# South Carolina Motor Fuel Revenue History and Projections

# FY 2024-25 and FY 2025-26

September 5, 2024

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# INTRODUCTION

This report analyzes the history of South Carolina's motor fuel consumption and revenue and uses linear regression models to project the total revenue for the next two fiscal years (FY). The primary types of motor fuel used in South Carolina are gasoline and diesel fuel, although gasoline is consumed at a rate of over three times more than diesel in the state. For the purposes of this report, the term "gasoline" refers to both gasoline and gasohol, and the term "diesel" refers to diesel, biodiesel, and liquified petroleum gas.

# HISTORICAL MOTOR FUEL CONSUMPTION AND REVENUE

Motor fuel demand in South Carolina has generally increased over time. However, in 2020, consumption significantly decreased due to the effects of the COVID-19 pandemic. Reduced travel and restrictions significantly impacted demand, particularly for gasoline in late FY 2019-20. Additional factors such as high motor fuel prices and an increasing demand for electric and hybrid motor vehicles have also affected the consumption of motor fuels, especially gasoline.

The following chart and table show a history of the motor fuel gallons subject to the user fees in South Carolina.

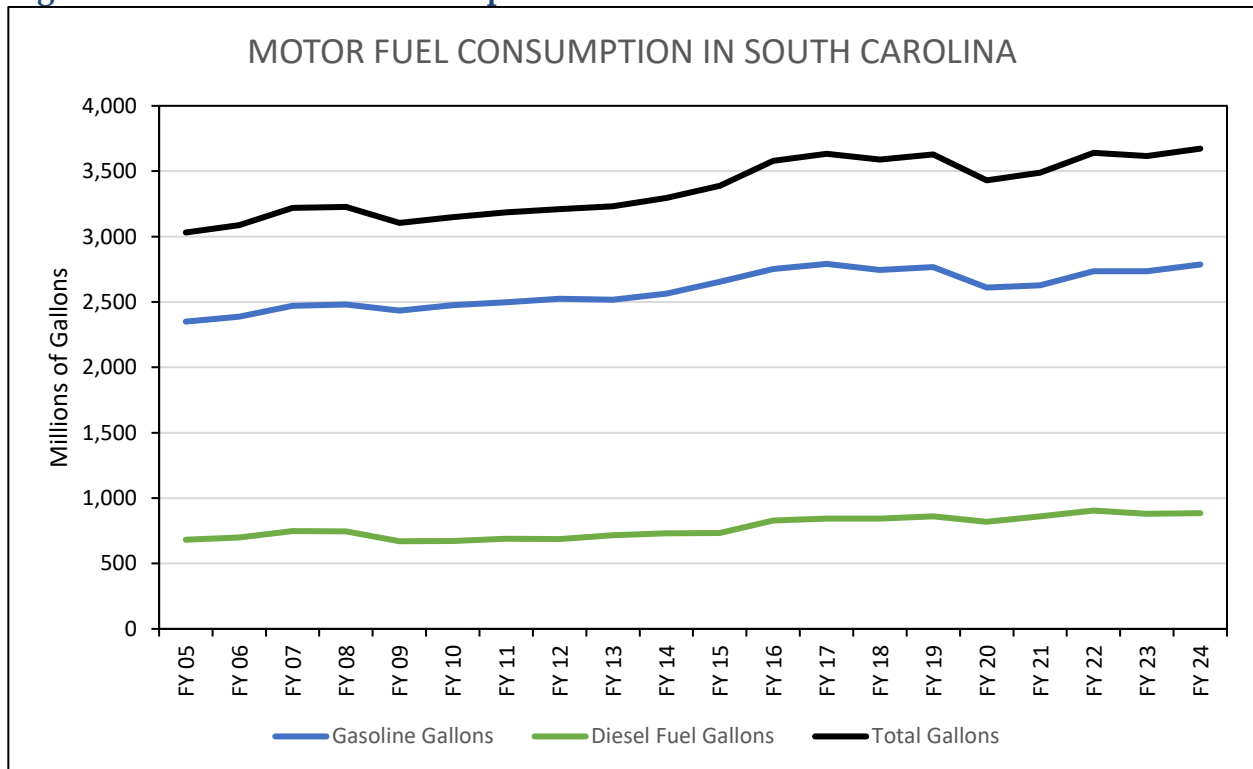## Figure 1. SC Motor Fuel Consumption

**Table 1. Summary of Motor Fuel Gallons Subject to the User Fees**

| Fiscal Year | Gasoline (Billions of Gallons) | Diesel Fuel (Billions of Gallons) | Total Motor Fuel (Billions of Gallons) |
|---|---|---|---|
| 2008-09 | 2.434 | 0.728 | 3.433 |
| 2009-10 | 2.477 | 0.720 | 3.462 |
| 2010-11 | 2.497 | 0.739 | 3.353 |
| 2011-12 | 2.523 | 0.723 | 3.357 |
| 2012-13 | 2.517 | 0.756 | 3.409 |
| 2013-14 | 2.563 | 0.775 | 3.438 |
| 2014-15 | 2.655 | 0.790 | 3.535 |
| 2015-16 | 2.751 | 0.872 | 3.742 |
| 2016-17 | 2.791 | 0.893 | 3.771 |
| 2017-18 | 2.745 | 0.895 | 3.781 |
| 2018-19 | 2.767 | 0.902 | 3.787 |
| 2019-20 | 2.611 | 0.853 | 3.544 |
| 2020-21 | 2.629 | 0.908 | 3.659 |
| 2021-22 | 2.737 | 0.901 | 3.852 |
| 2022-23 | 2.735 | 0.880 | 3.615 |
| 2023-24 | 2.787 | 0.886 | 3.673 |

Note: Motor fuel gallons subject to the user fee are calculated based on total revenue.

Due to changes in the fee over time, revenue is comprised of three main components in South Carolina:
- a 16 cents-per-gallon "base" fee,
- an additional fee component that increased by 2 cents each year from FY 2017-18 through FY 2022-23, and
- a 0.75 cents-per-gallon environmental and inspection fee.

The current total fee for FY 2024-25 is 28.75 cents per gallon. Further discussion on these components, the allocations of fee revenue, and the tax rate schedule can be found in the Appendix. Figure 2 depicts the revenue collected from motor fuel user fees without the 0.75 cents component.

**Figure 2. Total Revenue Collected from Motor Fuel User Fees**
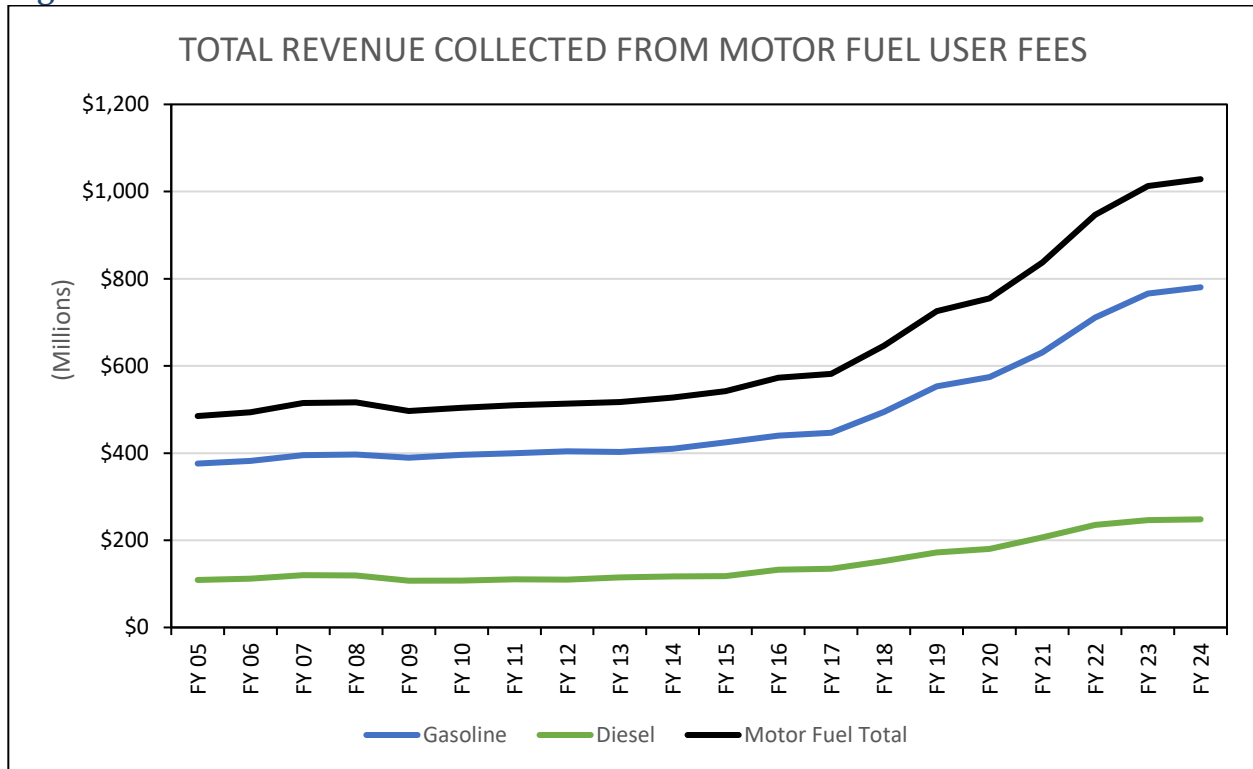


Note: These amounts exclude the $0.75 environmental and inspection fees.

## PROJECTIONS FOR FISCAL YEARS 2024-25 AND 2025-26

Projections for motor fuel revenue are based upon two models, one for gasoline and one for diesel fuel.  Gasoline demand is predicted using the amount of the gasoline user fee, per capita personal income, and the lagged three-year moving average of average fuel economy.  Diesel demand is predicted using Gross State Product (GSP) in the Trade, Transportation, and Utilities sector, the Industrial Production Index (IPI) of Mining, and the amount of the diesel fuel user fee. Additional details for these models are available in the Appendix.

Projecting motor fuel consumption for FY 2024-2025 and FY 2025-2026 requires projections for most of the input variables for the two models.  The accuracy of the forecasts of these variables affects the ability of the models to forecast motor fuel revenue. To account for the risk involved in forecasting motor fuel revenue based on forecasted input variables, we have provided forecast ranges for both gasoline and diesel consumption.

Based upon the model, we estimate motor fuel fee revenue for gasoline and its corresponding forecast range for FY 2024-25 and FY 2025-26 as follows:

## Table 2. Gasoline User Fee Revenue Projections and Forecast Ranges

| Fiscal Year | Gasoline User Fee Revenue Projections (Millions) | Gasoline User Fee Revenue Forecast Range* (Millions) |
|---|---|---|
| 2023-24 (actual) | $782.96 | N/A |
| 2024-25 | $805.50 | $775.06 – 837.13 |
| 2025-26 | $830.34 | $798.97 – 862.95 |

*95% Prediction Intervals

## Figure 3. Gasoline User Fee Revenue in South Carolina



TOTAL GASOLINE USER FEE REVENUE IN SOUTH CAROLINA
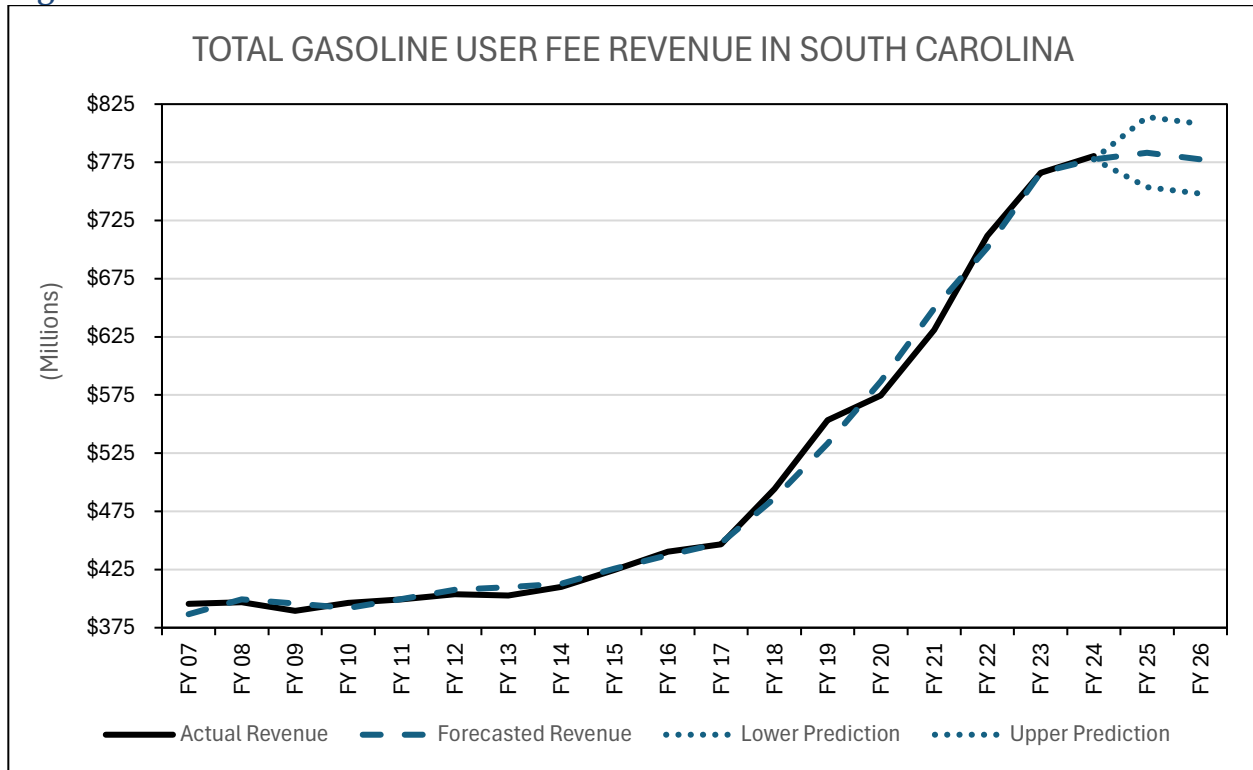
The following table provides our projections of the total revenue from the diesel user fee.

## Table 3. Diesel Fuel User Fee Revenue Projections and Forecast Ranges

| Fiscal Year | Diesel User Fee Revenue Projections (Millions) | Diesel User Fee Revenue Forecast Range* (Millions) |
|---|---|---|
| 2023-24 (actual) | $248.004 | N/A |
| 2024-25 | $260.090 | $245.852 – 275.153 |
| 2025-26 | $264.289 | $249.821 – 279.595 |

*95% Prediction Intervals

**Figure 4. Diesel Fuel User Fee Revenue in South Carolina**



TOTAL DIESEL USER FEE REVENUE IN SOUTH CAROLINA

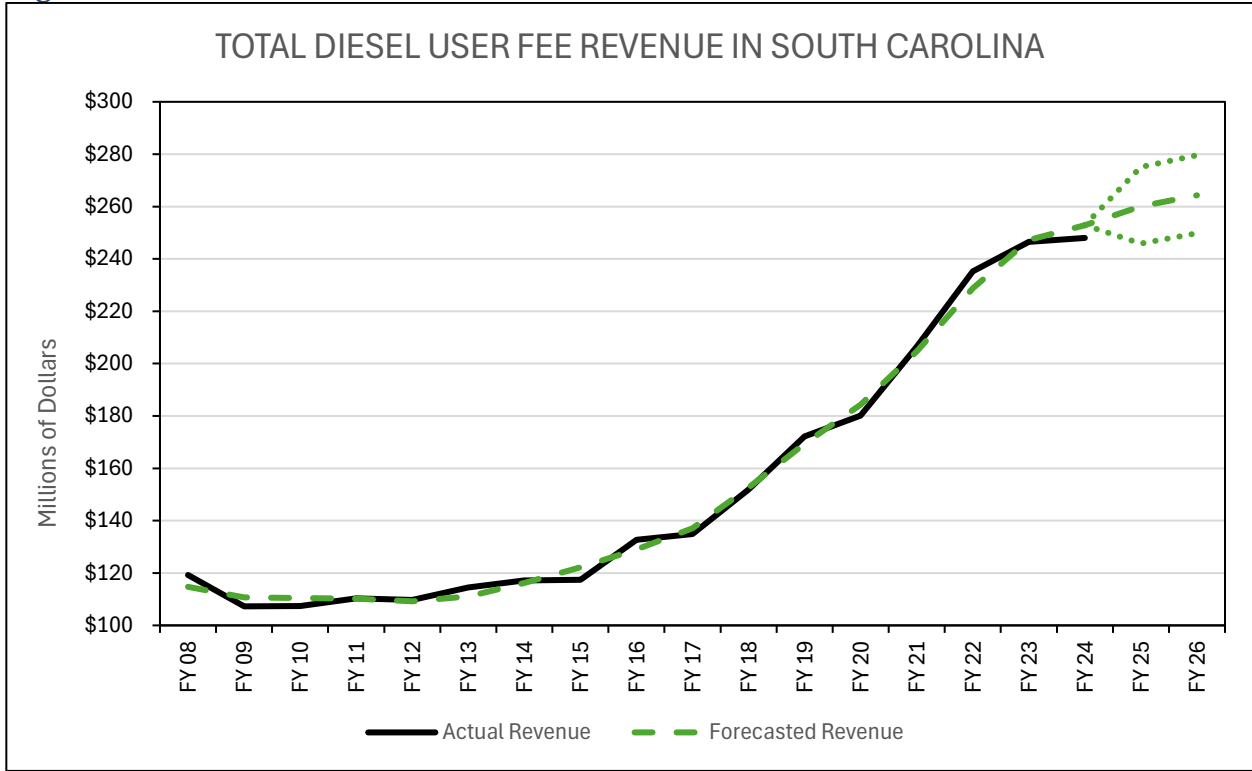Actual Revenue — Forecasted Revenue

## Table 4. Motor Fuel User Fee Revenue History and Estimates

| Fiscal Year | Fee Per Gallon | Gasoline | | Diesel Revenue | | Total Motor Fuel Revenue | |
|---|---|---|---|---|---|---|---|
| | Cents | Dollars | % Change | Dollars | % Change | Dollars | % Change |
| 2009-10 | 16 | $396,262,582 | 1.74% | $107,442,882 | 0.16% | $503,705,464 | 1.40% |
| 2010-11 | 16 | $399,487,621 | 0.81% | $110,325,004 | 2.68% | $509,812,625 | 1.21% |
| 2011-12 | 16 | $403,834,314 | 1.09% | $109,744,365 | (0.53%) | $513,578,679 | 0.74% |
| 2012-13 | 16 | $402,667,179 | (0.29%) | $114,511,278 | 4.34% | $517,178,457 | 0.70% |
| 2013-14 | 16 | $410,108,790 | 1.85% | $117,137,065 | 2.29% | $527,245,855 | 1.95% |
| 2014-15 | 16 | $424,754,788 | 3.57% | $117,457,502 | 0.27% | $542,212,290 | 2.84% |
| 2015-16 | 16 | $440,218,179 | 3.64% | $132,645,553 | 12.93% | $572,863,733 | 5.65% |
| 2016-17 | 16 | $446,608,833 | 1.45% | $134,870,908 | 1.68% | $581,479,741 | 1.50% |
| 2017-18 | 18 | $494,128,760 | 10.64% | $151,935,565 | 12.65% | $646,064,325 | 11.11% |
| 2018-19 | 20 | $553,345,125 | 11.98% | $172,225,934 | 13.35% | $725,571,058 | 12.31% |
| 2019-20 | 22 | $574,486,486 | 3.82% | $180,172,095 | 4.61% | $754,658,582 | 4.01% |
| 2020-21 | 24 | $630,855,710 | 9.81% | $206,466,083 | 14.59% | $837,321,793 | 10.95% |
| 2021-22 | 26 | $711,666,268 | 12.81% | $235,278,106 | 13.95% | $946,944,374 | 13.09% |
| 2022-23 | 28 | $765,912,026 | 7.62% | $246,459,165 | 4.75% | $1,012,287,036 | 6.90% |
| 2023-24 | 28 | $780,367,239 | 1.89% | $248,003,945 | 0.63% | $1,028,371,185 | 1.58% |
| 2024-25e | 28 | $805,496,618 | 3.22% | $260,090,620 | 4.87% | $1,065,587,238 | 3.62% |
| 2025-26e | 28 | $830,342,460 | 3.08% | $264,288,881 | 1.61% | $1,094,631,341 | 2.73% |

e-Estimates
Note: Figures do not include the 0.75 cents per gallon environmental and inspection fees.

# APPENDIX

## I. SOUTH CAROLINA MOTOR FUEL TAX RATES

The following table gives an overview of how the motor fuel tax rate has changed since it was first enacted. The rate increased to 28 cents on July 1, 2022, the last year of the increases enacted in 2017.

### Table A1. South Carolina Motor Fuel Tax Rate Schedule

| Year | Tax | Legislative Enactment |
|------|------|----------------------|
| 1922 | 2 cents | Act 494 of 1922 |
| 1923 | 3 cents | Act 146 of 1923 |
| 1925 | 5 cents | Act 34 of 1925 |
| 1929 | 6 cents | Act 102 of 1929 |
| 1958 | 7 cents | Act 855 of 1958 |
| 1972 | 8 cents | Act 1575 of 1972 |
| 1977 | 9 cents | Act 141 of 1977 |
| 1979 | 10 cents | Act 197 of 1979 |
| 1980 | 11 cents | Act 506 of 1980 |
| 1981 | 13 cents | Act 177 of 1981 |
| 1987 | 15 cents | Act 197 of 1987 |
| 1995 | 16 cents | Act 136 of 1995 |
| 2017 | 18 cents | Act 40 of 2017 |
| 2018 | 20 cents | Act 40 of 2017 |
| 2019 | 22 cents | Act 40 of 2017 |
| 2020 | 24 cents | Act 40 of 2017 |
| 2021 | 26 cents | Act 40 of 2017 |
| 2022 | 28 cents | Act 40 of 2017 |

## II. SOUTH CAROLINA MOTOR FUEL FEE DISTRIBUTION

Funds collected from the motor fuel user fee are distributed among various agencies and funds. Act 40 of 2017 set a yearly increase of the fee through FY 2022-23 and restructured the way the fee revenue is allocated. Table A2 shows a breakdown of the current distributions.

## Table A2. Motor Fuel User Fee Distribution as of July 1, 2022

| Gasoline Revenue Distribution | Code of Laws Section |
|---|---|
| $18 million of the first 3¢ to the State Non-Federal Aid Highway Fund | §12-28-2910 |
| 13¢ component | - |
|     0.13¢ (1% of 13¢) to DNR | §12-28-2730 (A) |
| 12.87¢ | - |
|     2.66¢ to "C" Funds | §12-28-2740 (A) |
|     10.11¢ to DOT | §12-28-2720 |
|       0.25¢ of this amount to Mass Transit | §12-28-2725 |
| 12¢ component[1] | - |
|     1.33¢ to "C" Funds[2] | §12-28-2740 (A) |
|     10.67¢ to Infrastructure Maintenance Trust Fund[3] | §12-28-310 (D) |
| Remaining 3¢ to the State Highway Fund | §12-28-2750 |

| Diesel Revenue Distribution | Code of Laws Section |
|---|---|
| 12¢ to Infrastructure Maintenance Trust Fund[1] | §12-28-310 (D) |
| Remaining 16¢ to the State Highway Fund | §12-28-2750 |

| | |
|---|---|
| **Total Motor Fuel User Fee[3]: 28¢** | **§12-28-310 (Act 40 of 2017)** |
| **Total Environmental and Inspection Fee: 0.75¢** | **§12-28-2355** |
| 0.25¢ Inspection Fee to DOT State Non-Federal Aid Highway Fund | §12-28-2355 (C) (Act 40 of 2017) |
| 0.50¢ Environmental Impact Fee to DHEC | §12-28-2355 (B) |

1 – Motor fuel user fee increased by 2¢ per year for six years beginning July 1, 2017, for a total increase of 12¢ by July 1, 2022.

2 - Pursuant to Proviso 86.1 of the FY 2023-24 Appropriations Act, the increase in "C" Funds is taken from the 2¢ increase per year of the gasoline user fee.

3 - Pursuant to Proviso 86.1 of the FY 2023-24 Appropriations Act, the Motor Fuel User Fee increase pursuant to §12-28-310 on gasoline is reduced by the increase in the allocation to "C" Funds. (See footnote 1)

## III. MODELS AND STATISTICS

### GASOLINE

The general equation for gasoline user fee revenue may be written as:

$$\ln R_t = f(lagE_t, \ln I_t, F_t),$$

where

$R_t$ is the amount of per capita gasoline user fee revenue at time t,
$lagE_t$ is the lagged three-year moving average of average fuel economy at time t,
$I_t$ is per capita Personal Income at time t,
$F_t$ is the motor fuel user fee at time t.

After estimating the model using annual data from calendar quarter 1 of 2008 to calendar quarter 2 of 2024, the following model was produced:

$$\ln R_t = 2.69 - 0.03 lagE_t + 0.54 \ln I_t + 2.85 F_t$$

### Table A3. Gasoline Demand Model Statistics and Fit

| Regression Statistics | |
|---|---|
| Multiple R | 0.996 |
| R Square | 0.993 |
| Adjusted R Square | 0.991 |
| Standard Error | 0.018 |
| Observations | 18 |

ANOVA

| | df | SS | MS | F | Significance F |
|---|---|---|---|---|---|
| Regression | 3 | 0.6197 | 0.2066 | 640.5129 | 3.2443E-15 |
| Residual | 14 | 0.0045 | 0.0003 | | |
| Total | 17 | 0.6242 | | | |

| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% |
|---|---|---|---|---|---|---|
| Intercept | 2.686 | 0.277 | 9.706 | 1.351E-07 | 2.093 | 3.280 |
| lag $E_t$ | -0.026 | 0.009 | -2.883 | 0.012 | -0.045 | -0.007 |
| ln $I_t$ | 0.538 | 0.143 | 3.767 | 0.002 | 0.232 | 0.845 |
| $F_t$ | 2.849 | 0.348 | 8.199 | 1.028E-06 | 2.104 | 3.594 |

## DIESEL

The general equation for diesel fuel user fee revenue may be written as:

$$\ln R_t = f(\ln GSP_t, \ln IPI_t, F_t),$$

**where**

$R_t$ is total diesel fuel revenue at time t,

$GSP_t$ is the level of Gross State Product in the Trade, Transportation, and Utilities sector in South Carolina at time t,

$IPI_t$ is the Industrial Production Index of Mining in South Carolina at time t, and

$F_t$ is the motor fuel user fee at time t.

After estimating the model using annual data from fiscal year 2008 to fiscal year 2024, the following model was produced:

$$\ln R_t = 12.95 + 0.30 \ln GSP_t + 0.48 \ln IPI_{t-1} + 2.51 F_t$$

### Table A4. Diesel Demand Model Statistics and Fit

| Regression Statistics | |
|---|---|
| Multiple R | 0.9971 |
| R Square | 0.9943 |
| Adjusted R Square | 0.9929 |
| Standard Error | 0.0261 |
| Observations | 17 |

ANOVA

| | df | SS | MS | F | Significance F |
|---|---|---|---|---|---|
| Regression | 3 | 1.5271 | 0.5090 | 749.5776 | 8.2877E-15 |
| Residual | 13 | 0.0088 | 0.0007 | | |
| Total | 16 | 1.5360 | | | |

| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% |
|---|---|---|---|---|---|---|
| Intercept | 12.9511 | 0.7247 | 17.8722 | 1.56E-10 | 11.3856 | 14.5166 |
| ln GSP TTU | 0.3025 | 0.0931 | 3.2486 | 0.0063 | 0.1013 | 0.5037 |
| ln IPI mining | 0.4786 | 0.0827 | 5.7856 | 6.32E-05 | 0.2999 | 0.6573 |
| Tax | 2.5087 | 0.4023 | 6.2356 | 3.04E-05 | 1.6395 | 3.3779 |

**IV. DATA SOURCES**

Motor Fuel User Fee Revenue: S.C. Department of Transportation

Population Estimates: S&P Global Market Intelligence
      State Analysis Data, Quarterly, South Carolina (6/21/24)

Personal Income: S&P Global Market Intelligence
      State Analysis Data, Quarterly, South Carolina (6/21/24)

Fuel Economy:
      U.S. Environmental Protection Agency (EPA)

SC GSP of trade, transportation, and utilities (TTU): S&P Global Market Intelligence
      State Analysis Data, Quarterly, South Carolina (6/21/24)

IPI of Mining: S&P Global Market Intelligence
      State Analysis Data, Quarterly, South Carolina (6/21/24)

*Population Forecasts*: S&P Global Market Intelligence
      S&P State Analysis Forecast Data, Quarterly Data, South Carolina (6/21/24)

*Personal Income Forecasts*: S&P Global Market Intelligence
      S&P State Analysis Forecast Data, Quarterly Data, South Carolina (6/21/24)

*Fuel Economy Forecasts*:
      Based on the ratio of fuel economy to Corporate Average Fuel Economy (CAFE)
      Standards from the U.S. EPA, using fuel economy growth

*GSP of TTU Forecasts*: S&P Global Market Intelligence
      State Analysis Data, Quarterly, South Carolina (6/21/24)

*IPI of Mining Forecasts*: S&P Global Market Intelligence
      State Analysis Data, Quarterly, South Carolina (6/21/24)