

ONLINE APPENDIX

Table OA-1: New Cars: Retail prices, wholesale prices, and dealer margins by MPG bin[†]

Variable		MPG Bin 1	MPG Bin 2	MPG Bin 3	MPG Bin 4	MPG Bin 5	Average
BMW	Retail prices	\$ 73,452	\$ 58,797	\$ 43,347	\$ 42,032	\$ 26,437	\$ 44,641
	Wholesale prices	\$ 68,677	\$ 56,120	\$ 41,482	\$ 40,394	\$ 24,404	\$ 42,544
	Dealer margins	\$ 4,774	\$ 2,677	\$ 1,865	\$ 1,638	\$ 2,033	\$ 2,097
Chrysler	Retail prices	\$ 26,735	\$ 25,323	\$ 23,323	\$ 19,321	\$ 15,718	\$ 24,342
	Wholesale prices	\$ 25,495	\$ 24,352	\$ 22,282	\$ 18,570	\$ 15,026	\$ 23,312
	Dealer margins	\$ 1,239	\$ 971	\$ 1,041	\$ 751	\$ 692	\$ 1,030
Ford	Retail prices	\$ 28,925	\$ 25,346	\$ 23,259	\$ 21,712	\$ 16,521	\$ 24,688
	Wholesale prices	\$ 27,587	\$ 24,131	\$ 22,227	\$ 20,801	\$ 15,720	\$ 23,547
	Dealer margins	\$ 1,338	\$ 1,216	\$ 1,032	\$ 911	\$ 801	\$ 1,141
GM	Retail prices	\$ 32,946	\$ 28,561	\$ 29,113	\$ 20,299	\$ 16,198	\$ 26,610
	Wholesale prices	\$ 31,323	\$ 27,226	\$ 27,638	\$ 19,251	\$ 15,417	\$ 25,305
	Dealer margins	\$ 1,622	\$ 1,335	\$ 1,475	\$ 1,048	\$ 782	\$ 1,305
Honda	Retail prices	\$ 30,966	\$ 32,912	\$ 29,447	\$ 23,927	\$ 19,061	\$ 23,570
	Wholesale prices	\$ 29,786	\$ 30,997	\$ 27,645	\$ 22,801	\$ 18,320	\$ 22,432
	Dealer margins	\$ 1,180	\$ 1,915	\$ 1,802	\$ 1,127	\$ 742	\$ 1,138
Hyundai	Retail prices	\$ 23,176	\$ 21,223	\$ 20,843	\$ 17,366	\$ 15,141	\$ 17,648
	Wholesale prices	\$ 22,281	\$ 20,479	\$ 20,132	\$ 16,688	\$ 14,661	\$ 17,043
	Dealer margins	\$ 895	\$ 744	\$ 711	\$ 678	\$ 480	\$ 605
Mazda	Retail prices	\$ 21,113	\$ 24,963	\$ 22,553	\$ 19,934	\$ 17,603	\$ 20,621
	Wholesale prices	\$ 20,174	\$ 24,067	\$ 21,717	\$ 19,187	\$ 17,065	\$ 19,901
	Dealer margins	\$ 939	\$ 896	\$ 836	\$ 747	\$ 538	\$ 720
Mercedes	Retail prices	\$ 67,526	\$ 60,833	\$ 47,185	\$ 39,914	\$ 51,988	\$ 53,645
	Wholesale prices	\$ 64,871	\$ 58,439	\$ 45,843	\$ 38,571	\$ 49,889	\$ 51,730
	Dealer margins	\$ 2,655	\$ 2,394	\$ 1,341	\$ 1,343	\$ 2,099	\$ 1,915
Nissan	Retail prices	\$ 30,051	\$ 27,829	\$ 29,889	\$ 23,045	\$ 18,320	\$ 25,027
	Wholesale prices	\$ 28,710	\$ 26,664	\$ 28,642	\$ 22,050	\$ 17,663	\$ 23,989
	Dealer margins	\$ 1,341	\$ 1,165	\$ 1,247	\$ 995	\$ 657	\$ 1,038
Toyota	Retail prices	\$ 36,389	\$ 29,258	\$ 31,845	\$ 28,064	\$ 19,808	\$ 25,888
	Wholesale prices	\$ 34,589	\$ 27,870	\$ 30,383	\$ 26,856	\$ 19,037	\$ 24,759
	Dealer margins	\$ 1,799	\$ 1,389	\$ 1,462	\$ 1,208	\$ 771	\$ 1,129
VW	Retail prices	\$ 52,356	\$ 43,228	\$ 33,938	\$ 24,266	\$ 23,815	\$ 27,036
	Wholesale prices	\$ 49,493	\$ 41,363	\$ 32,444	\$ 23,141	\$ 23,020	\$ 25,891
	Dealer margins	\$ 2,863	\$ 1,865	\$ 1,494	\$ 1,125	\$ 795	\$ 1,145
Asia	Retail prices	\$ 33,149	\$ 28,649	\$ 28,832	\$ 24,274	\$ 18,695	\$ 23,874
	Wholesale prices	\$ 31,581	\$ 27,287	\$ 27,477	\$ 23,204	\$ 17,995	\$ 22,838
	Dealer margins	\$ 1,567	\$ 1,362	\$ 1,354	\$ 1,070	\$ 701	\$ 1,036
Europe	Retail prices	\$ 65,840	\$ 56,922	\$ 42,489	\$ 28,818	\$ 24,598	\$ 38,455
	Wholesale prices	\$ 62,832	\$ 54,536	\$ 40,847	\$ 27,595	\$ 23,524	\$ 36,855
	Dealer margins	\$ 3,009	\$ 2,386	\$ 1,642	\$ 1,223	\$ 1,074	\$ 1,600
U.S.	Retail prices	\$ 29,865	\$ 26,558	\$ 25,905	\$ 20,507	\$ 16,241	\$ 25,433
	Wholesale prices	\$ 28,445	\$ 25,380	\$ 24,672	\$ 19,542	\$ 15,465	\$ 24,249
	Dealer margins	\$ 1,420	\$ 1,178	\$ 1,233	\$ 965	\$ 776	\$ 1,184

[†] All calculations based on sample averages

Table OA-2: New Cars: Equilibrium sales response to gasoline prices by origin

Variable	Asia			Europe			U.S.		
	Coef	Av. Sales	Effect	Coef	Av. Sales	Effect	Coef	Av. Sales	Effect
GasPrice*MPG Bin 1 (fuel economy < 16 MPG)	-796** (142)	3551	-22%	-231** (35)	513	-45%	-9032** (1061)	31752	-28%
GasPrice*MPG Bin 2 (16 MPG ≤ FE < 19 MPG)	-1150** (289)	9346	-12%	88 (80)	2075	4%	-6255** (937)	26577	-24%
GasPrice*MPG Bin 3 (19 MPG ≤ FE < 21 MPG)	-2259** (404)	10003	-23%	-342** (120)	2719	-13%	-1490* (623)	17113	-9%
GasPrice*MPG Bin 4 (21 MPG ≤ FE < 24 MPG)	-2620** (520)	15858	-17%	176 (159)	3441	5%	783 (619)	16044	5%
GasPrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	4211** (524)	19422	22%	481** (63)	1021	47%	98 (516)	10603	1%

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-3: New cars: Equilibrium price response to gasoline prices by origin

Variable	Asia	Europe	U.S.
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
GasolinePrice*MPG Bin 1[†] (fuel economy < 16 MPG)	-363** (71)	-802** (264)	-318* (124)
GasolinePrice*MPG Bin 2 (16 MPG ≤ fuel economy < 19 MPG)	-207** (33)	-781** (172)	-30 (50)
GasolinePrice*MPG Bin 3 (19 MPG ≤ fuel economy < 21 MPG)	-65+ (32)	-149 (149)	162** (40)
GasolinePrice*MPG Bin 4 (21 MPG ≤ fuel economy < 24 MPG)	159** (43)	117 (98)	260** (31)
GasolinePrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	272** (37)	527** (82)	319** (53)
Price difference between highest and lowest MPG Bin:	\$635	\$1,329	\$637

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-4: New cars: Equilibrium wholesaleprice response to gasoline prices by origin

Variable	Asia	Europe	U.S.
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
GasolinePrice*MPG Bin 1[†] (fuel economy < 16 MPG)	-211* (80)	-170 (207)	-395** (81)
GasolinePrice*MPG Bin 2 (16 MPG ≤ fuel economy < 19 MPG)	-139** (34)	-169+ (97)	-90** (28)
GasolinePrice*MPG Bin 3 (19 MPG ≤ fuel economy < 21 MPG)	188** (28)	83 (111)	113** (28)
GasolinePrice*MPG Bin 4 (21 MPG ≤ fuel economy < 24 MPG)	269** (37)	231** (51)	164** (30)
GasolinePrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	184** (37)	364** (51)	202** (48)
Price difference between highest and lowest MPG Bin:	\$395	\$534	\$597

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-5: New cars: Equilibrium dealer margin response to gasoline prices by origin

Variable	Asia Coefficient (SE)	Europe Coefficient (SE)	U.S. Coefficient (SE)
GasolinePrice*MPG Bin 1[†] (fuel economy < 16 MPG)	-152** (33)	-632** (123)	78 (51)
GasolinePrice*MPG Bin 2 (16 MPG ≤ fuel economy < 19 MPG)	-68** (25)	-612** (143)	61* (28)
GasolinePrice*MPG Bin 3 (19 MPG ≤ fuel economy < 21 MPG)	-252** (29)	-232** (78)	49 (32)
GasolinePrice*MPG Bin 4 (21 MPG ≤ fuel economy < 24 MPG)	-110** (20)	-114+ (57)	97** (15)
GasolinePrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	88** (27)	163** (48)	117** (17)
Price difference between highest and lowest MPG Bin:	\$240	\$795	\$39

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-6: Used Cars: Shares, sales units, retail prices, and retail revenues by MPG bin[†]

Variable		MPG Bin 1	MPG Bin 2	MPG Bin 3	MPG Bin 4	MPG Bin 5	Total/Average
BMW	Bin Share	2.6%	23%	52%	16%	6.3%	100%
	Sales units	3,877	33,814	77,140	23,162	9,266	147,260
	Retail prices	\$ 42,439	\$ 34,500	\$ 27,683	\$ 26,030	\$ 18,881	\$ 28,823
	Retail revenues	\$ 165 M	\$ 1,167 M	\$ 2,135 M	\$ 603 M	\$ 175 M	\$ 4,244 M
Chrysler	Bin Share	32%	32%	17%	12%	7.7%	100%
	Sales units	593,595	602,292	312,818	230,299	144,701	1883704
	Retail prices	\$ 16,135	\$ 15,075	\$ 13,514	\$ 12,014	\$ 9,918	\$ 14,379
	Retail revenues	\$ 9,577 M	\$ 9,080 M	\$ 4,227 M	\$ 2,767 M	\$ 1,435 M	\$ 27,086 M
Ford	Bin Share	33%	28%	20%	10%	10%	100%
	Sales units	1020030	868,511	616,499	313,246	318,207	3136492
	Retail prices	\$ 17,315	\$ 14,774	\$ 12,442	\$ 10,943	\$ 9,012	\$ 14,175
	Retail revenues	\$ 17,662 M	\$ 12,831 M	\$ 7,671 M	\$ 3,428 M	\$ 2,868 M	\$ 44,460 M
GM	Bin Share	22%	25%	16%	25%	12%	100%
	Sales units	880,256	997,569	644,804	1014254	503,542	4040426
	Retail prices	\$ 19,729	\$ 16,780	\$ 14,994	\$ 11,279	\$ 9,786	\$ 14,885
	Retail revenues	\$ 17,366 M	\$ 16,739 M	\$ 9,668 M	\$ 11,440 M	\$ 4,928 M	\$ 60,142 M
Honda	Bin Share	44%	10%	13%	37%	40%	100%
	Sales units	2,315	53,658	65,915	194,174	209,275	525,337
	Retail prices	\$ 13,061	\$ 21,798	\$ 18,525	\$ 15,189	\$ 12,829	\$ 15,333
	Retail revenues	\$ 30 M	\$ 1,170 M	\$ 1,221 M	\$ 2,949 M	\$ 2,685 M	\$ 8,055 M
Hyundai	Bin Share	2%	18%	20%	24%	36%	100%
	Sales units	4,800	41,545	47,216	55,881	84,920	234,361
	Retail prices	\$ 14,577	\$ 13,126	\$ 13,469	\$ 10,487	\$ 9,911	\$ 11,431
	Retail revenues	\$ 70 M	\$ 545 M	\$ 636 M	\$ 586 M	\$ 842 M	\$ 2,679 M
Mazda	Bin Share	8%	20%	18%	35%	26%	100%
	Sales units	1,286	32,813	29,173	55,620	41,693	160,585
	Retail prices	\$ 12,763	\$ 15,210	\$ 12,687	\$ 12,011	\$ 10,911	\$ 12,508
	Retail revenues	\$ 16 M	\$ 499 M	\$ 370 M	\$ 668 M	\$ 455 M	\$ 2,009 M
Mercedes	Bin Share	12%	38%	31%	19%	69%	100%
	Sales units	14,561	46,879	38,090	24,318	860	124,707
	Retail prices	\$ 39,580	\$ 37,572	\$ 28,606	\$ 25,444	\$ 30,345	\$ 32,653
	Retail revenues	\$ 576 M	\$ 1,761 M	\$ 1,090 M	\$ 619 M	\$ 26 M	\$ 4,072 M
Nissan	Bin Share	15%	17%	22%	30%	17%	100%
	Sales units	72,805	83,836	109,703	151,364	83,738	501,447
	Retail prices	\$ 18,565	\$ 17,908	\$ 17,943	\$ 14,015	\$ 11,881	\$ 15,830
	Retail revenues	\$ 1,352 M	\$ 1,501 M	\$ 1,968 M	\$ 2,121 M	\$ 995 M	\$ 7,938 M
Toyota	Bin Share	8.3%	18%	15%	24%	34%	100%
	Sales units	74,223	160,182	135,301	216,315	307,404	893,425
	Retail prices	\$ 24,412	\$ 20,024	\$ 20,607	\$ 16,725	\$ 13,365	\$ 17,387
	Retail revenues	\$ 1,812 M	\$ 3,208 M	\$ 2,788 M	\$ 3,618 M	\$ 4,108 M	\$ 15,534 M
VW	Bin Share	1.8%	9.9%	13%	60%	15%	100%
	Sales units	3,263	18,170	24,295	109,206	28,345	183,279
	Retail prices	\$ 31,282	\$ 24,660	\$ 19,235	\$ 14,597	\$ 16,369	\$ 16,780
	Retail revenues	\$ 102 M	\$ 448 M	\$ 467 M	\$ 1,594 M	\$ 464 M	\$ 3,076 M
Asia	Bin Share	6.5%	16%	17%	29%	32%	100%
	Sales units	151,331	365,635	385,425	682,325	730,439	2,315,155
	Retail prices	\$ 20,943	\$ 18,661	\$ 18,017	\$ 14,757	\$ 12,492	\$ 15,606
	Retail revenues	\$ 3,169 M	\$ 6,823 M	\$ 6,944 M	\$ 10,069 M	\$ 9,125 M	\$ 36,130 M
Europe	Bin Share	4.5%	21%	30%	36%	8.9%	100%
	Sales units	20,611	95,377	136,078	162,758	40,423	455,247
	Retail prices	\$ 38,684	\$ 33,855	\$ 26,290	\$ 17,661	\$ 17,201	\$ 24,544
	Retail revenues	\$ 797 M	\$ 3,229 M	\$ 3,577 M	\$ 2,874 M	\$ 695 M	\$ 11,173 M
U.S.	Bin Share	28%	28%	17%	17%	10%	100%
	Sales units	2506090	2493822	1565284	1544556	950,870	9,060,622
	Retail prices	\$ 17,778	\$ 15,636	\$ 13,721	\$ 11,356	\$ 9,579	\$ 14,532
	Retail revenues	\$ 44,554 M	\$ 38,994 M	\$ 21,477 M	\$ 17,539 M	\$ 9,108 M	\$ 131,673 M

[†] All calculations based on sample averages

Table OA-7: Used Cars: Retail prices, wholesale prices, and dealer margins by MPG bin[†]

Variable		MPG Bin 1	MPG Bin 2	MPG Bin 3	MPG Bin 4	MPG Bin 5	Average
BMW	Retail prices	\$ 42,439	\$ 34,500	\$ 27,683	\$ 26,030	\$ 18,881	\$ 28,823
	Wholesale prices	\$ 39,566	\$ 32,062	\$ 25,551	\$ 23,921	\$ 17,181	\$ 26,632
	Dealer margins	\$ 2,873	\$ 2,437	\$ 2,132	\$ 2,109	\$ 1,700	\$ 2,191
Chrysler	Retail prices	\$ 16,135	\$ 15,075	\$ 13,514	\$ 12,014	\$ 9,918	\$ 14,379
	Wholesale prices	\$ 14,312	\$ 13,366	\$ 11,812	\$ 10,399	\$ 8,498	\$ 12,669
	Dealer margins	\$ 1,823	\$ 1,709	\$ 1,701	\$ 1,615	\$ 1,420	\$ 1,710
Ford	Retail prices	\$ 17,315	\$ 14,774	\$ 12,442	\$ 10,943	\$ 9,012	\$ 14,175
	Wholesale prices	\$ 15,538	\$ 13,055	\$ 10,872	\$ 9,469	\$ 7,616	\$ 12,523
	Dealer margins	\$ 1,778	\$ 1,719	\$ 1,570	\$ 1,474	\$ 1,396	\$ 1,652
GM	Retail prices	\$ 19,729	\$ 16,780	\$ 14,994	\$ 11,279	\$ 9,786	\$ 14,885
	Wholesale prices	\$ 17,869	\$ 14,908	\$ 13,208	\$ 9,657	\$ 8,322	\$ 13,143
	Dealer margins	\$ 1,860	\$ 1,872	\$ 1,786	\$ 1,622	\$ 1,465	\$ 1,742
Honda	Retail prices	\$ 13,061	\$ 21,798	\$ 18,525	\$ 15,189	\$ 12,829	\$ 15,333
	Wholesale prices	\$ 11,394	\$ 20,176	\$ 16,886	\$ 13,714	\$ 11,426	\$ 13,851
	Dealer margins	\$ 1,667	\$ 1,622	\$ 1,640	\$ 1,475	\$ 1,403	\$ 1,483
Hyundai	Retail prices	\$ 14,577	\$ 13,126	\$ 13,469	\$ 10,487	\$ 9,911	\$ 11,431
	Wholesale prices	\$ 12,709	\$ 11,346	\$ 11,753	\$ 8,894	\$ 8,493	\$ 9,837
	Dealer margins	\$ 1,867	\$ 1,780	\$ 1,716	\$ 1,593	\$ 1,418	\$ 1,593
Mazda	Retail prices	\$ 12,763	\$ 15,210	\$ 12,687	\$ 12,011	\$ 10,911	\$ 12,508
	Wholesale prices	\$ 11,010	\$ 13,616	\$ 11,156	\$ 10,537	\$ 9,581	\$ 11,034
	Dealer margins	\$ 1,753	\$ 1,594	\$ 1,532	\$ 1,474	\$ 1,330	\$ 1,474
Mercedes	Retail prices	\$ 39,580	\$ 37,572	\$ 28,606	\$ 25,444	\$ 30,345	\$ 32,653
	Wholesale prices	\$ 36,814	\$ 34,876	\$ 26,333	\$ 23,267	\$ 27,664	\$ 30,179
	Dealer margins	\$ 2,766	\$ 2,696	\$ 2,273	\$ 2,177	\$ 2,681	\$ 2,474
Nissan	Retail prices	\$ 18,565	\$ 17,908	\$ 17,943	\$ 14,015	\$ 11,881	\$ 15,830
	Wholesale prices	\$ 16,802	\$ 16,287	\$ 16,387	\$ 12,471	\$ 10,542	\$ 14,272
	Dealer margins	\$ 1,763	\$ 1,621	\$ 1,556	\$ 1,545	\$ 1,339	\$ 1,557
Toyota	Retail prices	\$ 24,412	\$ 20,024	\$ 20,607	\$ 16,725	\$ 13,365	\$ 17,387
	Wholesale prices	\$ 22,516	\$ 18,230	\$ 18,781	\$ 15,120	\$ 11,959	\$ 15,759
	Dealer margins	\$ 1,896	\$ 1,794	\$ 1,826	\$ 1,604	\$ 1,406	\$ 1,628
VW	Retail prices	\$ 31,282	\$ 24,660	\$ 19,235	\$ 14,597	\$ 16,369	\$ 16,780
	Wholesale prices	\$ 29,151	\$ 22,642	\$ 17,452	\$ 13,012	\$ 14,844	\$ 15,126
	Dealer margins	\$ 2,131	\$ 2,018	\$ 1,783	\$ 1,585	\$ 1,525	\$ 1,654
Asia	Retail prices	\$ 20,943	\$ 18,661	\$ 18,017	\$ 14,757	\$ 12,492	\$ 15,606
	Wholesale prices	\$ 19,118	\$ 16,954	\$ 16,339	\$ 13,218	\$ 11,097	\$ 14,044
	Dealer margins	\$ 1,825	\$ 1,707	\$ 1,677	\$ 1,538	\$ 1,395	\$ 1,561
Europe	Retail prices	\$ 38,684	\$ 33,855	\$ 26,290	\$ 17,661	\$ 17,201	\$ 24,544
	Wholesale prices	\$ 36,007	\$ 31,388	\$ 24,189	\$ 15,923	\$ 15,614	\$ 22,515
	Dealer margins	\$ 2,677	\$ 2,467	\$ 2,101	\$ 1,738	\$ 1,586	\$ 2,028
U.S.	Retail prices	\$ 17,778	\$ 15,636	\$ 13,721	\$ 11,356	\$ 9,579	\$ 14,532
	Wholesale prices	\$ 15,960	\$ 13,861	\$ 12,033	\$ 9,762	\$ 8,144	\$ 12,827
	Dealer margins	\$ 1,819	\$ 1,775	\$ 1,689	\$ 1,594	\$ 1,435	\$ 1,706

[†] All calculations based on sample averages

Table OA-8: Used Cars: Retail revenue changes implied by \$1 increase in gasoline prices[†]

Implied		MPG Bin 1	MPG Bin 2	MPG Bin 3	MPG Bin 4	MPG Bin 5	Total
BMW	Δ Retail revenues	\$ -20 M	\$ -109 M	\$ -146 M	\$ 59 M	\$ 54 M	\$ -162 M
	% change	-12%	-9.3%	-6.8%	9.8%	31%	-3.8%
Chrysler	Δ Retail revenues	\$ -1,772 M	\$ -384 M	\$ -59 M	\$ 61 M	\$ -46 M	\$ -2,200 M
	% change	-19%	-4.2%	-1.4%	2.2%	-3.2%	-8.1%
Ford	Δ Retail revenues	\$ -3,205 M	\$ -537 M	\$ -82 M	\$ 98 M	\$ -69 M	\$ -3,795 M
	% change	-18%	-4.2%	-1.1%	2.8%	-2.4%	-8.5%
GM	Δ Retail revenues	\$ -3,048 M	\$ -746 M	\$ -174 M	\$ 302 M	\$ -151 M	\$ -3,818 M
	% change	-18%	-4.5%	-1.8%	2.6%	-3.1%	-6.3%
Honda	Δ Retail revenues	\$ -7.3 M	\$ -65 M	\$ -21 M	\$ 136 M	\$ 448 M	\$ 490 M
	% change	-24%	-5.5%	-1.8%	4.6%	17%	6.1%
Hyundai	Δ Retail revenues	\$ -16 M	\$ -31 M	\$ -7.3 M	\$ 42 M	\$ 160 M	\$ 147 M
	% change	-23%	-5.7%	-1.2%	7.2%	19%	5.5%
Mazda	Δ Retail revenues	\$ -4 M	\$ -28 M	\$ -3.8 M	\$ 41 M	\$ 82 M	\$ 87 M
	% change	-24%	-5.6%	-1%	6.1%	18%	4.3%
Mercedes	Δ Retail revenues	\$ -75 M	\$ -140 M	\$ -73 M	\$ 60 M	\$ 7.5 M	\$ -220 M
	% change	-13%	-8%	-6.7%	9.8%	29%	-5.4%
Nissan	Δ Retail revenues	\$ -295 M	\$ -84 M	\$ -34 M	\$ 108 M	\$ 172 M	\$ -132 M
	% change	-22%	-5.6%	-1.7%	5.1%	17%	-1.7%
Toyota	Δ Retail revenues	\$ -371 M	\$ -178 M	\$ -54 M	\$ 148 M	\$ 673 M	\$ 218 M
	% change	-20%	-5.6%	-1.9%	4.1%	16%	1.4%
VW	Δ Retail revenues	\$ -17 M	\$ -72 M	\$ -41 M	\$ 153 M	\$ 145 M	\$ 169 M
	% change	-17%	-16%	-8.7%	9.6%	31%	5.5%
Asia	Δ retail revenues	\$ -672 M	\$ -381 M	\$ -119 M	\$ 481 M	\$ 1,542 M	\$ 852 M
	% change	-21%	-5.6%	-1.7%	4.8%	17%	2.4%
Europe	Δ Retail revenues	\$ -106 M	\$ -312 M	\$ -253 M	\$ 278 M	\$ 216 M	\$ -177 M
	% change	-13%	-9.7%	-7.1%	9.7%	31%	-1.6%
U.S.	Δ Retail revenues	\$ -8,029 M	\$ -1,681 M	\$ -315 M	\$ 454 M	\$ -264 M	\$ -9,836 M
	% change	-18%	-4.3%	-1.5%	2.6%	-2.9%	-7.5%

[†] All calculations based on sample averages

Table OA-9: Used Cars: Equilibrium sales response to gasoline prices by origin

Variable	Asia			Europe			U.S.		
	Coef	Av. Sales	Effect	Coef	Av. Sales	Effect	Coef	Av. Sales	Effect
GasPrice*MPG Bin 1 (fuel economy < 16 MPG)	-317** (71)	1957	-16%	4.9 (15)	260	2%	-3192** (485)	23952	-13%
GasPrice*MPG Bin 2 (16 MPG ≤ FE < 19 MPG)	-223 (191)	4198	-5%	91 (160)	1224	7%	-1482** (502)	23066	-6%
GasPrice*MPG Bin 3 (19 MPG ≤ FE < 21 MPG)	-151 (169)	4463	-3%	-40 (55)	1537	-3%	-960* (479)	17805	-5%
GasPrice*MPG Bin 4 (21 MPG ≤ FE < 24 MPG)	-96 (625)	8714	-1%	196+ (115)	1949	10%	-880 (726)	20344	-4%
GasPrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	706 (731)	7870	9%	77** (15)	296	26%	-1183* (528)	10994	-11%

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-10: Used cars: Equilibrium price response to gasoline prices by origin

Variable	Asia	Europe	U.S.
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
GasolinePrice*MPG Bin 1[†] (fuel economy < 16 MPG)	-1247** (86)	-5770** (202)	-968** (41)
GasolinePrice*MPG Bin 2 (16 MPG ≤ fuel economy < 19 MPG)	-56 (62)	-5396** (172)	354** (43)
GasolinePrice*MPG Bin 3 (19 MPG ≤ fuel economy < 21 MPG)	309** (57)	-1210** (76)	569** (45)
GasolinePrice*MPG Bin 4 (21 MPG ≤ fuel economy < 24 MPG)	877** (48)	-52 (53)	820** (47)
GasolinePrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	909** (35)	706** (66)	848** (44)
Price difference between highest and lowest MPG Bin:	\$2156	\$6476	\$1816

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-11: Used cars: Equilibrium wholesale price response to gasoline prices by origin

Variable	Asia Coefficient (SE)	Europe Coefficient (SE)	U.S. Coefficient (SE)
GasolinePrice*MPG Bin 1[†] (fuel economy < 16 MPG)	-1259** (88)	-5421** (204)	-974** (40)
GasolinePrice*MPG Bin 2 (16 MPG ≤ fuel economy < 19 MPG)	-92 (59)	-5229** (170)	370** (41)
GasolinePrice*MPG Bin 3 (19 MPG ≤ fuel economy < 21 MPG)	256** (57)	-1223** (72)	618** (44)
GasolinePrice*MPG Bin 4 (21 MPG ≤ fuel economy < 24 MPG)	782** (47)	-92+ (52)	896** (46)
GasolinePrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	773** (37)	541** (57)	915** (39)
Price difference between highest and lowest MPG Bin:	\$2032	\$5962	\$1889

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.

Table OA-12: Used cars: Equilibrium dealer margin response to gasoline prices by origin

Variable	Asia Coefficient (SE)	Europe Coefficient (SE)	U.S. Coefficient (SE)
GasolinePrice*MPG Bin 1[†] (fuel economy < 16 MPG)	13 (23)	-350** (56)	5.9 (11)
GasolinePrice*MPG Bin 2 (16 MPG ≤ fuel economy < 19 MPG)	36+ (19)	-167** (22)	-16 (10)
GasolinePrice*MPG Bin 3 (19 MPG ≤ fuel economy < 21 MPG)	53** (14)	13 (27)	-49** (12)
GasolinePrice*MPG Bin 4 (21 MPG ≤ fuel economy < 24 MPG)	95** (12)	40* (15)	-76** (13)
GasolinePrice*MPG Bin 5 (fuel economy ≥ 24 MPG)	136** (12)	164** (27)	-67** (14)
Price difference between highest and lowest MPG Bin:	\$123	\$514	-\$73

* significant at 5%; ** significant at 1%; + significant at 10% level. Standard errors in parentheses are robust and clustered at the region level.

This table only reports the coefficients on gasoline prices. Full results are available upon request from the authors.