Online Appendix
Advertising and Environmental Stewardship: Evidence from the BP Oil Spill

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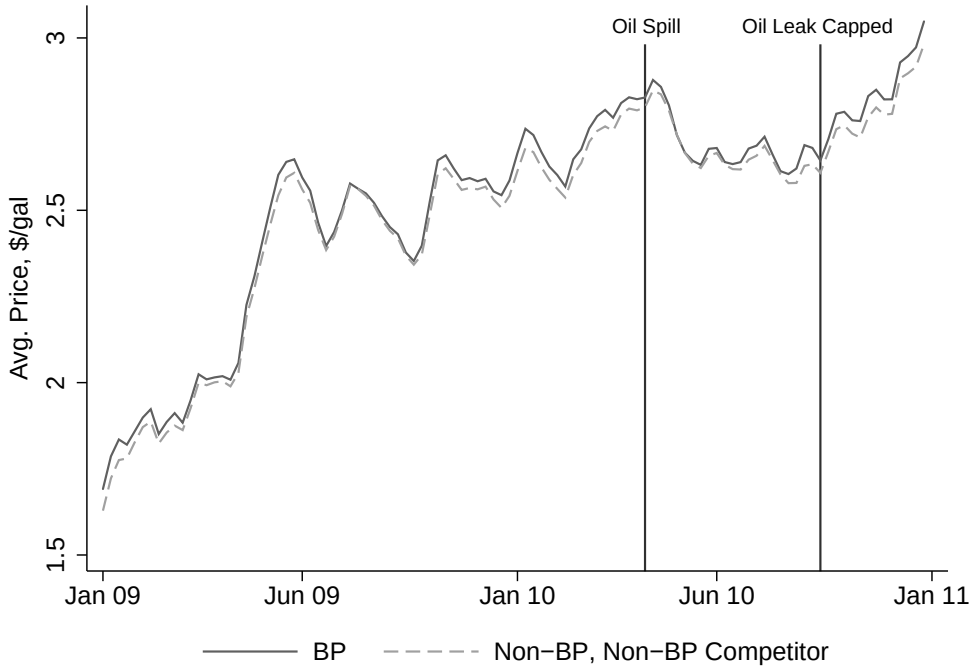
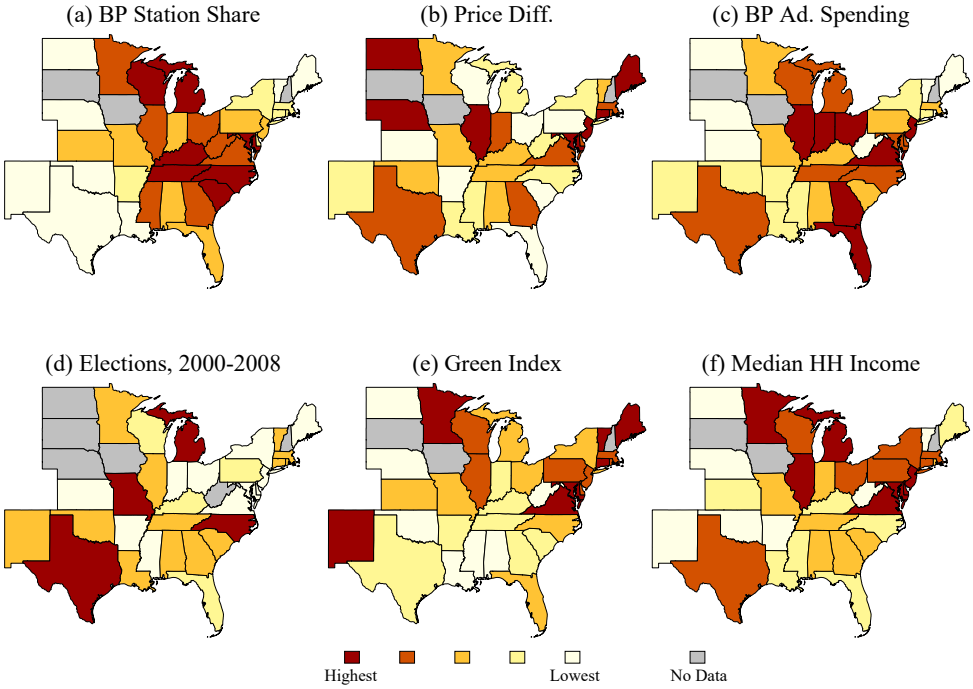
A1 Appendix Figures and Tables

Figure A1: Average Weekly Retail Price for BP and Comparison Stations, Jan. 2009 to Dec. 2010



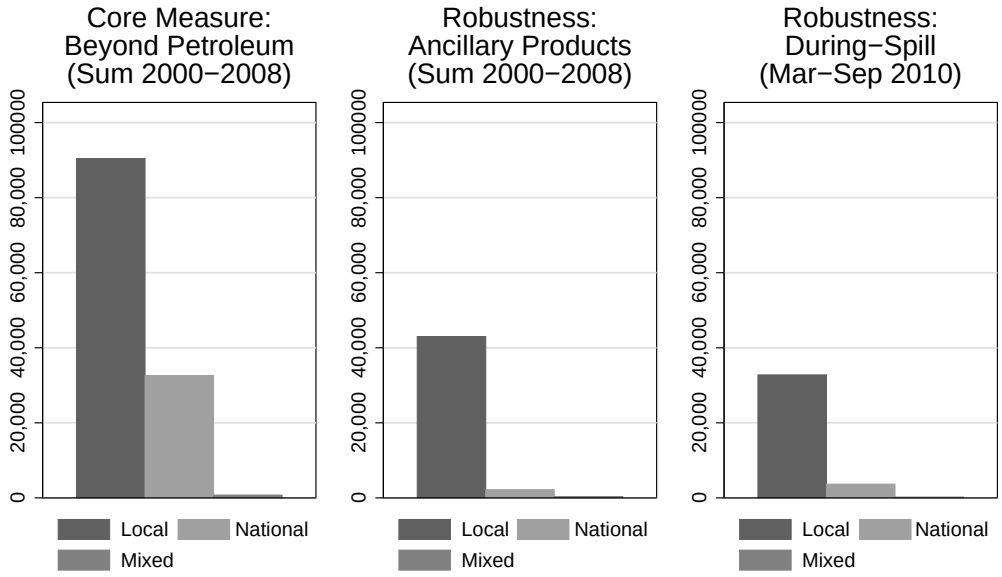
Notes: The figure displays average weekly prices for BP and non-BP competitor stations in the main analysis sample of stores Source: OPIS.

Figure A2: Maps with Sample Descriptive Statistics at the State Level



Notes: The term "Price Diff." refers to the difference between pre- and during-spill average prices at the station level. We compute the average price difference at the state level using the main analysis sample of stations. We compute the share of BP stations using the main analysis sample of stations. We construct state level averages for BP Ad. Spending and Elections using one observation per MSA. We construct state level averages for the Green Index and Median HH Income using one observation per zip in the main analysis sample. Sources: OPIS, Sierra Club, the U.S. Green Building Council, the U.S. Census and Kantar Media.

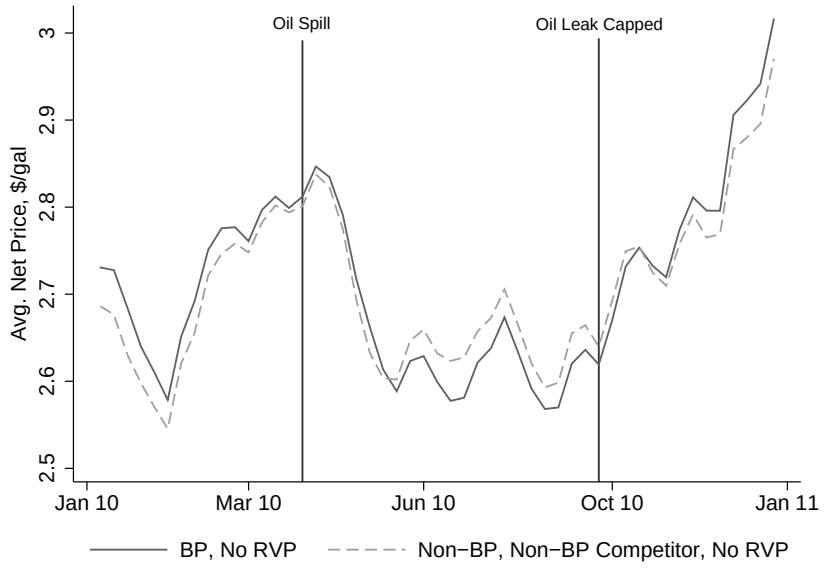
Figure A3: BP Advertising Measure by Media Reach



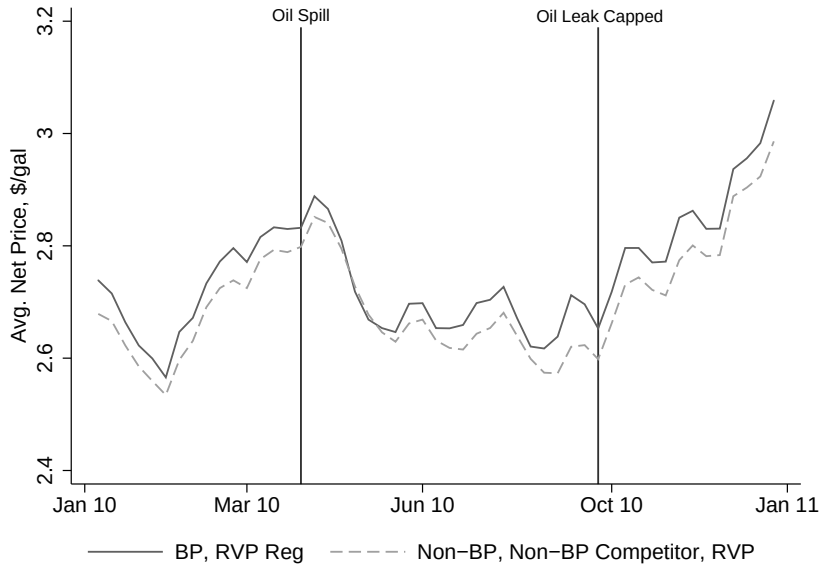
Notes: The figure provides statistics on the amount of local, mixed, and national advertising captured in each of the measures of BP advertising defined in Section 3 of the main text. Local media is newspapers, outdoor, and spot TV. National media is cable TV, national spot radio, national newspapers, and network TV. Mixed media is magazine, network radio, syndication, and online media. Source: Kantar Media.

Figure A4: Average Weekly Price for BP and Comparison Stations, By RVP Status

(a) No Summer RVP Regulation Areas



(b) Summer RVP Regulation Areas



Notes: The top panel displays average weekly price levels for BP and non-BP competitor stations in areas not subject to summertime Reid Vapor Pressure (RVP) requirements. The bottom panel display average weekly price levels for BP and non-BP competitor stations in areas which are subject to summertime RVP requirements. Source: OPIS.

Table A1: Main Sample Summary Statistics

	(1) Mean	(2) Min.	(3) Max	(4) Median	(5) Obs.	(6) Obs. Level
Weekly Net Price ($/gal)	0.55	-1.08	1.97	0.54	502,094	Station, Week
Ln(Weekly Fleet Sales)	5.87	-4.61	8.75	6.01	456,244	Station, Week
Average Net Price ($/gal)	0.56	-0.89	1.91	0.55	15,807	Station, Pre/Post
Ln(Avg. Fleet Sales)	5.83	-1.17	8.38	5.98	14,400	Station, Pre/Post
Price Diff.	0.05	-0.27	0.41	0.05	3,748	Station
Green Index	0.00	-3.71	16.42	-0.55	645	Zip
Median HH Inc. ($1000s)	48.39	20.09	110.47	45.92	645	Zip
BP Ad. Spending ($Millions)	1.64	0.00	20.89	0.27	78	DMA
# Elections (2000-2008)	7.63	4.00	10.00	7.00	78	DMA

Notes: This table provides summary statistics for the main analysis sample. Sources: OPIS, Sierra Club, R.L. Polk, the U.S. Green Building Council, the U.S. Census, and Kantar Media.

Table A2: 2000-2008 Total Elections and Area Characteristics

	(1)
	# Elections (2000-2008)
BP Station Share	0.442
	(1.218)
Gas Station Density	2.324
	(3.691)
HHI	0.761
	(2.043)
Green Index	-0.041
	(0.068)
Median HH Income	-0.005
	(0.017)
Obs.	78
R-squared	0.024

Notes: This table presents regressions results from a model where the dependent variable is the total number of elections between 2000-2008 calculated at the MSA level. The independent variables are measures of MSA characteristics such as the BP share of gasoline stations, overall gas station density, gasoline market Herfindahl index (HHI), average median household income (from the 2000 Census) and Green Index (averaged at the MSA level across zip codes in our sample). *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Sources: OPIS, Sierra Club, R.L. Polk, the U.S. Green Building Council, and the U.S. Census.

Table A3: Oil Spill Impacts, Sample Including Non-BP, Within Zip Competitors

	(1)	(2)	(3)	(4)
	Average Net Price	Ln(Avg. Fleet Sales)	Weekly Net Price	Ln(Weekly Fleet Sales)
During Spill	0.051***	0.026***	0.052***	0.038***
	(0.002)	(0.004)	(0.001)	(0.003)
Post Spill	0.005***	-0.022***	0.005***	-0.014***
	(0.002)	(0.005)	(0.001)	(0.004)
BP*(During Spill)	-0.007***	-0.042***	-0.007***	-0.046***
	(0.002)	(0.009)	(0.001)	(0.008)
BP*(Post Spill)	-0.002	-0.030***	-0.002	-0.033***
	(0.002)	(0.011)	(0.002)	(0.009)
Obs.	34,305	31,129	1,081,561	983,677
Adjusted R-squared	0.938	0.972	0.580	0.862
S.E. cluster	Zip	Zip	Zip	Zip
Weight	Price obs.	Quantity obs.	Price obs.	Quantity obs.
# of zips	847	851	847	851
# of stations	11,994	10,809	11,994	10,809

Notes: The price and quantity data span January 2009 to December 2010. Columns (1) and (2) report estimates where the dependent variable is the station's average net price and average log-quantity computed over the entire "pre-," "during-" and "post-" spill periods. Columns (3) and (4) report estimates when the dependent variable is the station's weekly net price and log-quantity. Each specification regresses the dependent variable on dummies for the during-spill period, a dummy for the post-spill period, and their interactions with a dummy for BP gas station. All models control for station fixed effects. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Source: OPIS.

Table A4: Oil Spill Impacts, Unfiltered Sample

	(1) Average Net Price	(2) Ln(Avg. Fleet Sales)	(3) Weekly Net Price	(4) Ln(Weekly Fleet Sales)
During Spill	0.054***	0.032***	0.053***	0.050***
	(0.001)	(0.002)	(0.001)	(0.002)
Post Spill	0.001*	-0.002	0.001**	0.012***
	(0.001)	(0.002)	(0.001)	(0.002)
BP*(During Spill)	-0.008***	-0.039***	-0.007***	-0.046***
	(0.001)	(0.004)	(0.001)	(0.003)
BP*(Post Spill)	0.003**	-0.034***	0.003***	-0.040***
	(0.001)	(0.005)	(0.001)	(0.004)
Obs.	188,528	173,534	5,692,926	5,339,617
Adjusted R-squared	0.943	0.970	0.601	0.856
S.E. Cluster	Zip	Zip	Zip	Zip
Weight	Price obs.	Quantity obs.	Price obs.	Quantity obs.
# of zips	19,549	19,085	19,550	19,086
# of stations	66,868	60,606	66,869	60,607

Notes: The price and quantity data span January 2009 to December 2010. Columns (1) and (2) report estimates where the dependent variable is the station's average net price and average log-quantity computed over the entire "pre-," "during-" and "post-" spill periods. Columns (3) and (4) report estimates when the dependent variable is the station's weekly net price and log-quantity. Each specification regresses the dependent variable on dummies for the during-spill period, a dummy for the post-spill period, and their interactions with a dummy for BP gas station. All models control for station fixed effects. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Source: OPIS.

Table A5: Oil Spill Impacts by Month, Unfiltered Sample

	(1)	(2)
	Weekly Net Price	Ln(Weekly Fleet Sales)
BP*(Late_Apr'10)	0.002**	-0.007*
	(0.001)	(0.004)
BP*(May'10)	-0.023***	-0.038***
	(0.001)	(0.004)
BP*(Jun'10)	-0.012***	-0.069***
	(0.001)	(0.004)
BP*(Jul'10)	-0.002*	-0.055***
	(0.001)	(0.004)
BP*(Aug'10)	-0.012***	-0.062***
	(0.001)	(0.004)
BP*(Sep'10)	0.008***	-0.020***
	(0.001)	(0.004)
BP*(Oct'10)	0.000	-0.031***
	(0.001)	(0.004)
BP*(Nov'10)	0.009***	-0.052***
	(0.001)	(0.005)
BP*(Dec'10)	-0.003***	-0.040***
	(0.001)	(0.005)
Obs.	5,692,926	5,339,617
Adjusted R-squared	0.855	0.861
Fixed Effects	Station	Station
S.E. Cluster	Zip	Zip
Weight	Price obs.	Quantity obs.
# of zips	19,550	19,086
# of stations	66,869	60,607

Notes: The price and quantity data cover the period from January 2009 to December 2010. The dependent variables in Columns (1) and (2) are weekly net price and log-quantity, respectively. Each of these dependent variables is regressed on post-spill month dummies and their interactions with a dummy for BP gas station. All models control for station fixed effects. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Source: OPIS.

Table A6: Oil Spill Impacts by Month, No RVP Sample

	(1)	(2)
	Weekly Net Price	Ln(Weekly Fleet Sales)
BP*(Late Apr'10)	-0.0047	0.0053
	(0.004)	(0.023)
BP*(May'10)	0.0107	-0.0292
	(0.007)	(0.021)
BP*(Jun'10)	-0.0005	-0.1060***
	(0.006)	(0.021)
BP*(Jul'10)	-0.0192***	-0.0634**
	(0.005)	(0.027)
BP*(Aug'10)	-0.0111*	-0.0737***
	(0.006)	(0.027)
BP*(Sep'10)	-0.0175***	-0.0032
	(0.005)	(0.026)
BP*(Oct'10)	-0.0336***	-0.0451*
	(0.006)	(0.027)
BP*(Nov'10)	-0.0192***	-0.0721**
	(0.005)	(0.029)
BP*(Dec'10)	-0.0139***	-0.1039***
	(0.004)	(0.029)
Obs.	127,600	113,164
Adjusted R-squared	0.881	0.859
Fixed Effects	Station	Station
S.E. Cluster	Zip	Zip
Weight	Price obs.	Quantity obs.
# of zips	227	226
# of stations	1,458	1,280

Notes: The price and quantity data cover the period from January 2009 to December 2010. The dependent variables in Columns (1) and (2) are weekly net price and log-quantity, respectively. Sample is restricted to areas without summertime RVP regulations. State-level wholesale prices used in net price computation are minimum average rack prices excluding RVP 7 and 7.8 fuels. Each of these dependent variables is regressed on post-spill month dummies and their interactions with a dummy for BP gas station. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Source: OPIS.

Table A7: OLS and IV Estimates of the Impact of Pre-spill Spot TV Units on Oil Spill Impacts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS Estimates		Election IV Estimates					
			First Stage		Second Stage	First Stage		Second Stage
	Price Diff.	Sales Diff.	Spot TV Ad Units, Dm.	BP*(Spot TV Ad Units, Dm.)	Price Diff.	Spot TV Ad Units, Dm.	BP*(Spot TV Ad Units, Dm.)	Sales Diff.
BP	-0.014***	-0.036***	-4.162	32.232***	-0.019***	-3.860	31.795***	-0.023
	(0.003)	(0.013)	(8.175)	(4.495)	(0.005)	(8.076)	(4.435)	(0.027)
Green Index	0.001	-0.005*	-0.457*	0.000***	0.001	-0.494*	-0.000	-0.005*
	(0.001)	(0.003)	(0.274)	(0.000)	(0.001)	(0.280)	(.)	(0.003)
BP*(Green Index)	-0.001	0.010**	0.346	-0.111	-0.001	0.438	-0.057	0.010**
	(0.001)	(0.004)	(0.370)	(0.250)	(0.001)	(0.373)	(0.247)	(0.004)
Income, Demeaned	0.001***	0.000	0.217***	-0.000***	0.001***	0.226***	0.000	0.001*
	(0.000)	(0.000)	(0.058)	(0.000)	(0.000)	(0.056)	(0.000)	(0.000)
BP*(Income, Demeaned)	-0.000	-0.002**	0.033	0.250***	-0.001**	0.025	0.251***	-0.002
	(0.000)	(0.001)	(0.077)	(0.051)	(0.000)	(0.075)	(0.050)	(0.001)
Spot TV Ad Units, Dm.	0.001***	0.000			-0.000			-0.002
	(0.000)	(0.000)			(0.001)			(0.002)
BP*(Spot TV Ad Units, Dm.)	0.000	0.000			0.002**			-0.000
	(0.000)	(0.001)			(0.001)			(0.003)
# Elections, 2000-2008			-4.529***	0.000***		-4.407***	-0.000	
			(0.821)	(0.000)		(0.810)	(0.000)	
BP*(# Elections, 2000-2008)			1.328	-3.201***		1.256	-3.151***	
			(0.976)	(0.528)		(0.964)	(0.523)	
Constant	0.054***	0.016**	36.394***	-0.000***	0.056***	35.655***	0.000	0.019***
	(0.002)	(0.007)	(6.829)	(0.000)	(0.002)	(6.750)	(0.000)	(0.007)
Obs.	3,748	3,424	3,748	3,748	3,748	3,424	3,424	3,424
S.E. Cluster	Zip	Zip	Zip	Zip	Zip	Zip	Zip	Zip
# of zips	645	637	645	645	645	637	637	637
# of stations	3748	3424	3748	3748	3748	3424	3424	3424
Kleibergen-Paap Wald F-stat.			18.40	18.40		18.17	18.17	

Notes: The sample is restricted to stations with data for Green Index and household income. The dependent variable is the station's price difference or log of sales difference between the "pre" and "during" spill periods. The Green Index is the sum of z-scores for four variables: the hybrid share of vehicle registrations at the zip code level in 2007, Sierra Club membership, the number of LEED-registered buildings per capita, and contributions to Green Party committees. Zip code income is in year 2000 U.S. thousand dollars. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Sources: OPIS, Sierra Club, the U.S. Green Building Council, the U.S. Census and Kantar Media.

Table A8: OLS and IV Estimates of the Impact of Advertising, Controlling for During Spill Advertising

	(1)	(2)	(3)	(4)	(5)	(6)
	Election IV Estimates					
	First Stage		Second Stage	First Stage		Second Stage
	Ad. Spend. Demeaned	BP*(BP Ad. Spend. Demeaned)	Price Diff.	Ad. Spend. Demeaned	BP*(BP Ad. Spend. Demeaned)	Sales Diff.
BP	-2.867	12.853***	-0.016***	-2.748	12.913***	-0.021
	(3.931)	(2.317)	(0.005)	(3.936)	(2.308)	(0.023)
Green Index	-0.076	0.000***	0.001	-0.086	-0.000	-0.004
	(0.105)	(0.000)	(0.001)	(0.108)	(0.000)	(0.003)
BP*(Green Index)	0.235	0.160	-0.002	0.260*	0.174*	0.010**
	(0.143)	(0.097)	(0.001)	(0.146)	(0.098)	(0.005)
Income, Demeaned	0.118***	-0.000***	0.001***	0.123***	0.000*	0.001
	(0.025)	(0.000)	(0.000)	(0.025)	(0.000)	(0.001)
BP*(Income, Demeaned)	-0.018	0.100***	-0.001**	-0.021	0.102***	-0.001
	(0.033)	(0.021)	(0.000)	(0.032)	(0.021)	(0.001)
BP Ad. During Spill, Dm.	0.750	0.000***	-0.008	0.729	-0.000	-0.014
	(1.133)	(0.000)	(0.013)	(1.139)	(0.000)	(0.023)
BP*(BP Ad. During Spill, Dm.)	0.505	1.255	-0.005	0.546	1.274	0.078*
	(1.399)	(0.821)	(0.016)	(1.402)	(0.818)	(0.047)
# Elections, 2000-2008	-1.868***	0.000***		-1.850***	-0.000***	
	(0.389)	(0.000)		(0.389)	(0.000)	
BP*(# Elections, 2000-2008)	0.481	-1.388***		0.450	-1.399***	
	(0.478)	(0.279)		(0.479)	(0.279)	
Ad. Spending, Demeaned			-0.000			-0.004
			(0.002)			(0.004)
BP*(Ad. spending, Demeaned)			0.004*			-0.006
			(0.002)			(0.010)
Constant	15.720***	-0.000***	0.056***	15.660***	0.000	0.021**
	(3.175)	(0.000)	(0.003)	(3.188)	(0.000)	(0.009)
Observations	3,748	3,748	3,748	3,424	3,424	3,424
S.E. Cluster	Zip	Zip	Zip	Zip	Zip	Zip
# of zips	645	645	645	637	637	637
# of stations	3,748	3,748	3,748	3,424	3,424	3,424
Kleibergen-Paap Wald F-stat.	12.39	12.39		12.62	12.62	

Notes: The sample is restricted to stations with data for Green Index and household income. The "During Spill" measure is based on BP advertising during the oil spill (May-October 2010). We calculate the Green Index by summing z-scores for four variables: the hybrid share of vehicle registrations at the zip code level in 2007, Sierra Club membership, the number of LEED-registered buildings per capita, and contributions to Green Party committees. Zip code income is in year 2000 U.S. thousand dollars. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Sources: OPIS, Sierra Club, the U.S. Green Building Council, the U.S. Census and Kantar Media.

Table A9: OLS and IV Estimates of the Impact of Pre-spill Advertising on Oil Spill Impacts, MSA-Level Clustering

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS Estimates		Election IV Estimates					
			First Stage		Second Stage	First Stage		Second Stage
	Price Diff.	Sales Diff.	Ad. Spend. Demeaned	BP*(BP Ad. Spend. Demeaned)	Price Diff.	Ad. Spend. Demeaned	BP*(BP Ad. Spend. Demeaned)	Sales Diff.
BP	-0.012***	-0.035***	-2.340	14.028***	-0.015***	-2.161	14.145**	-0.032**
	(0.004)	(0.012)	(3.840)	(6.689)	(0.005)	(3.766)	(1.740)	(0.016)
Green Index	0.001	-0.005	-0.069	0.000	0.001	-0.079	0.000	-0.005
	(0.001)	(0.004)	(0.134)	(0.000)	(0.001)	(0.138)	(0.000)	(0.004)
BP*(Green Index)	-0.001	0.010**	0.249	0.180*	-0.002	0.274	0.194*	0.010**
	(0.001)	(0.005)	(0.168)	(0.109)	(0.001)	(0.174)	(0.111)	(0.004)
Income, Demeaned	0.000***	0.000	0.119**	-0.000	0.001**	0.123**	-0.000	0.001
	(0.000)	(0.000)	(0.056)	(0.000)	(0.000)	(0.056)	(0.000)	(0.001)
BP*(Income, Demeaned)	-0.000*	-0.002**	-0.020	0.099*	-0.001	-0.022	0.101*	-0.002*
	(0.000)	(0.001)	(0.046)	(0.053)	(0.000)	(0.045)	(0.054)	(0.001)
Ad Spend., Demeaned	0.003***	-0.000			-0.001			-0.004
	(0.001)	(0.001)			(0.003)			(0.005)
BP*(Ad Spend., Demeaned)	0.001***	0.001			0.004*			0.000
	(0.000)	(0.002)			(0.002)			(0.006)
# Elections, 2000-2008			-1.951**	0.000		-1.932**	-0.000	
			(0.825)	(0.000)		(0.817)	(0.000)	
BP*(# Elections, 2000-2008)			0.414	-1.538**		0.376	-1.557***	
			(0.509)	(0.751)		(0.500)	(0.741)	
Constant	0.052***	0.017**	16.367**	-0.000	0.056***	16.306**	0.000	0.022**
	(0.004)	(0.009)	(6.966)	(0.000)	(0.005)	(6.934)	(0.000)	(0.010)
Obs.	3,748	3,424	3,748	3,748	3,748	3,424	3,424	3,424
S.E. Cluster	MSA	MSA	MSA	MSA	MSA	MSA	MSA	MSA
# of MSAs	78	78	78	78	78	78	78	78
# of stations	3,748	3,424	3,748	3,748	3,748	3,424	3,424	3,424
Kleibergen-Paap Wald F-stat.			2.10	2.10		2.20	2.20	

Notes: The sample is restricted to stations with available data on Green Index and household income. The dependent variable is the station's price difference or log of quantity difference between the "pre" and "during" spill periods. The Green Index is the sum of z-scores for four variables: the hybrid share of vehicle registrations at the zip code level in 2007, Sierra Club membership, the number of LEED-registered buildings per capita, and contributions to Green Party committees. Zip code income is in year 2000 U.S. thousand dollars. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Sources: OPIS, Sierra Club, the U.S. Green Building Council, the U.S. Census and Kantar Media.

Table A10: BP Station Market Share Impact, By Advertising Level

	(1)	(2)
	BP Mkt. Share, Above Median Ad. Spend.	BP Mkt. Share, Below Median Ad. Spend.
Jan'09	-0.001	0.003
	(0.002)	(0.003)
Feb'09	-0.001	0.004
	(0.002)	(0.003)
Mar'09	-0.001	0.003
	(0.002)	(0.003)
Apr'09	-0.001	0.002
	(0.002)	(0.003)
May'09	-0.001	0.005*
	(0.002)	(0.003)
Jun'09	-0.003*	0.003
	(0.002)	(0.003)
Jul'09	-0.003	0.004
	(0.002)	(0.003)
Aug'09	-0.001	0.001
	(0.002)	(0.002)
Sep'09	-0.001	0.002
	(0.002)	(0.002)
Oct'09	-0.000	0.003
	(0.001)	(0.002)
Nov'09	-0.000	0.002
	(0.001)	(0.002)
Dec'09	0.001	0.001
	(0.001)	(0.002)
Jan'10	0.001	0.001
	(0.001)	(0.001)
Feb'10	0.000	-0.000
	(0.001)	(0.001)
Mar'10	0.001	-0.000
	(0.001)	(0.001)
May'10	-0.000	-0.000
	(0.001)	(0.001)
Jun'10	-0.000	-0.000
	(0.001)	(0.001)
Jul'10	0.000	-0.000
	(0.001)	(0.001)
Aug'10	-0.001	-0.003
	(0.001)	(0.002)
Sep'10	-0.002	-0.004*
	(0.001)	(0.002)
Oct'10	-0.001	-0.007***
	(0.001)	(0.003)
Nov'10	-0.001	-0.007***
	(0.001)	(0.002)
Dec'10	-0.002*	-0.007***
	(0.001)	(0.002)
Obs.	12,408	4,800
Adjusted R-squared	0.960	0.964
S.E. Cluster	Zip	Zip
# of zips	517	200

Notes: The dependent variable is the BP share of gas stations in a zip code at the monthly level. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Source: OPIS and Kantar Media.

Table A11: Green (Core) and Ancillary Advertising Effects, MSA-Level Clustering

	(1)	(2)	(3)	(4)
	Price Diff.	Price Diff.	Price Diff.	Price Diff.
BP	-0.012***	-0.012***	-0.009**	-0.010**
	(0.004)	(0.004)	(0.005)	(0.005)
Green Index	0.001	0.001		
	(0.001)	(0.001)		
BP*(Green Index)	-0.001	-0.001		
	(0.001)	(0.001)		
Green Zip Dummy			-0.003	-0.003
			(0.005)	(0.005)
BP*(Green Zip Dummy)			-0.005	-0.004
			(0.006)	(0.006)
Income, Demeaned	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
BP*(Income, Demeaned)	-0.000*	-0.000	-0.000*	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Green Ad. Spending	0.003***	0.003	0.003***	0.003*
	(0.001)	(0.002)	(0.001)	(0.0012)
BP*(Green Ad. Spend.)	0.001***	0.001	-0.001	-0.004*
	(0.000)	(0.001)	(0.001)	(0.002)
BP*(Green Ad. Spend.)*(Green Zip)			0.003*	0.006***
			(0.001)	(0.002)
Local/Ancillary Ad. Spend.		-0.001		-0.001
		(0.006)		(0.005)
BP*(Local/Ancillary Ad. Spend.)		0.002		0.008**
		(0.002)		(0.004)
BP*(Local/Ancil. Ad. Spend.)*(Green Zip)				-0.007*
				(0.004)
Constant	0.052***	0.052***	0.053***	0.053***
	(0.004)	(0.004)	(0.004)	(0.004)
Obs.	3,748	3,748	3,748	3,748
S.E. Cluster	MSA	MSA	MSA	MSA
# of MSAs	78	78	78	78
# of stations	3,748	3,748	3,748	3,748

Notes: The dependent variable is the station-level price difference (the average net price during the pre-spill period minus the average during-spill period). The advertising measures control for demeaned BP advertising expenditures during the Beyond Petroleum campaign years (2000-2008). "Green Ad." includes advertising related to the BP Corporation, BP fuels, and environmental issues. "Local/Ancillary Ad. Spend" includes other BP service station related ads such as for convenience stores and products and individual service stations. The indicator "Green Zip" equals one for stations in zip codes whose Green Index measure is above the median. *** Significant at 1%. ** Significant at 5%. * Significant at 10%. Sources: OPIS, Sierra Club, the U.S. Green Building Council, the U.S. Census and Kantar Media.

A2 OPIS Data Details and Sample Construction

We filter the price data at the zip code level according to the following criteria:

1. We begin with the daily price observations for each store from 2007 to October 2010. We remove store-weeks without at least five days of price observations. (This drop 10 percent of the observations from the raw data.)

2. We require that each store have at least 3 years of weekly observations. To ensure the consistency of our stores, we also flag large one-day changes in prices indicative of an error in data ("Twinkie effect") in the price data. We drop stores that are particularly affected by this error. Specifically, for each store we record the first and last day of operation in the data and require that each store have non-Twinkie price observations for at least 80 percent of these possible days.

3. With the remaining stores, we filter the data at the zip code level, keeping zips that have at least 5 distinct stores. We also require that each zip code have at least one observation (from at least one store) for every week from 2007-2010.

4. Finally, we retain data only from EIA Petroleum Administration Defense Districts (PADDs) that feature a sufficiently broad BP brand presence, namely the East Coast (PADD 1), the Midwest (PADD 2), and the Gulf Coast (PADD 3).

After conducting the above steps, we have a list zip codes from the pricing data. We have similar restrictions on the stores and zip codes used from the weekly quantity data as detailed below.

1. We begin with weekly quantity data from 2009 to December 2010. Within the weekly store quantity observations, we drop any store that is absent from the data for 3 months or more at some point in our data.

2. From this set of stores, we construct z-scores for each store's quantity by quarter. (We allow each store to have two extreme values by setting the two highest z-scores to missing). Next, we filter the data at the zip code level by removing any zip code and all its stores if that zip code has at least one store with a z-score below -3.0 or above 3.0 in any quarter of the data.

3. We drop any zip code that has fewer than 5 distinct stores.

4. We drop any zip code with implausibly high variation in quantity sold. We do this by computing the mean and standard deviation for quantity sold in each zip code. Next, we compute the ratio of the standard deviation over the mean. Calculating the mean of this ratio, we drop all zip codes above the mean.

5. Finally, we focus on zip codes located in the East Coast (PADD 1), the Midwest (PADD 2), and the Gulf Coast (PADD 3)

The remaining zip codes comprise our list of usable zip codes from the quantity data. For the proceeding analyses, we restrict the data to observations from zip codes that meet the above criteria for the price and quantity data. Note that we pick good zip codes and re-introduce the "bad" stations within those zip codes for the analysis presented in the paper. The table below provides statistics on the number of stations that have price or quantity data and satify various geographic criteria.

Number of Stations in OPIS Data

	(1) # Stores with Prices	(2) # Stores with Sales	(3) # Stores with Both
OPIS Raw Data	135,973	119,631	118,813
Located in "Good Zips"	15,825	13,865	13,795
+ Not ARCO	14,167	12,575	12,519
+ Not BP Competitor	7,503	6,735	6,709
+ Located in PADD 1, 2, or 3	5,526	4,997	4,975

Notes: Each row reports the number of stations with price or sales data during our sample period that satisfy various geographic criteria. Source: OPIS.