

For the first time in a decade, U.S. per capita highway travel ticks up

Eric Sundquist and Chris McCahill
March 2015

After declining every year since 2004, vehicle-miles traveled (VMT) per capita in the U.S. ticked up by 0.9 percent in 2014 compared to 2013, according to [figures](#) released on Thursday, March 12, by the Federal Highway Administration. Accounting for the effect of population growth, total miles driven increased by 1.7 percent.

Both per capita and total VMT remain below their peaks, in 2004 and 2007, respectively. The amount of driving is a closely watched statistic, with implications for transportation investment decisions as well as for land development, greenhouse gas and other air emissions, energy use, and other issues. Driving also determines how much revenue is raised from fuel taxes and tolls. From World War II until the 1990s, highway travel grew year after year, but more recently that trend slowed and—in the case of per capita travel—actually reversed (Figure 1).

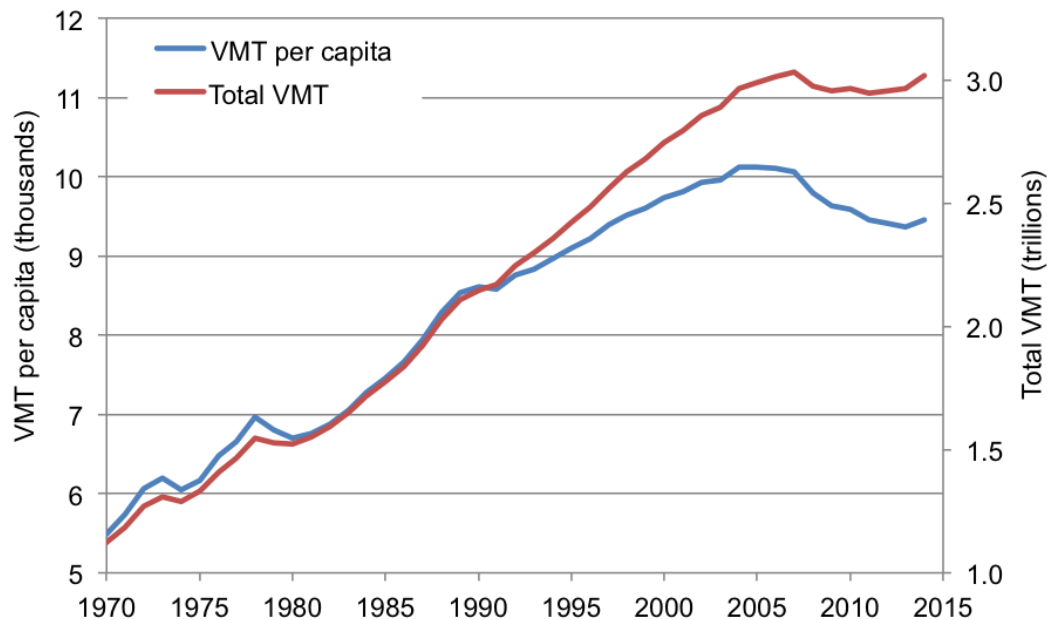


Figure 1. Annual vehicle-miles traveled (VMT), total and per capita, in United States. Data source: FHWA and Census Bureau.

While the 2014 uptick in per capita VMT comes in a year noted for a steep drop in gasoline prices, fuel prices are probably not the main cause of the increase. Prices dropped noticeably at the end of the year, when the largest increases in driving occurred compared to 2013. But driving was also up every month since March, and the increases were generally larger than gas prices alone can explain. For the full year, [the weekly average cost](#) of regular gasoline was just 4 per-

cent lower than in 2013. In December, the [Energy Information Administration](#) showed that fuel costs have only small effects on the amount of driving Americans do, at least in the short term. EIA calculates a gas price elasticity of 0.02 to 0.04, meaning that it would take a 25 to 50 percent drop in gas prices to spur a 1 percent increase in driving.

A more likely explanation, aside from normal year-to-year variation, is the continuing improvement in the economy. VMT and gross domestic product are more strongly related than VMT and gas prices, albeit more weakly than in the past. One way to look at the relationship is, as with gas prices, to calculate elasticities—the percentage change of VMT corresponding to a 1 percent change in GDP. This figure varies year-to-year, so in order to separate “noise” from real trends Figure 2 shows median elasticities, figured annually, for five-year periods dating to 1995. The relationship has lost power but remains much stronger than that of gas prices and VMT—about 0.14 today, compared with EIA’s estimate of 0.02 to 0.04 for gas prices.

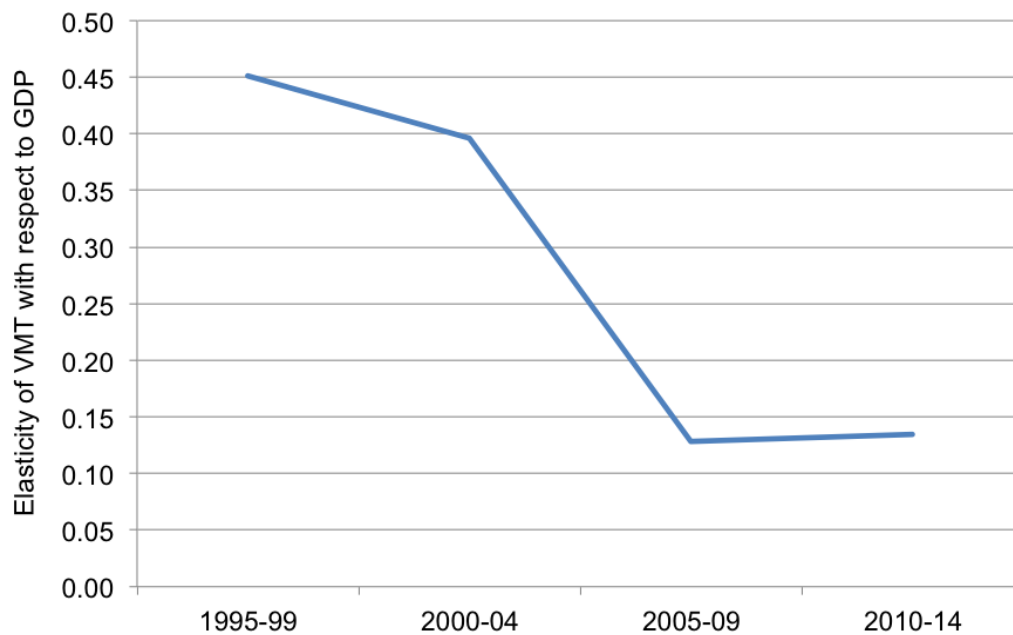


Figure 2. Elasticity of VMT with respect to GDP (chart indicates median year-to-year value for each period). Data source: FHWA and Bureau of Economic Analysis.

GDP is a very coarse way to assess the economy as it pertains to travel (or anything else), and in some cases the relationship breaks down. For example, in 2008 as the economy shed jobs, total and per capita VMT both spiked downward, even though real GDP for the year was slightly up. Likewise, though real GDP reached pre-recession levels by 2010, it was only in 2014 that employment did the same (Figure 3).

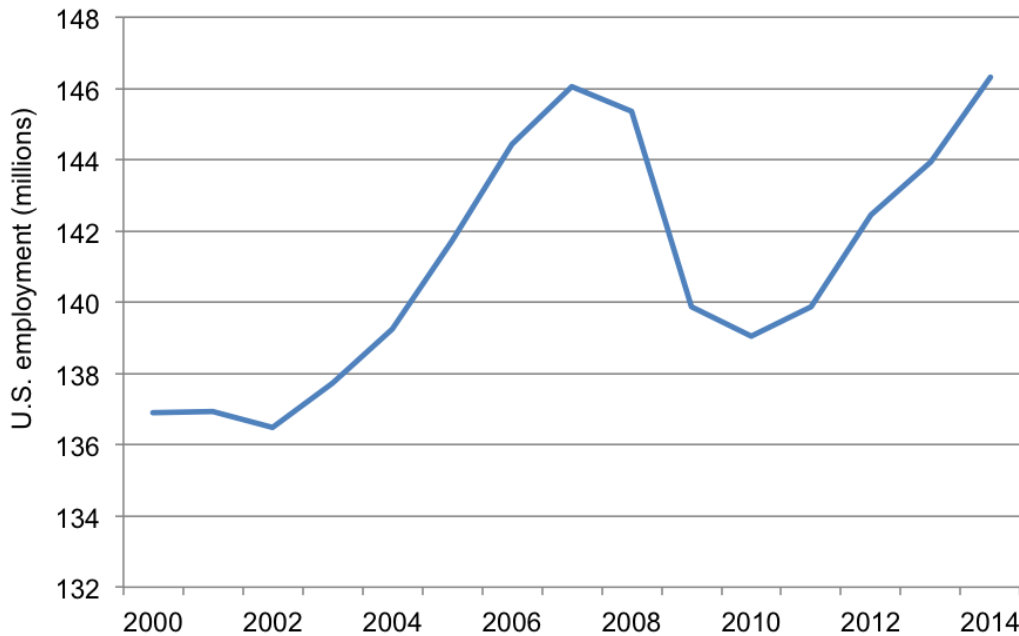


Figure 3. Employed people in the United States. Data source: Bureau of Labor Statistics.

Where the relationship between VMT and GDP does hold, it is complex and dynamic. For example, [research has shown](#) that whereas the two measures once had reciprocal effects on each other, GDP now appears to lead VMT slightly on upswings and lag on downswings. Either way, it is reasonable to think that the rise in driving in 2014 is a reflection of a return to something like “normal” economic conditions.

If conditions are relatively normal now, though, it is a “new normal” for VMT. Even with the recovery in GDP and employment, per capita VMT remains 6.6 percent below its peak in 2004. And even accounting for population growth, total VMT is still 0.5 percent below its 2007 peak. This easing of highway travel demand has been [linked to a variety of factors](#), including Baby Boomer retirements; saturation of the market for automobiles; changing preferences toward lower car-use lifestyles and more urban living, particularly among millennials; greater availability of non-auto modes; and maxed-out time budgets for auto travel. While the economic crisis probably exacerbated a downward trend for a time, factors such as these are largely independent of the recession.¹

On the other hand, there is an argument, for example, that millennials have a pent-up demand for cars and car travel, thwarted by the poor economy. [According to Time](#), “Instead of accepting the premise that millennials see car ownership as ‘not cool,’ automakers are insisting that low rates of driver’s licenses and vehicle purchasing by young people come mainly as a result of car ownership being out of reach financially for this group right now. As the economy improves, and as millennials get a little older and have more need for cars due to work and family responsibilities, auto experts assume that this generation will have to embrace car ownership to a much larger degree.”

¹ Transit ridership also dipped sharply in 2008 and 2009 according to data from the American Public Transit Association, but has since grown faster than VMT and exceeded pre-recession levels.

Relying on past trends in a changing environment is perilous, but recent history as shown in Figure 1 above suggests that improving economic prospects won't bring a return to strong VMT growth. Viewed another way in Figure 4, travel demand per unit of economic production has been falling for two decades, and continues to do so. Americans drove 173 miles per thousand dollars of GDP in 2014, the lowest number since 1974.

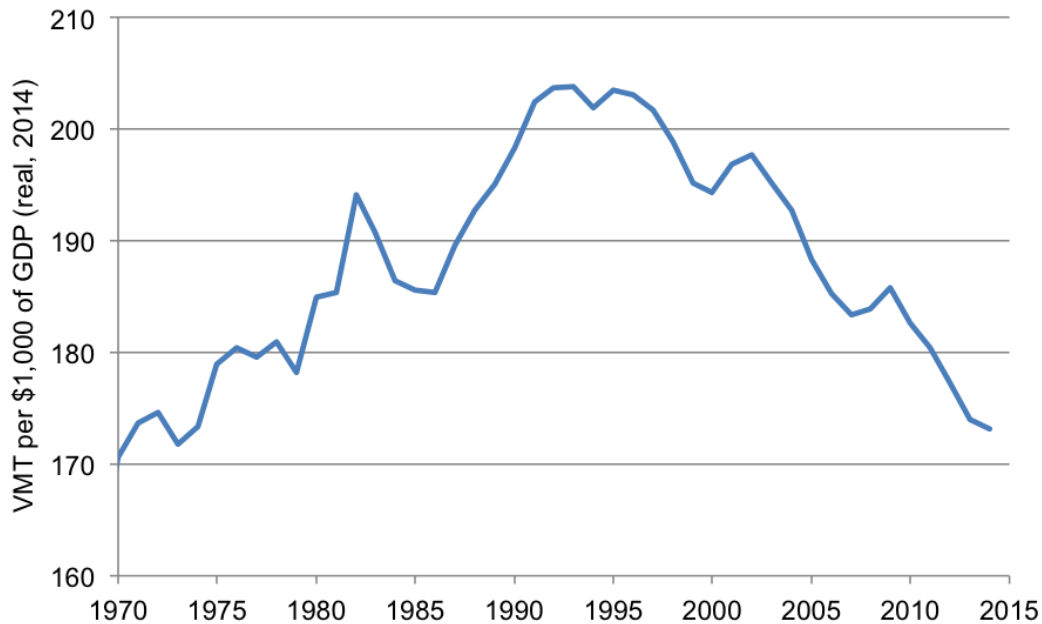


Figure 4. VMT relative to GDP. Data source: FHWA and Bureau of Economic Analysis.

By modeling VMT as a function of GDP using regression analysis, we can begin to see how their relationship has looked until now and how it might look in the future. Between 1969 and 1995, GDP explains more than 95% of the annual variation in VMT.² Past 1995, however, this model grossly overestimates driving rates (Figure 2). In 2014, the per capita highway travel was about 2,800 miles—or about 22 percent—lower than it would have been before 1995, after accounting for economic growth. GDP still explains most of the variation in VMT after 1995, but only after making a gradual downward adjustment (subtracting an additional 114 miles per person each year).³

² $VMT/capita = -3,766 + 0.28 * GDP/capita$; 1969 to 1995; R-squared = 0.96

³ $VMT/capita = -3,583 + 0.28 * GDP/capita - 114 * Years\ since\ 1995$; 1969 to 2014; R-squared = 0.98

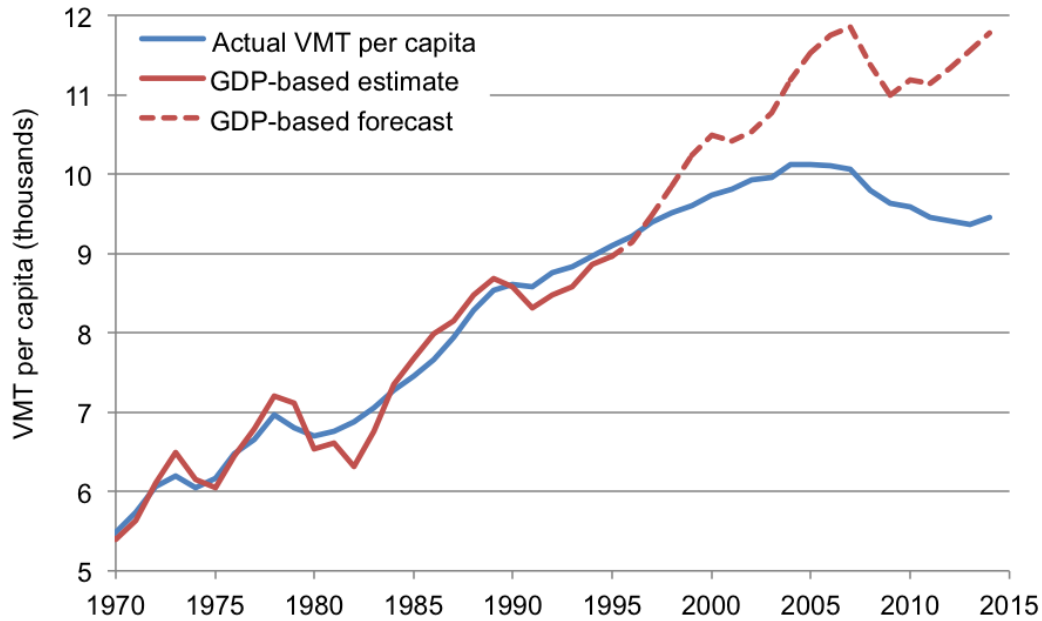


Figure 5. VMT per capita and GDP-based estimate from linear regression, 1969-1995. Data source: FHWA, Census Bureau and Bureau of Economic Analysis.

Looking forward, [most evidence](#) suggests that the relative slow growth or decline in automobile use is likely to continue over the long term. [Estimates prepared](#) for the National Cooperative Highway Research Program suggest that VMT per capita could increase by as much as 6 percent or decrease by more than 50 percent by 2050. [U.S. DOT](#) and [Washington State DOT](#) both revised their forecasts for VMT downward in 2014. A key challenge for the industry now will be applying new assumptions to modeling used in area- and project-level plans and investment decisions.