EXHIBIT C

The Effect of Proposed MY 2017-2025 Corporate Average Fuel Economy (CAFE) Standards on the New Vehicle Market Population

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<u>Introduction</u>

New vehicles are a major purchase relative to income for most consumers, who face two significant barriers to entering the new vehicle market. The first barrier of insufficient financial resources to purchase a vehicle without a loan leads to the second barrier of minimum lending standards. Due largely to this insufficient financial resources challenge, a large portion of new vehicle purchases are assisted by financing, which is highly integrated into the new vehicle market. Consumers who do not meet the minimum lending standards are highly likely to lack the financial resources to purchase a new vehicle without financing; thus whether or not a household's financial profile meets the minimum lending standards for the lowest cost available new vehicle is a close approximation of his or her inclusion in the new vehicle market.

Debt service is the only portion of the household expense budget that is considered during the qualification process for nearly all automotive financing, and a maximum debt service to income ratio (DTI) joins credit scores and a maximum loan to value ratio as the three most important specific qualification standards. All three of these standards must be met to qualify under most lending situations. Lending institutions differ in their use of DTI. The flexibility enjoyed by underwriters varies by lending institution and the maximum DTI allowed for standard financing varies from 35 – 40%.[1]

Federal fuel economy mandates are designed to boost the fuel economy of the population of new vehicles offered to consumers, potentially reducing fuel costs. However, the net present value of any future fuel savings, while important for households in the purchase decision, is not relevant to loan qualification. In short, consumers are not able to finance future fuel savings with current borrowing. Lending benchmarks, such as the DTI do not account for fuel costs.

The proposed fuel economy standards for model years (MY) 2017– 2025 will increase the gross up-front cost to consumers of a new vehicle purchase due to higher costs of production and related costs. By increasing the cost of new vehicles without providing offsetting value in the context of the lending process, proposed CAFE standards will increase DTI ratios and cause some consumers to no longer qualify for a loan on the least expensive new vehicle, thus removing them from the new vehicle market.

We seek to determine how significant this group is by focusing on a consumer's ability to meet one of the standards, the maximum debt to income ratio. This analysis is not concerned with the

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[1] Standard financing DTI based on review of Bankrate.com and discussions with the financial services industry.

choices consumers make within a given market; it is concerned with whether or not a consumer is included or excluded from a market. As such, the analysis assumes the most lenient qualification; a consumer is considered part of a market if he or she has the financial resources to purchase at least one of the products for sale in that market. Specifically, our analysis assumes a household is part of the new vehicle market if its debt to income ratio would remain at or below the lending standards maximum to acquire a loan to purchase the least costly new vehicle.

Analysis Method

The Bureau of Labor Statistics Consumer Expenditure Survey (CES) records the financial profile and purchase behavior of a large sample of consumers each year. We are utilizing the 2008 and 2009 CES for this analysis.[2] Each household reports information sufficient to calculate a current debt to income ratio. This includes payments on automobile loans, on residential mortgages, and other consumer loans, as well as all significant sources of income. Payments on automobile loans are excluded to simulate each consumer unit's financial profile prior to considering a new vehicle purchase. Household financial profiles are adjusted to approximate the transition from the time of the survey to 2010.

As discussed, our approximation of the new vehicle market population is the number of licensed drivers with sufficient financial resources to meet a debt to income ratio lending benchmark when purchasing the lowest cost new vehicle. Currently, the lowest cost new vehicle is the 2011 Chevrolet Aveo. Including incentives, taxes, and fees, this vehicle costs approximately $12,750 in 2010 dollars.

Each consumer unit is assumed to have $1,000 in liquid savings available for a down payment, leading to minimum loan size of $11,750. We assume a term of 72 months for the loan needed for the purchase of this vehicle, at the current prevailing annual interest rate of 4%, leading to a monthly payment of $183.

We assume a maximum debt to income ratio at which a borrower can receive standard financing of 40%. This includes all debt service payments for mortgages and consumer loans as a percentage of pre-tax income. Households with a higher debt to income ratio may be able to obtain a loan, but such loans would carry above market interest costs and are not considered for this analysis.

The analysis is structured to produce conservative estimates of the number of households and licensed drivers removed from the new vehicle market by proposed fuel economy mandate related cost increases. CES survey data may potentially underestimate household debt service to the extent that survey respondents fail to report all outstanding loans. Current interest rates are historically low, and are thus likely to be higher in the MY 2017-2025 timeframe. Lastly, the analysis assumes the financial resources of the household are available to each licensed driver

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[2] 2010 survey data was not available for purposes of this analysis.

within it, should they attempt to procure financing for a potential new vehicle purchase. To the extent that this is not the case, the estimation method will overestimate the financial resources available to some respondents. No changes to real household income levels or the relative price of new vehicles are assumed other than those caused by the proposed regulation. Both of these are likely to increase in the future and the relative levels of these increases will cause this analysis to either mildly overstate or understate the findings.[3]

Findings

Based on analysis of the CES data, income (Figure 1) and affordability density (Figure 2) curves are estimated, representing the percentage of households with a DTI at or below a 40% maximum after hypothetical vehicle purchases of varying costs are added to the family budget. An estimated 93% of all consumer units have a financial profile that would allow them to meet the 40% maximum debt to income ratio after purchasing the current minimum cost new vehicle ($12,750).

When hypothetical scenarios are tested in which the minimum cost of a new vehicle increases, the portion of households with sufficient financial resources declines. For example, if the minimum cost of a new vehicle were to increase from the current $12,750 to $17,750, the portion of consumer units who have the financial resources to purchase such a vehicle while maintaining a debt to income ratio at or below 40% would decrease from 92.8% to 88.5%, or 4.3 ppts (Figure 3). This represents 5 million households, or 10.6 million of the 245 million licensed drivers expected for MY 2025.[4]

The proposed MY 2017-25 fuel economy mandates will increase the price of new vehicles, though credible estimates of the size of the increase vary. The National Highway Traffic Safety Administration (NHTSA) estimates it will cost an average of $2,937 in 2010 dollars to comply with the MY 2011-MY 2025 standards. This figure includes $95 for MY 2011,[5] $945 for MY 2016,[6] and $1,896 for MY 2025 rule.[7]

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[3] For example, if real household incomes increase significantly more than real new vehicle prices (excluding the cost of meeting the new regulation) this would increase the number of households within the market both before and after the inclusion of the CAFE compliance costs, such that our findings may overstate or understate the impact of those costs on the new vehicle market population.

[4] Estimated from Federal Highway Administration Data for 1970 – 2008, based on a declining rate of increase.

[5] 74 Fed. Reg. 14196, 14413 (Mar. 30, 2009)

[6] 75 Fed. Reg 25324, 25635 (May 7, 2010)

[7] 76 Fed. Reg 74854, 74889 (Dec. 1, 2011)

We evaluate two other cost scenarios: $4,803 in 2010 dollars reflecting the NHTSA costs referred to above scaled up using RPE adjustments,[8] and a $12,349 average per vehicle "worse case scenario."[9]

Based on the NHTSA $2,937 cost estimate, the proposal will increase the minimum cost of a new vehicle to approximately $15,700 in 2010 dollars and remove 3.1-4.2 million households or 5.8-6.8 million licensed drivers from the new vehicle market by 2025, assuming incomes, non-vehicle debt burdens and the 40% maximum debt to income ratio standard remain constant. A $4,803 cost increase would remove 5.4-5.9 million households or 10.0-11.0 million licensed drivers from the new vehicle market by 2025. Lastly, a $12,349 cost increase would remove 14.9 million households or approximately 27.7 million licensed drivers from the new vehicle market by 2025.

A significant cost increase would have impacts throughout the automobile market. The number of licensed drivers belonging to a household with sufficient financial resources to purchase vehicles at higher costs would decrease (Figure 4). 6.6, 10.5 and 26.4 million licensed drivers would be removed from qualifying for the purchase of the minimum cost new vehicle[10] which accommodates more than 5 people (or more than 2 child safety seats) assuming the $2,937, $4,803 and $12,349 cost increases, respectively. The number of licensed drivers that fall out of affordability declines as the current cost of a vehicle increases. For example, 5.8, 9.4, and 23.5 million licensed drivers would be removed from qualifying for the purchase of the minimum cost luxury vehicle[11], assuming the $2,937, $4,803, and $12,349 cost increases, respectively.

Used vehicle demand would be pressured upward by any significant price increase in the new vehicle market. A portion of this pressure would come from the people who were removed from the new vehicle market by falling below the loan qualification threshold. Due to the distinctions between the two markets, an estimation of the price increase and resulting reduction in the pool of qualifying buyers for particular benchmark used vehicles is beyond the scope of this analysis. However, it can be assumed that a significant number of licensed drivers at low income levels would be impacted by expected new market cost increases leading to used vehicle price increases.

The impact of CAFE based cost increases would vary by state. We estimate the largest portion (4.3%, representing 228,000 licensed drivers) of households removed from the new vehicle market for Tennessee, based on the $2,937 cost estimate (Figure 6). Kentucky is also estimated to lose a relatively large portion of households (4.2% representing 145,000 licensed drivers).

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[8] Michael Whinihan, Ph. D., Dean Drake and David Aldorfer, "Retail Price Equivalents and Incremental Cost Multipliers: Theory and Reality."
[9] NADA/ATD, *A Look Back At EPA's Cost and Other Impact Projections for MY 2004-2010 Heavy-Duty Truck Emissions Standards*, February, 2012. This scenario is based on an evaluation of EPA's failure to accurately predict the per-vehicle regulatory costs associated with its MY2004-2010 commercial truck tailpipe standards.
[10] Currently selling for approximately $20,000.
[11] Currently selling for approximately $35,000.

Figure 1: Distribution of Household Monthly Income before Taxes
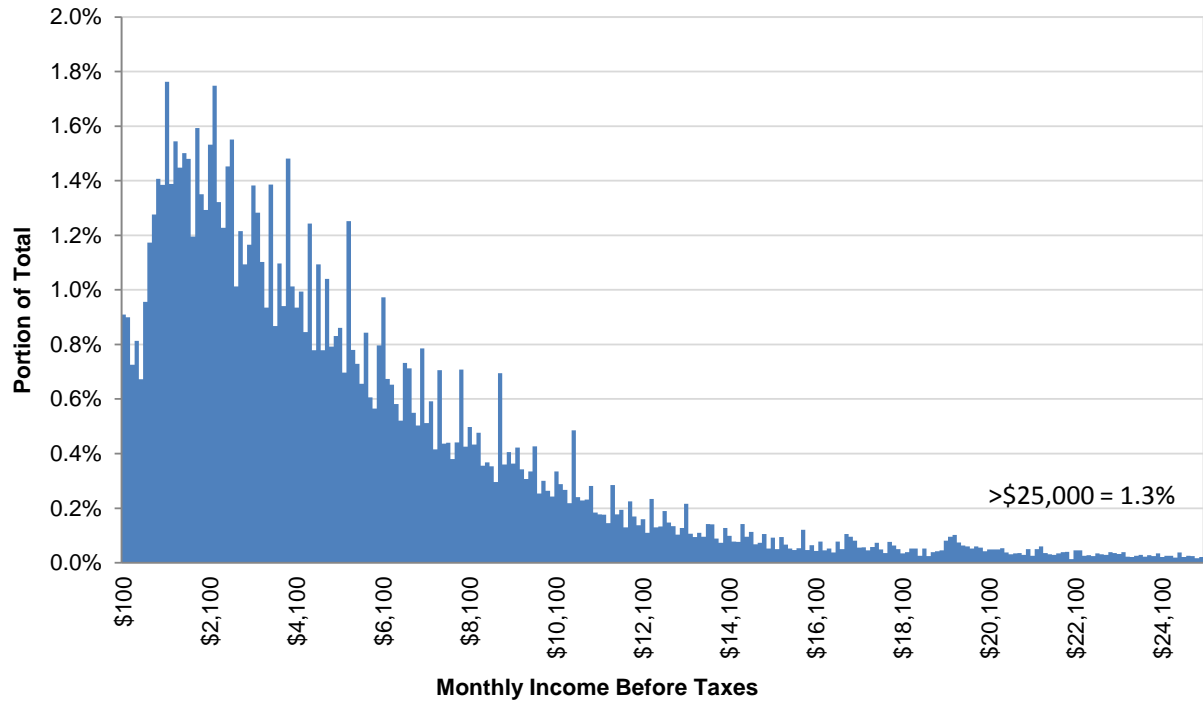
>$25,000 = 1.3%

Figure 2: Portion of Households below Maximum Debt to Income Ratio after Vehicle Purchase
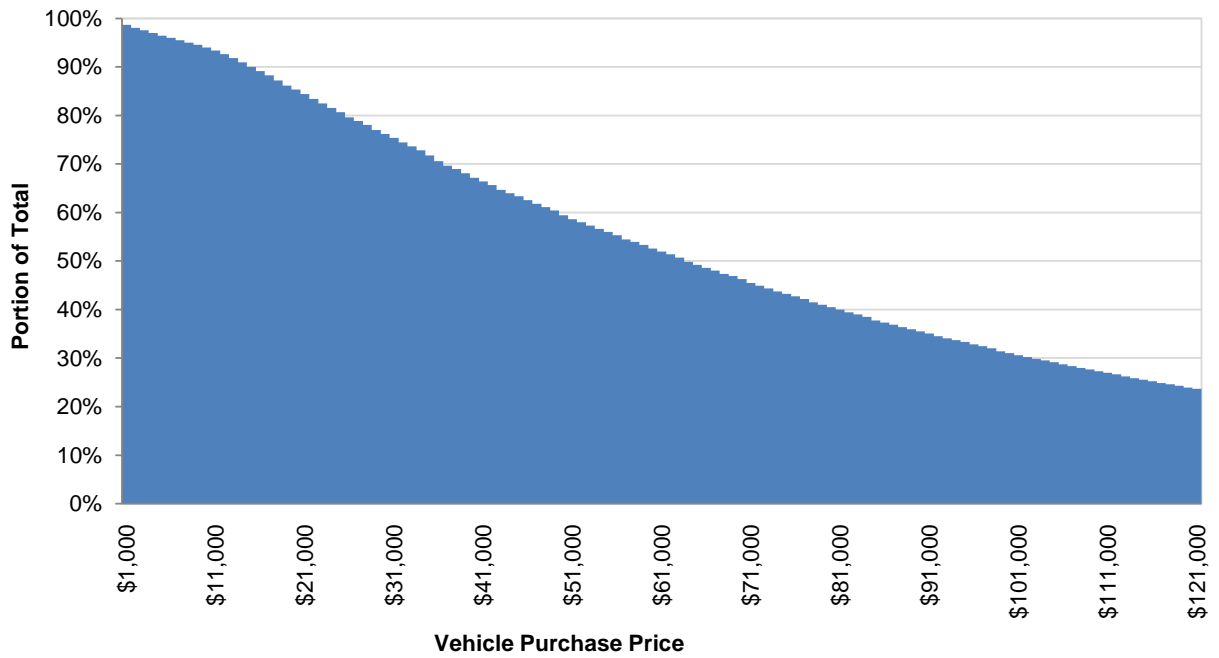

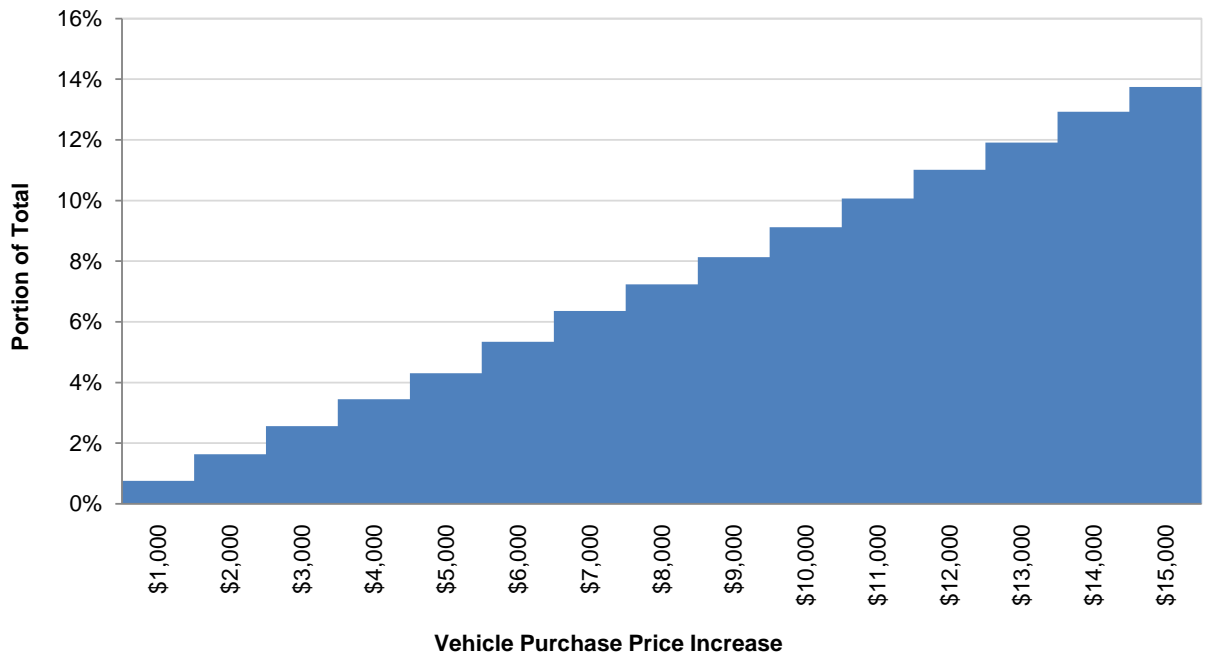**Figure 3: Portion of Households Removed from New Vehicle Market after Price Increases from the $12,750 Benchmark**

Figure 4: Number of Licensed Drivers Who Move above Maximum DTI

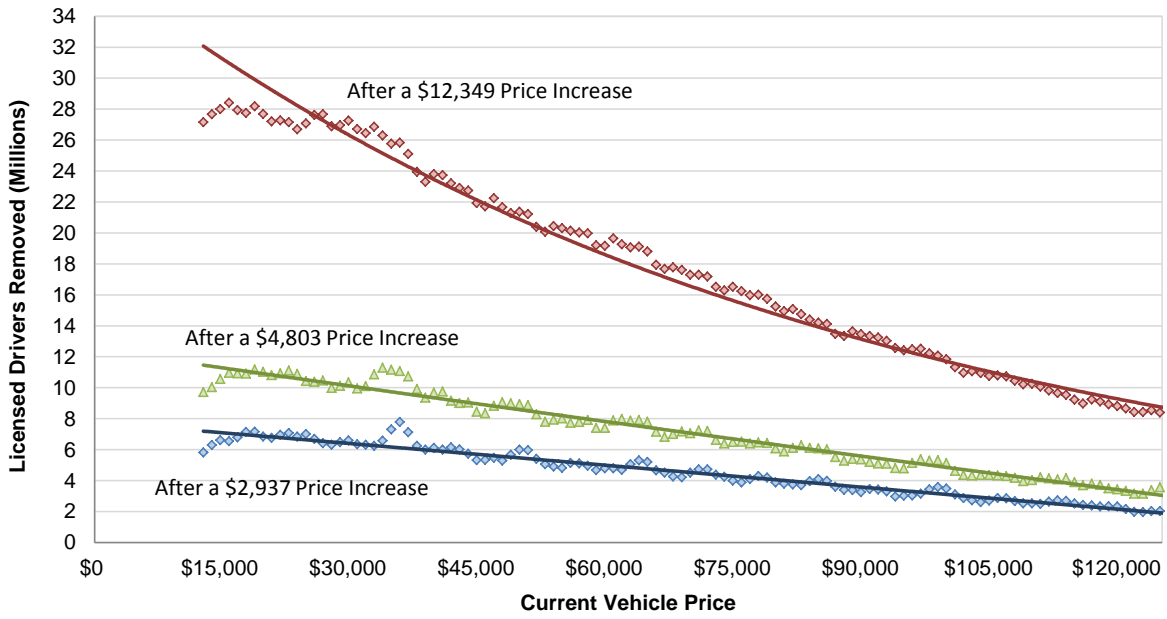| State*	Price ↑ $2,937		Price ↑ $4,803		Price ↑ $12,349	
	% of Households Removed	Quantity of Licensed Drivers Removed in 1,000s	% of Households Removed	Quantity of Licensed Drivers Removed in 1,000s	% of Households Removed	Quantity of Licensed Drivers Removed in 1,000s
AK	1.1%	7	1.9%	11	7.1%	42
AL	2.9%	130	4.1%	186	14.3%	641
AZ	1.9%	88	2.8%	135	12.4%	590
CA	2.1%	580	3.4%	970	9.7%	2735
CO	2.4%	88	3.8%	141	11.8%	438
CT	1.1%	37	1.8%	59	5.7%	190
DC	1.1%	4	3.0%	11	7.8%	30
DE	2.8%	20	4.1%	30	6.8%	49
FL	3.1%	497	4.9%	793	12.3%	1968
GA	2.6%	188	4.6%	329	11.6%	828
HI	1.8%	18	2.7%	28	5.1%	53
ID	1.3%	15	2.1%	24	8.4%	96
IL	2.7%	269	4.0%	398	10.8%	1084
IN	1.2%	67	2.2%	125	9.8%	554
KS	0.3%	8	0.7%	18	3.7%	92
KY	4.2%	145	6.7%	234	15.3%	534
LA	2.4%	94	4.1%	158	12.2%	476
MA	1.9%	107	3.2%	188	10.0%	579
MD	0.8%	37	1.6%	69	6.0%	265
ME	2.4%	28	4.0%	47	13.3%	155
MI	2.0%	176	3.4%	301	11.5%	1014
MN	0.7%	27	1.4%	52	7.0%	263
MO	1.6%	79	3.0%	147	7.4%	365
NE	1.8%	30	3.6%	59	11.6%	189
NH	2.6%	32	3.4%	41	8.8%	106
NJ	1.7%	125	2.6%	183	9.1%	649
NV	1.4%	26	2.2%	40	8.8%	164
NY	3.1%	442	5.1%	721	12.8%	1804
OH	2.4%	228	3.8%	359	10.5%	1001
OR	2.4%	78	3.2%	104	8.6%	279
PA	2.1%	218	3.4%	353	11.2%	1171
SC	3.0%	109	4.9%	179	12.3%	445
TN	4.3%	228	6.7%	350	15.5%	812
TX	2.1%	349	3.3%	557	10.1%	1690
UT	2.4%	46	4.3%	83	13.8%	266
VA	1.9%	122	2.7%	170	7.4%	466
WA	2.0%	108	2.7%	150	6.7%	365
WI	3.1%	147	4.4%	208	9.2%	432

Figure 5: Portion of Households and Quantity of Licensed Drivers Removed from the New Vehicle Market by 2025 based on CAFE based Price Increase Scenarios

*Some states omitted due to lack of sample