CRC Notes

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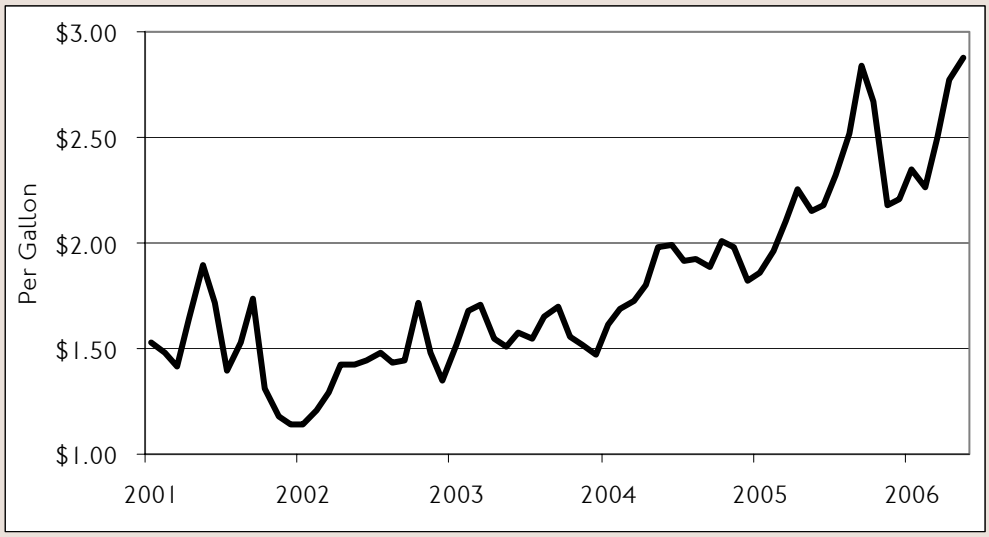
The Impact of the Taxation of Gasoline in Michigan

The recent spike in gasoline pump prices in Michigan has captured the attention of consumers and state policymakers. Such spikes are not uncommon. As recently as last fall, following the destruction caused by Hurricane Katrina, most of the country experienced gas prices close to $3.00 per gallon for a limited time. **Chart 1** highlights a number of these temporary gas price increases over the past five-year period. While these price jumps are relatively unpredictable, the consumer and public responses are fairly consistent and predictable. Generally speaking, when consumers have been faced with higher than expected fuel prices they have turned to state elected officials for some degree of relief. Although prices are quite high today, they remain below the inflation-adjusted prices of the early 1980s. The volatile nature of fuel prices is a function of a number of economic and geo-political factors, most of which are beyond the control of state elected officials; however, this fact does not reduce the number and variety of proposed governmental interventions offered when consumers face sudden rises in fuel prices. Often, the various interventions proposed to provide relief from high fuel costs involve some modification of the state taxes paid on purchases of gasoline, usually the state sales tax.

The taxes levied on gasoline purchases in Michigan consist of state and federal excise taxes, as well as state sales tax. In addition to these taxes, an .875-cent per-gallon state environmental fee is assessed on refined petroleum products. The unique combination of taxes can be a source of confusion to the motoring public and is not universally understood. A number of factors contribute to this confusion. First, the amount of sales tax paid on gasoline purchases fluctuates with the price of fuel. Second, the sales tax base on gasoline includes both the environmental fee and the federal excise tax. Third, the revenue from each tax supports a number of different purposes. Finally, a common misconception exists that Michigan is accruing surplus tax revenues from rising gas prices, namely sales tax revenue.

Chart 1
Michigan Average Monthly Gasoline Prices
January 2001 – May 2006



Source: AAA Fuel Gauge Index: www.autoclubgroup.com/michigan/autos/fuel_gauge.asp.

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The Components of the Price of Gasoline

The price of a gallon of gasoline can be divided into four principal components. The largest component by far is the price of crude oil, which, at today's retail price, represents about 55 percent of the total. The second component consists of refining costs and profits, which makes up about 22 percent of the current price. Third, marketing and distribution costs comprise about 4 percent of the current retail price of gasoline. Today, these three pieces account for 80 percent of the total price and constitute the industry's share. The volatility of the crude oil component accounts for the majority of the fluctuations in the retail price of gasoline. The fourth component is the taxes assessed by states and the federal government, contributing to about 19 percent, on average nationally.[1] Local-option taxes can drive that percentage higher. Because the majority of state and local taxes on gasoline, and the entire amount of the federal excise tax, are levied on a per-gallon basis, the taxes component, as a percentage of the price, will decrease with a rise in the price of gasoline.

Gasoline Taxation

Currently, the federal excise tax, state excise tax, and state sales tax levied on gasoline total about 53 cents per gallon or 18 percent of the retail price in Michigan. At the assumed pump price of $3.00, each of these taxes comprises about one-third of the total taxes paid on a gallon of gasoline. **Table 1** shows the total taxes on a gallon of gasoline sold in Michigan with a pump price of $3.00 and, for comparison purposes, also provides the taxes when the price is $2.50. While the state and federal gas tax rates are fixed, 19 cents per gallon and 18.4 cents per gallon respectively, the amount of state sales tax paid fluctuates with the price of a gallon of gasoline.

The primary tax levied on gasoline purchases is the state 19-cent-per-gallon excise tax. The tax is levied for the privilege of using public highways. Accordingly, the revenue from the gas tax is deposited in the Michigan Transportation Fund and constitutionally earmarked for transportation purposes, mostly road and bridge construction and maintenance. The current rate was set in 1997, when it was raised from 15 cents per gallon. Although the tax is "paid at the pump", the state collects the tax from suppliers. Suppliers then pass along the tax liability to retailers who, in turn, pass it on to consumers at the pump. In addition to the state excise tax, Michigan collects a federal fuel tax of 18.4 cents per gallon.

In addition to the excise tax, Michigan levies its 6 percent sales tax on fuel purchases. Michigan includes the federal gas tax and the state environmental fee in the tax base when computing sales tax liability on gasoline purchases. Six other states also levy a sales tax on motor fuel. Some of these states include state and federal taxes, as well as other taxes/fees, in the sales tax base on fuel purchases, while others include only the federal tax. In all of these cases, the inclusion of the state and/or federal excise tax in the sales tax base results in the unusual case of government "taxing a tax".

Chart 2 displays the distribution of sales tax revenues collected on gasoline purchases in Michigan.[2]

Table 1
Taxes Levied on a Gallon of Gasoline

Tax Component	Tax Rate at $3.00 per Gallon (cents per gallon)	Tax Rate at $2.50 per Gallon (cents per gallon)
State Gas Tax	19.0	19.0
State Sales Tax*	16.0	13.0
Total State Taxes	**35.0**	**32.0**
Federal Gas Tax	18.4	18.4
Total Taxes and Fees	**53.4**	**50.4**
Taxes as % of Pump Price	**17.8%**	**20.2%**

* State sales tax rate is 6 percent.

[1] "What We Pay for in a Gallon of Regular Gasoline." United States Department of Energy, Energy Information Administration. http://tonto.eia.doe.gov/oog/info/gdu/gaspump.html

At current gasoline prices, nearly 15 cents of the 16 cents of sales tax revenue collected is dedicated to K-12 public education and revenue sharing payments to local government.

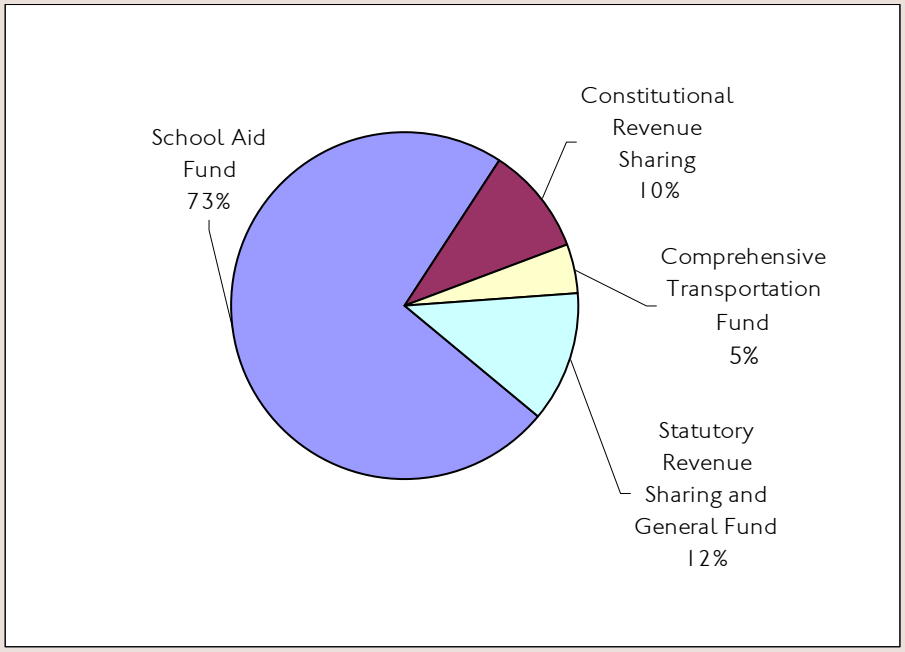
Because of the ad valorem nature of the sales tax, the effective per-gallon tax rate increases as fuel prices rise. At the assumed pump price of $3.00, the sales tax constitutes 16 cents of the total cost of a gallon of gasoline in Michigan. This is up from 13 cents when the pump price is $2.50. In general, for each 17 cent rise in fuel prices, the amount of sales tax paid increases 1 cent. At the current sales tax rate, inclusion of the federal excise tax in the Michigan sales tax base for gasoline accounts for 1 cent of the retail price of gasoline.

Are Michigan Tax Revenues Benefiting From Higher Gas Prices?

Consumers and policymakers often raise a question regarding tax collections when fuel prices rise substantially. Specifically, does Michigan experience increased tax collections from fuel price spikes? Some basic microeconomic principles can be instructive in attempting to address this inquiry. As a result of the per-gallon nature of Michigan's gas tax and the fact that the demand for gasoline is very price inelastic (i.e., there are very few close substitutes in the short run), the amount of revenue collected from the state excise tax is not significantly affected by the increase in gasoline prices. Consumers will continue to purchase similar amounts of gasoline until an alternative to current driving patterns can be adopted. However, over time, if fuel prices remain elevated, gas consumption may decline as consumers seek alternative fuels or change commuting patterns. If gasoline consumption falls then gas tax collections will be adversely impacted. Gasoline consumption in Michigan has declined over the past three years. It is important to note that in addition to fuel prices, other factors can contribute to reduced consumption in the long term, such as an increase in the fuel efficiency of vehicles and the substitution of alternative fuel vehicles for gasoline-powered vehicles.

As noted previously, a rise in fuel prices results in additional sales taxes paid on gasoline. Taken in isolation, this increase in sales tax will increase overall sales tax

Chart 2
Distribution of Sales Tax Revenue from Gasoline



[2] Under the State Revenue Sharing Act, a portion of the sales tax revenue at the 4 percent rate (21.3 percent) is paid to local governments, subject to the amount appropriated. Recent state budgets have capped the total amount of revenue sharing payments to local government (constitutional and statutory), in order to help balance the state General Fund. In Fiscal Year 2006, actual statutory revenue sharing payments amount to only 10 percent of the sales tax revenue at the 4 percent rate, with the remainder going to the General Fund.

collections, both in the short and long runs. For example, a price spike of 50 cents per gallon in the average monthly price of gasoline would be expected to increase monthly sales tax revenues on gasoline by about $12 million (3 cents per gallon x 400 million gallons = $12.0 million). Over the span of a year, given the same price increase and assuming no reduction in fuel consumption, Michigan sales tax revenues on gasoline purchases would be expected to increase $147 million (3 cents per gallon x 4.9 billion gallons = $147 million). These simple examples ignore certain economic realities facing consumers that will directly impact sales tax collections on gasoline as well as total collections from the tax. When these factors are considered, it is unlikely that Michigan sales tax collections will experience a windfall from increases in fuel prices.

First, household purchasing decisions are not made in a vacuum. Consumers face a series of purchasing decisions that involve myriad goods and services, not just gasoline. These decisions involve a number of tradeoffs. As prices fluctuate for the various goods and services, most people must make decisions as to the quantity of each that will be purchased given a finite amount of resources available, i.e., a budget.

Second, most people are faced with budget constraints that are fairly inflexible in the short term. As gasoline prices rise substantially, consumers must decide whether to purchase less gasoline or spend less on other goods and services. Because there are few substitutes for gasoline in the short term, it is likely that households will continue to consume approximately the same amount of fuel and sacrifice the purchase of other goods and services. Assuming that consumers substitute the purchase of other taxable goods to maintain their consumption of gasoline, overall sales tax revenue would be expected to remain unchanged despite the fact that sales tax collections on gasoline rise substantially. However, if consumers choose to allocate more of their budgets to gasoline and offset this spending with reduced consumption of nontaxable goods and services, total state sales tax collections would be expected to rise.

The impact and makeup (i.e., taxable versus nontaxable purchases) of this substitution effect can be viewed generally by examining sales tax collections during the period of rising gasoline prices, Fiscal Years 2002 to 2005. During this period, estimated sales tax collections on gasoline purchases increased quite significantly from $321.4 million to $546.1 million, or about 70 percent. At the same time, total sales tax collections have remained relatively flat, increasing from $6,352.3 million in Fiscal Year 2002 to $6,605.4 million in Fiscal Year 2005, an increase of 4 percent. While recent spikes in gasoline have contributed to increased sales tax revenue from gasoline purchases, the data suggest that they have had little impact on total sales tax collections, suggesting that consumers forgo other taxable purchases to finance their gasoline consumption when confronted with higher fuel prices.

Third, while gasoline demand is relatively price inelastic in the short term, consumers are able to find substitutes in the longer run. Over time, when faced with rising fuel prices, consumers are able to reduce consumption by changing commuting patterns, eliminating unnecessary trips, sharing rides, and using public transportation. Here the data suggest just that. Total gasoline consumption over the three-year period has declined from just under 5.0 billion gallons in Fiscal Year 2002 to slightly less than 4.9 billion in Fiscal Year 2005. If reductions in gasoline consumption result in an increase in the purchase of other taxable goods or more expensive goods, then we can expect overall sales tax revenues to be unaffected. A consumption reduction, however, will reduce collections from the 19-cent-per-gallon excise tax.

While rising gasoline prices may increase sales tax revenues on gasoline purchases, overall tax revenues appear unaffected. Consumer buying decisions and household budget constraints cause people to substitute other taxable purchases to satisfy their gasoline consumption, which is now relatively more expensive. Basic microeconomic principles suggest that rising gasoline prices do not result in surplus tax revenues for the state.