requirements. The combination of these two factors would appear to reduce the pressure on States to increase their tax rates.

The relationship between fuel consumption and tax rates is also demonstrated by the tendency of tax rates to rise significantly, following or concurrently with declines in motor fuel consumption. The 11.04 percent increase in gasoline tax rates in 1981 was the second largest annual percentage increase of all time, and followed declines in fuel consumption of -2.36 percent in 1979, -5.86 percent in 1980 and -0.44 percent in 1981. The 13.45 percent increase in gasoline tax rates in 1991 was the largest of all time, and followed declines of -0.83 percent in 1990 and -1.68 percent in 1991. Motor fuel consumption did decline in 1974 without appearing to lead to major tax rate increases, but this decline followed a large increase in 1973, and consumption rebounded quickly in subsequent years.

**PART III: STATE MOTOR FUEL TAX REVENUES
AS A SOURCE OF STATE HIGHWAY FUNDING**

State motor fuel tax revenues are the largest component of State highway user revenues, which also include motor-vehicle taxes and fees and tolls. The \$24.5 billion of State motor-fuel tax revenue shown in Table 3, represented 60.6 percent of the \$40.6 billion of total highway-user revenues used for highway purposes in 1996, as shown in Exhibit 4.

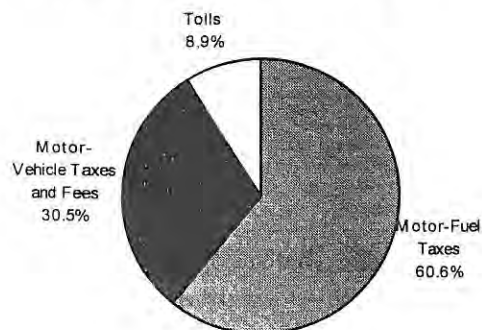
Highway-user revenues are in turn the largest source of funding for State highway programs. In 1996, motor fuel tax revenues represented 46.7 percent of the \$52.6 billion generated by States

Table 3: Revenues Used for Highways by States - 1996 (Millions of Dollars)	
Highway User Revenue	
Motor-Fuel Taxes	\$24,574
Motor-Vehicle Taxes and Fees	\$12,357
Tolls	\$3,627
Subtotal	\$40,558
Other State Revenues	
General Fund Appropriations	\$2,481
Other Taxes and Fees	\$2,112
Investment Income and Other	\$2,558
Bond Issue Proceeds	\$4,863
Subtotal	\$12,014
Total State-Generated Revenues	\$52,572
Payments from Federal Government	\$18,266
Payments from Local Governments	\$1,256
Total Revenues Available to States	\$72,094
Uses of Available Revenues	
Direct Spending by States	\$59,709
Payments to Local Govts	\$10,937
Placed in Reserves (Net)	\$1,448
Total Uses of Available Revenues	\$72,094

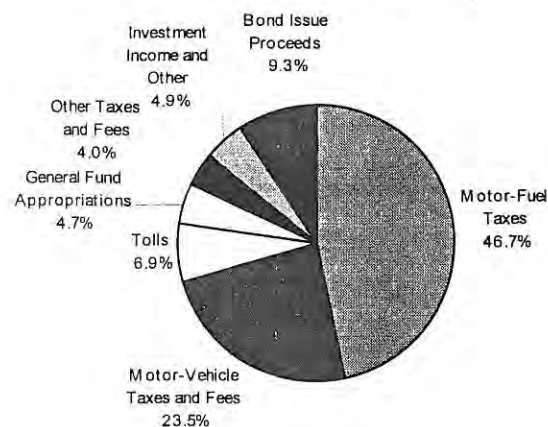
Source: Highway Funding Bulletin: 3/2/98 (Data revised slightly)

**Exhibit 4: Revenues Used for
Highways: Motor Fuel Tax
Revenues Share of:**

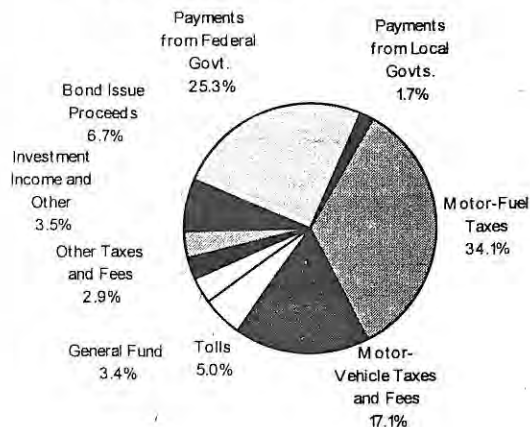
State Highway-User Revenues - 1996



State-Generated Revenues - 1996



Revenues Available to States - 1996

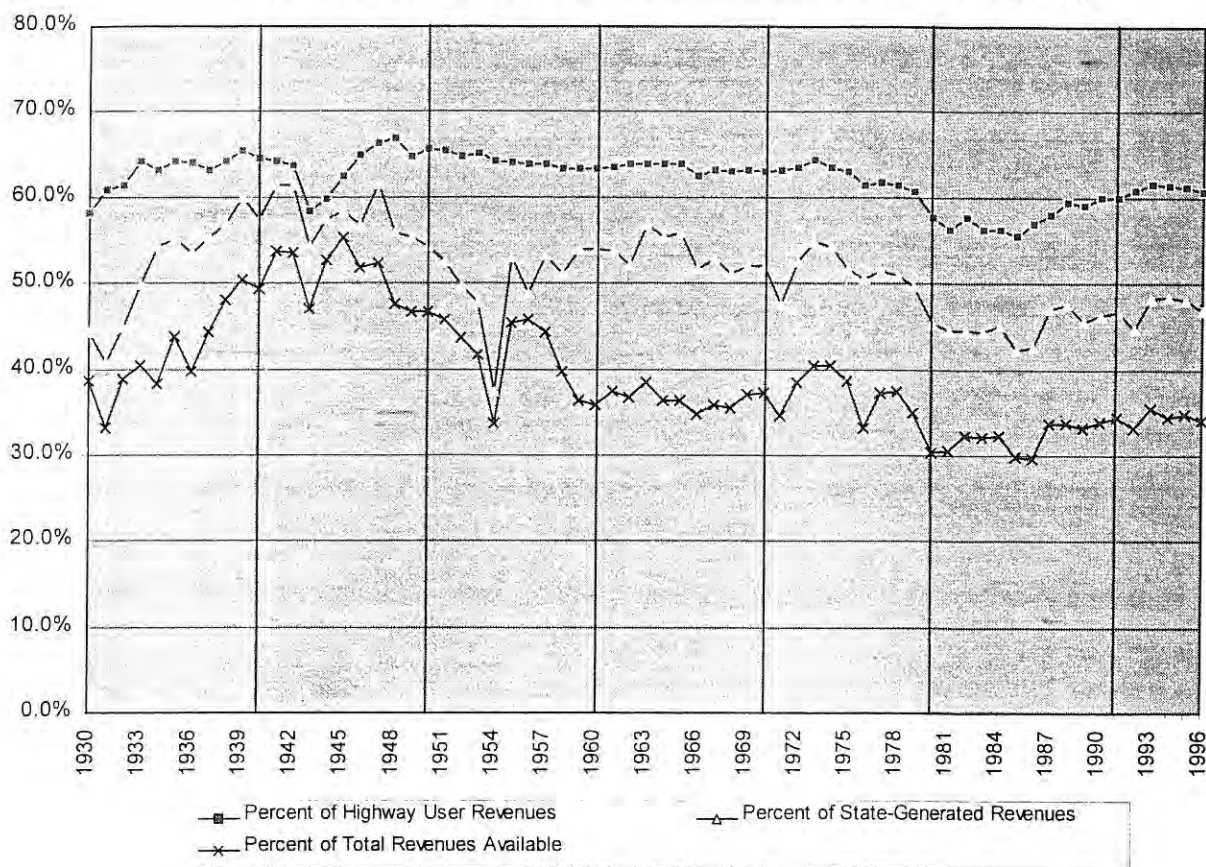


for use on highways. State motor-fuel taxes generated 34.1 percent of the \$72.1 billion of total revenues available to States for highways in 1996, including payments from the Federal government and local governments.

Historic Trends in Motor-Fuel's share of Highway Funding

Exhibit 5 shows State motor fuel tax revenues as a percent of total highway-user revenues, of total State funding, and of total revenues available to States for highways (including payments from other governments). In 1980, State motor-fuel tax revenue's share of total revenues available to States dropped to 30.4 percent, the lowest level that had occurred up until that time. By 1991, State motor-fuel tax revenue's share had rebounded to 34.5 percent. Since 1991, this percentage has declined slightly to 34.1 percent.

Exhibit 5: Trends in State Motor Fuel Tax Revenues used for Highways



Source: Highway Statistics Summary to 1995 and Highway Funding Bulletin 3/2/98

When motor-fuel taxes' share of total funds available declines, this indicates that other types of revenues for highways are growing more quickly and that motor-fuel tax revenue is not keeping pace with the growth in highway spending. This may inspire States to increase motor-fuel tax rates, particularly if the increase in revenues from other sources is not sustainable in the long term. The decline in motor-fuel tax revenue's share in the late 1970's may have tended to increase pressure on States to raise their taxes during the 1980's. Since 1991, State motor-fuel tax revenue's share of total highway funding has stabilized, which may have tended to reduce pressure on States to raise their motor fuel tax rates.

Motor-fuel taxes' share of all State-generated revenues for highways and of State highway-user revenues used for highways declined from 1973 to 1985. Revenues from motor vehicle taxes and other State sources grew more quickly than motor fuel taxes during this period. Since 1985, motor fuel tax revenue has grown more quickly than other State revenues used for highways.

Other Sources of Highway Funding

Table 4 shows the percentage of total funds available to States for highways that were contributed by different revenue sources. Since the early years of the Federal Highway Trust Fund, the two largest sources of revenue for State highways have been State motor fuel taxes, and Federal grants.

Years	State Motor-Fuel Taxes	State Motor-Vehicle Taxes and Fees	State Tolls	Other State Sources	Federal Payments to States	Local Payments to States
1930	38.6%	26.9%	1.0%	20.7%	7.9%	4.9%
1940	49.3%	25.0%	2.1%	9.4%	13.3%	0.8%
1950	46.7%	22.3%	2.2%	14.8%	12.8%	1.3%
1960	35.8%	16.1%	4.7%	9.9%	32.4%	1.1%
1970	37.2%	16.8%	5.1%	12.5%	27.8%	0.7%
1980	30.4%	17.7%	4.6%	14.4%	32.1%	0.8%
1991	34.5%	18.3%	4.8%	16.5%	24.5%	1.5%
1996	34.1%	17.1%	5.0%	16.7%	25.3%	1.7%

Source: Highway Statistics Summary to 1995, and Highway Funding Bulletin 3/2/98

State motor fuel taxes' share of total funds available to States has tended to vary inversely with Federal payments' share of total funds. During the 1950's, 1970's, and 1990's, State motor fuel taxes' share decreased, while Federal payments' share increased. During the 1960's and 1980's, State motor fuel taxes' share increased, while Federal payments' share decreased. The extent to which this inverse relationship might be caused by States substituting Federal dollars for State dollars is explored more in the next section.

Despite the fast pace of State motor-fuel tax revenue growth from 1980-1991, its share of total highway funding did not climb back to the levels seen before 1970. Other State revenue sources have provided a larger share of highway funding over time. This may tend to make State motor-fuel tax rates less sensitive to changes in highway funding needs perceived by States, since alternative revenue sources may be available.

PART IV: FEDERAL GOVERNMENT'S IMPACT ON STATE GASOLINE TAX RATES

The major role the Federal government plays in highway funding could have several potential impacts on State gasoline tax rates. Since the Federal government also imposes motor-fuel taxes, there is the possibility that Federal increases can crowd out some States tax rate increases that would otherwise have occurred. Also, if the Federal government provides more funding for highways, the marginal benefit cost ratio for State highway investments will decline, which may encourage States to reprogram funds to other areas. However, since the Federal-aid program is a matching program, increases in Federal funding can put pressure on States to raise tax rates, in order to come up with required matching funds.

Federal Gasoline Tax Rates

The two periods with the largest percentage increases in Federal gasoline tax rates, the 1950's and the 1980's, also had the largest percentage increases in State gasoline tax rates. Whatever crowding out effect the Federal rate increases might have had on State rates was offset by other factors. Part of the State increases would have been motivated directly by the need to generate additional revenue to meet matching requirements. Other State increases may have had the same motivation as the Federal increases: the general perception that additional revenues were needed for highway infrastructure investment.

Years	Weighted Average State Gasoline Tax		Federal Gasoline Tax		Combined State and Federal Gasoline Tax	
	Rate at End of Period	Annual Rate Increase	Rate at End of Period	Annual Rate Increase	Rate at End of Period	Annual Rate Increase
1930-1940	3.96	1.69%	1.5		5.46	5.01%
1940-1950	4.65	1.62%	1.5	0.00%	6.15	1.20%
1950-1960	5.94	2.48%	4.0	10.31%	9.94	4.92%
1960-1970	7.01	1.67%	4.0	0.00%	11.01	1.03%
1970-1980	8.24	1.63%	4.0	0.00%	12.24	1.06%
1980-1991	17.55	7.11%	14.1	12.14%	31.65	9.02%
1991-1997	19.10	1.42%	18.4	4.54%	37.50	2.87%

The 4.3 cent increase in Federal gasoline tax rates in October 1993 may be partially responsible for the reduced pace of increases in State gasoline tax rates in the 1990's. Since none of the proceeds from this tax were used for highways, any crowding out effect that may have occurred would not have been offset. States did not need to raise taxes to generate additional revenues for matching, since Federal payments to States were not affected by the imposition of this tax.

Combined Federal and State motor fuel taxes have risen at an average annual rate of 2.87 percent since 1991. While this is below the 9.02 percent average annual growth rate of the 1980's, it is significantly higher than the 1.03 percent and 1.06 percent average annual growth rates of the 1960's and 1970's,

respectively. Thus, combined Federal and State motor fuel rates have grown more quickly than their historic pre-1980 pace, even though State rates alone have grown more slowly.

Federal Payments to States: Substitution Effect

Table 6 compares average annual growth rates of State gasoline tax rates, total State motor-fuel tax revenues, State motor-fuel tax revenues used for highways, and Federal payments to States for highways. This table also shows how the share of total State funding for highways provided by motor-fuel tax revenues and Federal payments has varied over time.

Table 6 gives some indications that there may be a substitution effect taking place as the level of Federal funding rises, which would tend to reduce the rate at which States increase their motor fuel taxes. During the 1970's, Federal payments to States for highways grew at an annual rate of 7.54 percent. States increased their tax rates at the same rate that they had historically, but due to slowing growth in fuel consumption, State motor-fuel tax revenue used for highways grew by only 3.88 percent a year. During this period, Federal payments' share of total revenues available to States for highways rose from 27.8 percent to 32.1 percent, while State motor-fuel tax revenues' share fell from 37.2 percent to 30.4 percent.

By contrast, during the 1980 to 1991 time period, while the growth of Federal payments to States for highways slowed to 3.81 percent per year, State motor fuel tax revenues used for highways grew by 7.28 percent annually. To achieve this rate of revenue growth, States had to overcome a sharp decline in the rate of motor fuel consumption by increasing State gasoline tax rates at an unprecedented pace. By 1991, Federal payments' share of total revenues available to the State had fallen to 24.5 percent, while State motor fuel tax revenues' share climbed to 34.5 percent.

Years	Average Annual Growth Rates				Year	Percent of Total Revenues Available to States for Highways (in last year of period)	
	Weighted Average State Gasoline Tax Rate	State Motor Fuel Tax Revenues		Federal Payments to States for Highways		State Motor Fuel Tax Revenues	Federal Payments to States
		Total Collected	Portion Used for Highways				
1930-1940	1.69%	5.76%	4.10%	7.01%	1940	49.3%	13.3%
1940-1950	1.62%	6.67%	7.95%	8.14%	1950	46.7%	12.8%
1950-1960	2.48%	7.48%	7.81%	21.46%	1960	35.8%	32.4%
1960-1970	1.67%	6.63%	6.45%	4.44%	1970	37.2%	27.8%
1970-1980	1.63%	3.97%	3.88%	7.54%	1980	30.4%	32.1%
1980-1991	7.11%	7.54%	7.28%	3.81%	1991	34.5%	24.5%
1991-	1.42%	5.22%	4.95%	5.26%	1996	34.1%	25.3%

Source: Highway Statistics Summary to 1995 and Highway Funding Bulletin 3/2/98

One interpretation of these events would be that the large increase in Federal funding during the 1970's may have allowed States to ignore the reduced motor fuel tax revenue growth they were experiencing. When Federal funding growth declined during the 1980's States were finally forced to address the impact that increased fuel efficiency was having on their highway funding levels. Thus, it is possible that some State tax increases that normally would have occurred in the 1970's were deferred until the 1980's.

Since 1991, Federal payments to States for highways have accelerated to an average annual growth rate of 5.26 percent. State motor fuel tax revenue has lagged behind Federal funds, growing by 4.95 percent. This level of growth has been sustained by increased growth in fuel consumption, as actual gasoline tax rates have increased more slowly than in they have historically. It is possible that the increase in Federal funding may be suppressing State gasoline tax rate increases that would normally have occurred.

Federal Payments to States: Impact of Matching Requirements

Federal payments to States and State motor fuel tax rates do not have a consistently inverse relationship. For example, in the 1950's, the fast growth in Federal funding for highways coincided with increases in State gasoline tax rates at a level surpassed only by that of the 1980's. Since the Federal-aid highway program is a matching program, increases in funding levels require States to generate or redirect additional revenue toward meeting the matching requirements. When the Federal program increases, it becomes easier for States to make a political case for raising their tax rates.

PART V: IMPACT OF INFLATION ON RATES

General trends in motor fuel prices can have an impact on States' ability to raise gasoline taxes. When fuel prices are rising quickly, it becomes more difficult politically for States to raise taxes, because drivers are more sensitive to the total price of fuel. After fuel prices have stabilized at a higher level, a fixed rate fuel tax becomes a smaller share of the total price. Therefore, increases in the tax rate would result in a smaller percentage increase in overall fuel prices, so they would not be as noticeable to consumers. When fuel prices are falling, it may be easier for States to raise their taxes, since the effects of the increase on prices would be masked.

The level of inflation also can have an impact on States motivation to raise gasoline tax rates. Motor-fuel taxes are a major source of revenue for highways. As the costs of highway construction, maintenance, and administration rise, States need additional revenues to keep pace.

Retail Gasoline Prices

As shown in Table 7, retail gasoline prices per gallon rose from 35.7 cents to \$1.221 between 1970 and 1980. As a result, the share of retail prices attributable to State gasoline taxes dropped from 19.6 percent to 6.8 percent over this period. Therefore, the large percentage increase in State tax rates that occurred during the 1980's had less of an impact on overall retail prices than it had in earlier decades. While the 7.11 percent average annual increase from 1980 to 1991 was more than quadruple the average annual increase of 1.63 percent during the 1970's, the resulting average annual impact on retail prices was only twice as large, 0.67 percent from 1980 to 1991, compared to 0.34 percent during the 1970's. Thus, the rapid price increases in the 1970's made the rapid increase in tax rates in the 1980's less obvious to consumers, and thus more acceptable politically. Despite the doubling of State gasoline taxes during this period, State gasoline taxes' share of retail prices climbed only to 14.7 percent by 1991, still well

Years	Rate/Price at End of Period			Change in Weighted Average State Gasoline Tax Rate		
	Weighted Average State Gas Tax Rate	Retail Gasoline Prices	State Gas Tax Rate as Percent of Retail Price	Rate Increase During Period	Average Annual Percent Change	Average Annual Percent Impact on Retail Gasoline Prices 1/
1930-1940	3.96	18.4	21.5%	0.61	1.69%	0.30%
1940-1950	4.65	26.8	17.4%	0.69	1.62%	0.37%
1950-1960	5.94	31.1	19.1%	1.29	2.48%	0.47%
1960-1970	7.01	35.7	19.6%	1.07	1.67%	0.34%
1970-1980	8.24	122.1	6.8%	1.23	1.63%	0.34%
1980-1991	17.55	119.6	14.7%	9.31	7.11%	0.67%
1991- 1997	19.10	129.1	14.8%	1.55	1.42%	0.21%

1/ Note that this represents only the impact of State rate changes on retail prices, not the overall changes in retail prices.

Sources: Highway Statistics Summary to 1995; Monthly Motor Fuel Report; American Petroleum Institute "How Much We Pay for Gasoline - 1996 Annual Review"; U.S. Department of Energy "Monthly Energy Review, February 1998".

below the 1970 level. Since 1991, State gasoline taxes have grown slightly faster than the underlying retail price, causing their share of retail prices to increase to 14.8 percent.

Table 8 shows State taxes, Federal taxes, and retail gasoline prices over time. The 13.08 percent average annual increase of gasoline prices during the 1970's would have created a strong political disincentive to raising tax rates, since the public's sensitivity to the price increases was so strong. This may explain why States did not raise their rates sufficiently to overcome reduced fuel consumption growth during this period.

Years	Rate/Price at End of Period				Average Annual Growth Rates		
	Weighted Average State Gas Tax Rate	Federal Gas Tax Rate	Retail Gasoline Prices	Retail Prices Excluding Taxes	Weighted Average State Gas Tax Rate	Retail Gasoline Prices	Retail Prices Excluding Taxes
1930-1940	3.96	1.5	18.4	12.9	1.69%	-0.83%	-2.49%
1940-1950	4.65	1.5	26.8	20.7	1.62%	3.83%	4.78%
1950-1960	5.94	4.0	31.1	21.2	2.48%	1.50%	0.24%
1960-1970	7.01	4.0	35.7	24.7	1.67%	1.39%	1.55%
1970-1980	8.24	4.0	122.1	109.9	1.63%	13.08%	16.10%
1980-1991	17.55	14.1	119.6	88.0	7.11%	-0.19%	-2.00%
1991-1997	19.10	18.4	129.1	91.6	1.42%	1.28%	0.68%

Sources: Highway Statistics Summary to 1995; Monthly Motor Fuel Report; American Petroleum Institute "How Much We Pay for Gasoline - 1996 Annual Review"; U.S. Department of Energy "Monthly Energy Review, February 1998".

During the period 1980 to 1991, retail fuel prices fell 2.5 cents from \$1.221 to \$1.196, despite a combined 19.41 cent increase in State and Federal Taxes. During this period, States were able to raise taxes sufficiently to more than offset revenue declines resulting from reduced fuel consumption growth, without causing higher prices.

General Inflation

Table 9 compares motor-fuel tax revenues with the Consumer Price Index (CPI) and the Composite Bid Price Index for Federal-Aid Highway Construction Projects (Highway Construction Index). State motor-fuel tax revenues are a major funding source for highway construction, as well as for other types of highway expenditures. The highway construction index is an indicator of additional revenue needed to keep pace with increases in construction prices, while the CPI is an indicator of general prices increases that would impact other types of highway expenditures.

In constant dollar terms based on the CPI, State motor-fuel tax revenue increases from 1980 to 1991 were not abnormally high. Constant dollar revenues increased more quickly during the 1930's, 1950's and 1960's. While constant dollar (based on CPI) average revenue growth since 1991 declined to 2.02 percent, this is not far below the 2.48 percent average annual growth rate from 1980 to 1991. One reason why the 1980's rate would be higher than the 1990's rate would be that State needed to increase constant

dollar revenue more quickly, in order to offset the decline in constant dollar revenue that occurred in the 1970's.

Table 9: Constant Dollar Motor-Fuel Tax Revenues

Years	Consumer Price Index	Highway Construction Index	Weighted Average State Gas Tax Rate	State Motor Fuel Tax Revenues	Constant Dollar State Motor-Fuel Tax Revenues Based on:	
					Consumer Price Index	Highway Construction Index
1930-1940	-1.75%		1.69%	5.76%	5.95%	
1940-1950	5.56%		1.62%	6.67%	2.27%	
1950-1960	2.09%		2.48%	7.48%	5.60%	
1960-1970	2.74%	4.54%	1.67%	6.63%	3.61%	1.83%
1970-1980	7.82%	10.79%	1.63%	3.97%	-3.65%	-6.24%
1980-1991	4.67%	0.92%	7.11%	7.54%	2.48%	6.30%
1991-	2.87%	2.02%	1.42%	5.22%	2.02%	2.63%

Sources: Price Trends for Federal-Aid Highway Construction and Bureau of Labor Statistics

In constant dollar terms based on the Highway Construction Index, the difference between the 1980's and 1990's is more pronounced. The Highway Construction Index rose at an average annual rate of only 0.92 percent from 1980 to 1991, while gasoline tax rates and motor fuel tax revenues increased much more quickly. Therefore, it would appear that changes in highway construction prices do not appear to have a strong effect on gasoline tax rates.

PART VI: OTHER FACTORS INFLUENCING STATE GASOLINE TAX RATES

The "State Highway Funding Models" prepared for HPP-20 by the Barents Group in April 1996, were developed to provide 20 year forecasts of the amount of funding that States will provide for highways from their own resources. Model #2 attempts to estimate this total by developing separate forecasts for different components of State highway funding. One of these elements is the amount of revenue that will be generated by legislative changes to motor-fuel and motor-vehicle taxes. Page 16 of the Technical Report explains that:

"This equation predicts that legislated motor fuels and vehicle taxes will increase with the total number of licensed drivers, nominal GDP, and State General Fund expenditures. Intuitively, the number of licensed drivers serves as a measure of the public demand for highway funding. Increases in GDP lead to increases in legislated revenues due to the positive effect increases in incomes and business activity have on the demand for highway funding. Increases in General Fund expenditures have the tendency to increase fiscal pressure, thus necessitating legislated tax increases, including increases in the rates of tax applied to motor fuels and vehicles.

The equation predicts that legislated revenues will decline with fuel consumption and with General Fund revenues. Legislated revenues would be expected to decline with fuel consumption since higher levels of fuel use imply that State governments can take in additional fuel tax revenues while holding the tax rate constant. There is little need to increase tax rates when growth in the tax base is providing a strong stimulus to revenues. Legislated revenues would be expected to decline with General Fund revenues since there is less need to legislate tax increases when revenue collections are high."

Table 10 compares State gasoline tax revenues with three of these items, nominal gross domestic product, total State general revenues, and total State General Expenditures. State motor-fuel tax revenues tracked

Years	Average Annual Growth Rates				
	Weighted Average State Gasoline Tax Rate	State Motor Fuel Tax Revenues (for all purposes)	Nominal Gross Domestic Product (GDP)	State General Revenues (for all purposes)	State General Expenditures (for all purposes)
1930-1940	1.69%	5.76%	1.06%	6.30%	7.68%
1940-1950	1.62%	6.67%	10.98%	9.90%	11.22%
1950-1960	2.48%	7.48%	6.60%	9.28%	7.68%
1960-1970	1.67%	6.63%	6.89%	11.01%	10.17%
1970-1980	1.63%	3.97%	10.42%	11.63%	10.62%
1980-1991	7.11%	7.54%	7.23%	8.13%	7.62%
1991-	1.42%	5.22%	5.27%	7.58%	9.42%

Source: President's FY 99 Budget; Statistical Abstract, Bureau of the Census

very closely with nominal GDP overall during the 1980's and 1990's. However, during the 1970's, fuel tax revenue growth declined, while nominal GDP surged, as a result of higher inflation. Thus, while there is a relationship between GDP and fuel tax revenue, it is not as strong a determining factor as some of the others that have been reviewed previously.

The relationship between State General Revenues and Expenditures and legislated motor fuel taxes suggested by State Highway Funding Model #2 has not been clearly demonstrated in the 1990's. Based on the equation, the decline in annual growth of State General Revenues from 8.13 percent from 1980 to 1991 to 7.58 percent since 1991 would have tended to cause States to increase motor fuel taxes more quickly during the 1990's than the 1980's, since highways would have to compete for a pot of revenue that is growing more slowly. Also, the equation implies that the increase in annual growth of State General Expenditures from 7.62 percent from 1980 to 1991 to 9.42 percent since 1991 would also have increased pressure on State's to increase tax rates. Since the growth rate of motor-fuel tax revenue has declined since 1991, it is apparent that while the model may be correct that a relationship exists between these general government data and motor-fuel tax revenues, other factors have overwhelmed their influence in recent years.

CONCLUSIONS

The purpose of this paper was to identify possible factors that may have influenced the timing and magnitude of State increases in motor-fuel tax rates, rather than to demonstrate a specific cause and effect relationship between such factors and specific tax increases in individual States. Each State faces a different mixture of internal and external pressures that affect its consideration of when and if to change tax rates. However, comparisons of national level trends does provide some insights into the States' collective behavior historically.

Based on the analysis in this report, no single factor can explain the dramatic differences between the pace of State motor-fuel tax rate increases in the 1980's and 1990's. It appears that a number of catalysts dating back to the 1970's may have combined to influence the atypical pattern of rate increases we have seen in recent years.

In the 1970's, States increased their gasoline tax rates at about the same pace as they had historically. Reduced fuel consumption growth during this period led to declines in the growth of nominal motor-fuel tax revenue below historic levels. High inflation caused constant dollar revenues to decline. States' ability to raise gasoline tax rates to address this revenue problem was weakened by the steep increases in retail motor fuel prices that occurred in this period. States' motivation to raise rates may also have been weakened by increases in the Federal funding levels, that helped to make up the State motor-fuel tax revenue shortfall.

In the 1980's, fuel consumption growth declined even further, exacerbating the revenue problem that began in the 1970's. Federal funding growth declined, adding pressure on States to raise revenue to address needed highway improvements. The rate of inflation declined from the level of the 1970's, but still remained higher than historic averages, creating additional demands for revenue. This added pressure on States to increase tax rates coincided with an improvement in States' ability to increase them. As a result of rapid retail price increases, the share of retail gasoline prices attributable to State gasoline taxes fell dramatically during the 1970's, down to 6.8 percent, meaning that increases in gasoline taxes in the 1980's had a much smaller percentage impact on retail prices than they would have had in previous decades. Further, despite a combined 19.4 cent increase in Federal and State gasoline taxes from 1980 to 1991, retail gasoline prices dropped 2.5 cents over this period. The decline in retail prices would have tended to make the tax increases less noticeable to consumers, and therefore more politically palatable. Due to higher than usual inflation, and low growth in fuel consumption, state motor-fuel tax revenue growth in constant dollars was lower from 1980 to 1991 than in the 1950's and 1960's, despite the unprecedented increases in State gasoline tax rates. The large tax increases served only to offset the revenue problems that had developed starting in the 1970's.

In the period since 1991, taxable motor-fuel consumption growth has increased, due to a reduction in the pace of fuel efficiency improvements, and to improved tax compliance. This increase, coupled with a reduction in the rate of inflation, has reduced pressure on States to increase gasoline tax rates. Retail gasoline prices have begun to increase somewhat, making additional taxes more evident to consumers than they were in the 1980's when rates were declining. Federal funding increases may have reduced States' motivation to raise their tax rates. The 4.3 cent Federal gasoline tax increase in 1993 may have crowded out some State tax increases that would ordinarily have occurred, especially since the proceeds of that tax were not used for highways and therefore did not increase States' matching fund requirements.

Although the difference between the 1980's and 1990's is much less pronounced when viewed on a constant dollar motor-fuel tax revenue basis rather than a State fuel tax basis, and combined Federal and State gasoline taxes have grown faster since 1991 than in the 1960's and 1970's, it is true that since 1991

State gasoline tax rates have been increasing more slowly than they have traditionally grown. This may be a temporary phenomenon, or it may be that the gyrations of the 1970's and 1980's have disrupted the historic pattern of rate increases, and that a new equilibrium is developing. Since reaching recent lows in 1995, weighted average gasoline tax rate growth and the number of States increasing their tax rates have increased. This may be a sign that gasoline tax rate growth may go back to its historic pattern, although it seems unlikely that the pace of rate increases experienced during the 1980's will be repeated, unless a similar revenue crisis develops, due to external economic forces.

Possible Impacts of Increased Federal Funding, 1998-2003

The Federal funding increases proposed under current reauthorization legislation can be expected to impact State gasoline tax increases in a number of ways. The availability of additional Federal revenue may encourage some States to defer tax increases, effectively substituting Federal funds for increases in State revenues that would ordinarily have occurred. However, the historical evidence is unclear as to whether States are likely to behave in this fashion. Many States will feel pressure to increase their gasoline tax rates in order to generate enough revenue to meet matching requirements. This may offset any substitution effect.

Since no Federal gasoline tax increases are proposed, there will be no crowding out effect on State gasoline tax rates, as there may have been in some earlier times when both Federal taxes and spending were increased simultaneously. This might allow State gasoline tax rates to rise more quickly than they have in other periods of increased Federal spending.

APPENDIX A: STATE GASOLINE TAX RATES, 1980-1997

(CENTS PER GALLON)

STATE	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Alabama	11	11	11	11	13	13	13	13	13	13	13	13	13	18	18	18	18	18
Alaska	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Arizona	8	9.6	10	12	13	13	16	16	17	17	18	18	18	18	18	18	18	18
Arkansas	9.5	9.5	9.5	9.5	9.5	10.5	13.5	13.5	13.5	13.7	13.7	18.7	18.7	18.7	18.7	18.7	18.6	18.6
California	7	7	7	9	9	9	9	9	9	9	9	15	16	17	18	18	18	18
Colorado	7	9	9	12	12	12	18	18	18	20	20	22	22	22	22	22	22	22
Connecticut	11	11	11	14	15	16	17	19	20	20	22	25	26	29	31	34	38	36
Delaware	9	9	11	11	11	11	13	16	16	16	16	19	19	22	22	23	23	23
Dist. of Col.	10	13	14	14.8	15.5	15.5	15.5	15.5	15.5	18	18	18	20	20	20	20	20	20
Florida	8	8	8	9.7	9.7	9.7	9.7	9.7	9.7	9.7	10.9	11.2	11.6	11.8	12.1	12.3	12.5	12.8
Georgia	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Hawaii	8.5	8.5	8.5	8.5	8.5	11	11	11	11	11	11	16	16	16	16	16	16	16
Idaho	9.5	11.5	12.5	14.5	14.5	14.5	14.5	14.5	18	18	18	21	21	21	21	21	25	25
Illinois	7.5	7.5	7.5	11	12	13	13	13	13	16	19	19	19	19	19	19	19	19
Indiana	8	10.5	11.1	11.1	11.1	14	14	14	15	15	15	15	15	15	15	15	15	15
Iowa	10	13	13	13	13	15	16	16	18	20	20	20	20	20	20	20	20	20
Kansas	8	8	8	10	11	11	11	11	11	15	16	17	18	18	18	18	18	18
Kentucky	9	10.1	10	10	10	10	15	15	15	15	15.4	15.4	15.4	15.4	16.4	16.4	16.4	16.4
Louisiana	8	8	8	8	16	16	16	16	16	16	20	20	20	20	20	20	20	20
Maine	9	9	9	14	14	14	14	14	16	17	17	19	19	19	19	19	19	19
Maryland	9	9	11	13.5	13.5	13.5	13.5	18.5	18.5	18.5	18.5	18.5	23.5	23.5	23.5	23.5	23.5	23.5
Massachusetts	9.8	11.2	10.4	11	11	11	11	11	11	11	17	21	21	21	21	21	21	21
Michigan	11	11	11	13	15	15	15	15	15	15	15	15	15	15	15	15	15	19
Minnesota	9	13	13	16	17	17	17	17	20	20	20	20	20	20	20	20	20	20
Mississippi	9	9	9	9	9	9	9	15	17	17	18.2	18.2	18.2	18.4	18.4	18.4	18.4	18.4
Missouri	7	7	7	7	7	7	7	11	11	11	11	11	13	13	15.1	15	17	17
Montana	9	9	9	15	15	15	17	20	20	20	20	20	21.4	24	27	27	27	27
Nebraska	13.6	13.9	14	15.5	14.7	17.4	17.1	17.9	18.3	22.3	21.7	23.7	24.6	24.4	25.4	25.4	25.9	25.5
Nevada	6	10.5	12	12	12	13	13	16	18	18	18	21.5	24	24	24	24	24	24
New Hampshire	11	14	14	14	14	14	14	14	14	14	16.6	18.6	18.6	18.7	18.7	18.7	18.7	18.7
New Jersey	8	8	8	8	8	8	8	8	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
New Mexico	8	9	10	11	11	11	11	14	14	16	17	17	17	23	21	18	18.9	18.9
New York	8	8	8	8	8	8	8	8	8	8	14.4	20.8	22.9	22.9	22.6	21.9	21.8	22.8
North Carolina	9	12	12	12	12	12	15.5	15.5	15.7	20.9	21.5	22.6	21.9	22	21.3	21.6	21.7	22.6
North Dakota	8	8	8	13	13	13	13	13	17	17	17	17	17	18	18	18	20	20
Ohio	7	10.3	11.7	12	12	12	12	14.7	14.8	18	20	21	21	22	22	22	22	22
Oklahoma	6.5	6.58	6.58	6.58	9	10	10	16	16	17	17	17	17	17	17	17	17	17
Oregon	7	8	8	8	9	10	11	12	14	16	18	20	22	24	24	24	24	24
Pennsylvania	11	11	11	12	12	12	12	12	12	12	18.2	22.4	22.4	22.4	22.4	22.4	22.4	25.8
Rhode Island	10	12	11	13	13	13	15	15	15	18	20	26	26	28	28	29	29	29
South Carolina	11	13	13	13	13	13	13	15	15	16	16	16	16	16	16	16	16	16
South Dakota	11	13	13	13	13	13	13	13	18	18	18	18	18	18	18	18	18	21
Tennessee	7	9	9	9	10	13	17	17	17	20	20	20	20	20	20	20	20	20
Texas	5	5	5	5	10	10	10	15	15	15	15	20	20	20	20	20	20	20
Utah	9	11	11	11	14	14	14	19	19	19	19	19	19	19	19	19	19	24.5
Vermont	9	11	11	13	13	13	13	13	13	16	16	16	16	16	16	16	16	20
Virginia	9	11	11	11	11	11	15	17.5	17.5	17.7	17.7	17.7	17.5	17.5	17.5	17.5	17.5	17.5
Washington	12	13.5	12	16	18	18	18	18	18	18	22	23	23	23	23	23	23	23
West Virginia	10.5	10.5	10.5	15.4	15.4	15.4	15.4	15.4	15.4	20.4	20.4	20.4	20.4	25.4	25.4	25.4	25.4	25.4
Wisconsin	9	13	13	15	16	16.5	17.5	20	20.9	20.8	21.5	22.2	22.2	23.2	23.1	23.4	23.7	23.8
Wyoming	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9
Weighted State Average	8.24	9.15	9.07	9.75	10.58	11.08	11.78	12.75	13.42	14.19	15.47	17.55	17.99	18.34	18.53	18.51	18.67	19.10
Annual Change		0.91	-0.08	0.68	0.83	0.50	0.70	0.97	0.67	0.77	1.28	2.08	0.44	0.35	0.19	-0.02	0.16	0.43
Percent Change		11%	-1%	7%	9%	5%	6%	8%	5%	6%	9%	13%	3%	2%	1%	-0%	1%	2%
Number of State Increases		26	10	25	16	12	14	17	17	20	19	23	13	15	7	6	9	9

Source: Highway Statistics Summary to 1995; Highway Statistics 1996: Monthly Motor Fuel Report

