

APPENDIX B (to be made available on the web)

Table A1. List of sources for data on local regulations of advertising

Charter and Revised Ordinances of the City of Beverly. Beverly, Mass., 1903

Charter and Revised Ordinances of the City of Brockton. Brockton, Mass., 1900

Charter and Ordinances of the City of Lowell. Lowell, Mass., 1883

Municipal Manual of the City of Somerville. Boston, 1892

City of Newton Revised Ordinances. Newton, Mass., 1894

Charter and Ordinances. Gloucester, Mass., 1901

Charter. Ordinances. Rules of the Board of Health and City Government of Malden. Boston, 1882

Municipal Register of the City of Haverhill. Haverhill, Mass., 1897

Charter of Laws relating to the City of Troy. Municipal Ordinances. Troy, N.Y., 1891

Ordinances and Rules and Orders of the City of New Bedford, New Bedford, 1884

Ordinances. Rules and Orders, and Laws Relating to City Affairs, 1889. Lawrence, Mass., 1890

Charter and Ordinances of the City of Waltham. Waltham, Free Press Book and Job Office, 1886

The City Charter as amended by subsequent legislation and the Ordinances of the City of Haverhill. Haverhill, Mass., 1880

Charter and Revised Ordinances of the City of Brockton. Brockton, Mass., 1900

City Charter and Revised Ordinances of the City of Fall River. Fall River, Mass., 1887

Laws as contained in an Act to revise and combine in a single act all existing special and local laws affecting public interests in the City of Brooklyn. Albany, N.Y., 1888

The charters of the city of Brooklyn : passed June 28, 1873. Brooklyn : Daily Union Print, 1873

The revised ordinances of 1885, of the city of Boston, as passed and approved December 14, 1885. Boston, Rockwell and Churchill, city printers, 1886

The revised ordinances of the city of Boston : as passed prior to December 31, 1882. Boston, Rockwell and Churchill, 1882

Charters and Ordinances, City of Ithaca, New York. Ithaca, N.Y. 1897

Table A2 . Summary statistics.

A: Newspaper-level variables.

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
Independent newspaper (dummy)	24168	.249	.432	0	1
Republican newspaper (dummy)	24168	.3765	.4842	0	1
Democratic newspaper (dummy)	24168	.3768	.4843	0	1
Advertising rate (plain)	24039	2.816	3.350	.5	93.6
Circulation-adjusted advertising rate	22639	.388	.334	.063	7.927
Circulation (logged)	22749	6.885	.723	3.912	12.038
Daily newspaper (dummy)	24161	.097	.296	0	1
Year of establishment	18464	1868.6	15.36	1773	1885

Table A2 (Continued)

Panel B. City-level variables. All newspaper-level variables are averaged by city.

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
City population	14918	7.255	1.157	4.143	13.650
County seat (dummy)	14918	0.480	0.500	0	1
Circulation-adjusted advertising rate	14918	0.352	0.161	0.067	3.851
Fraction of independent newspapers	14918	0.276	0.414	0	1
Fraction of Republican newspapers	14918	0.359	0.406	0	1
Fraction of Democratic newspapers	14918	0.365	0.414	0	1
Number of newspapers	14918	1.518	0.996	1	22

Panel C. County-level variables. All newspaper-level variables are averaged by county.

<i>Variable</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
Total population, county	10265	25653.7	44837.8	214	967046
Urban population, county	10265	0.028	0.129	0	1
Fraction of African-American population	10265	0.145	0.225	0	1.352
Fraction of foreign-born population	10265	0.129	0.177	0	2.826
Vote for Democratic candidates, Congress elections	9941	49.544	22.868	0	100
Vote for Republican candidates, Congress elections	9939	39.577	22.844	0	100
Vote for Greenback candidates, Congress elections	9947	2.660	8.974	0	83.3
Vote for other candidates, Congress elections	9957	2.770	8.694	0	98.1
Turnout, Congress elections	9880	68.233	22.207	0	607.4
Vote for Democratic candidates, Congress elections	10026	50.091	16.849	0	100
Vote for Republican candidates, Presidential elections	10026	46.034	16.208	0	95.7
Vote for Greenback candidates, Presidential elections	10026	2.765	5.559	0	50.6
Vote for other candidates, Presidential elections	10026	1.099	3.191	0	62
Turnout, Presidential elections	9979	74.845	18.598	10.600	371
DW-Nominate score, 1 st dimension	12839	-0.095	0.417	-0.757	0.828
DW-Nominate score, 2 nd dimension	12839	0.045	0.143	-0.417	0.389
Legislator Bias, based on 1 st dimension of DW-Nominate score	12839	0.369	0.250	0	1.082
Legislator Bias, based on 2 nd dimension of DW-Nominate score	12839	0.569	0.398	0	1.217
Fraction of independent newspapers	11272	0.210	0.300	0	1
Fraction of Republican newspapers	11272	0.331	0.350	0	1
Fraction of Democratic newspapers	11272	0.459	0.401	0	1
Fraction of daily newspapers	11270	0.072	0.196	0	1
Local average circulation-adjusted advertising rate	10786	0.385	0.188	0.076	2.822
Local average advertising rate	11242	2.616	1.547	0.500	26.885
Number of newspapers in county	11272	2.887	2.577	1	41

Source: Ayer's directory of newspapers 1881-1886; "Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840-1972", ICPSR study 8611; "Historical, Demographic, Economic, and Social Data: The United States, 1790-2000", Census data reconstructed by Michael Haines; ICPSR study 2896; Poole and Rosenthal DW-NOMINATE data for from <http://www.voteview.com>. City population is taken from Ayer's directory (which reproduced it from Census 1880). Maximum city population is larger than maximum county population (panel B) as these two variables come from different sources and treat New York City differently.

Note: Some turnout figures are higher than 100% probably because of election fraud (turnout figures of that period are discussed e.g. in Argersinger, P. H. (1985) "New Perspectives on Election Fraud in the Gilded Age." Political Science Quarterly, 100, pp. 669-87). For all election returns, observations with error code 999.9% were replaced with missing values.

Table A3. Raw correlations, local advertising rates and advertising regulations. Massachusetts, 1881-1886

	Circulation-adjusted advertising rate	Regulation of outdoor advertising	Regulation of handbill distribution	City population (logged)	County seat (dummy)	Average wage (logged)	Average agricultural income (logged)	Independent newspaper	Republican newspaper	Democratic newspaper
Circulation-adjusted advertising rate, local average	1.0000									
Regulation of outdoor advertising	0.5601	1.0000								
Regulation of handbill distribution	-0.6032	-0.5721	1.0000							
City population (logged)	0.8921	0.4828	-0.6551	1						
County seat (dummy)	0.2887	-0.1641	-0.229	0.5268	1					
Average wage (logged)	-0.6079	-0.5899	0.4987	-0.6779	0.0782	1				
Average agricultural income (logged)	0.6132	0.6021	-0.5432	0.6168	-0.0825	-0.937	1			
Independent newspaper	0.1931	-0.0266	-0.1334	0.1442	0.1833	0.0636	-0.0729	1		
Republican newspaper	-0.2311	-0.0459	0.069	-0.2223	-0.1949	0.1089	-0.099	-0.6412	1	
Democratic newspaper	0.0512	0.0858	0.0729	0.0976	0.0194	-0.2042	0.2033	-0.3985	-0.4482	1

Table A4. First stage regression. Local advertising rates and advertising regulations. Massachusetts, 1881-1886.

	<i>Circulation-adjusted advertising rate, local average</i>					
	Including Boston newspapers			Excluding Boston newspapers		
Regulation of outdoor advertising	0.146*** [0.0292]		0.0514* [0.0304]	0.152*** [0.0296]		0.0556 [0.0356]
Regulation of handbill distribution		-0.247*** [0.0573]	-0.195** [0.0751]		-0.237*** [0.0573]	-0.182** [0.0808]
Vote for Democrats, congressional elections	-0.0110*** [0.00357]	-0.0154*** [0.00346]	-0.0140*** [0.00370]	-0.00231 [0.00824]	-0.00287 [0.00714]	-0.00269 [0.00733]
Vote for Republicans, congressional elections	-0.0129*** [0.00370]	-0.0144*** [0.00348]	-0.0139*** [0.00355]	-0.0268 [0.0445]	-0.0469 [0.0375]	-0.0403 [0.0401]
Vote for Greenbacks, congressional elections	-0.0592*** [0.00519]	-0.0619*** [0.00459]	-0.0605*** [0.00475]	-0.0327 [0.0367]	-0.0446 [0.0332]	-0.041 [0.0339]
Vote for other candidates, congressional elections	-0.0584*** [0.00470]	-0.0558*** [0.00398]	-0.0562*** [0.00412]	-0.043 [0.0374]	-0.0514 [0.0325]	-0.0489 [0.0335]
Voter turnout, congressional elections	0.132*** [0.0145]	0.120*** [0.0141]	0.124*** [0.0144]	0.0906 [0.0979]	0.116 [0.0834]	0.109 [0.0861]
Vote for Democrats, presidential elections	2.617*** [0.236]	1.253*** [0.245]	1.628*** [0.358]	3.136 [4.836]	4.575 [3.973]	4.019 [4.201]
Vote for Republicans, presidential elections	2.529*** [0.233]	1.146*** [0.249]	1.523*** [0.365]	3.06 [4.695]	4.398 [3.848]	3.874 [4.068]
Vote for Greenbacks, presidential elections	2.595*** [0.232]	1.282*** [0.237]	1.645*** [0.346]	3.074 [4.697]	4.481 [3.863]	3.941 [4.083]
Vote for other candidates, presidential elections	2.619*** [0.240]	1.108*** [0.273]	1.514*** [0.398]	3.103 [4.759]	4.321 [3.896]	3.829 [4.111]
Voter turnout, presidential elections	-0.226*** [0.0174]	-0.263*** [0.0208]	-0.259*** [0.0222]	-0.164 [0.207]	-0.296 [0.183]	-0.26 [0.194]
City population, logged	0.0819 [0.0727]	-0.162 [0.124]	-0.127 [0.135]	0.0695 [0.0733]	-0.163 [0.126]	-0.124 [0.142]
County-seat	-0.0256 [0.0897]	0.222 [0.146]	0.195 [0.153]	-0.0115 [0.0902]	0.217 [0.147]	0.188 [0.158]
Average wage in manufacture, logged	0.954*** [0.0815]	0.959*** [0.0786]	0.957*** [0.0776]	0.758 [0.724]	1.128* [0.668]	1.006 [0.683]
Average agricultural income, logged	0.495*** [0.173]	0.421*** [0.135]	0.439*** [0.136]	0.0946 [0.715]	-0.374 [0.619]	-0.21 [0.666]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	179	179	179	128	128	128
R-squared	0.991	0.992	0.992	0.529	0.587	0.6
F-statistics for instruments	24.98	18.64	16.07	26.25	17.05	16.89

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Note: Average circulation-adjusted advertising rate, a measure of A , is computed circulation-adjusted advertising rates for all newspapers in the city. List of sources for advertising regulation variables is presented in Table 4. Income variables are from U.S. Census 1880 and 1890, interpolated for 1881-1886. Data on city population and newspaper data are from Ayer's American Newspaper Annual (1881-1886), originally from the U.S. Census publication. Electoral data are from Clubb et. al. (2006) dataset at ISPSR. Data on county seats are from ICPSR 8159 dataset, constructed by R. Sechrist. Only Republican, Democratic, or independent newspapers are included in the sample.

The coefficient for city population is negative and insignificant, but being a county seat is highly significant and positive. One explanation is that city population is insignificant because of collinearity of city population and being a county seat, while another explanation suggests that publishing local ordinances in county seats decreased the space in the newspaper available for advertising, which drove advertising rates up. Basic collinearity diagnostics, however, rejects the presence of multicollinearity between a dummy for a county seat and a logged city population (VIF is less than 2 for both variables), so the second explanation seems to be more plausible.

Table A5. Year Fixed Effects for Table 1.

	<i>Dummy for independent newspaper</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Method of computing A	Average A for all newspapers in a city	Average A for all newspapers in a city	Average A for all newspapers in a city, excluding this newspaper	Average A for all newspapers in a city, instrumented by average A in other cities in a county	Average A for all newspapers in a city, computed for the same sample as IV regression in previous column	Average A for all newspapers in a city, instrumented by average A in other cities in a county	Average A for all newspapers in a city, computed for the same sample as IV regression in previous column	Average A for all newspapers in a city
Fixed effects	County, Year	Newspaper, Year	Newspaper, Year	County, Year	County, Year	State, Year	State, Year	Year
Dummy for year=1880	-0.011*	-0.029***			-0.015	-0.009	-0.021**	-0.020**
	[0.006]	[0.007]			[0.024]	[0.009]	[0.008]	[0.008]
Dummy for year=1881			0.004	0.003	-0.005		-0.001	-0.001
			[0.006]	[0.006]	[0.019]		[0.009]	[0.009]
Dummy for year=1882	0.003	0.007	0.002	0.002	-0.004	-0.000	0.004	0.004
	[0.005]	[0.005]	[0.008]	[0.008]	[0.016]	[0.007]	[0.008]	[0.008]
Dummy for year=1883	0.008	-0.011	0.004	0.004	0.003	0.007	0.000	
	[0.008]	[0.009]	[0.009]	[0.009]	[0.014]	[0.011]	[0.000]	
Dummy for year=1884	-0.004	-0.025***	-0.008	-0.008	-0.005	-0.001	-0.015***	-0.015***
	[0.009]	[0.009]	[0.011]	[0.011]	[0.013]	[0.014]	[0.005]	[0.005]
Dummy for year=1885	0.001	-0.004	-0.006	-0.006		0.005	-0.002	0.001
	[0.011]	[0.009]	[0.013]	[0.013]		[0.016]	[0.008]	[0.008]

Standard errors in brackets. Standard errors are clustered by city level. * significant at 10%; ** significant at 5%; *** significant at 1%
 Note: this table contains only coefficient for time fixed effects. Other coefficients for corresponding regressions are presented in Table 1.

Table A6. Advertising and newspaper independence. Some robustness checks

	<i>Dummy for independent newspaper</i>			
Local average advertising rate (computed for other newspapers in a city)	0.00626**	0.00600**		
	[0.00259]	[0.00256]		
Local average circulation-adjusted advertising rate (computed for other newspapers in a city)			0.0534***	0.0534**
			[0.0197]	[0.0224]
County population (logged)	-0.00652	-0.0179	-0.0263	-0.0957
	[0.0761]	[0.0768]	[0.0714]	[0.0774]
Average wage in manufacture (logged)	-0.0106	-0.00763	-0.0152	-0.0213
	[0.0222]	[0.0222]	[0.0230]	[0.0272]
Average agricultural income (logged)	-0.011	-0.00308	0.035	0.0503
	[0.0482]	[0.0483]	[0.0504]	[0.0573]
Number of newspapers (proxy for competition)	0.00104	0.000613	0.000884	0.000631
	[0.00335]	[0.00322]	[0.00294]	[0.00316]
Additional controls included	Circulation, logged	Circulation to degrees 1/2 to 1/5 included	Base year circulation interacted with time dummies	Following variables, interacted with time dummies: base year circulation (logged), average agricultural income (logged), average wage in manufacture (logged), county population (logged), city population (logged), dummy for being county seat
Fixed Effects	Newspaper, Year	Newspaper, Year	Newspaper, Year	Newspaper, Year
Observations	15107	15107	10990	9854
R-squared	0.921	0.922	0.912	0.907
N of cities	1642	1642	1289	1159
F-statistics for electoral controls	0.911	0.913	1.304	1.106
Marginal effect	0.00199	0.0019	0.0168	0.0167

Robust standard errors in brackets. Standard errors are clustered by county

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A7. Advertising and independent newspapers. Matching results.

	<i>Dummy for independent newspaper</i>			
	OLS	Matching	OLS	Matching
Dummy for circulation-adjusted advertising rate being higher than median in a state	.051***	.046***	.006	.052***
Fixed effects (exact matching parameters for matching)	State, Year	State, Year	County, Year	County, Year
County and City Controls (matching parameters for matching)	Yes	Yes	Yes	Yes
Observations	22226	22226	22226	22226
R-squared	0.154		0.328	
Percent of exact matches		98.6		56.8

Table A8. Ideological bias of the members of Congress and county economic characteristics.

(test for alternative explanation)

	<i>Legislator's bias, based on 1st dimension of NOMINATE score</i>				<i>Legislator's bias, based on 2nd dimension of NOMINATE score</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fraction of independent newspapers	-0.046				0.0660***			
	[0.0645]				[0.0244]			
Circulation-adjusted advertising rate		-0.0719				0.0484		
		[0.0647]				[0.0294]		
Fraction of Democratic newspapers			0.0574				-0.0654**	
			[0.0692]				[0.0276]	
Fraction of Republican newspapers				-0.0129				-0.00401
				[0.0908]				[0.0333]
Fixed effects	Year, District	Year, District	Year, District	Year, District	Year, District	Year, District	Year, District	Year, District
Observations	1536	1536	1536	1536	1536	1536	1536	1536
R-squared	0.656	0.656	0.656	0.656	0.568	0.567	0.568	0.565
Number of districts	294	294	294	294	294	294	294	294

Robust standard errors in brackets. Standard errors are clustered by congressional district. * significant at 10%; ** significant at 5%; *** significant at 1%

Note: dependent variable is absolute value of deviation of NOMINATE score for a member of Congress from its median, based on Poole and Rosenthal (1997) data. To construct this table, newspaper-level data were collapsed by county.

Table A9. Migration and dynamic county characteristics.
(test for alternative explanation)

	<i>Independent newspapers in a county, fraction</i>	<i>Democratic newspapers in a county, fraction</i>	<i>Republican newspapers in a county, fraction</i>	<i>Local circulation-adjusted advertising rate</i>	<i>Log (County population)</i>
	(1)	(2)	(3)	(4)	(5)
Proportion of foreign-born population	-0.0494 [0.0787]	-0.126* [0.0761]	0.176* [0.100]	0.0248 [0.0298]	-1.096*** [0.133]
Fixed effects	County, Year	County, Year	County, Year	County, Year	County, Year
Observations	10265	10265	10265	9842	10265
R-squared	0.741	0.873	0.842	0.842	0.998
Number of counties	1947	1947	1947	1904	1947

Robust standard errors in brackets. Standard errors are clustered by county

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: table presents results for aggregate county-level data. To construct this table, newspaper-level data was collapsed by county.

Table A10. African-American population and dynamic county characteristics.
(test for alternative explanation)

	<i>Independent newspapers in a county, fraction</i>	<i>Democratic newspapers in a county, fraction</i>	<i>Republican newspapers in a county, fraction</i>	<i>Local circulation-adjusted advertising rate</i>	<i>Log (County population)</i>
	(1)	(2)	(3)	(4)	(5)
Proportion of African-American population	0.0796 [0.217]	0.236 [0.225]	-0.316** [0.136]	-0.154 [0.338]	-1.469*** [0.152]
Fixed effects	County, Year	County, Year	County, Year	County, Year	County, Year
Observations	10265	10265	10265	9842	10265
R-squared	0.741	0.873	0.842	0.843	0.996
Number of counties	1947	1947	1947	1904	1947

Robust standard errors in brackets. Standard errors are clustered by county

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: table presents results for aggregate county-level data. To construct this table, newspaper-level data was collapsed by county.

Table A11. Local advertising profitability and vote margins.

	<i>Dummy for independent newspaper</i>			
Local advertising circulation-adjusted Advertising rate (A)	0.0901** [0.0399]	0.0904*** [0.0237]	0.0936*** [0.0288]	0.0665*** [0.0219]
Method of computing A	Average A for all newspapers in a city	Average A for all newspapers in a city	Average A for all newspapers in a city	Average A for all newspapers in a city, excluding this newspaper
Effect of one standard deviation change for given measure of A (in %)	2.37	2.37	3.0	2.2
Vote margin in Congressional elections	-0.000309** [0.000139]	-0.000816*** [0.000228]	-0.000364** [0.000185]	-0.000360* [0.000185]
Fixed effects	County, Year	Year	Newspaper, Year	Newspaper, Year
County and city controls	Yes	Yes	Yes	Yes
Observations	24168	24168	15224	15224
R-squared	0.355	0.124	0.92	0.92
N of counties	1599	3444	1472	1472

Standard errors in brackets. Standard errors are clustered by county. * significant at 10%; ** significant at 5%; *** significant at 1%

Note: Vote margins are computed as absolute value of difference between percentage of votes for Democratic party and percentage of vote for Republican party. County controls include county population, log average wage in manufacture, log average agricultural income, and 10 electoral control variables, including percentage of votes for Republicans, Democrats, Greenbacks, and other parties in the most recent presidential and congressional elections, and voter turnout in these elections. City controls include dummy for being a county seat and log of city population. Only Republican, Democratic, or independent newspapers are included in the sample.

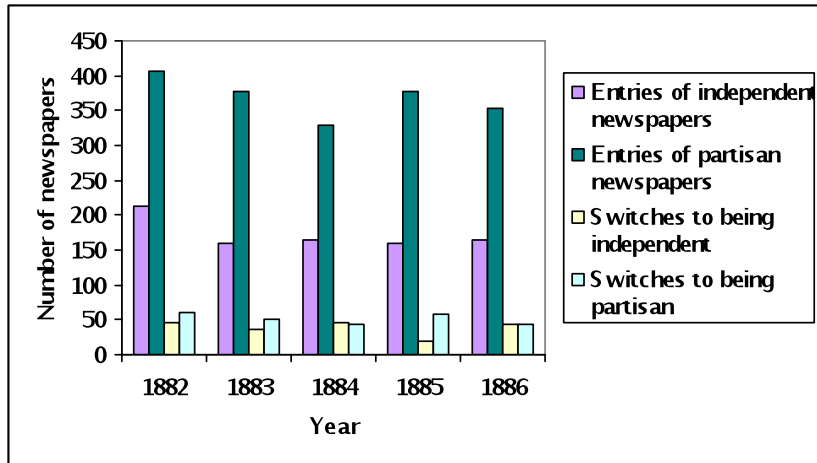
Table A12. Advertising and independent newspapers. More robustness checks.

	<i>Dummy for independent newspaper</i>			
Local average advertising rate (computed for other newspapers in a city)	0.0511** [0.0215]	0.0507** [0.0213]	0.0669*** [0.0213]	0.0672*** [0.0213]
County population (logged)	0.0325 [0.0855]	0.0319 [0.0868]	0.0632 [0.0984]	0.0171 [0.0816]
Average wage in manufacture (logged)	-0.0224 [0.0258]	-0.0219 [0.0256]	-0.0308 [0.0241]	-0.0302 [0.0240]
Average agricultural income (logged)	-0.0341 [0.0527]	-0.0306 [0.0526]	-0.0347 [0.0480]	-0.0323 [0.0492]
Number of newspapers (proxy for competition)	0.00077 [0.00391]	0.000897 [0.00388]	0.000688 [0.00372]	0.00068 [0.00376]
Legislator bias (based on 1 st dimension of NOMINATE score)	0.00956 [0.0123]			
Legislator bias (based on 2 nd dimension of NOMINATE score)		0.051 [0.0314]		
Fraction of foreign-born population			0.0652 [0.216]	
Fraction of African-American population				-0.388 [0.401]
Fixed effects	Newspaper, Year	Newspaper, Year	Newspaper, Year	Newspaper, Year
Observations	13546	13546	15224	15224
R-squared	0.917	0.917	0.92	0.92
N of cities	1396	1396	1472	1472
F-statistics for electoral controls	0.72	0.746	0.739	0.735

Table A13. Independent newspapers and their own circulation-adjusted advertising rate

	<i>Dummy for independent newspaper</i>		
Newspaper's own circulation-adjusted advertising rate	0.0179 [0.0170]	0.0384** [0.0156]	-0.00076 [0.0168]
County population (logged)	0.0386 [0.0657]	0.0724*** [0.0161]	0.0167 [0.0675]
Average wage in manufacture (logged)	-0.0313 [0.0236]	-0.0425*** [0.00987]	-0.0148 [0.0192]
Average agricultural income per family (logged)	-0.046 [0.0429]	0.0318** [0.0138]	-0.0476 [0.0388]
Dummy for county seat	-0.223*** [0.0182]	-0.183*** [0.0135]	
City population (logged)	-0.109*** [0.0120]	-0.0441*** [0.00749]	
Number of newspapers (proxy for competition)	0.0139* [0.00797]	0.00435 [0.00315]	-0.0006 [0.00359]
Fixed Effects	County, Year	Year	Newspaper, Year
Observations	22639	22639	25790
R-squared	0.373	0.126	0.922
N of cities	3444	3444	4092
F-statistics for electoral controls	1.171	6.973	0.97

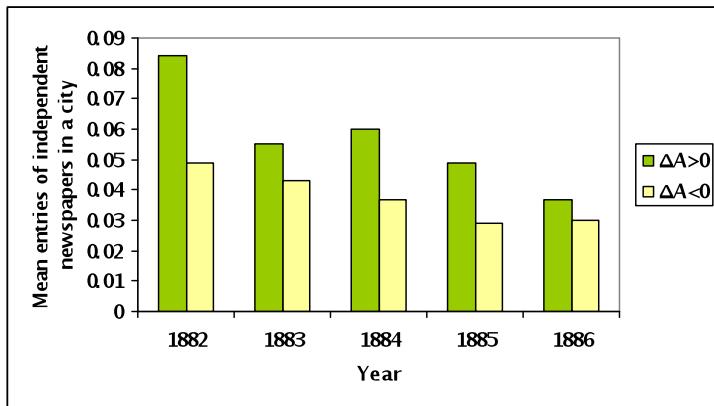
Figure A1. Number of newspaper entries and switches by year and newspaper affiliation



Source: Ayer's American Newspaper Annuals, 1881-1886.

Figure A2. Entries and switches by changes in advertising rates

A: Entries of independent newspapers



Source: Ayer's American Newspaper Annuals, 1881-1886.

B: Switches from partisan to independent newspapers

