

Are Consumers Myopic? Evidence from New and Used Car Purchases

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ONLINE APPENDIX

Table A1: New car fuel economy quartile cutoffs

Modelyear	MPG Q1 Mean	25th Pctile	MPG Q2 Mean	50th Pctile	MPG Q3 Mean	75th Pctile	MPG Q4 Mean
1997	16.3	18.6	20.1	21.3	23.0	24.7	27.7
1998	16.1	17.9	19.6	21.3	22.6	24.3	27.2
1999	15.8	17.9	19.6	21.6	22.7	24.3	27.2
2000	15.9	17.9	19.4	20.9	22.5	24.0	27.2
2001	15.7	17.2	18.9	20.6	22.1	23.7	27.2
2002	15.6	17.2	18.9	20.6	22.0	23.3	27.1
2003	15.5	17.2	19.0	20.6	22.2	23.5	27.5
2004	16.0	17.6	19.1	20.6	22.2	24.0	27.9
2005	15.9	17.9	19.3	20.9	22.2	24.0	27.8
2006	16.1	17.6	18.9	20.6	22.0	23.8	27.7
2007	16.8	18.3	19.9	21.3	22.8	25.0	28.8
2008	16.6	18.9	20.0	21.6	23.2	25.4	29.5

Table A2: New Cars: Price results[†]

Variable	Coefficient/SE
GasPrice*MGP Quart 1	-250** (72)
GasPrice*MGP Quart 2	-96** (37)
GasPrice*MGP Quart 3	-11 (26)
GasPrice*MGP Quart 4	104* (47)
PctLessHighSchool	163+ (83)
PctCollege	-51 (58)
Income	.0015** (.00044)
MedianHHSIZE	43** (16)
MedianHouseValue	.00012 (.000084)
VehiclePerHH	402** (120)
TravelTime	-.82 (1.1)
Weekend	-13* (6)
EndOfMonth	-135** (4.3)
EndOfYear	-78** (17)
Constant	27246** (79)
Observations	1,863,403
R-squared	0.053

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Not reported: Region \times year, region \times month-of-year, car type, and car age fixed effects. We also don't report house ownership, occupation, English proficiency, and race of buyers.

Table A3: Used Cars: Price results[†]

Variable	(1) Coefficient/SE	(2) Coefficient/SE
GasPrice*MGP Quart 1	-1182** (42)	-783** (49)
GasPrice*MGP Quart 2	-101 (62)	118* (54)
GasPrice*MGP Quart 3	468** (36)	369** (33)
GasPrice*MGP Quart 4	763** (44)	360** (36)
PctLessHighSchool	239** (69)	266** (70)
PctCollege	-4.5 (50)	-.046 (49)
Income	.0017** (.0005)	.0019** (.0005)
MedianHHSIZE	26 (22)	25 (23)
MedianHouseValue	.000056 (.00014)	.00011 (.00014)
VehiclePerHH	162 (157)	123 (148)
TravelTime	.27 (.72)	.15 (.73)
Weekend	120** (10)	121** (11)
EndOfMonth	-71** (6.3)	-71** (6.5)
EndOfYear	-18 (23)	-29 (23)
Constant	24010** (252)	23125** (260)
Odometer spline interaction	Segment × PADD	MPG Quartile × PADD
Observations	1,096,874	1,096,874
R-squared	0.718	0.717

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Not reported: Region × year and PADD × segment × year fixed effects, car type fixed effects, and odometer spline. We also don't report house ownership, occupation, English proficiency, and race of buyers.

Table A4: New Cars: Market share results[†]

	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
GasPrice	-.057** (.0048)	-.014** (.004)	.0002 (.0027)	.071** (.0058)
PctLessHighSchool	.044** (.015)	.031** (.0089)	-.027* (.013)	-.047* (.02)
PctCollege	-.061** (.013)	.0079 (.011)	.0033 (.013)	.05** (.018)
Income	-5.9e-08 (8.7e-08)	3.4e-07** (9.4e-08)	3.0e-07** (1.1e-07)	-5.8e-07** (1.2e-07)
MedianHHSIZE	.01** (.0029)	.0048+ (.0025)	-.0067 (.0048)	-.0083+ (.0047)
MedianHouseValue	7.2e-08* (2.9e-08)	3.3e-08+ (1.7e-08)	1.3e-08 (8.7e-09)	-1.2e-07** (3.7e-08)
VehiclePerHH	.016 (.022)	-.015 (.022)	.042 (.026)	-.043 (.033)
TravelTime	-.0002 (.00019)	-.00037** (.000098)	-.00025* (.00013)	.00082** (.00022)
Weekend	-.02** (.0019)	-.0046** (.0016)	-.0022 (.0016)	.027** (.0022)
EndOfMonth	.0058** (.00099)	.0033** (.0011)	.0048** (.001)	-.014** (.0012)
EndOfYear	-.0043 (.0027)	-.0058** (.0022)	-.0013 (.0028)	.011** (.004)
Constant	.33** (.017)	.23** (.013)	.27** (.01)	.18** (.018)
Observations	1,863,403	1,863,403	1,863,403	1,863,403
R-squared	0.034	0.011	0.009	0.040

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Not reported: Region \times year, region \times month-of-year, and car age fixed effects. We also don't report house ownership, occupation, English proficiency, and race of buyers.

Table A5: Used Cars: Transaction share results[†]

	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
GasPrice	.00018 (.0069)	-.0077 (.0058)	.017 (.011)	-.009 (.0074)
PctLessHighSchool	.006 (.01)	.023+ (.012)	-.018 (.024)	-.011 (.02)
PctCollege	-.016 (.01)	-.02 (.014)	-.022 (.015)	.058** (.014)
Income	-2.0e-07* (8.7e-08)	2.6e-07** (8.2e-08)	2.7e-07* (1.1e-07)	-3.3e-07** (9.7e-08)
MedianHHSIZE	.0018 (.0024)	-.0042+ (.0024)	.0041 (.0034)	-.0018 (.0027)
MedianHouseValue	2.0e-08 (1.3e-08)	2.0e-08+ (1.1e-08)	-7.6e-08** (1.6e-08)	3.6e-08** (1.3e-08)
VehiclePerHH	.0037 (.026)	.03 (.031)	-.11* (.055)	.08 (.053)
TravelTime	.000029 (.00013)	-.00016 (.00013)	-.00011 (.00018)	.00023 (.00019)
Weekend	-.0076** (.0014)	-.0042* (.0019)	.0056* (.0022)	.0062** (.0019)
EndOfMonth	.0038+ (.0021)	-.0051** (.0018)	.0019 (.0021)	-.00061 (.0019)
EndOfYear	-.011** (.0028)	.0042 (.0036)	.00083 (.0036)	.0059* (.0029)
Constant	.014 (.02)	.027 (.018)	-.031 (.026)	.99** (.017)
Observations	1,096,874	1,096,874	1,096,874	1,096,874
R-squared	0.485	0.224	0.235	0.531

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Not reported: Region \times year, region \times month-of-year, and car age fixed effects. We also don't report house ownership, occupation, English proficiency, and race of buyers.

Table A6: Effect of predicted gasoline price expectations in price regression[†]

New Cars				
Gas Price Variable	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
Current Price (original specification)	-250** (72)	-96** (37)	-11 (26)	104* (47)
Gasoline Price Future Delivery in 6 months	-456** (96)	-167** (48)	-56+ (32)	113+ (63)
Gasoline Price Future Delivery in 12 months	-536** (102)	-222** (53)	-92* (36)	86 (66)
Gasoline Price Future Delivery in 24 months	-583** (106)	-251** (56)	-108** (38)	80 (68)
Used Cars				
Gas Price Variable	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
Current Price (original specification)	-1182** (42)	-101 (62)	468** (36)	763** (44)
Gasoline Price Future Delivery in 6 months	-1365** (58)	-168* (66)	520** (40)	905** (47)
Gasoline Price Future Delivery in 12 months	-1414** (60)	-204** (66)	505** (42)	905** (50)
Gasoline Price Future Delivery in 24 months	-1495** (63)	-269** (66)	455** (44)	867** (52)

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Table A7: Effect of predicted gasoline price expectations in new car market share regression[†]

New Cars				
Gas Price Variable	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
Current Price (original specification)	-.057** (.0048)	-.014** (.004)	.0002 (.0027)	.071** (.0058)
Gasoline Price Future Delivery in 6 months	-.065** (.006)	-.0024 (.008)	.0014 (.0041)	.066** (.009)
Gasoline Price Future Delivery in 12 months	-.067** (.0066)	-.0046 (.0096)	.00035 (.0047)	.071** (.01)
Gasoline Price Future Delivery in 24 months	-.062** (.0071)	-.0061 (.011)	-.003 (.0051)	.071** (.012)

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Table A8: Effect of gasoline price aggregation in new car market share regression[†]

New Cars				
Gas Price Aggregation	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
4-digit ZIP	-.044** (.0076)	-.016** (.0039)	.00065 (.0026)	.06** (.0078)
DMA (original specification)	-.057** (.0048)	-.014** (.004)	.0002 (.0027)	.071** (.0058)
PADD	-.059** (.005)	-.013** (.0049)	.00033 (.0032)	.072** (.0058)
National	-.057** (.0055)	-.012* (.0054)	-.0019 (.0031)	.07** (.007)

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Table A9: Effect of gasoline price aggregation in price regression[†]

New Cars				
Gas Price Aggregation	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
4-digit ZIP	-220** (68)	-84** (31)	-7 (28)	110* (49)
DMA (Base Case)	-250** (72)	-96** (37)	-11 (26)	104* (47)
PADD	-358** (74)	-88* (38)	34 (30)	150** (37)
National	-682** (35)	-250** (35)	36 (25)	387** (14)
Used Cars				
Gas Price Aggregation	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
4-digit ZIP	-1156** (46)	-95 (65)	454** (40)	735** (46)
DMA (Base Case)	-1182** (42)	-101 (62)	468** (36)	763** (44)
PADD	-1266** (49)	-121* (58)	524** (32)	859** (36)
National	-1364** (57)	-134* (61)	569** (31)	918** (35)

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Table A10: OLS and IV results in market share specification[†]

	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
New Cars				
DMA-level gas prices OLS (original)	-.057** (.0048)	-.014** (.004)	.0002 (.0027)	.071** (.0058)
PADD-level gas prices OLS	-.059** (.005)	-.013** (.0049)	.00033 (.0032)	.072** (.0058)
PADD-level gas prices IV	-.065** (.0067)	.0024 (.0088)	.0011 (.0045)	.061** (.011)

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Table A11: OLS and IV results in price specification[†]

	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3	MPG Quartile 4
New Cars				
DMA-level gas prices OLS (original specif.)	-250** (72)	-96** (37)	-11 (26)	104* (47)
PADD-level gas prices OLS	-358** (74)	-88* (38)	34 (30)	150** (37)
PADD-level gas prices IV	-484** (24)	-85** (24)	58** (22)	226** (20)
Used Cars				
DMA-level gas prices OLS (original specif.)	-1182** (42)	-101 (62)	468** (36)	763** (44)
PADD-level gas prices OLS	-1266** (49)	-121* (58)	524** (32)	859** (36)
PADD-level gas prices IV	-1751** (23)	-394** (22)	519** (21)	1055** (22)

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (robust and clustered at the DMA level) in parentheses.

Table A12: mlogit estimates (baseline is MPG Quartile 4)[†]

	New Cars		
	MPG Quartile 1	MPG Quartile 2	MPG Quartile 3
GasPrice	-.55** (.038)	-.3** (.033)	-.22** (.023)
PctLessHighSchool	.31* (.12)	.27** (.089)	-.034 (.093)
PctCollege	-.52** (.11)	-.15 (.1)	-.19* (.078)
Income	2.3e-06** (7.9e-07)	3.8e-06** (6.7e-07)	3.7e-06** (5.9e-07)
MedianHHSIZE	.086** (.021)	.044* (.02)	-.01 (.03)
MedianHouseValue	7.4e-07** (2.8e-07)	5.3e-07** (1.9e-07)	4.2e-07** (1.4e-07)
VehiclePerHH	.15 (.18)	.05 (.18)	.31 (.19)
TravelTime	-.004** (.0014)	-.0042** (.00099)	-.0033** (.0009)
Weekend	-.18** (.015)	-.1** (.012)	-.088** (.0092)
EndOfMonth	.054** (.0072)	.045** (.0083)	.056** (.0055)
EndOfYear	-.058** (.021)	-.061** (.02)	-.039+ (.021)
Observations	1,863,403		
Log pseudolikelihood	-2,483,741.3		

[†] ** significant at 1%; * significant at 5%; + significant at 10% level. SEs (clustered at the DMA level) in parentheses.

Not reported: Region \times year and region \times month-of-year fixed effects. We also don't report house ownership, occupation, English proficiency, and race of buyers.

Table A13: Regions and DMAs

<p><u>Baltimore/Washington</u> Baltimore Harrisonburg Richmond-Petersburg Salisbury Washington, Dc, Hagerstown <u>Charlotte</u> Bluefield-Beckley-Oak Hill Charleston, SC Charlotte Columbia, SC Florence-Myrtle Beach Greensboro-H.Point-W.Salem Greenville-N.Bern-Washngtn Greenville-Spart-Ashevl-And Raleigh-Durham Tri-Cities, TN-VA Wilmington <u>Cincinnati</u> Charleston-Huntington Cincinnati Lexington <u>Cleveland</u> Cleveland Parkersburg Wheeling-Steubenville Youngstown <u>Colorado</u> Cheyenne-Scottsbluf-Strlng Colorado Springs-Pueblo Denver Grand Junction-Montrose <u>Columbus</u> Columbus, OH Dayton Lima Toledo Zanesville <u>Dakotas</u> Billings Butte-Bozeman Casper-Riverton Fargo-Valley City Glendive Great Falls Helena Minot-Bismarck-Dickinson Missoula Rapid City Sioux City Sioux Falls(Mitchell) <u>Detroit</u> Alpena Detroit Flint-Saginaw-Bay City Grand Rapids-Kalmzoo-B.Crk Lansing Traverse City-Cadillac <u>Georgia</u> Albany, GA Atlanta Augusta Columbus, GA Macon Savannah</p>	<p><u>Gulf</u> Alexandria, LA Anniston Baton Rouge Biloxi-Gulfport Birmingham Dothan Hattiesburg-Laurel Jackson, MS Lafayette, LA Lake Charles Meridian Mobile-Pensacola Monroe-El Dorado Montgomery New Orleans Panama City Tallahassee-Thomasville Tuscaloosa <u>Hawaii</u> Honolulu <u>Illinois/Indiana</u> Champaign&Sprngfld-Decatur Chicago Davenport-R.Island-Moline Peoria-Bloomington Rockford <u>Indianapolis</u> Evansville Ft. Wayne Indianapolis Lafayette, IN Louisville South Bend-Elkhart Terre Haute <u>Kansas City</u> Kansas City Lincoln & Hstngs-Krny Plus North Platte Omaha Springfield, MO St. Joseph Topeka Wichita-Hutchinson Plus <u>Miami</u> Miami-Ft. Lauderdale West Palm Beach-Ft. Pierce <u>Minneapolis</u> Duluth-Superior Green Bay-Appleton La Crosse-Eau Claire Madison Mankato Marquette Milwaukee Minneapolis-St. Paul Rochestr-Mason City-Austin Wausau-Rhineland <u>Missouri</u> Cedar Rapids-Waterloo&Dubq Columbia-Jefferson City Des Moines-Ames Ottumwa-Kirksville Paducah-C.Gird-Harbg-Mt VN Quincy-Hannibal-Keokuk St. Louis</p>	<p><u>Nevada</u> Boise Idaho Falls-Pocatello Las Vegas Reno Salt Lake City Twin Falls <u>New England</u> Bangor Boston Burlington-Plattsburgh Portland-Auburn Presque Isle Providence-New Bedford Springfield-Holyoke <u>New York</u> Albany-Schenectady-Troy Binghamton Elmira Hartford & New Haven New York Rochester, NY Syracuse Utica Watertown <u>Norfolk/Virginia Beach</u> Charlottesville Norfolk-Portsmth-Newpt Nws Roanoke-Lynchburg <u>Northern California</u> Chico-Redding Eureka Fresno-Visalia Monterey-Salinas Sacramnto-Stkton-Modesto San Francisco-Oak-San Jose <u>Oklahoma</u> Amarillo Ft. Smith-Fay-Sprngdl-Rgrs Joplin-Pittsburg Oklahoma City Tulsa Wichita Falls & Lawton <u>Orlando</u> Gainesville Jacksonville, Brunswick Orlando-Daytona Bch-Melbrn <u>Pennsylvania</u> Harrisburg-Lncstr-Leb-York Philadelphia Wilkes Barre-Scranton <u>Phoenix</u> Albuquerque-Santa Fe Phoenix Tucson(Nogales) <u>Pittsburgh</u> Buffalo Clarksburg-Weston Erie Johnstown-Altoona Pittsburgh <u>San Antonio</u> Harlingen-Wslco-Brnsvl-Mca Laredo San Angelo San Antonio</p>	<p><u>Seattle/Portland</u> Bend, OR Eugene Medford-Klamath Falls Portland, OR Seattle-Tacoma Spokane Yakima-Pasco-Rchlnd-Knnwck <u>South Texas</u> Austin Beaumont-Port Arthur Corpus Christi Houston Victoria <u>Southern California</u> Bakersfield Los Angeles Palm Springs San Diego SantaBarbra-SanMar-SanLuOb Yuma-El Centro <u>Tampa</u> Ft. Myers-Naples Tampa-St. Pete,Sarasota <u>Tennessee</u> Bowling Green Chattanooga Columbus-Tupelo-West Point Greenwood-Greenville Huntsville-Decatur,Flor Jackson, TN Jonesboro Knoxville Memphis Nashville <u>Texas</u> Abilene-Sweetwater Dallas-Ft. Worth El Paso Little Rock-Pine Bluff Lubbock Odessa-Midland Sherman-Ada Shreveport Tyler-Longview(Lfkn&Ncgd) Waco-Temple-Bryan</p>
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