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FACT SHEET 09-01

Nevada's Gasoline Consumption and Its Future Impacts

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During 2008, Nevada commuters realized extreme variability in gasoline prices. Prices for regular unleaded gasoline increased from $3.116 per gallon in January to its highest price of $4.268 per gallon in June and subsequently fell to $1.804 per gallon in December[1]. The increased volatility of the cost of gasoline has impacts across the state's economy. Individuals who commute to and from work bear a considerable share of the financial burden of rising and unstable gasoline prices.

In the state of Nevada, 89 percent of all workers drive to work (this includes those who work from home). Of all workers who leave home to work, 92 percent drive to work.[2] Although automobile commuting encompasses the majority of Nevada's workers, according to the U.S. Department of Transportation, commuting only accounts for 15 percent of all trips nationally.[3] However, commuting trips account for 28 percent of all miles traveled. So while commuting makes up a relatively small percentage of vehicle trips taken, it is still a sizeable portion of total vehicle travel in miles, and is a good indicator of the overall driving patterns within a region.

Measuring Gasoline Use in Nevada

The U.S. Decennial Census reports commuting data such as total workers, commuters, commuting times, carpooling data and transportation mode use across the country. This study used the 2000 Census commuting time information for the state of Nevada and created commuting distance averages from the given time segments in every Nevada ZIP code. The averages were based on the given travel time and average speed estimates. Next, miles per gallon (mpg) estimates were made for each travel time segment. Mpg estimates were based on the Bureau of Transportation Statistics' fuel consumption data[4] and the U.S. Department of Energy's Fuel Economy Guide[5]. Once travel distances and fuel economy were calculated, total gallons used per trip could be calculated for each trip taken by a commuter.

The results included a range of commuting trips; the shortest time segment traveling just under 1 mile using .06 gallons of gas, a trip of 20 miles using .96 gallons of gas, to a trip of at least 110 miles using 3.27 gallons of gas. Gasoline use between

segments was not linear because of both better fuel economy at moderate speeds and it was assumed that shorter trips would have a lower average speed due to a higher proportion of the total travel time warming up, idling, traveling on surface streets and parking. These values yielded an average gas mileage of 20.3 mpg, which is just above the 20.2 mpg weighted average of all passenger cars, motorcycles, small trucks and SUVs from the Bureau of Transportation Statistics' data.

Nevada's Commuting Gas Consumption

The majority of all Nevada gas consumption is in the metropolitan areas of Las Vegas and Reno (Figure 1). This is not surprising since this is where the majority of the population lives and works. However, when analyzing gas consumption per commuter instead of total gas consumption, the results look very different.

Figure 2 shows the average gallons used per day (two trips per day) per commuter in every ZIP code in Nevada. The map indicates that the regions of the state that rely most on gasoline for commuting are locations surrounding urban areas, not the urban areas themselves. The ZIP codes with the highest per commuter gas use include Indian Springs and Pahrump outside Las Vegas; Palomino Valley/Sutcliffe, Silver Springs, Dayton, Fernley, and Washoe Valley outside Reno; and Spring Creek and Mountain City outside Elko.

While these locations outside the metropolitan areas have the highest per commuter gas consumption, the most remote areas of the state (southern Lander and Eureka County, and the far eastern areas of the state such as Baker, Pioche, Hiko and Caliente) have the lowest gasoline use. This is most likely due to there being no large towns or cities close enough to make it worthwhile for the residents of these areas to commute. Finally, the urban areas of Las Vegas, Reno, Carson City, and Elko have relatively moderate levels of per commuter gas consumption in relation to the rest of the state.

Figure 1. Total Commuting Gas Consumption by ZIP Code.

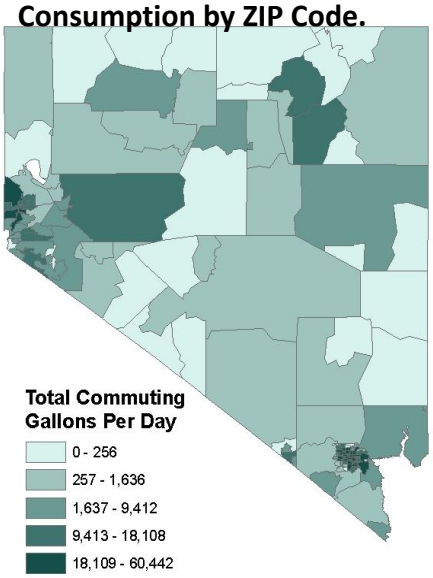
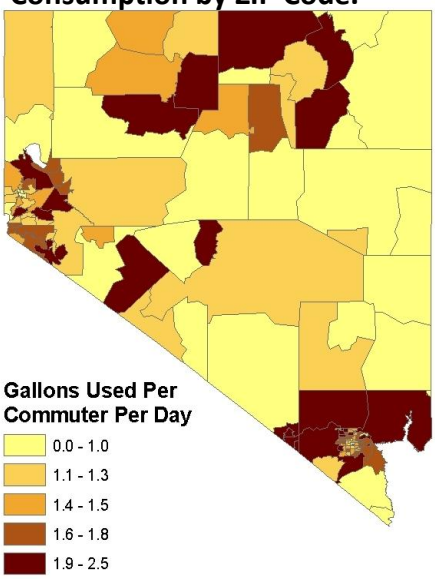


Figure 2. Per Commuter Gas Consumption by ZIP Code.

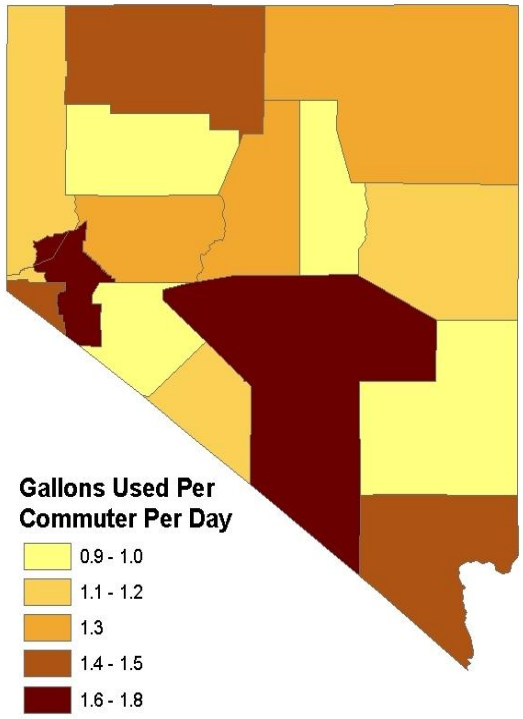


County Level Gas Consumption

In order determine which Nevada county economies are most affected by changes in gas prices, all ZIP code level gas consumption figures were aggregated by county. Note that not all ZIP code boundaries match exactly with county borders. This is especially true in Storey County, which has a large portion of its population within Washoe County-centered ZIP codes, areas such as Lockwood and others throughout the I-80 corridor.

In terms of per commuter gas consumption, there is an aggregate trend similar to what was found in analyzing each ZIP code. Lyon, Storey and Nye counties (the counties that have the largest cities and towns within commuting distance to the metropolitan areas of Las Vegas, Reno and Carson City) have experienced higher gas consumption per commuter than the rest of the state (Figure 3). In contrast, more remote counties like Lincoln, White Pine, Eureka and Pershing, whose towns are not primarily within driving distance to larger cities, use the least amount of gasoline per commuter. In fact, commuters from Lyon County (the county that consumes the most gasoline per commuter) use twice as much gasoline per day as commuters in Eureka County, 1.8 gallons versus 0.9 gallons per day, respectively.

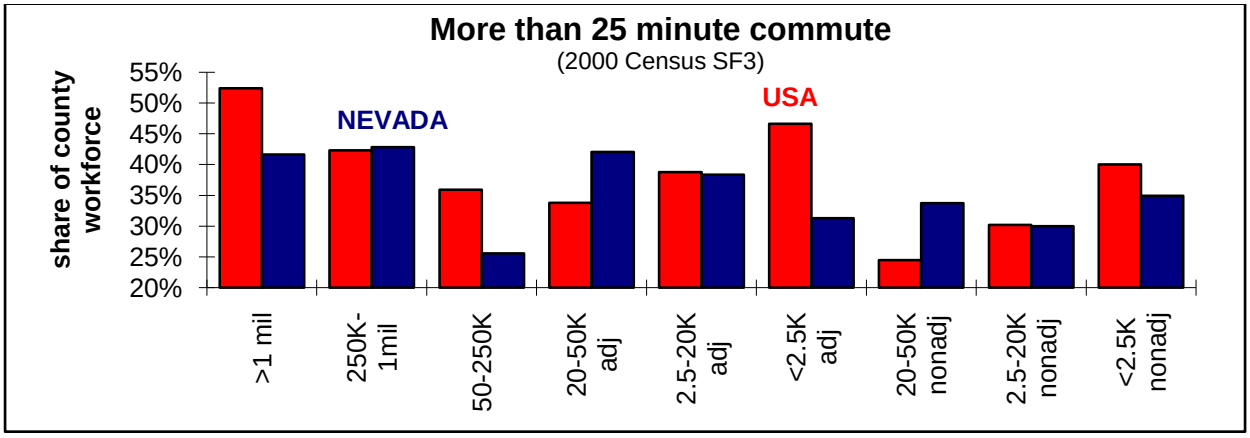
Figure 3. Per Commuter Gas Consumption by County.



The commuting trends found within the State of Nevada appear to be different when compared to the United States in general (Figure 4). According to the Census' commuting statistics, counties that have the highest percentage of its workers commuting more than 25 minutes are the largest metropolitan counties with over 1 million residents (52 percent), and counties with populations under 2,500 that are adjacent to metropolitan counties (47 percent). However, in Nevada, those types of counties had much lower rates (42 percent for Clark County, a large metropolitan and 31 percent for Lincoln and Pershing counties which are small, adjacent counties).

Nevada counties with a higher ratio of commuters having at least a 25 minute commute were larger counties that are adjacent to metropolitan counties (Douglas) and larger counties that are nonadjacent (Elko). Conversely, Nevada metropolitan counties with between 50,000 to 250,000 people (Carson City) had a lower percentage of long commuters than the national average. Characteristics of counties such as relative job strength, spatial distribution of the population within a county and county size could all be potential reasons for individual variations from the national average.

Figure 4. 25+ Minute Commuting Frequencies Based on County Size and Location, US and NV



The Impacts of Recent and Possible Future Price Increases

Certainly, the recent volatility in gasoline prices has taken its toll on Nevada commuters and on the Nevada economy in general. This study shows that commuters in certain areas have been affected more than others and will continue to be affected if prices return to higher levels. In total, metropolitan counties have larger gasoline expenditures than the rest of the state simply because of their large populations. However, the resident commuters of Nevada's "micropolitan" counties, such as Lyon, Nye, and Douglas are each paying more per person due to their long commutes into the major cities. If gas prices increase, residents in these areas outside Las Vegas, Reno, and Carson City may be increasingly impacted by their daily commutes. Increased gasoline prices might change consumption habits and impact local housing markets.

If gasoline prices increase and become more unstable, fuel costs will consume a larger share of individual budgets. Policymakers, especially those in affected micropolitan counties, should consider economic development and land use policies that would help alleviate the need for the long commutes. Increasing the recruitment of industry for job growth, balanced residential and commercial land use planning and controlled residential growth policies could all help ease the financial stress for the residents of these commuter counties.

References

[1]AAA Fuel Gauge Report for Nevada. http://www.fuelgaugereport.com/NVavg.asp. (Accessed June 24, 2008).

[2]U.S. Bureau of the Census. *Means of Transportation to Work for Workers 16+.* 2000 Summary File 3, P30.

[3]U.S. Department of Transportation. *National Household Transportation Survey, 2001.*

[4]U.S. Department of Transportation, Bureau of Transportation Statistics. *Table 4-11, Passenger Car and Motorcycle Fuel Consumption and Travel; and Table 4-12, Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel*.

[5]U.S. Department of Energy. 2000-2008 *Fuel Economy Guide*. http://www.fueleconomy.gov/feg/FEG2000.htm.