

Preliminary examination of gasoline expenditures by gender

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Introduction

As gasoline prices have risen over the past two years at higher than the general inflation rate, the higher price will require consumers to reduce their gasoline consumption or make changes in their consumption patterns regarding other goods and services. This study is a preliminary examination of gasoline expenditures as percent of total annual expenditures on the basis of gender. Using consumer expenditure data from the 2004 *Consumer Expenditures Survey* and the 2005 *Consumer Expenditure Survey* as reported by the Bureau of Labor Statistics, single male and single female expenditures¹ were compared as to percentage of expenditures for gasoline in relation to total annual expenditures. The data is examined in relation to gender and age as well as gender and income as to percentage of expenditure for gasoline purchases. A t-test was used to test the null hypothesis that the means are equal using significance at the .05 level or lower.

During the 2004-2005 survey period, gasoline retail prices in the United States had increased as compared to the 2003-2004 period. The average 2003 and 2004 retail price of regular gasoline was \$1.56/gallon and \$1.85/gallon, respectively. The 2005 national average price for regular gasoline was \$2.27/gallon (EIA, August 2006). According to the BLS all consumer units surveyed had a 19.9 percent increase in expenditures for gasoline/motor oil for the period 2003 to 2004, and a 26 percent increase in expenditures for the period 2004 to 2005 (BLS 2007).

This study examines percent of annual expenditures for gasoline/motor oil based on gender. The Consumer Expenditure Survey provides expenditures by gender as to single females and single males (see Tables 1 & 2). This study examines the consumer units based on percent of annual expenditures for gasoline. For the periods 2003-2004 and 2004-2005, single males had an 18% increase in the percent of their expenditures that were used for gasoline purchases while females had a 15% increase. The 2003-2004 and 2004-2005 survey data could indicate that single males might be more affected by rising prices as they had on the average a higher percent of their total annual expenditures used for gasoline purchases when compared to single females. For 2003-2004, males had averaged 3.4% of their total annual expenditures for gasoline while females averaged 2.6%. For 2004-2005, single males had averaged 4% of their total annual expenditures on gasoline while females averaged 3% (BLS 2004 and 2005). Part of the larger expenditure by single male consumer units can be explained by the fact that they had a higher percentage with at least one vehicle owned as compared to single females for both survey periods (see Tables 1 & 2).

¹ Single male and single female consumer units are based on financial independence.

Table 1
2003-2004 Consumer Expenditure Survey

	Ave All Single Males	Ave. All Single Females
Number of consumer units	15,226	18,581
Income before taxes	\$31,801	\$24,256
Vehicles	1.2	.9
% at least 1 vehicle owned	79	72
Ave. annual expenditures	\$26,325	\$23,117
Ave. expenditure gasoline	\$906	\$603
% of expenditures	3.4	2.6

Table 2
2004-2005 Consumer Expenditure Survey

	Ave All Single Males	Ave. All Single Females
Number of consumer units	15,405	18,592
Income before taxes	\$33,995	\$25,207
Vehicles	1.3	.9
% at least 1 vehicle owned	80	73
Ave. annual expenditures	\$28,157	\$24,467
Ave. expenditure gasoline	\$1,135	\$740
% of expenditures	4.0	3.0

Comparison by Age and Gender

For both survey periods, when comparing by age and gender, single males had a higher percentage of expenditures for gasoline as compared to females except for the age group “under 25” which had no difference in the 2003-2004 survey (see Tables 3 & 4). No significant difference was found for the age groups “under 25” and “45-54” for both survey periods. The rejected hypothesis would indicate that all other age group means were significantly different including the average expenditure for all single males as compared to all single females.

Table 3
2003-2004 Gasoline Expenditures as % of Total Expenditures by Gender and Age

	All	- 25*	25-34	35-44	45-54*	55-64	65 +
Single Males	3.4	4.2	3.6	3.5	3	3.4	3.1
Single Females	2.6	4.2	3.1	2.8	2.7	2.7	2

*significant at the .05 level or lower

Table 4

2004-2005 Gasoline Expenditures as % of Total Expenditures by Gender and Age

	All	- 25*	25-34	35-44	45-54*	55-64	65 +
Single Males	4.0	4.9	4.3	3.8	3.6	4.3	3.7
Single Females	3.0	4.6	3.5	3.2	3.3	3.1	2.3

*significant at the .05 level or lower

Comparison by Income and Gender

As to gender and income, single males had a higher percentage of expenditures for gasoline as compared to females at all income levels for both survey periods (see Tables 5 & 6). No significant difference was found for the income group “less than \$5000”. The rejected hypothesis would indicate that all other income group means were significantly different.

Table 5

2003-2004 Gasoline Expenditures as % of Total Expenditures by Gender and Income

	All	Less \$5000*	\$5000-9999	\$10,000-14,999	\$15,000-19,999	\$20,000-29,999	\$30,000-39,999	\$40,000+
Single Males	3.4	4.1	4.3	3.8	4.3	4	3.9	2.7
Single Females	2.6	3.5	2.8	2.5	2.7	2.8	2.9	2.2

*significant at the .05 level or lower

Table 6

2004-2005 Gasoline Expenditures as % of Total Expenditures by Gender and Income

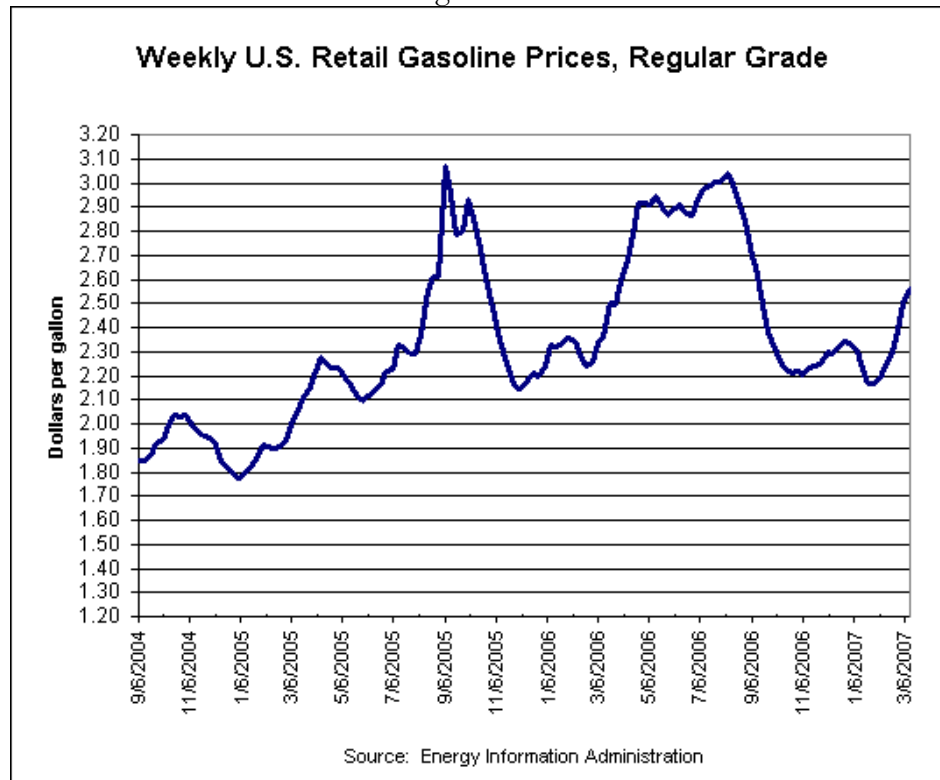
	All	Less \$5000*	\$5000-9,999	\$10,000-14,999	\$15,000-19,999	\$20,000-29,999	\$30,000-39,999	\$40,000+
Single Males	4.0	4.6	5.1	4.5	4.7	4.7	4.8	3.4
Single Females	3.0	3.9	3.3	3.0	3.1	3.3	3.5	2.5

* significant at the .05 level or lower

Implications

While single males are spending a higher percent of their annual expenditures on gasoline as compared to single females for the survey periods 2003-2005, two age groups “under 25” and “45-54” did not have a significant difference. However, when gender was compared with income, only one income group “less than \$5000” had a significance level which would indicate that there was not a significant difference in their average percent of expenditures for gasoline. As single males are spending a higher percentage on gasoline as compared to single females and as gasoline prices seem to be on the rise given the higher levels in 2006 (see Figure 1), males may have to make a greater adjustment to their expenditure patterns when compared to females (EIA, March 2007).

Figure 1



Changes in Expenditures Patterns 2003-2005

While both single males and females had an increase for the percent of the annual expenditures used to purchase gasoline for the two survey periods (see Table 7), both groups showed a decline in average annual percent of expenditures for the major category, transportation. In average dollars spent on transportation males did have an increase for 2003-2004 and 2004-2005, \$4622 and \$4932, respectively (BLS 2004 and 2005). However, single male annual percent of expenditures for the transportation category declined by .1 percent.

Table 7
Changes in Percent of Annual Expenditures for Survey Periods

Expenditure Categories	Single Males			Single Females		
	2003-2004	2004-2005	change	2003-2004	2004-2005	change
Food	12.5	12.2	-.3	11.7	11.4	-.3
Housing	33.9	33.5	-.4	39.2	39.3	.1
Apparel	2.8	2.9	.1	4.3	4.4	.1
Healthcare	5.1	4.9	-.2	8.1	8.2	.1
Entertainment	5.0	5.2	.2	4.0	4.4	.4
Insurance/Pensions	9.6	10.2	.6	7.4	7.4	0
Transportation	17.6	17.5	-.1	14.2	13.3	-.9
Gasoline	3.4	4.0	.6	2.6	3.0	.4

Single females had a decline in both average dollars expended as well as percent of annual expenditures for transportation over the two survey periods. In 2003-2004 single females spent on the average \$3292 for transportation, and in 2004-2005 that average expenditures declined to \$3272. (BLS 2004 and 2005) As to percent of annual expenditures for the transportation category, there was a decline of .9 percent for the two survey periods. While gasoline expenditures increased, the biggest decline in a sub-category was for vehicle purchases which may account for part of the overall decline in expenditure for the transportation category.

The changes in purchases for the two survey periods, tends to indicate that single males preferred to make changes in other purchasing categories rather than decrease overall transportation purchases. However, even though on the average single females increased their percent of expenditures for gasoline, they decreased their expenditures for other sub-categories in regard to transportation.

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