

Supporting materials for

**"Looking the part:
Television leads less informed citizens to vote based on
candidates' appearance"**

Table of contents

Replication of Appendix Table 1 with probit instead of linear probability	2
Replication of part of Appendix Table 2 with probit instead of linear probability	3
Experience advantage and educational advantage on vote	4
Full results for Appendix Table 2 estimates for gubernatorial candidates.....	5
Full results for Appendix Table 2 estimates for Senate candidates	8
Appearance advantage interaction with television is not sensitive to using knowledge quartiles	11
Gubernatorial races	11
Senate races.....	16
Plausibility of less-informed hypothesis	20
Image as a low information heuristic?	21
Appearance and true quality	22
Quasi-experiment.....	23
Appearance advantage and in-state versus out-of-state originating broadcasts	23
Classification of counties into in-state or out-state originating broadcasts.....	24
An example of in-state and out-state dominated media markets: Pennsylvania counties.....	25
Quasiexperimental scatterplot: Television slightly exacerbates the effect of image	26
Quasi-experimental findings	27
Measuring exposure to television coverage during campaigns.....	28
News stories mentioning candidates by in-state and out-state media market	29
Balance table for quasi-experiment: County-level statistics, before and after matching	30
Applying the media market measures from 1995-2000 to the 2006 CCES	31
CCES sampling procedure.....	32

Replication of Appendix Table 1 with probit instead of linear probability

	DV: Gubernatorial vote					DV: Senate vote				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dem. appearance advantage	0.13 (0.33)	-0.01 (0.16)				0.50 (0.22)	0.57 (0.16)			
*High TV	0.09 (0.20)	0.47 (0.22)				0.28 (0.14)	0.58 (0.22)			
High TV	0.36 (0.11)	-0.10 (0.11)	-0.13 (0.12)	-0.48 (0.25)	-0.48 (0.25)	0.31 (0.07)	-0.11 (0.11)	-0.23 (0.08)	-0.47 (0.15)	-0.47 (0.16)
Low know.*Appearance			0.24 (0.47)	0.00 (0.63)	-0.87 (0.57)			0.72 (0.39)	0.91 (0.51)	0.15 (0.62)
*High TV			0.63 (0.23)	1.14 (0.44)	1.12 (0.45)			0.88 (0.25)	1.06 (0.43)	1.05 (0.46)
Low mid know.*Appearance			0.29 (0.51)	0.28 (0.55)	-0.40 (0.44)			1.03 (0.39)	0.66 (0.40)	-0.28 (0.45)
*High TV			0.06 (0.34)	-0.10 (0.48)	-0.19 (0.44)			-0.30 (0.27)	-0.10 (0.38)	-0.04 (0.38)
High mid know.*Appearance			0.39 (0.45)	-0.09 (0.43)	-0.74 (0.39)			0.66 (0.36)	0.73 (0.32)	-0.21 (0.54)
*High TV			-0.18 (0.36)	0.38 (0.42)	0.38 (0.42)			0.15 (0.24)	0.12 (0.28)	0.11 (0.29)
High know.*Appearance			-0.39 (0.33)	-0.34 (0.29)	-1.14 (0.42)			-0.18 (0.33)	-0.03 (0.26)	-1.03 (0.60)
*High TV			-0.26 (0.26)	0.10 (0.32)	-0.03 (0.31)			-0.11 (0.33)	0.85 (0.53)	0.84 (0.57)
Partisan identification		1.46 (0.08)		1.47 (0.11)	1.52 (0.11)		1.52 (0.09)		1.52 (0.15)	1.55 (0.14)
Ideology		1.26 (0.13)		1.26 (0.18)	1.33 (0.16)		1.44 (0.15)		1.42 (0.13)	1.42 (0.14)
Bush approval		1.33 (0.09)		1.33 (0.12)	1.33 (0.12)		1.39 (0.10)		1.37 (0.11)	1.41 (0.10)
Iraq was a mistake?		0.36 (0.07)		0.37 (0.08)	0.40 (0.09)		0.54 (0.07)		0.55 (0.07)	0.57 (0.07)
Incumbency					0.42 (0.08)					0.32 (0.11)
Low mid knowledge		0.18 (0.06)	-0.18 (0.19)	0.09 (0.22)	-0.03 (0.23)		0.06 (0.06)	-0.35 (0.13)	0.12 (0.20)	0.18 (0.22)
High mid knowledge		0.25 (0.06)	-0.25 (0.20)	0.20 (0.22)	0.05 (0.24)		0.17 (0.07)	-0.13 (0.18)	0.09 (0.23)	0.16 (0.25)
High knowledge		0.27 (0.06)	0.08 (0.19)	0.28 (0.27)	0.23 (0.28)		0.06 (0.06)	0.04 (0.27)	0.33 (0.26)	0.39 (0.32)
Low mid know.*High TV			0.45 (0.18)	0.51 (0.35)	0.55 (0.33)			0.75 (0.16)	0.59 (0.23)	0.56 (0.25)
High mid know.*High TV			0.76 (0.22)	0.52 (0.32)	0.55 (0.33)			0.66 (0.12)	0.69 (0.21)	0.69 (0.23)
High know.*High TV			0.87 (0.14)	0.73 (0.29)	0.82 (0.30)			0.97 (0.23)	0.41 (0.28)	0.46 (0.30)
n	9325	9325	9325	9325	9325	9110	9110	9110	9110	9110
LL	-6276	-2934	-6223	-2918	-2795	-6060	-2425	-5988	-2405	-2334

Note: This table shows television slightly exacerbates the effects of candidate image among all citizens, but especially among less-informed respondents while controlling for Partisan identification, Ideology, and Bush approval. Probit with robust standard errors clustered at the state level. The sample sizes are slightly smaller for this table (then the OLS one) because we constructed it before imputing missing values on the control variables. The results remain substantively identical when we do impute missing values. The Ns Source for voting and attitudinal data: 2006 CCES.

Replication of part of Appendix Table 2 with probit instead of linear probability

	<i>DV: Gubernatorial vote</i>					<i>DV: Senate vote</i>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Low know.*Appearance			-0.35 (0.60)		-0.90 (0.62)			-0.27 (0.54)		-0.06 (0.68)
*High TV			1.29 (0.48)		1.22 (0.53)			0.92 (0.43)		0.83 (0.46)
Low mid know.*Appearance			-0.05 (0.46)		-0.69 (0.43)			-0.09 (0.40)		-0.77 (0.39)
*High TV			-0.24 (0.44)		-0.08 (0.48)			-0.41 (0.41)		0.23 (0.46)
High mid know.*Appearance			-0.25 (0.42)		-0.59 (0.39)			0.40 (0.37)		0.38 (0.41)
*High TV			0.33 (0.40)		0.23 (0.41)			-0.19 (0.51)		-0.37 (0.39)
High know.*Appearance			-0.61 (0.40)		-0.87 (0.44)			0.10 (0.43)		0.75 (0.35)
*High TV			-0.06 (0.40)		-0.10 (0.41)			0.17 (0.63)		-0.11 (0.67)
Low know.*Experience	1.22 (0.32)		1.45 (0.52)			2.09 (0.96)		2.42 (1.01)		
*High TV	0.01 (0.48)		-0.24 (0.58)			1.14 (0.70)		0.46 (0.54)		
Low know.*Education		0.13 (0.25)	-0.18 (0.29)				1.04 (0.48)	0.53 (0.46)		
*High TV		-0.12 (0.30)	-0.29 (0.26)				1.06 (0.42)	0.64 (0.48)		
Low know.*Incumbency				0.32 (0.08)	0.43 (0.11)				0.40 (0.14)	0.41 (0.17)
*High TV				0.10 (0.11)	-0.05 (0.12)				0.18 (0.13)	0.09 (0.12)
<i>n</i>	9325	9325	9325	9325	9325	9110	9110	9110	9110	9110
LL	-2853	-2927	-2829	-2810	-2789	-2383	-2305	-	-2276	-2313
								2281		
Experience main & interactions	X		X			X		X		
Education main & interactions		X	X				X	X		
Incumbency main & interactions				X	X				X	X
High TV	X	X	X	X	X	X	X	X	X	X
Knowledge quartiles	X	X	X	X	X	X	X	X	X	X
High TV*Know. Quartiles	X	X	X	X	X	X	X	X	X	X
Attitude controls (e.g., PID)	X	X	X	X	X	X	X	X	X	X

Note: This table shows that television consistently exacerbates the effects of Appearance among the bottom quartile in terms of political knowledge, but does not consistently privilege true quality, measured by Experience advantage and Education, or privilege incumbents. This is especially true for gubernatorial races; in Senate races, there is some evidence that television increases the effect of true quality among the less-informed individuals. When the Appearance, Experience, and Education advantage interactions are included in the same models ((3) and (8)), only the interaction with Appearance is consistently large and statistically indistinguishable from zero. We include all main effects and double interactions that are components of the included triple interactions but only show those for low knowledge (bottom quartile) individuals. None of the triple interactions were statistically significant for the other knowledge quartiles. Attitude controls include Partisan identification, Ideology, Bush approval, and attitudes about Iraq. OLS with robust standard errors clustered at the state level. Source for voting and attitudinal data: 2006 CCES.

Experience advantage and educational advantage on vote

This figure shows the relationship between Experience advantage and Educational advantage, while controlling for attitudinal variables.

	(1)	(2)	(3)	(4)	(5)	(6)
	Senate vote			Gubernatorial vote		
Experience advantage	0.40 (0.08)		0.15 (0.06)	0.23 (0.06)		0.15 (0.07)
Educational advantage		0.23 (0.05)	0.04 (0.04)		0.12 (0.05)	-0.00 (0.05)
Partisan identification			0.32 (0.03)			0.35 (0.02)
Ideology			0.21 (0.01)			0.20 (0.02)
Bush approval			0.38 (0.02)			0.38 (0.02)
Iraq a mistake?			0.24 (0.01)			0.19 (0.02)
<i>n</i>	17792	17792	17792	17936	17936	17936
R ²	0.020	0.012	0.718	0.007	0.004	0.665
SER	0.491	0.493	0.263	0.494	0.495	0.287

OLS with standard errors clustered at the state level in parentheses. Source for voting and attitudinal data: 2006 CCES.

Full results for Appendix Table 2 estimates for gubernatorial candidates

<i>DV: Vote intent</i>	(1)	(2)	(3)	(4)	(5)	(6)
High TV	-0.23 (0.12)	-0.11 (0.08)	-0.10 (0.08)	-0.11 (0.10)	-0.22 (0.10)	0.40 (0.26)
Low know.*Appearance	-0.04 (0.08)	-0.13 (0.11)	-0.07 (0.12)	-0.22 (0.11)	-0.16 (0.10)	-0.16 (0.10)
*High TV	0.53 (0.18)	0.50 (0.18)	0.61 (0.16)	0.38 (0.21)	0.43 (0.18)	0.35 (0.24)
Low mid know.*Appearance	0.07 (0.06)	0.02 (0.07)	0.04 (0.07)	-0.04 (0.08)	-0.00 (0.07)	0.03 (0.07)
*High TV	-0.12 (0.20)	-0.24 (0.20)	-0.16 (0.21)	-0.24 (0.20)	-0.19 (0.19)	-0.33 (0.19)
High mid know.*Appearance	-0.02 (0.07)	-0.07 (0.06)	-0.06 (0.06)	-0.11 (0.06)	-0.08 (0.06)	-0.07 (0.06)
*High TV	0.16 (0.16)	0.08 (0.18)	0.14 (0.18)	0.07 (0.21)	0.12 (0.18)	0.06 (0.23)
High know.*Appearance	-0.04 (0.09)	-0.07 (0.09)	-0.03 (0.08)	-0.13 (0.11)	-0.07 (0.09)	-0.18 (0.13)
*High TV	-0.06 (0.17)	-0.14 (0.16)	-0.13 (0.14)	-0.08 (0.20)	-0.08 (0.17)	0.03 (0.24)
Partisan identification	0.40 (0.03)	0.40 (0.03)	0.40 (0.03)	0.39 (0.02)	0.39 (0.03)	0.40 (0.03)
Ideology	0.21 (0.03)	0.21 (0.03)	0.21 (0.03)	0.22 (0.03)	0.21 (0.03)	0.22 (0.03)
Bush approval	0.37 (0.03)	0.37 (0.03)	0.38 (0.03)	0.37 (0.03)	0.37 (0.03)	0.37 (0.03)
Iraq was a mistake?	0.14 (0.02)	0.14 (0.02)	0.14 (0.02)	0.14 (0.02)	0.14 (0.02)	0.14 (0.02)
Low know.*Spending	0.28 (0.08)					0.22 (0.07)
Low mid know.*Spending	0.21 (0.06)					0.16 (0.05)
High mid know.*Spending	0.15 (0.05)					0.10 (0.05)
High know.*Spending	0.13 (0.10)					0.15 (0.08)
Low know.*Spending*TV	0.15 (0.14)					-0.01 (0.16)
Low mid know.*Spending*TV	-0.09 (0.13)					-0.23 (0.13)
High mid know.*Spending*TV	0.02 (0.14)					0.05 (0.17)
High know.*Spending*TV	-0.09 (0.21)					-0.19 (0.17)
Low mid knowledge	0.02 (0.06)	0.05 (0.04)	-0.02 (0.05)	-0.05 (0.05)	0.00 (0.05)	-0.00 (0.10)
High mid knowledge	0.04 (0.07)	0.08 (0.04)	-0.01 (0.05)	-0.06 (0.05)	0.00 (0.06)	0.09 (0.12)

High knowledge	0.09 (0.08)	0.09 (0.07)	0.03 (0.07)	-0.03 (0.09)	0.05 (0.07)	0.33 (0.22)
Low mid know.* TV	0.35 (0.19)	0.13 (0.12)	0.21 (0.13)	0.22 (0.15)	0.27 (0.15)	-0.11 (0.30)
High mid know.* TV	0.35 (0.19)	0.17 (0.12)	0.22 (0.11)	0.28 (0.15)	0.35 (0.16)	-0.21 (0.38)
High know.* TV	0.44 (0.20)	0.26 (0.14)	0.17 (0.11)	0.28 (0.17)	0.38 (0.15)	-0.73 (0.42)
Low know.*Experience		0.34 (0.09)				0.20 (0.13)
Low mid know.*Experience		0.15 (0.09)				-0.17 (0.13)
High mid know.*Experience		0.06 (0.06)				-0.28 (0.08)
High know.*Experience		0.10 (0.15)				-0.02 (0.19)
Low know.*Experience *TV		-0.10 (0.17)				-0.81 (0.22)
Low mid know.*Experience *TV		0.22 (0.16)				0.41 (0.28)
High mid know.*Experience *TV		0.24 (0.17)				0.49 (0.29)
High know.*Experience *TV		0.12 (0.30)				0.19 (0.39)
Low know.*Education			0.08 (0.06)			-0.01 (0.08)
Low mid know.*Education			0.09 (0.05)			0.06 (0.06)
High mid know.*Education			0.05 (0.05)			0.02 (0.05)
High know.*Education			-0.00 (0.09)			-0.16 (0.06)
Low know.*Education *TV			-0.22 (0.13)			-0.39 (0.16)
Low mid know.*Education *TV			-0.07 (0.14)			-0.25 (0.19)
High mid know.*Education *TV			0.04 (0.13)			-0.10 (0.15)
High know.*Education *TV			0.22 (0.16)			0.44 (0.14)
Low know.*Incumbency				0.08 (0.02)		0.05 (0.07)
Low mid know.*Incumbency				0.06 (0.02)		0.02 (0.05)
High mid know.*Incumbency				0.04 (0.02)		0.05 (0.03)
High know.*Incumbency				0.04 (0.03)		0.17 (0.08)
Low know.*Incumbency *TV				0.06 (0.06)		0.25 (0.14)
Low mid know.*Incumbency *TV				0.04		0.10

					(0.05)	(0.15)
High mid know.*Incumbency *TV					0.04	0.08
					(0.05)	(0.15)
High know.*Incumbency *TV					0.00	-0.27
					(0.06)	(0.17)
Low know.*Cook ratings					0.21	-0.12
					(0.06)	(0.17)
Low mid know.*Cook ratings					0.15	0.07
					(0.06)	(0.19)
High mid know.*Cook ratings					0.11	0.07
					(0.04)	(0.07)
High know.*Cook ratings					0.07	-0.33
					(0.08)	(0.20)
Low know.*Cook ratings *TV					0.18	0.11
					(0.14)	(0.35)
Low mid know.*Cook ratings *TV					0.08	-0.13
					(0.13)	(0.31)
High mid know.*Cook ratings *TV					0.05	-0.39
					(0.12)	(0.31)
High know.*Cook ratings *TV					0.04	0.48
					(0.15)	(0.35)
Constant	-0.24	-0.20	-0.12	-0.01	-0.15	-0.17
	(0.04)	(0.05)	(0.05)	(0.06)	(0.04)	(0.13)
Observations	10273	10273	10273	10273	10273	10273
R-squared	0.602	0.597	0.591	0.602	0.602	0.609
SER	0.314	0.317	0.319	0.314	0.315	0.312

Full results for Appendix Table 2 estimates for Senate candidates

<i>DV: Vote intent</i>	(1)	(2)	(3)	(4)	(5)	(6)
High TV	-0.29 (0.06)	-0.35 (0.07)	-0.46 (0.08)	-0.27 (0.11)	-0.27 (0.07)	-0.59 (0.19)
Low know.*Appearance	-0.18 (0.09)	-0.05 (0.11)	0.01 (0.10)	-0.10 (0.10)	-0.10 (0.10)	-0.17 (0.09)
*High TV	0.48 (0.22)	0.48 (0.22)	0.52 (0.16)	0.58 (0.26)	0.52 (0.22)	0.52 (0.20)
Low mid know.*Appearance	-0.02 (0.07)	-0.07 (0.06)	0.03 (0.07)	-0.05 (0.06)	-0.05 (0.04)	-0.07 (0.06)
*High TV	-0.13 (0.18)	0.13 (0.15)	-0.02 (0.16)	-0.03 (0.16)	-0.00 (0.17)	-0.08 (0.18)
High mid know.*Appearance	0.05 (0.08)	0.12 (0.08)	0.03 (0.08)	0.10 (0.08)	0.09 (0.08)	0.07 (0.08)
*High TV	-0.15 (0.22)	-0.14 (0.19)	0.15 (0.18)	-0.19 (0.21)	-0.17 (0.22)	-0.17 (0.21)
High know.*Appearance	0.03 (0.10)	0.03 (0.08)	-0.10 (0.07)	0.04 (0.09)	0.05 (0.09)	0.05 (0.08)
*High TV	0.10 (0.31)	0.11 (0.25)	0.33 (0.28)	0.18 (0.36)	0.19 (0.33)	0.05 (0.27)
Partisan identification	0.38 (0.03)	0.38 (0.03)	0.38 (0.03)	0.38 (0.03)	0.38 (0.03)	0.38 (0.03)
Ideology	0.21 (0.02)	0.22 (0.02)	0.22 (0.02)	0.21 (0.02)	0.21 (0.02)	0.21 (0.02)
Bush approval	0.38 (0.02)	0.38 (0.02)	0.38 (0.02)	0.38 (0.02)	0.37 (0.02)	0.37 (0.02)
Iraq was a mistake?	0.17 (0.02)	0.17 (0.02)	0.18 (0.02)	0.17 (0.02)	0.17 (0.02)	0.17 (0.02)
Low know.*Spending	0.39 (0.10)					0.36 (0.23)
Low mid know.*Spending	0.16 (0.05)					-0.19 (0.09)
High mid know.*Spending	0.05 (0.07)					0.14 (0.09)
High know.*Spending	-0.14 (0.06)					0.09 (0.10)
Low know.*Spending*TV	0.17 (0.15)					0.11 (0.30)
Low mid know.*Spending*TV	0.14 (0.13)					0.76 (0.26)
High mid know.*Spending*TV	0.27 (0.24)					0.17 (0.26)
High know.*Spending*TV	0.35 (0.18)					0.13 (0.33)
Low mid knowledge	0.03	-0.00	-0.02	-0.04	0.01	-0.01

	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.08)
High mid knowledge	0.05	0.06	0.01	-0.12	0.01	0.05
	(0.06)	(0.06)	(0.07)	(0.06)	(0.04)	(0.11)
High knowledge	0.14	0.15	0.11	-0.11	0.07	0.14
	(0.06)	(0.07)	(0.08)	(0.07)	(0.05)	(0.10)
Low mid know.* TV	0.36	0.46	0.56	0.36	0.36	0.94
	(0.09)	(0.08)	(0.12)	(0.12)	(0.09)	(0.15)
High mid know.* TV	0.33	0.36	0.55	0.47	0.36	0.73
	(0.12)	(0.12)	(0.12)	(0.14)	(0.10)	(0.27)
High know.* TV	0.24	0.23	0.34	0.35	0.23	0.49
	(0.20)	(0.22)	(0.22)	(0.23)	(0.19)	(0.42)
Low know.*Experience		0.35				-0.01
		(0.17)				(0.15)
Low mid know.*Experience		0.34				0.30
		(0.06)				(0.09)
High mid know.*Experience		-0.07				-0.28
		(0.08)				(0.16)
High know.*Experience		-0.26				-0.15
		(0.12)				(0.18)
Low know.*Experience *TV		0.35				0.38
		(0.21)				(0.25)
Low mid know.*Experience *TV		-0.26				-0.68
		(0.18)				(0.22)
High mid know.*Experience *TV		0.42				0.46
		(0.34)				(0.52)
High know.*Experience *TV		0.62				0.48
		(0.37)				(0.70)
Low know.*Education			0.15			-0.02
			(0.10)			(0.13)
Low mid know.*Education			0.14			0.11
			(0.07)			(0.08)
High mid know.*Education			0.07			0.07
			(0.07)			(0.08)
High know.*Education			-0.03			-0.02
			(0.06)			(0.06)
Low know.*Education *TV			0.34			0.16
			(0.12)			(0.21)
Low mid know.*Education *TV			-0.04			-0.19
			(0.16)			(0.18)
High mid know.*Education *TV			-0.06			-0.31
			(0.21)			(0.21)
High know.*Education *TV			0.22			0.14
			(0.13)			(0.12)
Low know.*Incumbency				0.08		-0.02
				(0.03)		(0.05)
Low mid know.*Incumbency				0.05		-0.02
				(0.02)		(0.03)

High mid know.*Incumbency					-0.01	-0.01
					(0.02)	(0.03)
High know.*Incumbency					-0.05	-0.01
					(0.01)	(0.04)
Low know.*Incumbency *TV					0.01	-0.14
					(0.06)	(0.10)
Low mid know.*Incumbency *TV					0.01	0.15
					(0.04)	(0.10)
High mid know.*Incumbency *TV					0.09	0.03
					(0.06)	(0.10)
High know.*Incumbency *TV					0.10	0.05
					(0.04)	(0.11)
Low know.*Cook ratings						0.22
						(0.08)
Low mid know.*Cook ratings						0.14
						(0.03)
High mid know.*Cook ratings						0.00
						(0.04)
High know.*Cook ratings						-0.13
						(0.04)
Low know.*Cook ratings *TV						0.07
						(0.10)
Low mid know.*Cook ratings *TV						-0.02
						(0.10)
High mid know.*Cook ratings *TV						0.20
						(0.14)
High know.*Cook ratings *TV						0.23
						(0.10)
Constant	-0.21	-0.20	-0.19	-0.04	-0.16	-0.22
	(0.04)	(0.05)	(0.05)	(0.05)	(0.03)	(0.09)
Observations	9980	9980	9980	9980	9935	9935
R-squared	0.668	0.662	0.658	0.661	0.665	0.671
SER	0.287	0.289	0.291	0.290	0.288	0.286

Robust standard errors in parentheses

Appearance advantage interaction with television is not sensitive to using knowledge quartiles

Gubernatorial races

For gubernatorial races, television appears to exacerbate the effects of appearance at about the same level in the bottom fourth, fifth, sixth, and seventh of the political knowledge scale.

Appearance advantage = cmp_gov

Bottom fifth of political knowledge (gubernatorial races)

Low television (below the median)

```
. tokenize gov 5

. reg v_`1'`1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.6747e+03)
```

```
Linear regression                                Number of obs =    1358
                                                F( 5,    34) =   111.92
                                                Prob > F      =    0.0000
                                                R-squared    =    0.3593
                                                Root MSE    =    .40088
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.0366205	.146977	0.25	0.805	-.2620726	.3353137
ipid_1	.4292703	.051045	8.41	0.000	.3255344	.5330063
iideo	.1525103	.0600893	2.54	0.016	.0303942	.2746265
iBush_appr~1	.3336781	.0621174	5.37	0.000	.2074403	.4599159
iIraq	.0716434	.0370388	1.93	0.061	-.0036284	.1469152
_cons	-.0454118	.0678558	-0.67	0.508	-.1833115	.0924878

```
. reg v_`1'`1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.5630e+03)
```

```
Linear regression                                Number of obs =    1346
                                                F( 5,    34) =    74.03
                                                Prob > F      =    0.0000
                                                R-squared    =    0.3032
                                                Root MSE    =    .41226
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.2540071	.1413242	1.80	0.081	-.0331983	.5412126
ipid_1	.4495739	.0606537	7.41	0.000	.3263108	.572837
iideo	.1548095	.0752516	2.06	0.047	.0018798	.3077392
iBush_appr~1	.2521211	.0568072	4.44	0.000	.1366749	.3675673
iIraq	.0735535	.0459614	1.60	0.119	-.0198514	.1669583
_cons	-.0806663	.0749321	-1.08	0.289	-.2329466	.071614

Bottom sixth of political knowledge (gubernatorial races)

Low television (below the median)

```
. tokenize gov 6

. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.6144e+03)
```

```
Linear regression                                Number of obs = 1300
                                                F( 5, 34) = 144.10
                                                Prob > F = 0.0000
                                                R-squared = 0.3706
                                                Root MSE = .39747
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.0354404	.1474086	0.24	0.811	-.26413	.3350107
ipid_1	.4291876	.0509972	8.42	0.000	.3255488	.5328263
iideo	.1800479	.0574434	3.13	0.004	.0633089	.2967868
iBush_appr~1	.3381471	.0595444	5.68	0.000	.2171383	.4591559
iIraq	.073758	.0370983	1.99	0.055	-.0016348	.1491508
_cons	-.0654433	.0626944	-1.04	0.304	-.1928537	.0619672

```
. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.4864e+03)
```

```
Linear regression                                Number of obs = 1267
                                                F( 5, 34) = 70.90
                                                Prob > F = 0.0000
                                                R-squared = 0.3113
                                                Root MSE = .41036
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.256748	.134659	1.91	0.065	-.016912	.5304079
ipid_1	.4630575	.0670144	6.91	0.000	.3268678	.5992473
iideo	.1735231	.0710219	2.44	0.020	.0291893	.3178569
iBush_appr~1	.2551948	.0615243	4.15	0.000	.1301625	.3802271
iIraq	.0663938	.0498422	1.33	0.192	-.0348977	.1676853
_cons	-.097892	.0710213	-1.38	0.177	-.2422247	.0464406

Bottom seventh of political knowledge (gubernatorial races)

Low television (below the median)

. tokenize gov 7

```
. reg v_`1'`1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.3455e+03)
```

```
Linear regression                                Number of obs = 1060
                                                F( 5, 34) = 113.61
                                                Prob > F = 0.0000
                                                R-squared = 0.3433
                                                Root MSE = .40594
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.0506523	.1441278	0.35	0.727	-.2422507	.3435552
ipid_1	.4127137	.0523982	7.88	0.000	.3062278	.5191997
iideo	.1572483	.0602091	2.61	0.013	.0348886	.2796079
iBush_appr~1	.3775544	.0641136	5.89	0.000	.2472599	.507849
iIraq	.0436501	.0425118	1.03	0.312	-.0427443	.1300446
_cons	-.0567919	.0596973	-0.95	0.348	-.1781113	.0645276

```
. reg v_`1'`1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.2449e+03)
```

```
Linear regression                                Number of obs = 1031
                                                F( 5, 34) = 65.11
                                                Prob > F = 0.0000
                                                R-squared = 0.2812
                                                Root MSE = .41978
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.2663088	.136662	1.95	0.060	-.0114218	.5440395
ipid_1	.4460822	.0777615	5.74	0.000	.2880519	.6041126
iideo	.1771257	.0770442	2.30	0.028	.020553	.3336984
iBush_appr~1	.2593459	.0736572	3.52	0.001	.1096565	.4090353
iIraq	.0464684	.0539079	0.86	0.395	-.0630858	.1560225
_cons	-.0877211	.0759779	-1.15	0.256	-.2421268	.0666846

Bottom eighth of political knowledge (gubernatorial races)

Low television (below the median)

```
. tokenize gov 8

. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.2246e+03)
```

```
Linear regression                                Number of obs =    955
                                                F( 5, 34) =    95.48
                                                Prob > F      =    0.0000
                                                R-squared    =    0.3115
                                                Root MSE    =    .41547
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.0484744	.155006	0.31	0.756	-.2665357	.3634845
ipid_1	.4121764	.0561392	7.34	0.000	.2980878	.526265
iideo	.1679414	.0641238	2.62	0.013	.0376262	.2982566
iBush_appr~1	.3170665	.0660372	4.80	0.000	.1828629	.4512702
iIraq	.064049	.0435499	1.47	0.151	-.0244551	.1525531
_cons	-.0330375	.0656109	-0.50	0.618	-.166375	.1003

```
. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.1064e+03)
```

```
Linear regression                                Number of obs =    908
                                                F( 5, 34) =    55.49
                                                Prob > F      =    0.0000
                                                R-squared    =    0.2625
                                                Root MSE    =    .42537
```

(Std. Err. adjusted for 35 clusters in STATE)

v_gov_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_gov	.2754172	.1514171	1.82	0.078	-.0322994	.5831337
ipid_1	.4148236	.0840403	4.94	0.000	.2440332	.585614
iideo	.1519194	.0901715	1.68	0.101	-.0313311	.33517
iBush_appr~1	.2908287	.0727759	4.00	0.000	.1429303	.438727
iIraq	.0357272	.051999	0.69	0.497	-.0699475	.1414018
_cons	-.0710582	.0775877	-0.92	0.366	-.2287353	.0866189

Senate races

Appearance advantage interaction with television is not sensitive to using knowledge quartiles

For Senate races, television appears to exacerbate the effects of appearance increasingly as political knowledge declines.

Appearance advantage = cmp_sen

Bottom fifth of political knowledge (Senate races)

Low television (below the median)

```
. tokenize sen 5

. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.5473e+03)
```

```
Linear regression                                Number of obs =    1287
                                                F(   5,   28) =  186.18
                                                Prob > F       =  0.0000
                                                R-squared     =  0.4334
                                                Root MSE     =  .37596
```

(Std. Err. adjusted for 29 clusters in STATE)

v_sen_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_sen	.233632	.107749	2.17	0.039	.0129182	.4543458
ipid_1	.4788069	.0591381	8.10	0.000	.357668	.5999458
iideo	.205386	.0630077	3.26	0.003	.0763206	.3344514
iBush_appr~1	.2589895	.0765633	3.38	0.002	.1021566	.4158223
iIraq	.1253252	.0532793	2.35	0.026	.0161876	.2344629
_cons	-.139312	.055834	-2.50	0.019	-.2536828	-.0249412

High television (above the median)

```
. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.4515e+03)
```

```
Linear regression                                Number of obs =    1314
                                                F(   5,   28) =  245.72
                                                Prob > F       =  0.0000
                                                R-squared     =  0.4028
                                                Root MSE     =  .37757
```

(Std. Err. adjusted for 29 clusters in STATE)

v_sen_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_sen	.4359858	.1427005	3.06	0.005	.1436772	.7282945
ipid_1	.4704377	.0604764	7.78	0.000	.3465575	.594318
iideo	.161572	.0503965	3.21	0.003	.0583394	.2648046
iBush_appr~1	.2469714	.0795646	3.10	0.004	.0839907	.4099522
iIraq	.1136142	.033749	3.37	0.002	.0444826	.1827458
_cons	-.17418	.0679772	-2.56	0.016	-.313425	-.034935

Bottom sixth of political knowledge (Senate races)

Low television (below the median)

```
. tokenize sen 6

. reg v_`1'`1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.4393e+03)
```

```
Linear regression                                Number of obs =    1177
                                                F( 5, 28) = 165.31
                                                Prob > F      = 0.0000
                                                R-squared    = 0.4268
                                                Root MSE    = .37806
```

(Std. Err. adjusted for 29 clusters in STATE)

v_`1'`1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_`1'`1	.2330653	.1212247	1.92	0.065	-.0152522	.4813828
ipid_1	.4660481	.065784	7.08	0.000	.3312957	.6008004
iideo	.1950047	.0679262	2.87	0.008	.0558642	.3341453
iBush_appr~1	.2664093	.0862891	3.09	0.005	.0896541	.4431645
iIraq	.1279376	.0569159	2.25	0.033	.0113507	.2445245
_cons	-.1306191	.0640768	-2.04	0.051	-.2618745	.0006363

High television (above the median)

```
. reg v_`1'`1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.3485e+03)
```

```
Linear regression                                Number of obs =    1202
                                                F( 5, 28) = 195.96
                                                Prob > F      = 0.0000
                                                R-squared    = 0.3959
                                                Root MSE    = .37941
```

(Std. Err. adjusted for 29 clusters in STATE)

v_`1'`1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_`1'`1	.4642687	.1425817	3.26	0.003	.1722033	.7563341
ipid_1	.4646699	.0602512	7.71	0.000	.341251	.5880888
iideo	.1620116	.0514941	3.15	0.004	.0565307	.2674924
iBush_appr~1	.2396805	.0811263	2.95	0.006	.0735009	.4058602
iIraq	.1133605	.0334287	3.39	0.002	.044885	.1818361
_cons	-.1750115	.0719812	-2.43	0.022	-.3224583	-.0275648

Bottom seventh of political knowledge (Senate races)

Low television (below the median)

```
. tokenize sen 7

. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.2381e+03)
```

```
Linear regression                                Number of obs =      999
                                                F( 5, 28) = 168.60
                                                Prob > F      = 0.0000
                                                R-squared     = 0.3977
                                                Root MSE     = .38722
```

(Std. Err. adjusted for 29 clusters in STATE)

v_sen_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_sen	.242033	.1208848	2.00	0.055	-.0055882	.4896541
ipid_1	.4509378	.0650128	6.94	0.000	.3177651	.5841106
iideo	.2038601	.0830605	2.45	0.021	.0337184	.3740017
iBush_appr~1	.2635529	.0884506	2.98	0.006	.0823701	.4447357
iIraq	.1292799	.0531391	2.43	0.022	.0204293	.2381304
_cons	-.1306145	.0732192	-1.78	0.085	-.2805972	.0193683

High television (above the median)

```
. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 1.1247e+03)
```

```
Linear regression                                Number of obs =      978
                                                F( 5, 28) = 104.55
                                                Prob > F      = 0.0000
                                                R-squared     = 0.3718
                                                Root MSE     = .38445
```

(Std. Err. adjusted for 29 clusters in STATE)

v_sen_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_sen	.5180387	.1442106	3.59	0.001	.2226367	.8134407
ipid_1	.4687767	.0642043	7.30	0.000	.3372602	.6002932
iideo	.1854468	.0627313	2.96	0.006	.0569475	.3139461
iBush_appr~1	.1958748	.0844611	2.32	0.028	.022864	.3688855
iIraq	.1189636	.0367223	3.24	0.003	.0437412	.1941859
_cons	-.1800143	.0772415	-2.33	0.027	-.3382364	-.0217923

Bottom eighth of political knowledge (Senate races)

Low television (below the median)

```
. tokenize sen 8

. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 1 , cluster(STATE)
(sum of wgt is 1.1099e+03)
```

```
Linear regression                                Number of obs =      881
                                                F( 5, 28) = 144.51
                                                Prob > F = 0.0000
                                                R-squared = 0.3729
                                                Root MSE = .39536
```

(Std. Err. adjusted for 29 clusters in STATE)

v_sen_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_sen	.2528136	.1206887	2.09	0.045	.005594	.5000333
ipid_1	.4681634	.0648854	7.22	0.000	.3352517	.6010751
iideo	.186157	.0990572	1.88	0.071	-.0167525	.3890665
iBush_appr~1	.2711516	.0854599	3.17	0.004	.096095	.4462082
iIraq	.0983719	.0481821	2.04	0.051	-.0003246	.1970685
_cons	-.1247821	.0694595	-1.80	0.083	-.2670633	.0174992

High television (above the median)

```
. reg v_`1'_1 cmp_`1' ipid_1 iideo iBush_approval iIraq      [pw = WEIGHT] if kf`2'_`1' == 1 &
tv_2 == 2 , cluster(STATE)
(sum of wgt is 9.8472e+02)
```

```
Linear regression                                Number of obs =      844
                                                F( 5, 28) = 130.55
                                                Prob > F = 0.0000
                                                R-squared = 0.3688
                                                Root MSE = .38491
```

(Std. Err. adjusted for 29 clusters in STATE)

v_sen_1	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cmp_sen	.4994642	.1467586	3.40	0.002	.1988428	.8000856
ipid_1	.4805809	.0616136	7.80	0.000	.3543711	.6067907
iideo	.2043662	.0705181	2.90	0.007	.0599164	.3488161
iBush_appr~1	.2007139	.094832	2.12	0.043	.0064593	.3949684
iIraq	.1067907	.0401944	2.66	0.013	.0244562	.1891252
_cons	-.1806998	.080752	-2.24	0.033	-.3461127	-.0152868

Plausibility of less-informed hypothesis

We advanced two arguments for why television may only exacerbate the effects of appearance among less politically knowledgeable individuals. One of these arguments is about what type of citizens use appearance to “inform” their vote. If citizens use appearance as a low information heuristic, it should better predict voting among the less-informed than among other individuals. The individual-level data for 2006 allow us to examine this question. We measure political knowledge with the 20-item scale described above, which uses questions about national and state politics. The figure on the next page explores this possibility by presenting scatter plots of Democratic vote share in 2006 senate races by Democratic appearance advantage for four quartiles of political knowledge. Consistent with this low information hypothesis, it shows that appearance matters most among less-informed individuals, matters less among Low mid knowledge, even less among High mid knowledge, and not at all among High knowledge individuals. A similar pattern holds for 2006 gubernatorial elections (not shown). Although this appears to support the hypothesis that citizens use appearance as a low information heuristic, we cannot be certain because the finding fails to hold up against a key control variable: incumbency. When controlling for incumbency, the lovely pattern in the figure on the next page disappears. Since incumbents tend to be better looking, according to the raters, and less-informed citizens can be more influenced by incumbency than are higher knowledge citizens (Zaller 1992), incumbency may provide an alternative explanation for this pattern. Controlling for incumbency is potentially problematic, however, because candidates may win more often (and so become incumbents) when they impress lower knowledge individuals with their good looks. Appearance may thus be causally prior to incumbency, and hence putting them both in a model interacted with political knowledge yields nonsense. So, the evidence from the figure below is only suggestive.

Another argument we advanced is that television occasionally conveys information other than what the candidates look like. More knowledgeable individuals may have the contextual knowledge to understand this additional information, while less knowledgeable individuals may not. Previous research has failed to find campaign learning from television in presidential elections (Patterson 1980). If this holds more generally, our contention would seem unlikely. Exploiting the natural experiment, we test us whether individuals living in-state media markets are more politically knowledgeable than those living in out-of-state media markets. We find that they are. Citizens living in in-state media markets are about 20 percent more knowledgeable (.11 on a one-point scale, $p < 0.001$, $n = 21,540$).¹ In the currency of education, this is equivalent to the typical difference between an individual with some college and an individual with only a high school degree. We find a similar though attenuated effect with self-reported TV exposure. A shift from the bottom to the top of the television exposure scale increases political local knowledge by about eight percent (.04 on the one-point scale, $p < 0.001$, $n = 14,018$). These effects remain significant when controlling for education, gender, race, ethnicity, income, church attendance, age, and age squared.² Thus, regardless of how it is measured, television exposure informs individuals about more than merely the candidates’ appearance. If people can understand this additional information, exposure to it may reduce their tendency to vote for candidates based merely on their appearance.

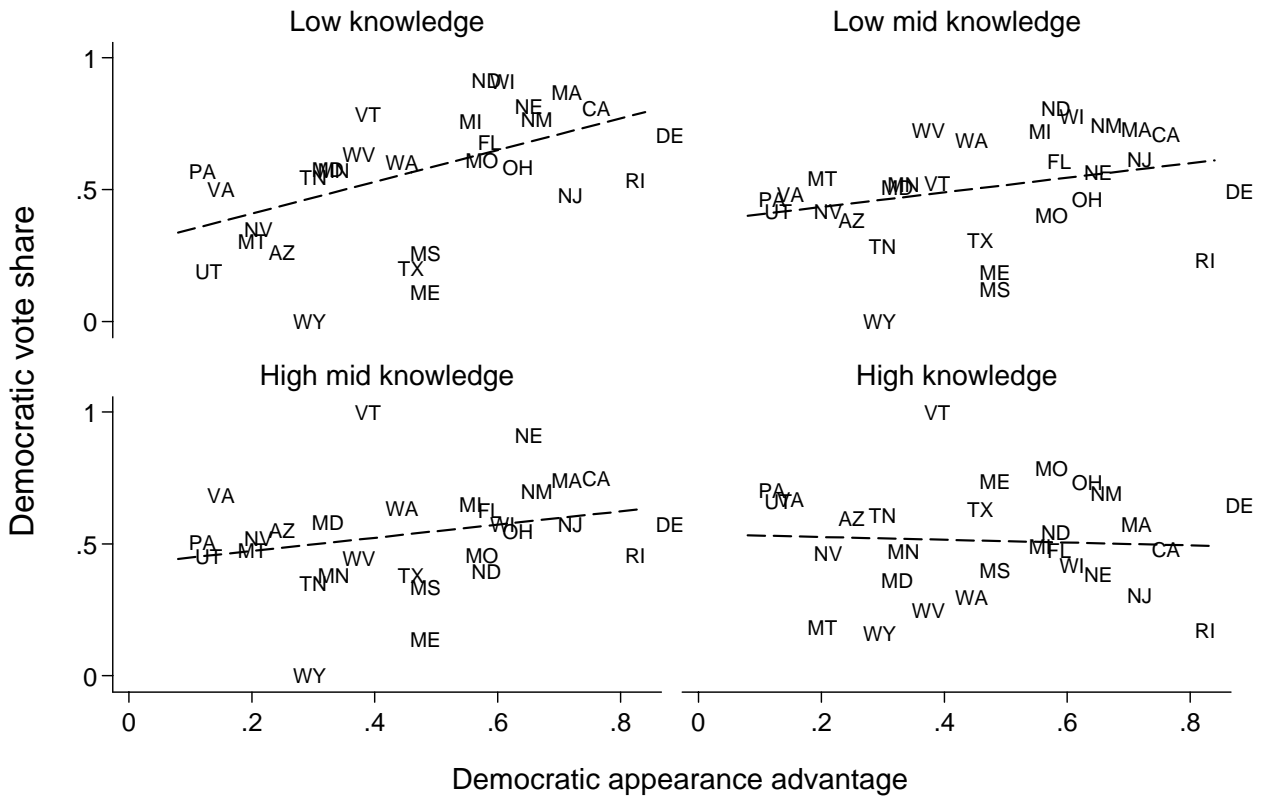
We have provided, therefore, two findings supportive of our contention. Citizens appear to use appearance as a low information heuristic and to learn about politics from television. Both findings are consistent with the hypothesis that television should only exacerbate the effects of appearance among less-informed citizens.

¹ This estimate is from a regression of the political knowledge scale on a dummy variable coded 1 for individuals living in in-state media markets and 0 for those living in out-of-state media markets. For the self-reported TV exposure finding, we replace the in-state media market dummy with the TV scale.

² Education, race, ethnicity, and income were included in the models as a series of dummy variables. We also tested whether a TV scale based only on items about news exposure would better explain knowledge, but it in fact performed less well than the overall scale. We also tried instrumenting the TV scale and a local news scale with the in-state versus out-of-state media market dummy, but as noted above, individuals report watching television and local news with about the same frequency in both types of media markets.

Image as a low information heuristic?

Senate races in 2006 by political knowledge quartile



Note: This figure shows that candidate appearance better predicts vote choice among lower knowledge individuals. The dependent variable is the share of respondents intending to vote for the Democratic candidate. Nonmajor party voters are excluded. The explanatory variable is Democratic appearance advantage, an average of naïve students' ratings of unlabeled, black and white photographs of candidate pairs, with higher values indicating a Democratic advantage. Political knowledge is measured with a 20-item index of responses to factual questions. Source for vote data: CCES.

Appearance and true quality

In principle, the way politicians look could be a sound indicator of their underlying qualities. For instance, facial features might betray the effects of ill health or poor nutrition – disadvantages which could in turn correlate with actual ability. Either voters would (1) cast their ballots based on candidates' appearance but tend to guess right about which candidate was better or (2) vote based on candidates' observed qualities (e.g., how articulate the candidates were), which reflected underlying abilities (e.g., intelligence) which in turn happened to correlate with their facial features. Both scenarios would be heartening from the perspective of democratic representation, though only the latter would challenge the notion that voters cast ballots based on candidate appearance.

Some research suggests that there may be a relationship between beauty and IQ scores – in other words, that more attractive people are on average more intelligent (Persico et al. 2004, Case and Paxson 2006, Kanazawa and Kovar 2004, Ambady et al. 2000, Harper 2000, Thornhill and Gangestad 1999, but see Hammermesh and Biddle 1994, Hammermesh 2006). However, even the most optimistic studies of physiognomy suggest only a modest relationship between facial features and personality traits (Zebrowitz 1997, Berry 1990, Hassin and Trope 2000: 838, Zebrowitz et al. 2002, Mueller and Mazur 1996, Holahan and Stephan 1981, Hammermesh 2006). The relationship between facial features and *abilities* is even less well documented; to our knowledge, no study has yet found a significant correlation between the two.

In the political sphere, investigating the relationship between appearance and true quality is particularly challenging because it is difficult to devise measures of candidate quality that are independent of electoral results. For instance, analysts sometimes use incumbency as an indicator of quality, but incumbency confers many other advantages (e.g., access to campaign funds) that also predict electoral success. Furthermore, incumbency may itself be partly a product of appearance.

In other work, we conduct an additional test of the relationship between appearance and true quality. Specifically, we compare appearance-based ratings of 168 state legislators in North Carolina (measured by naïve coders exposed fleetingly to unlabeled, black-and-white, official photographs of the representatives) with both their educational background (measured as described above) and with peer rankings of their effectiveness as legislators (as reported in a survey). The two measures of quality correlated positively with each other ($r = .21$, $p < .01$) but neither correlated with ratings of either attractiveness or apparent competence ($r < .08$ in all four cases). We thus regard it as unlikely that the correlation between appearance and vote share is a product of an underlying relationship between appearance and actual ability.

Quasi-experiment

Appearance advantage and in-state versus out-of-state originating broadcasts

The paper itself shows a small but statistically significant to interaction between Appearance advantage and High TV. An earlier version of the paper also found a very similar interaction using a quasi-experiment. Explaining these analyses in a manner readers would find convincing, however, took too much space. We now present these results here. The design follows Ansolabehere, Snowberg, and Snyder (2006), who measure exposure to television by whether individuals happen to live in media markets based primarily outside their own state (see also Stewart and Reynolds 1990). Many media markets in the U.S. spill across state lines. For example, a figure below shows a map of the dominant media markets in Pennsylvania counties based on 1995-2000 data from Nielsen's Designated Market Area (DMA) and Arbitron's Area of Dominant Influence (ADI). Although most Pennsylvania counties (shown in white) predominately receive their television from an in-state broadcaster, seven did not. These seven counties, shown in crosshatched, predominately receive broadcasts from stations based outside Pennsylvania. For example, one county in eastern Pennsylvania receives its television broadcasts predominately from New York City. Unlike residents of Pennsylvania in other parts of the state, voters living in these seven out-state media market counties see much less political news about their own state. Some media markets (shown in gray) have such a large out-state viewership that they may well cover out-of-state races; we exclude counties in these markets from the analysis. Based on content analysis of local television broadcasts, in-state media markets provide their viewers with at least ten times more exposure to coverage of governors than do out-state markets (Ansolabehere, Snowberg, and Snyder 2006). As more than half of the population regularly watches local news — 56 percent in 2000 (Downie and Kaiser 2002) — differences in exposure to local television affects a substantial part of the population.

We exploit this natural experiment to test whether television encourages voters to focus on candidate appearance. Specifically, we test whether the relationship between the vote share for the Democrat and Appearance advantage is stronger for counties that predominately receive in-state broadcasts than for counties that predominately receive out-state broadcasts. We analyze 64 gubernatorial races between 1994 and 2002 and 63 contests between 1995 and 2002 for which we have the necessary data.

To ensure that in-state and out-state counties are similar, we conduct the analysis only on counties matched on key characteristics: partisanship (measured as the average two-party vote for the Democratic candidate in the previous four presidential elections on partisanship), the log of household income, the percent white, the percent urban, and population. We only match counties within the same state, dropping those for which we cannot find a match. A table below shows balance statistics.

To match the counties, we use a genetic approach proposed by Sekhon (Forthcoming) and Diamond and Sekhon (2005). Genetic matching is performed using “Matching” (Sekhon Forthcoming) and is one-to-one with replacement. Genetic matching substantially reduces differences between in-state and out-state counties on these covariates. Instead of analyzing the full sample of 2,111 in-state and 420 out-state counties, we now use the matched sample of 386 in-state and 386 out-state counties. For an exposition, see Ho et al. (2007).

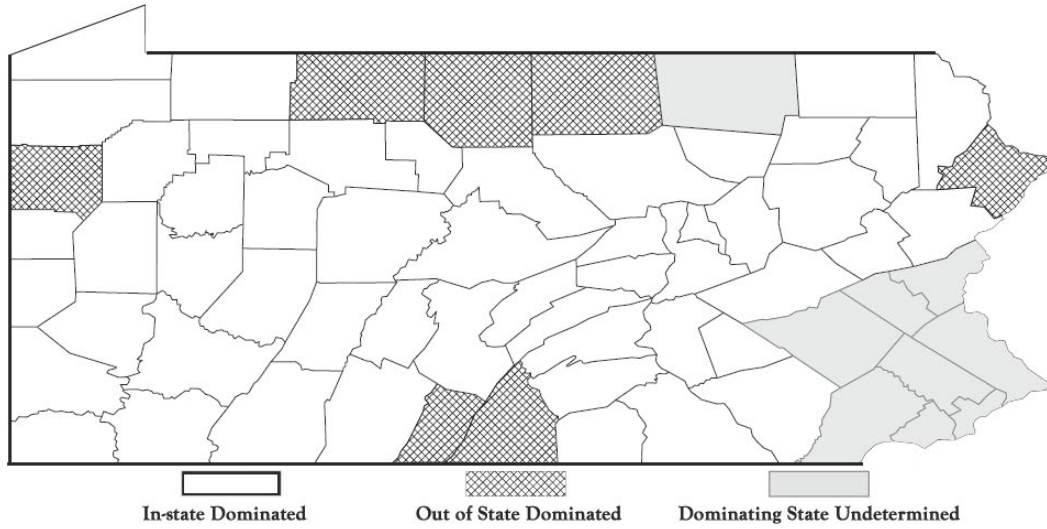
A second figure below presents scatter plots of gubernatorial and Senate vote by students' ratings of the candidates based on their appearance. The left panels show counties in out-state media markets and the right panels show those in in-state media markets. To simplify the presentation, we take the population-weighted average vote share for each kind of county within each state. If television exacerbates the effects of appearance, we should see steeper slopes in counties that belong to in-state media markets (the right panels of this figure) than in those that form part of out-of-state media markets (the left panels). This is indeed what we find. For gubernatorial candidates, an increase (decrease) in the Democrat's competency advantage leads to a larger gain (loss) in the Democrat's vote share in in-state than in out-state media markets. However, the differences are slight: the slope is not much steeper for in-state media markets. When controlling for

partisanship and incumbency, the interaction between appearance and in-state media market is statistically significant for Senate races (one-tailed test). If we combine gubernatorial and Senate races, the increased effect of appearance in in-state media markets averages about 4.8 and becomes statistically significant at conventional levels (see the table below, which also presents estimates with county-fixed effects). As our appearance scale for these races ranges from .08 to .90 (that is, from pairings in which only eight percent of students felt the Democrat looked more competent than the Republican to those where 90 percent of students felt the Democrat looked more competent), a candidate with the highest competency rating would receive about 4 percentage points more than a candidate with the lowest competency rating in counties served by media from their own state. Thus, using this natural experiment, greater TV exposure appears to slightly increase the overall effect of image.

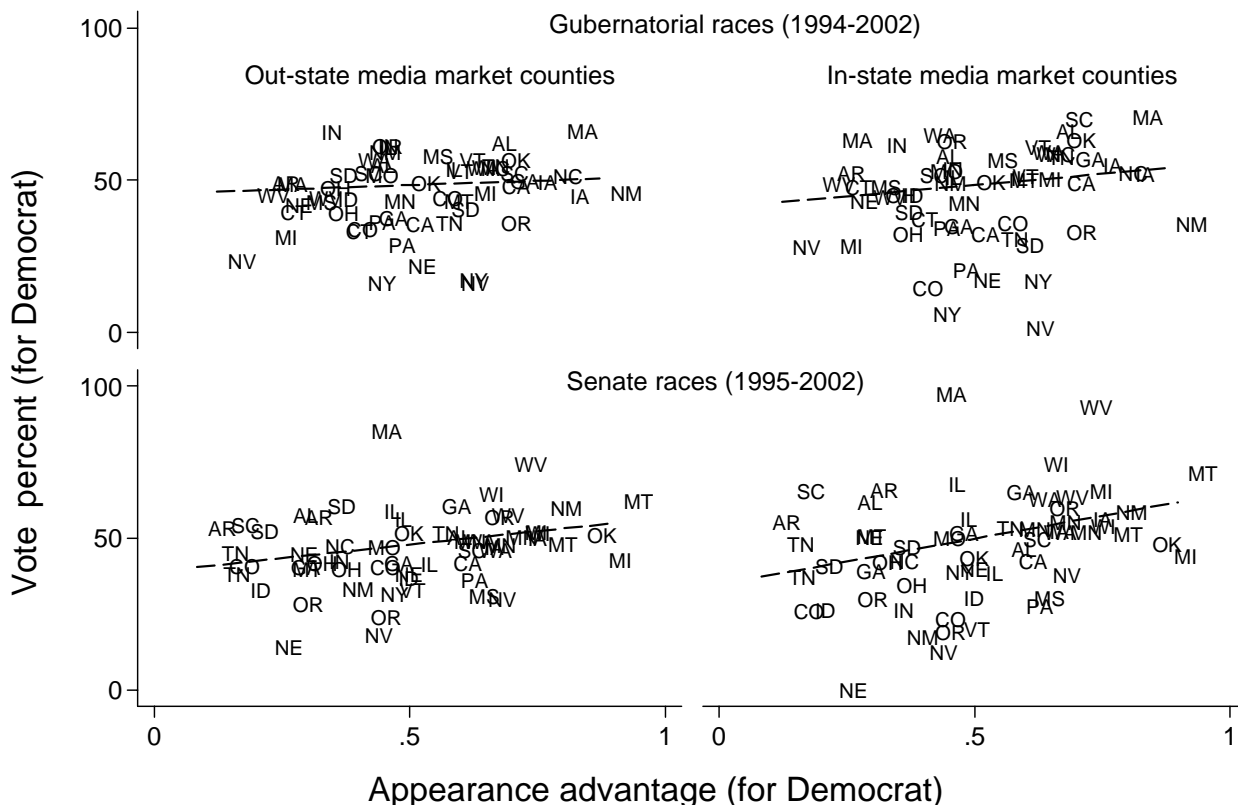
Classification of counties into in-state or out-state originating broadcasts

The classification of counties into in-state and out-state media markets follows Nielsen's Designated Market Area (DMA) and Arbitron's Area of Dominant Influence (ADI). These firms divide counties based on both broadcast and cable viewership. Because we use elections from the mid-1990s through 2002, we exclude counties that changed markets between 1995 and 2000. We also exclude those for which Nielsen and Arbitron disagreed if these disagreements could alter our classification of the county. To eliminate ambiguous cases, we follow Ansolabehere et al. (2006) in coding out-state counties as out-state only when the combination of the out-state counties constitute less than one third of the total population of the media market. We likewise code counties as in-state only when at least two-thirds of the media market's population reside in that county's state. So that the analysis compares only states with both in-state and out-state markets, we drop the following states because they lack in-state media markets: DE, KS, KY, MD, NH, NJ, VA, and WY. We also drop the following states because they lack out-state media markets: AK, HI, LA, ME, TX, and UT. We then drop 80 counties where ADI-DMA differed in 1995 and where the difference could change a county's classification. We also drop 16 counties that flipped DMAs between 1995 and 2000 and where the change could influence their classification. Finally, we drop 26 counties with populations below 1,000. These coding decisions leave us with 2,211 in-state, 420 out-state, and 364 undetermined counties, the last of which we exclude from the analysis. Data are from Ansolabehere et al. (2006), except for 2002 data, which are from <http://uselectionatlas.org/>.

*An example of in-state and out-state dominated media markets:
Pennsylvania counties*



Quasiexperimental scatterplot: Television slightly exacerbates the effect of image



Note: Appearance predicts vote share slightly better in counties that predominantly receive in-state originating broadcasts than in counties that predominantly receive out-state originating broadcasts. The dependent variable is population-weighted average vote share for the Democratic candidate (of the two-party vote) in counties receiving either in-state or out-state broadcasts. Appearance advantage is the average, naïve student rating of unlabeled, black and white photographs of candidate pairs. For gubernatorial candidates, the ratings are an average from students at MIT and Princeton. For Senate candidates, the 1995-1999 ratings are from MIT students and 2000-2002 are from Princeton students.

Quasi-experimental findings

Appearance advantage, County level vote, and media market residency

DV: County level vote for Democratic candidate (of the two-party vote)	(1)	(2)	(3)	(4)
	Senate	Governor	Combined	Combined
In-state media market indicator	-3.47 (1.54)	-1.77 (1.94)	-2.62 (1.29)	-- --
Appearance advantage	1.47 (2.21)	1.42 (2.22)	2.52 (1.65)	13.43 (4.18)
*In-state media market	4.88 (2.87)	4.90 (3.66)	4.77 (2.48)	2.48 (6.35)
Normal vote	87.18 (3.64)	94.85 (4.30)	88.81 (3.20)	6.18 (26.13)
Incumbency	6.99 (0.58)	7.02 (0.44)	6.63 (0.39)	6.06 (0.66)
Gubernatorial race indicator	-- --	-- --	2.90 (0.51)	-- --
<i>n</i>	966	1098	2064	2064
R ²	0.615	0.640	0.600	0.847
SER	7.66	7.93	8.06	7.29
Year effects	X	X	X	X
County effects * Gubernatorial race indicator				X

Regression of County-level Democratic Gubernatorial vote and Democratic Senate vote (of the two-party vote) on Democratic Appearance advantage, an indicator variable for In-state media market, and the interaction between these variables. The models control for the following variables: *Normal vote*, which is the share of the two-party vote for the Democratic candidate in the previous four presidential elections. *Incumbency*, which is coded 1 for Democratic incumbents, -1 for Republican incumbents, and 0 for open seat races. Weighted by population; robust standard errors clustered at the county level in parentheses.

Measuring exposure to television coverage during campaigns

In-state versus out-of-state counties

Ansolahehere et al.'s (2006) content analysis showing large differences in political coverage by in-state and out-state dominated media markets only examines coverage of incumbent governors during non-campaign periods. To confirm that the in-state versus out-of-state difference also holds during campaigns, we searched the archives of local television news stations for mentions of Senate and gubernatorial candidates coverage from August 2006 until to Election Day. The table on the next page presents the results. On the 16 major-network affiliated stations in 13 media markets for which we could obtain data, in-state candidates received 10 times as many mentions as out-of-state candidates (15.2 versus 1.5; $n = 89$, $p < 0.001$). Thus, coverage of politicians on stations based in other media markets remains extremely low during campaigns.

As the data in **Error! Reference source not found.** suggest, senate candidates receive much less television-news coverage than do gubernatorial candidates. Evidence also suggests that senate candidates run many fewer ads on average than do governors (Ansolahehere et al. 2006). To confirm this pattern, we content coded television news coverage of incumbent senators and governors over longer periods, not just the 2006 campaign, on 83 stations in 49 media markets. Depending on television stations' archives, the period of the analysis ranges from a few months to seven years, but typically about two years. We find that local television news channels do indeed cover governors much more than senators. Local news stations run stories that mention governors about once a week. In contrast, stories mention senators only about once every three weeks, a highly significant difference ($n = 264$, $p < 0.001$). Moreover, stories that mention a governor are usually stories about the governor. In contrast, stories that mention a senator are usually stories that merely happen to quote a senator.

News stories mentioning candidates by in-state and out-state media market
2006 gubernatorial and Senate campaigns

Media Market	Station	Gov/Sen	In-state Winners	#	In-state Losers	#	Out- state	Out-state Winners	#	Out-state Losers	#
Albuquerque-NM	KOAT	Gov	Richardson	23	Dendahl	3	AZ	Napolitano	0	Munsil	0
		Sen	Bingaman	2	McCulloch	1	AZ	Kyl	0	Pederson	0
Bismark-ND	KFYR	Sen	Conrad	18	Grotberg	8	MT	Tester	1	Burns	1
Buffalo-NY	WGRZ	Gov	Spitzer	18	Faso	6	PA	Rendell	0	Swann	1
		Sen	Clinton	20	Spencer	2	PA	Casey	0	Santorum	0
Cincinnati-OH	WLWT	Sen	Brown	6	DeWine	7	IN	Lugar	0	Osborn	0
Denver-CO	KMGH	Gov	Ritter	13	Beauprez	28	NE	Heineman	0	Hahn	0
		Sen					WY	Freudenthal	0	Hunkins	0
El Paso-TX	KFOX	Gov	Perry	7	Bell	0	NM	Richardson	7	Dendahl	1
		Sen	Hutchison	1	Radnofsky	0	NM	Bingaman	0	McCulloch	0
Jacksonville-FL	WTLV	Gov	Crist	40	Davis	34	GA	Perdue	12	Taylor	10
Omaha-NE	WOWT	Gov	Heineman	23	Hahn	5	IA	Culver	7	Nussle	7
		Sen	Nelson	15	Ricketts	12					
New York-NY	KETV	Gov	Heineman	26	Hahn	13	IA	Culver	4	Nussle	4
		Sen	*				PA	Rendell	0	Swann	0
	WNBC	Gov	*				PA	Casey	1	Santorum	1
		Sen	*				PA	Rendell	3	Swann	0
	WABC	Gov	*				PA	Casey	0	Santorum	0
		Sen	*				PA	Rendell	0	Swann	0
WCBS	Gov	*				PA	Rendell	0	Swann	0	
	Sen	*				PA	Casey	0	Santorum	0	
Philadelphia-PA	CBS3	Gov	Rendell	29	Swann	20					
		Sen	Casey	30	Santorum	29	DE	Carper	2	Ting	2
Pittsburgh-PA	WTAE	Sen	Casey	13	Santorum	19	MD	Cardin	1	Steele	1
		Sen					WV	Byrd	0	Raese	0
		Gov	Rendell	31	Swann	12	MD	O'Malley	0	Ehrlich	0
Sioux Falls-SD	KELO	Gov	Rounds	49	Billion	38	MN	Pawlenty	4	Hatch	1
		Sen					MN	Klobuchar	1	Kennedy	0
Youngstown-OH	WFMJ	Gov	*				PA	Rendell	3	Swann	3
		Sen	*				PA	Casey	1	Santorum	1
Mean # of stories				20		13			2		1
Mean # of stories				In-state		15.2		Out-of-state		1.5	

This table shows that media markets cover candidates from their own state, but not candidates from neighboring states, even when their broadcasts spill into these neighboring states. Mentions were counted from August 1st to Election Day of 2006. * indicates that search problems prevented reliable counts.

Balance table for quasi-experiment: County-level statistics, before and after matching

	Urban Before	After	White Before	After	Income Before	After	Pop. Before	After	Normal Before	vote After
Mean out-of-state	0.372	0.349	0.866	0.869	34886	33827	58511	42453	45.98	46.00
Mean in-state	0.415	0.367	0.842	0.868	35486	33715	97283	39316	44.84	45.75
Std. mean diff.	-14.631	-6.215	15.702	0.506	-6.083	1.289	-31.347	3.439	11.400	2.369
Mean raw eQQ diff.	0.043	0.024	0.025	0.005	1408	754	48477	5244	1.550	0.677
Med raw eQQ diff.	0.042	0.013	0.024	0.002	1217	452	4727	728	1.650	0.524
Max raw eQQ diff.	0.129	0.170	0.196	0.046	10321	18880	8.5e+6	3.8e+5	9.405	4.634
Mean eCDF diff.	0.048	0.020	0.062	0.010	0.045	0.020	0.054	0.013	0.045	0.015
Med eCDF diff.	0.050	0.017	0.073	0.008	0.044	0.017	0.059	0.011	0.048	0.013
Max eCDF diff.	0.081	0.066	0.116	0.042	0.090	0.061	0.108	0.047	0.085	0.038
Var. ratio (Tr/Co)	0.906	1.025	0.917	0.959	1.308	1.378	0.150	1.684	0.919	1.126
T-test p-val.	0.002	0.103	0.001	0.844	0.185	0.365	0.000	0.243	0.016	0.097
KS Bootstrap p-val.	0.004	0.166	0.000	0.718	2.2e-16	0.286	0.000	0.604	0.004	0.820
KS Naive p-val.	0.005	0.195	0.000	0.748	0.001	0.286	0.000	0.594	0.003	0.842
KS Statistic	0.081	0.066	0.116	0.042	0.090	0.061	0.108	0.047	0.085	0.038

Applying the media market measures from 1995-2000 to the 2006 CCES

After excluding states that lack both in-state and out-state media markets (e.g. New Jersey), we are left with only 520 gubernatorial voters in out-state media markets in the 2006 CCES, and only 290 such Senate voters.

Number of 2006 CCES respondents reporting a vote intent by media market type

	Media market domination			
	In-state	Out-state	Undetermined	Total
Gubernatorial voters	6,050	520	662	7,232
Senate voters	4,654	290	428	5,372

Despite the small sample of out-state respondents, Appearance advantage becomes slightly more important in explaining vote in in-state dominated media markets (see table below).

Media market residency and Appearance advantage in the 2006 CCES

	(1)	(2)	(3)	(4)
	Gubernatorial vote		Senate vote	
	OLS	Probit	OLS	Probit
Appearance advantage	0.23	1.36	0.12	0.98
	(0.07)	(0.35)	(0.07)	(0.48)
*In-state media market	0.10	0.89	0.12	1.38
	(0.07)	(0.46)	(0.07)	(0.53)
In-state media market indicator	-0.06	-0.49	-0.06	-0.66
	(0.04)	(0.24)	(0.03)	(0.20)
Partisan identification	0.41	1.66	0.36	1.64
	(0.04)	(0.15)	(0.03)	(0.20)
Ideology	0.23	1.57	0.21	1.82
	(0.03)	(0.22)	(0.03)	(0.17)
Bush approval	0.33	1.21	0.35	1.27
	(0.03)	(0.11)	(0.05)	(0.28)
Iraq was a mistake?	0.19	0.51	0.24	0.66
	(0.03)	(0.11)	(0.03)	(0.10)
<i>n</i>	6570	6570	4944	4944
R ²	0.670	.	0.718	.

Robust standard errors clustered at the state level in parentheses

CCES sampling procedure

Polimetrix draws a random sample from the 2004 American Community Study (ACS), conducted by the U.S. Bureau of the Census. The ACS is a probability sample of size 1,194,354 with a response rate of 93.1 percent. For each respondent in the Polimetrix-drawn ACS sample, the closest matching active Polimetrix panelist is selected on age, race, gender, and education, plus on imputed values of partisanship and ideology.

For a formal comparison, see the following unpublished manuscript:

Hill, S., J. Lo, L. Vavreck, and J. Zaller. 2007. The Opt-in Internet Panel: Survey Mode, Sampling Methodology and the Implications for Political Research. *Unpublished manuscript at the University of California, Los Angeles.*

Abstract: All survey methodologies have weaknesses, some known and others unknown. Given that there are no “true” targets against which to assess the political marginal distributions about which we care, the decision to use any survey methodology must be met with caution and full disclosure about the strengths and weaknesses of the method – and how it might affect the results. In this paper, we assess the differences among several national surveys in terms of demographics, marginals on political variables, and ideological constraint among respondents at varying levels of political awareness. Our results suggest that Polimetrix’s sample matching technique, used in the 2006 Cooperative Congressional Election Study, seems to produce Internet samples that look more similar to existing RDD phone surveys than to multi-stage probability face-to-face surveys, but surprisingly, many of the discernible differences are not large in size. We conclude that a mildly biased but large Internet survey can produce more reliable estimates than an unbiased but small survey (because of the random error due to the small samples). When matters of cost are factored in, the large, biased sample becomes even more appealing to researchers with limited budgets. The question about Internet samples (even matched samples such as those generated by Polimetrix) remains, however, whether the ignorability assumption holds such that the people who take surveys online behave the same way as those who do not – or more precisely– as those who take phone or in-person surveys.