

ECONOMIC PERSPECTIVE

Discussion of Recent Economic Developments
Publication 329

Volume XIX, Number 1
February 2013

California On-Road Gasoline Consumption Trends

This edition of the Economic Perspective analyzes gasoline consumption by cars and light trucks on California roads.

- California and U.S. gasoline consumption on roads and highways have both generally been trending downward since 2005.
- This state's gas consumption has fallen almost twice as fast as U.S. gas consumption over this time period.
- Californians consume less gas per capita than the national average.
- U.S. average miles traveled per vehicle peaked in the late 1990s.
- California is a low-ranking state in its proportion of licensed drivers to total population.

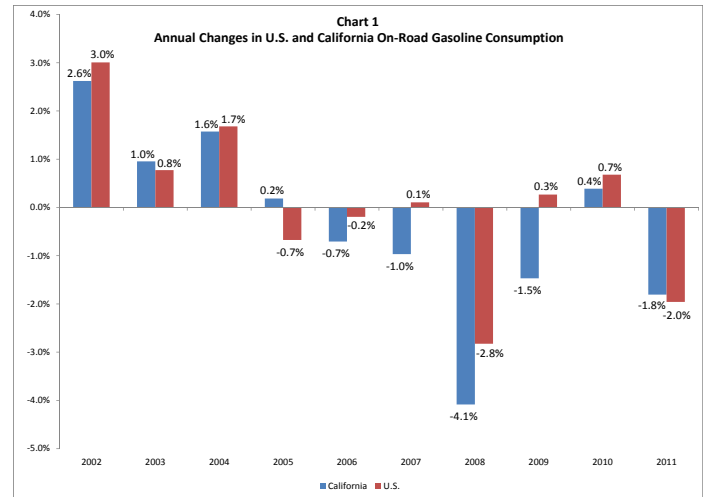
On-Highway Gasoline Sales Important Revenue Source

Gasoline consumption used by cars and trucks is a very important revenue source for both state and local governments in California. In 2011, about \$6.8 billion in tax revenues related to motor vehicle fuel were collected; \$5.2 billion in state excise taxes and \$1.6 billion in sales and use taxes. A portion of sales and use taxes revenue goes to cities, counties, and special districts.

Gas Consumption Trending Downward

California and U.S. gas prices have generally been rising sharply for many years, and consumers have responded to these higher prices by cutting gas consumption. Board of Equalization data indicate that California gas consumption peaked in 2005 at 15.9 billion gallons, and it fell in five out of six years since then. (See Chart 1.) By 2011, Californians consumed 14.6 billion gallons of gas, an 8.4 percent decline from the 2005 peak. U.S. motor vehicle consumption of gasoline and gasohol has followed a similar pattern, but the decline was less than half as sharp as California's.¹

From the U.S. peak in 2004 (a year earlier than California) through 2011 U.S. gas consumption fell 4.6 percent.



California Gas Consumption Down More Than U.S.

Gas consumption data show that Californian households consume less gas related to road transportation than average national households do. In 2011, California accounted for 10.8 percent of U.S. gasoline and gasohol used on roads, less than its 12.0 percent share of national population. Furthermore, the California share of U.S. gas consumption has declined in recent years, while the state's population share has remained reasonably constant. From 2002 to 2011, the California share of U.S. gasoline consumption declined from 11.2 percent to 10.8 percent. Over the same time period the California share of population held reasonably steady, ticking down from 12.1 percent to 12.0 percent.

¹ Sources of all U.S. gas and transportation data cited in this section: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Traffic Volume Trends, www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm and Monthly Fuel Reported by the States, www.fhwa.dot.gov/policyinformation/motorfuelbwy_trustfund.cfm

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Factors Affecting Gas Consumption

What factors affect gasoline consumption on roads and highways? Certainly economic growth is closely related to gas consumption. Historical data for many countries indicate that as economies grow and become more technologically advanced, more people have sufficient income to buy cars. They then substitute car travel for public transportation by buses or trains, and also tend to travel more miles by car.

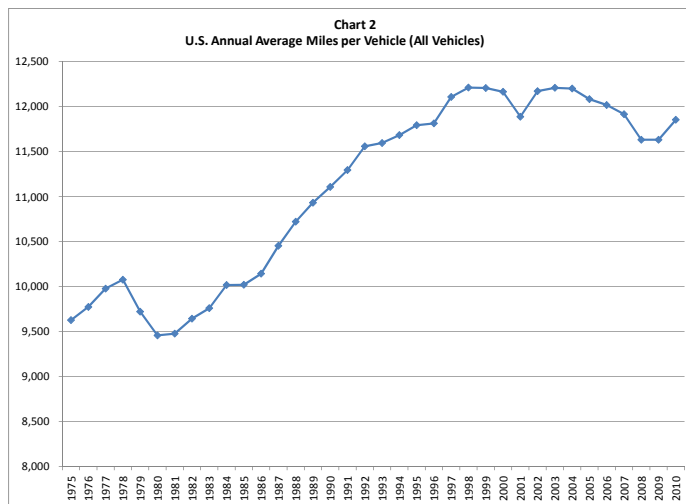
Vehicle Miles Traveled Down

Until a few years ago, this pattern of more travel by car as incomes increase held for California and the U.S. However, following a pattern similar to gas consumption, vehicle miles traveled leveled off a few years ago.

U.S. Department of Transportation data indicate that total U.S. vehicle miles traveled declined from 3.031 trillion miles in 2007 to 2.941 million miles in 2011. Available data indicate that California has generally followed a similar trend over this time period. With the “Great Recession” and the associated high unemployment aftermath following the recession, it appears that at least part of the decline was caused by the weaker economy during this period. Data for the first ten months of 2012 indicate that U.S. vehicle miles traveled increased 0.6 percent, reversing this trend. However, California data for the same time period in 2012 show a small decline (0.2 percent) in vehicle miles traveled, even though data indicate that the California economy is growing along with the national economy. This 2012 decline in vehicle miles traveled in California runs counter to the national trend of increasing miles traveled in 2012.

Miles Driven Per Vehicle Down

As shown in Chart 2, U.S. average miles driven per vehicle generally rose from the mid-1970s to the late 1990s, but have leveled off or declined since 2000. Average miles per vehicle fell from 12,200 miles in 2007 to 11,631 in 2009, and then rose to 11,853 in 2010, the latest year for which there are data.²

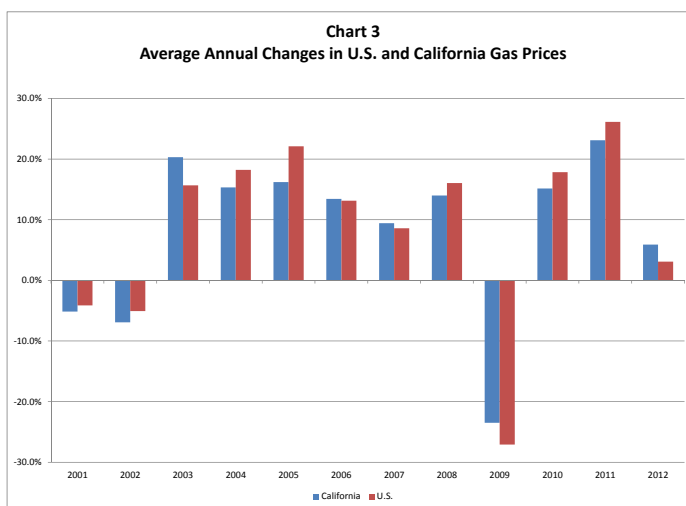


Other Factors Affecting Gasoline Consumption

There are several other factors likely to affect gas consumption used by cars and light trucks other than household incomes and vehicle miles traveled. These factors include crude oil prices, technology, and numbers of drivers. (Improved technologies have increased gas mileage and new technologies such as hybrid vehicles and electric cars serve to reduce gas consumption.) These factors are likely to impact gas consumption in both California and the nation. In addition, there may be other factors, for example weather, and personal values, such as preferences for more “green technology,” that may be somewhat unique to California compared to the nation as a whole.

Sharply Rising Prices Over the Last Decade

California gas prices at the pump (which included sales and excise taxes) have more than doubled over the past ten years, increasing from an average of \$1.88 per gallon in 2003 to \$4.09 per gallon in 2012. U.S. gas prices have increased in a similar manner. (See Chart 3.)³



² Source: Annual Energy Review:2011, U.S. Energy Information Administration, September 2012, www.eia.gov/totalenergy/data/annual/index.cfm

³ Source: U.S. Energy Information Administration website, www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm

Average Miles Per Gallon Up

U.S. data from the Energy Information Administration (EIA) that “light duty vehicles” consumed an average of 453 gallons per year in 2010, a little less than nine gallons per week. These data also indicate that average mileage for all passenger cars and trucks has increased from 17.0 miles per gallon in 2003 to 17.5 miles per gallon by 2010.⁴ This is about a three percent improvement in fuel economy, and if miles driven had not changed, would imply a three percent reduction in gallons of gasoline consumed. Since U.S. gas consumption has declined more (4.6 percent since 2004, as mentioned earlier), there are likely other factors contributing to the declines in consumption.

Fewer Licensed Drivers per Capita in California

The most recent data available show that there are fewer licensed drivers per capita in California compared to the U.S. average. In 2010, there were 638 drivers per 1,000 population in California, compared to a U.S. average of 681 drivers per 1,000 population. California ranked as the 45th state in drivers per 1,000 of population. Table 1 shows the top and bottom ten states in drivers per 1,000 of population. The state with the most drivers per capita is Indiana, with 856 drivers per 1,000 of population, while the state with the fewest drivers per capita is New York, with 582 drivers per 1,000 of population.

California’s Special Seasonal Travel Patterns

Are there other measurable factors besides prices that may be unique to California that may affect gas consumption on roads? A warmer average climate in California may affect gas consumption. However, a warmer climate could be associated with consumption that is either higher or lower than the national average. Cars generally get better gas mileage in areas with less extreme colder temperatures. However, less extreme cold weather may also serve to encourage people to drive more.

The data available to us are sparse and inconclusive regarding the effects of climate. However, recent data do show both some similarities and some differences in seasonal patterns between California and the rest of the nation.

Table 1
Drivers per Resident Population in 2010: Top Ten, U.S. Average, and Bottom Ten States (Including the District of Columbia)

TOP TEN STATES		
State	Rank	Drivers per 1,000 Resident Population
Indiana	1	856
Connecticut	2	821
Vermont	3	821
Alabama	4	796
New Hampshire	5	788
Delaware	6	774
Maine	7	768
Washington	8	759
Montana	9	752
Colorado	10	751
U.S. Average		681
BOTTOM TEN STATES		
State	Rank	Drivers per 1,000 Resident Population
West Virginia	42	651
Mississippi	43	650
District of Columbia	44	640
California	45	638
Nevada	46	626
Oklahoma	47	626
Minnesota	48	619
Texas	49	603
Utah	50	601
New York	51	582

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Highway Statistics Series, www.fhwa.dot.gov/policyinformation/statistics/2010/

If gas consumption were evenly spread throughout the months of the year, 8.3 percent of annual consumption would occur each month. As indicated by monthly gas consumption, Californians tend to travel on roads less in January and February than they do in other months, (each of these months comprises about seven percent of annual consumption) which is a similar pattern to the nation as a whole. However, Californians travel more on roads in November and December than people in the rest of the country. In 2011, California gas consumption in November and December were both close to that of July and August, traditionally peak months for travel (each of these four months comprise close to nine percent of annual consumption).

⁴ Source: Annual Energy Review:2011, U.S. Energy Information Administration, September 2012, www.eia.gov/totalenergy/data/annual/index.cfm

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Taxpayers' Rights Advocate: 1-888-324-2798

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www.boe.ca.gov/members/board.htm

Online Resources

For more information about topics covered in this publication and previous issues, please visit any of the websites listed below.

California Department of Finance
www.dof.ca.gov

California Employment Development Department (EDD),
Labor Market Conditions in California
www.labormarketinfo.edd.ca.gov

Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters*
www.phil.frb.org/econ/spf/index.html

National Association for Business Economists
www.nabe.com

U.S. Bureau of Economic Analysis
www.bea.gov

U.S. Bureau of Labor Statistics
www.bls.gov/cpi

U.S. Census Bureau
www.census.gov