State Notes

TOPICS OF LEGISLATIVE INTEREST

Fall 2014

Where the Money Goes: Explaining the Price of Gasoline
By David Zin, Chief Economist

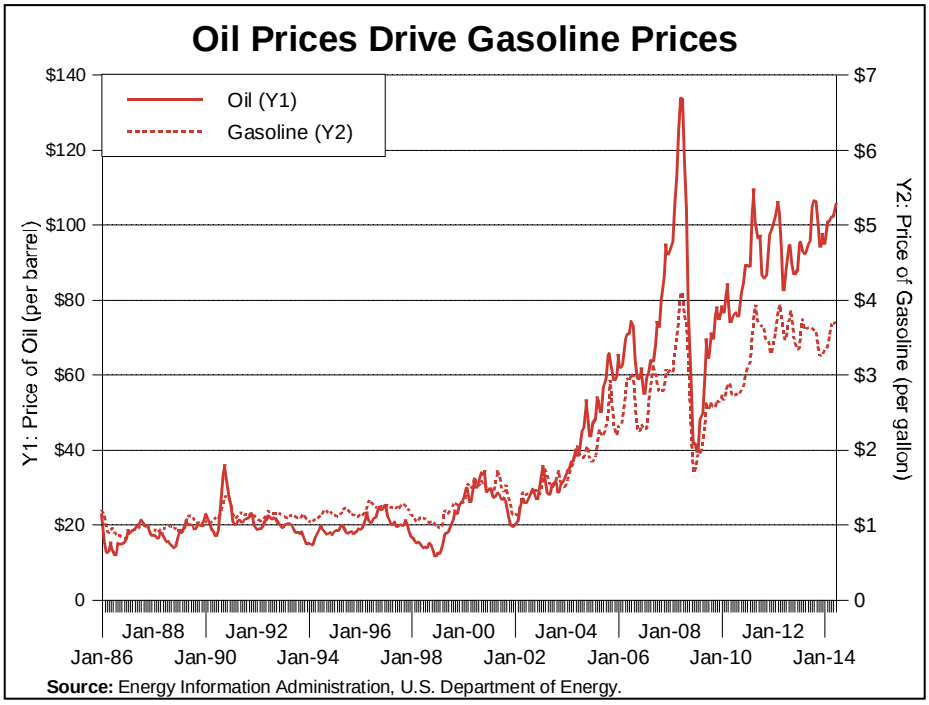
As the Legislature has debated a variety of options to generate additional revenue for repairing and maintaining Michigan's road and bridge system, much attention has been directed to the price of gasoline. This article discusses the recent history of gas prices; describes factors that comprise the price of a gallon of gasoline at the retail pump, as well as where Federal and State taxes are directed; and provides a few interstate and international comparisons on both prices and taxes.

A Brief History of Michigan Gas Prices

In February 1999, the average price of a gallon of regular gasoline in Michigan was 93 cents. A year later, the average price had risen to $1.49 per gallon. In October 2004, the price of gas broke the $2.00 per gallon barrier, at $2.01, and rose to $2.84 per gallon in September 2005. Prices jumped again in June 2007, averaging $3.34 per gallon, and continued to rise, averaging $4.11 per gallon in June 2008. Within six months, the price had fallen to $1.68 per gallon but quickly bounced back to $2.78 per gallon in June 2009. The price of gasoline began remaining consistently above the $3.00 per gallon mark in December 2010, and on a monthly basis has yet to drop below that level. As of the end of July 2014, the average price of a gallon of gasoline in Michigan was $3.46.

According to the Energy Information Administration, a division of the U.S. Department of Energy, changes in retail gasoline prices in the United States primarily reflect changes in crude oil prices (Figure 1). Crude oil prices are determined globally and economic growth in other countries has substantially increased the world's demand for oil since the early part of the century. Putting further pressure on oil prices, various supply disruptions have affected not only supply but the perceived risk to supply. These supply disruptions have included everything from natural disasters to political events in oil-producing countries to outages at U.S. refineries and pipelines.

Figure 1



Source: Energy Information Administration, U.S. Department of Energy.

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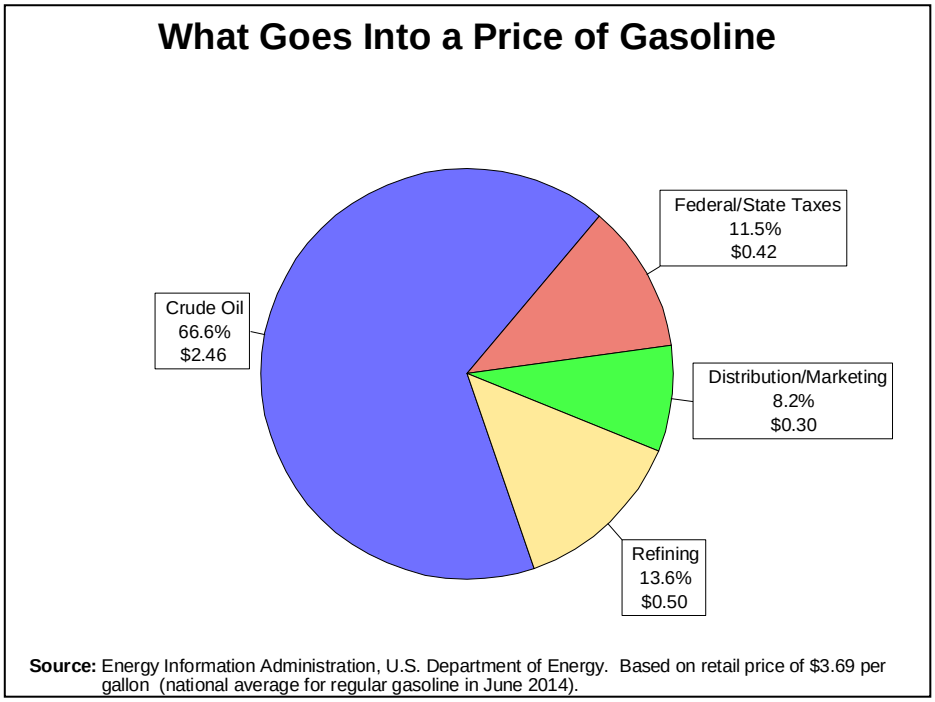
The link between crude oil prices and retail gasoline prices exists because the majority (approximately 66.6%) of the price of gasoline at the pump reflects crude oil costs (Figure 2). Early in the 2000s, the price of crude oil accounted for approximately 35% to 40% of the price of a gallon of gasoline. As crude oil prices have risen more rapidly than other costs comprising the price of gasoline, the share attributable to crude oil has risen, occasionally reaching as much as 80.0% -- as happened in December 2011. Refining costs are the next-largest factor in gas prices, accounting for approximately 13.6% of the price, followed by Federal and state taxes (11.5%) and distribution and marketing costs (8.2%).

Figure 2



Source: Energy Information Administration, U.S. Department of Energy. Based on retail price of $3.69 per gallon (national average for regular gasoline in June 2014).

Federal and State Gasoline Taxes

The Federal tax on regular gasoline is 18.4 cents per gallon. The tax is per gallon and is not calculated based on the price of gas. As a result, the tax does not adjust for inflation and, as the price of oil rises, the tax becomes a smaller percentage of the price. State taxes include per-gallon taxes like the Federal gas tax and, in some states, sales taxes. Kentucky and North Carolina have tax rates that vary as the price of gasoline changes. Thirty-two states also have local motor fuel taxes or other environmental or administrative fees and taxes applied to gasoline in addition to the traditional fuel tax. Michigan is one of eight states that levies a sales tax on motor fuel in addition to a separate motor fuel tax, although the sales tax excludes the motor fuel tax from the tax base. Michigan's motor fuel tax is 19 cents per gallon for gasoline and 15 cents per gallon for diesel fuel. Like the Federal tax, Michigan's motor fuel taxes are not automatically adjusted for inflation and are independent of the underlying price of gasoline.

The current Federal tax rate has been imposed since October 1993, while the current Michigan rate was last increased in 1997. Adjusted for inflation in the consumer price index, the 18.4 cents-per-gallon Federal tax would have been 29.8 cents per gallon in 2013, while the 19.0-cents-per-gallon Michigan tax would have been 26.7 cents. If the taxes had risen at the same rate as fuel prices (i.e., if the tax had remained the same percentage of the retail price), the Federal gasoline tax in June 2014 would have totaled 60.3 cents per gallon while the Michigan gasoline tax would have totaled 55.5 cents per gallon.

Since 1956, all of the revenue from the Federal gasoline tax has been directed to the Highway Trust Fund (HTF). The HTF was created in 1956 to ensure a dependable source of revenue for the National System of Interstate and Defense Highways. Before 1956, highway aid was funded by the U.S. Treasury's General Fund and motor fuel taxes were directed to that fund. With the expansion of Federal highway aid in the Federal-Aid Highway Act of 1956, the Highway Revenue Act began directing Federal motor fuel taxes to the HTF. Since 1956, programs funded by the HTF have expanded to include other transportation-related funding needs, such as other Federal-aid roads and mass transit programs.

Pursuant to provisions in Michigan's Constitution, revenue from both motor fuel taxes and vehicle registration fees must be used exclusively for transportation purposes. As a result, similar to the treatment of Federal motor fuel taxes, Michigan's motor fuel taxes are deposited in the Michigan Transportation Fund (MTF), although there is a constitutional earmark for 2% of the tax revenue from gasoline sales to the recreation improvement account in the Michigan Conservation and Recreation Legacy Fund to fund waterways, snowmobile trails, and other recreation projects. Revenue in the MTF is distributed according to Public Act 51 of 1951 and a portion of that revenue is directed to the State Trunkline Fund (STF), from which road construction and repair are funded. Motor fuel taxes deposited in the MTF totaled $950.5 million in fiscal year (FY) 2012-13, and represented approximately 50.2% of total MTF revenue. Vehicle registration revenue accounted for $906.5 million, or 47.9%, of FY 2012-13 MTF revenue.

Sales Taxes

As mentioned earlier, Michigan's sales tax is levied on motor fuel. Unlike the per-gallon motor fuel tax, the per-gallon amount of the sales tax changes as the price of motor fuel varies. When the price of gas averaged 93 cents per gallon in 1999, the motor fuel tax per gallon totaled 19 cents per gallon while the sales tax totaled about 4 cents per gallon. At the July 2014 price of $3.46 per gallon for gasoline, the motor fuel tax remained at 19 cents but the sales tax also was approximately 19 cents per gallon.

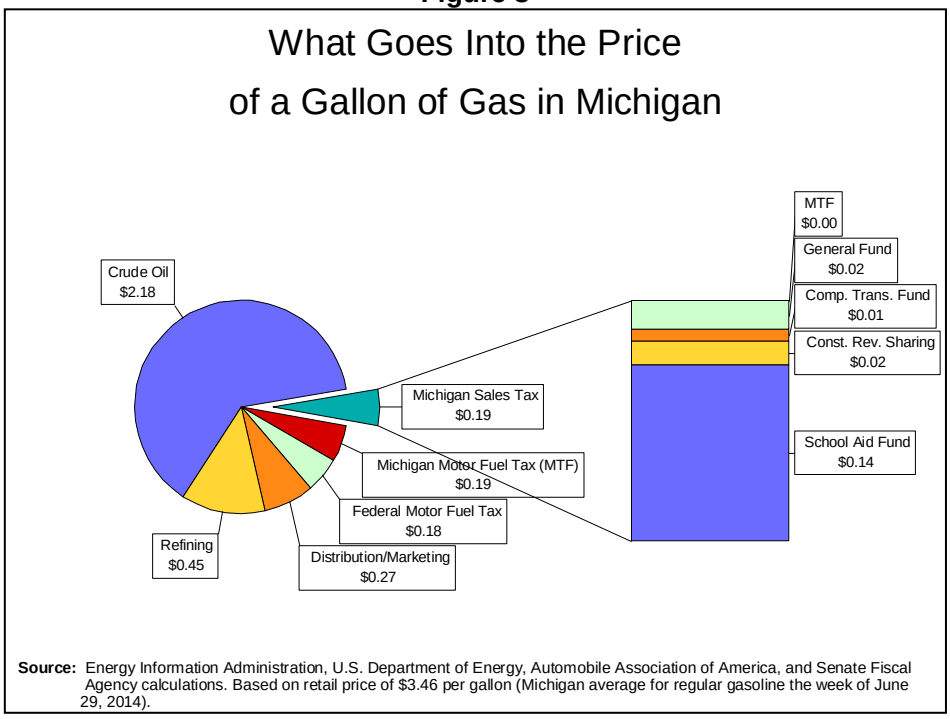
Additionally, while the per-gallon motor fuel tax is directed to the MTF, sales taxes on gasoline are directed to a variety of other funds – almost all of which have no direct relation to transportation. Since the current State Constitution was adopted in 1963, 60% of sales tax revenue collected at a 4% tax rate has been directed to the School Aid Fund, and 15% of the collections at a 4% tax rate have been directed to constitutional revenue sharing to cities, villages, and townships. The passage of Proposal A's property tax and school finance reform in 1994 imposed on additional 2% on taxable sales and added constitutional provisions that direct to the School Aid Fund 100% of the revenue from the additional 2% sales tax. The Revenue Sharing Act statutorily earmarks 21.3% of the revenue collected at a 4% tax rate to statutory revenue sharing to cities, counties, townships, and villages, although the Legislature has not appropriated the full earmark since FY 2000-01. Another $9.0 million is statutorily earmarked to health programs.

The only provision that dedicates a portion of sales tax revenue to a transportation-related fund is a statutory earmark on 27.9% of the collections at a 1% tax rate from sales of transportation-related items to the Comprehensive Transportation Fund (CTF). In FY 2012-13, revenue from the sales tax earmark to the CTF totaled $103.0 million. Most CTF revenue is directed to public transportation (mass transit) expenditures and is not directed to items such as road and bridge repair or construction.

Combined, the statutory and constitutional earmarks on sales tax revenue from sales of motor fuel mean that 83.3% of the sales tax is earmarked to the School Aid Fund and constitutional revenue sharing, and if revenue sharing were fully funded, a total of 102.2% of sales tax revenue from motor fuel would be earmarked in some way. Because the full earmark for revenue sharing is not funded, the revenue not appropriated to statutory revenue sharing is directed to the General Fund.

As a result, although Michigan gasoline prices are dominated by the price of crude oil, State taxes represent approximately 38 cents of the price of each gallon of gasoline, based on recent prices (Figure 3). Of those State taxes, 19 cents (the amount attributable to Michigan motor fuel taxes) are directed to the MTF. Of the remaining 19 cents of State taxes (from the sales tax), 14 cents are directed to the School Aid Fund, 2 cents are directed to constitutional revenue sharing, 2 cents are directed to the General Fund (of which a portion is appropriated to statutory revenue sharing), and the remaining 1 cent is directed to the CTF.

Figure 3



Source: Energy Information Administration, U.S. Department of Energy, Automobile Association of America, and Senate Fiscal Agency calculations. Based on retail price of $3.46 per gallon (Michigan average for regular gasoline the week of June 29, 2014).

Table 1 presents a history of both motor fuel tax revenue and vehicle registration revenue to the MTF, as well as estimated sales tax revenue from sales of motor fuel and the portion of sales taxes on motor fuels that remains after constitutional earmarks. As fuel economy has risen and higher fuel prices have reduced some travel, revenue from motor fuel taxes was 7.0% less in FY 2012-13 than it was in FY 1997-98. If the figures were adjusted for inflation, the decline would be even greater. In

contrast, despite some significant swings in revenue, higher vehicle prices have helped increase revenue from vehicle registrations by 36.3% over the same period. Sales tax revenue from motor fuel sales increased 267.0% over the period, driven entirely by the increase in the price of motor fuels.

Interstate and International Comparisons

As mentioned earlier, considerable variation exists between the tax rates different states levy on motor fuel. Although most states should, in theory, face roughly the same wholesale price for gasoline so that the differences in gasoline prices largely reflect transportation costs and state and local taxes, differences in wholesale prices do exist and can be significant. Table 2 shows that in June 2014, among the 46 states for which wholesale prices were available, the wholesale price in Oregon (the highest) was 12.4% above the price in North Carolina (the lowest). (Two of the states for which June data were not available, Alaska and Hawaii, exhibited the first- and second-highest wholesale prices in the annual data for 2013, and the gap between the highest and lowest wholesale prices was 21.4%.)

Table 1

Revenue History for Select Michigan Transportation Taxes/Fees and Sales Taxes on Motor Fuel
(Dollar Amounts in Millions)

Fiscal Year	Gasoline Tax Revenue	Diesel Tax Revenue	Total Motor Fuel Tax Revenue	Percent Change	Vehicle Registration Taxes	Percent Change	Sales Tax on Gasoline	Sales Tax on Diesel	Total Sales Taxes on Motor Fuel	Percent Change	Sales Taxes on Fuel Not Const. Earmarked	Total Sales Tax Revenue	Sales Tax on Motor Fuel Share of Total Sales Tax
1997-98	$904.5	$118.4	$1,022.9	---	$665.3	---	$236.3	$40.9	$277.2	---	$46.2	$5,617.3	4.9%
1998-99	931.7	134.7	1,066.4	4.3%	710.2	5.9%	270.0	44.9	315.0	13.6%	$52.5	5,901.7	5.3%
1999-2000	923.0	144.1	1,067.1	0.1%	755.2	-1.1%	378.8	74.7	453.5	44.0%	$75.6	6,277.5	7.2%
2001-01	934.4	133.7	1,068.1	0.1%	778.2	0.3%	364.1	66.5	430.6	-5.0%	$71.8	6,352.3	6.8%
2001-202	939.7	143.4	1,083.1	1.4%	827.7	9.9%	334.5	63.4	398.0	-7.6%	$66.3	6,441.2	6.2%
2002-03	936.2	157.3	1,093.5	1.0%	845.3	0.4%	388.5	80.4	468.9	17.8%	$78.1	6,422.6	7.3%
2003-04	932.7	140.8	1,073.5	-1.8%	934.3	4.4%	464.4	87.5	551.9	17.7%	$92.0	6,473.5	8.5%
2004-05	922.8	146.7	1,069.5	-0.4%	866.3	-17.3%	572.2	126.7	698.9	26.6%	$116.5	6,599.1	10.6%
2005-06	906.7	149.0	1,055.7	-1.3%	870.4	-11.3%	638.8	145.6	784.5	12.2%	$130.7	6,638.1	11.8%
2006-07	884.0	144.1	1,028.1	-2.6%	874.7	-3.7%	705.8	152.4	858.2	9.4%	$143.0	6,552.2	13.1%
2007-08	849.2	140.4	989.6	-3.7%	857.9	-14.7%	780.6	194.3	974.9	13.6%	$162.5	6,773.3	14.4%
2008-09	846.3	117.9	964.3	-2.6%	842.4	4.4%	546.8	101.9	648.8	-33.5%	$108.1	6,089.1	10.7%
2009-10	842.0	120.3	962.3	-0.2%	844.9	-3.3%	655.0	127.8	782.8	20.7%	$130.5	6,176.1	12.7%
2010-11	832.0	125.9	957.9	-0.5%	862.5	-5.7%	839.5	178.1	1,017.6	30.0%	$169.6	6,709.0	15.2%
2011-12	818.8	126.8	945.6	-1.3%	876.1	-1.5%	853.5	184.2	1,037.7	2.0%	$172.9	6,952.8	14.9%
2012-13	822.0	129.2	951.1	0.6%	906.5	2.7%	830.6	186.7	1,017.3	-2.0%	$169.5	7,153.8	14.2%

Source: Comprehensive Annual Financial Report, Michigan Department of Technology, Management, and Budget; Automobile Association of America; Senate Fiscal Agency calculations

Ellen Jeffries, Director – Lansing, Michigan – (517) 373-2768
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Table 2

State Gasoline Taxes, 2014

State	Tax Rate (cents/gallon)	Rank	State Sales Tax (effective cents/gallon)	Combined Rates (cents/gallon)	Rank	Wholesale Price of Gas June 2014	Rank	Retail Price of Gas 07/29/2014	Rank
Alabama	18.000	41		18.000	44	2.874	45	$3.269	48
Alaska	8.000	50		8.000	50		N/A	4.145	2
Arizona	19.000	37		19.000	41	3.053	13	3.535	24
Arkansas	21.800	30		21.800	36	2.924	37	3.318	44
California	46.500	1	7.759	54.259	1	3.138	3	3.991	3
Colorado	22.000	28		22.000	34	3.002	21	3.612	18
Connecticut	25.000	20		25.000	26	3.080	9	3.893	6
Delaware	23.000	26		23.000	32	3.027	17	3.446	30
Florida	17.100	44	18.538	35.638	9	2.923	38	3.446	30
Georgia	19.300	36	12.427	31.727	14	2.935	36	3.424	34
Hawaii	17.000	45	16.027	33.027	10		N/A	4.337	1
Idaho	26.000	18		26.000	24	3.068	10	3.778	9
Illinois	20.100	33	19.659	39.759	4	3.085	8	3.543	23
Indiana	18.000	41	20.961	38.961	5	3.007	20	3.384	37
Iowa	22.000	28		22.000	34	2.954	32	3.394	36
Kansas	25.030	19		25.030	25	2.908	40	3.332	43
Kentucky	30.800	9		30.800	15	3.117	4	3.407	35
Louisiana	20.125	32		20.125	38	2.899	41	3.356	40
Maine	30.000	10		30.000	16	3.035	15	3.650	13
Maryland	27.000	15		27.000	21	3.023	18	3.550	21
Massachusetts	24.000	22		24.000	28	3.055	12	3.642	15
Michigan	**19.000**	**37**	**18.487**	**37.487**	**8**	**3.088**	**6**	**3.456**	**28**
Minnesota	28.600	12		28.600	18	2.888	42	3.376	39
Mississippi	18.400	40		18.400	43	2.886	43	3.310	45
Missouri	17.300	43		17.300	45	2.944	33	3.258	49
Montana	27.000	15		27.000	21	2.965	29	3.619	17
Nebraska	27.300	14		27.300	20	2.958	31	3.431	33
Nevada	23.805	25		23.805	31	3.104	5	3.811	8
New Hampshire	19.625	35		19.625	40		N/A	3.595	20
New Jersey	14.500	48		14.500	48	2.996	22	3.441	32

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Table 2 (continued)

State Gasoline Taxes, 2014

State	Tax Rate (cents/gallon)	Rank	State Sales Tax (effective cents/gallon)	Combined Rates (cents/gallon)	Rank	Wholesale Price of Gas June 2014	Rank	Retail Price of Gas 07/29/2014	Rank
New Mexico	18.875	39		18.875	42	2.980	26	3.491	27
New York	26.400	17		26.400	23	3.031	16	3.847	7
North Carolina	37.750	3		37.750	6	2.862	46	3.451	29
North Dakota	23.000	26		23.000	32	2.992	23	3.548	22
Ohio	28.000	13		28.000	19	3.067	11	3.354	41
Oklahoma	17.000	45		17.000	46	2.967	27	3.302	46
Oregon	30.000	10		30.000	16	3.217	1	3.927	4
Pennsylvania	40.700	2		40.700	3	2.966	28	3.643	14
Rhode Island	33.000	6		33.000	11	3.087	7	3.665	12
South Carolina	16.750	47		16.750	47	2.876	44	3.257	50
South Dakota	24.000	22		24.000	28	2.961	30	3.497	26
Tennessee	21.400	31		21.400	37	2.911	39	3.298	47
Texas	20.000	34		20.000	39	2.938	34	3.384	37
Utah	24.500	21		24.500	27	3.047	14	3.703	10
Vermont	31.970	8		31.970	13		N/A	3.693	11
Virginia	11.100	49		11.100	49	2.983	25	3.333	42
Washington	37.500	4		37.500	7	3.156	2	3.925	5
West Virginia	35.700	5	18.413	54.113	2	2.990	24	3.610	19
Wisconsin	32.900	7		32.900	12	3.016	19	3.511	25
Wyoming	24.000	22		24.000	28	2.938	34	3.624	16
Federal Tax	18.400			18.400					
U.S. Average						2.812		3.515	

Sources: Federation of Tax Administrators, Automobile Association of America, Senate Fiscal Agency calculations

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Generally, tax rates are highest in the New England, Middle Atlantic, and Western states; and lowest in the Central, Southern, and Southeastern states. Similarly, average retail prices tend to be higher in the regions with higher tax rates, and lower in the regions with lower tax rates. However, numerous exceptions weaken that correlation. For example, Michigan's motor fuel tax rate ranks 37th out of the 50 states; but if sales taxes levied on motor fuels are included, the ranking rises to eighth, although it should be noted that the ranking overstates Michigan's position particularly because Michigan does not levy any local taxes on gasoline. For example, in Nevada (which ranks 31st) local sales taxes range from four to nine cents per gallon, and those taxes would raise Nevada's ranking to somewhere between 20th and 13th depending on the local unit. Similarly, in Florida, local taxes can range from 10.8 cents to 19.1 cents per gallon, and there is a 2.071-cent-per-gallon pollution tax not included in price rankings. Motor carriers are assessed additional taxes in some states such as in Illinois, where carriers pay an additional 19.5 cents per gallon. Although Michigan ranked eighth for total state taxes on motor fuel, and sixth for wholesale price in June 2014, Michigan's average retail price ranked 28th the week of June 29, 2014, and over the last 14 years, Michigan's retail prices have ranked between 22nd and 37th. Among surrounding states, Michigan's average retail prices fall in the middle. Prices in Illinois and Wisconsin are usually above Michigan's price, while those in Indiana and Ohio generally fall below Michigan's.

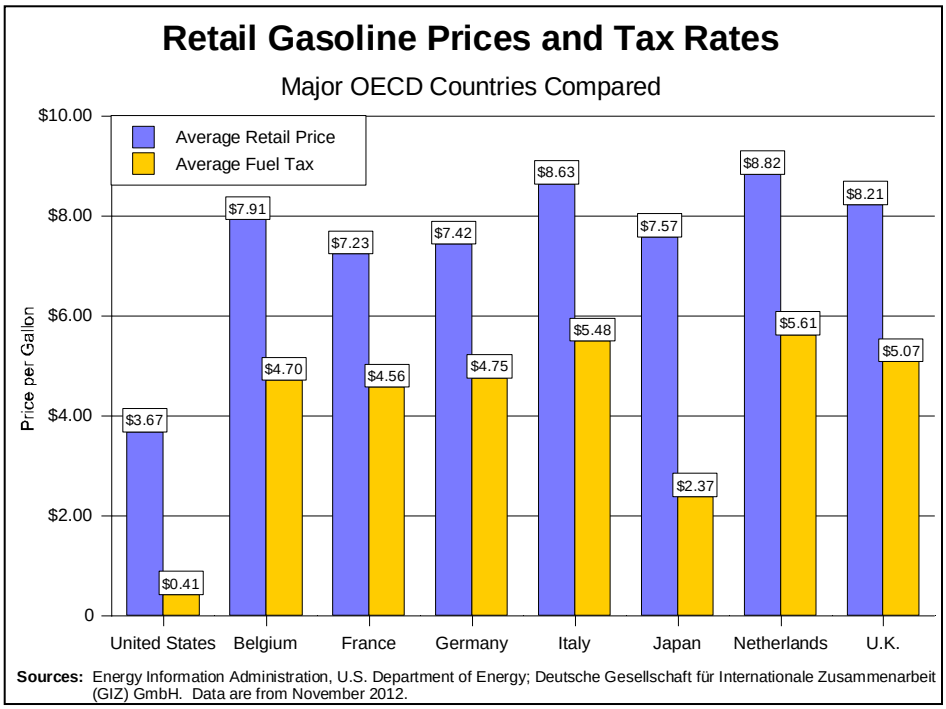
Compared with other countries, the United States exhibits both lower levels of taxation and lower retail prices. Approximately 19 countries, mostly members of the Organization of Petroleum Exporting Countries (OPEC), heavily subsidize retail gasoline prices. Venezuela offers the most significant subsidies, so its average retail price of gasoline is approximately 8.7 cents per gallon. Libya exhibits the next-lowest retail prices, at 45.4 cents per gallon. Among countries with the most significant retail subsidies, the highest gas price is in Angola, at $2.38 per gallon.

Another 10 countries, mostly a few Central American and northern African countries, slightly subsidize gasoline prices, with prices varying from $2.65 per gallon to $3.67 per gallon. The retail price of gasoline in the United States is generally regarded as reflecting a cost-covering price, where costs include industry margins, necessary taxes to support road funding, etc., although external health and environmental costs are not covered. In November 2012, the period from which these comparisons are reported, the average retail price of gasoline in the U.S. was $3.67 per gallon.

The majority of countries tax gasoline more heavily than the United States does. In countries that are not considered high fuel tax countries, average retail prices range from $3.75 per gallon in Russia to $6.17 per gallon in Peru. These "moderate taxation" countries represent the majority of counties and span the globe, although Western Hemisphere countries tend to be more prevalent on the low end of the range while African and Asian countries are more common on the high end.

Finally, approximately 60 countries (almost as many as in the "moderate taxation" group) are considered "high taxation" countries. These countries are effectively using fuel taxes to generate revenue and to encourage energy efficiency in the transportation sector, and the average retail prices range from $6.21 per gallon in Luxembourg to $9.61 per gallon in Turkey and Norway. The majority of "high taxation" countries are located in Europe. Compared with prices in major Organization for Economic Cooperation and Development (OECD) countries, using the exchange rates effective in November 2012, the average retail price of gasoline in the United States is approximately half of that in other major OECD countries, and the combined Federal and state tax rates are approximately one-tenth of the rate in those countries (Figure 4).

Figure 4



Conclusion

In the United States, the price of crude oil accounts for both the majority of the price of gasoline and changes in the price of gasoline over time. Both Federal and state taxes on motor fuels provide funding for the road system and both tax rates and retail prices vary significantly across states. Michigan's motor fuel tax rate is below the rate in most states, although this is somewhat offset by sales taxes levied on motor fuel sales. However, in many other states, local motor fuel taxes also are levied or other fees and taxes are imposed on the sale of motor fuels. Inclusive of all taxes and fees, Michigan retail gasoline prices tend to be slightly below the national average and in the middle of those in other Great Lakes states. Both retail prices for gasoline and motor fuel tax rates are lower in the United States than in most developed countries.

The revenue generated by Michigan's motor fuel taxes has declined as vehicles have become more fuel efficient and the rising price of gasoline has encouraged greater efforts at conservation. Sales taxes levied on motor fuel sales are largely earmarked by constitutional provisions that direct almost three-fourths of the revenue to education and 10% to local units of government. The buying power of the revenue generated by Michigan's motor fuel taxes has been substantially eroded by inflation. Adjusting Michigan's motor fuel tax rates to reflect inflation would substantially increase the tax rate. As long as the tax rate remains fixed and is not subject to automatic adjustments, the buying power of the revenue generated will decline in future years.

Regardless of how the State resolves the debate on road and bridge funding, the primary influence on the price of gasoline is likely to remain the price of crude oil. Similarly, revenue will continue to be affected by inflation and the changing demographics of motor fuel consumption.