

CEPR Virtual IO Seminar Series

Online Competition and Newspaper Quality: Evidence from the Introduction of Craigslist

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Online Competition and Newspaper Quality: Evidence from the Introduction of Craigslist

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CEPR Virtual IO Seminar Series
September 30, 2020

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Horizon 2020 research and innovation programme] (Grant agreement No. 759885)

Motivation

- *How has the Internet reshaped the media environment?*
- *What implications for the quality of information citizens are exposed to?*

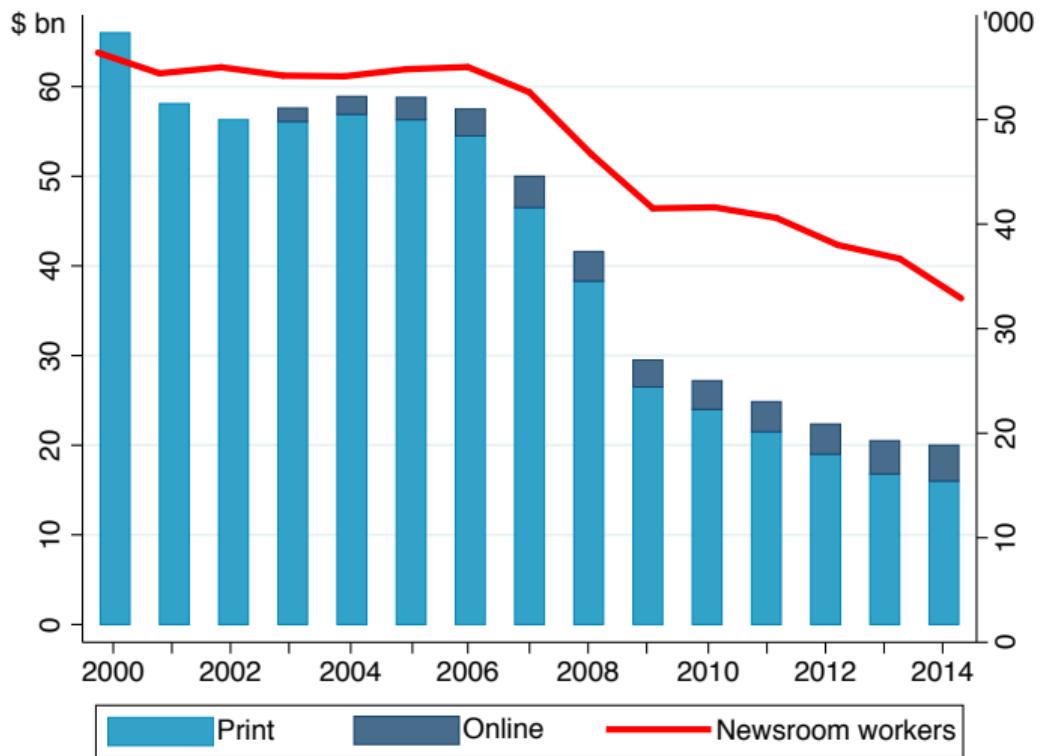
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 - ▶ Internet would make citizens more informed and improve political accountability
(Negroponte 1995, Benkler 2006)
 - ▶ Online platforms and traditional media would fruitfully interact to the benefit of news reporting
(Copps, 2014)

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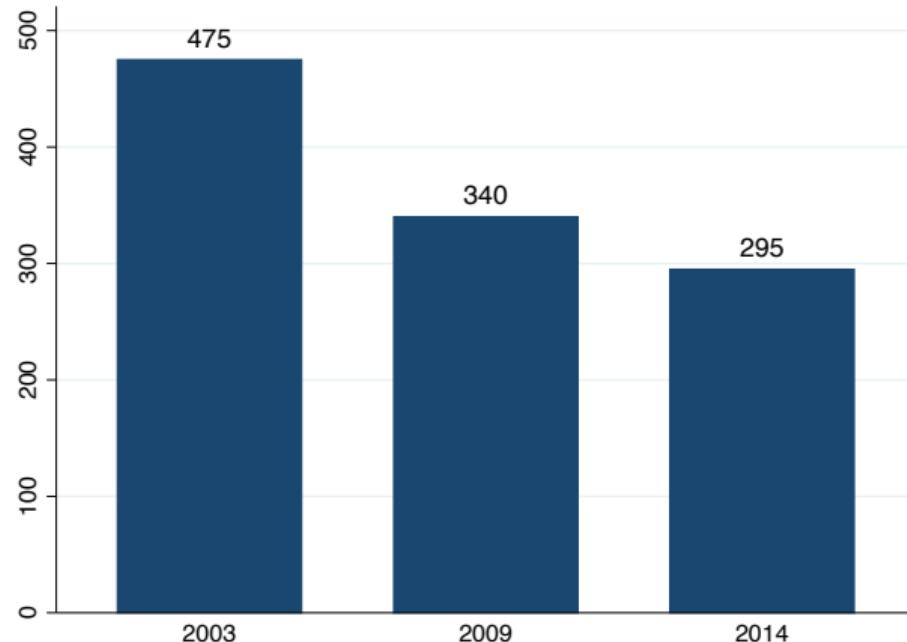
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- **Expectations:**
 - ▶ Internet would make citizens more informed and improve political accountability
(Negroponte 1995, Benkler 2006)
 - ▶ Online platforms and traditional media would fruitfully interact to the benefit of news reporting
(Copps, 2014)
- **Reality:**
 - ▶ Citizens not necessarily more informed than before, but more ideologically polarized
(Boxell 2018, Mosquera et al. 2018, Allcott et al. 2020)
 - ▶ Impoverishment of traditional media due to competition from online platforms
(McChesney-Nichols 2011)

U.S. newspapers: advertising revenues and newsroom workers



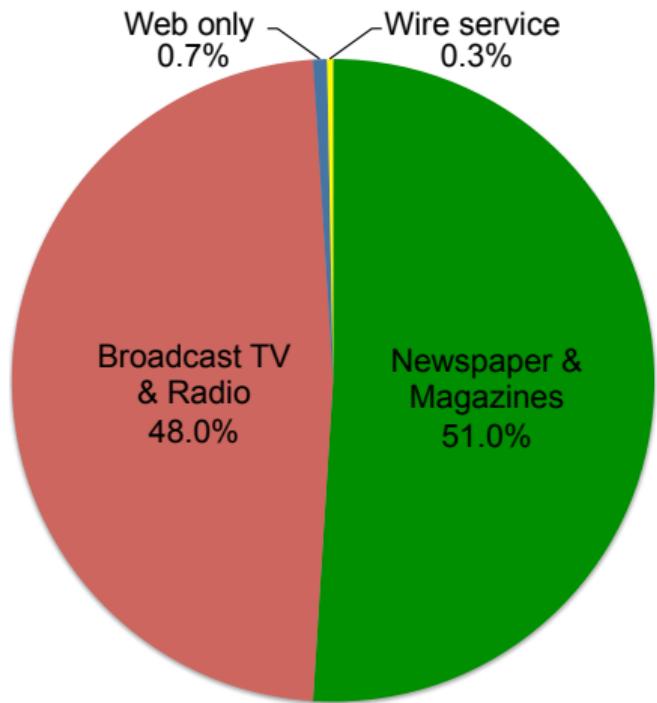
Sources: Newspaper Association of America, American Society of Newspaper Editors

Number of newspaper full-time statehouse reporters (U.S., 2003-14)



Source: American Journalism Review and Pew Research Center

Original source of content on public affairs blogs



Source: Pew Research Center, Project for Excellence in Journalism, 2011 2019

This project

Goal:

- Study the effect of online competition on newspapers in the U.S.
- Lower advertising revenues \Rightarrow downsizing, reorganizations, news content

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Empirical challenge:

- Internet access and adoption are not random
- Internet triggers various changes that may affect newspapers in ways other than through competition for ads

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Approach:

- Focus on the entry of the main online classified ads platform: [Craigslist](#)
- Exploit staggered introduction across U.S. counties, and differences across newspapers in prior reliance on classified ads (40% of ad revenues in 2000)
- Examine implications for news content, voters' information, political accountability

Related literature and contribution

- Impact of Internet on political behavior and policy
(Falck et al. 2014, Durante et al. 2018, Gavazza et al. 2019)
 - ▶ Novelty: understand importance of the impoverishment of traditional media
- Role of the media in the “virtuous cycle” of political accountability
(Besley-Burgess 2002, Snyder-Stromberg 2010)
 - ▶ Novelty: study how competition from online media affects this cycle
- Impact of online competition on traditional media’s business strategies
(Seamans-Zhu. 2014, Gao et al. 2018)
 - ▶ Novelty: implications for news content, voters’ information, political accountability
- Endogenous product characteristics in two-sided markets (Fan 2013, Angelucci et al., 2020)
 - ▶ Novelty: New source of variation on the advertising side

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Policy

- Regulators’ concerns about financial distress threatening quality reporting, pluralism, and the survival of local media (FCC 2016)

Background info on Craigslist

- Founded in SF in 1995, currently in over 400 U.S. locations
- Largest online platform in the world for **classified ads**. Consistently ranked among the top 20 U.S. websites by traffic
- Main sections: housing, jobs, items for sale, services, personal, etc.
- Just classified ads, **no news content, no display ads**
- Free of charge (with very few exceptions) CL Billing
- Simple layout, cheaper, easier and more efficient than newspaper ads (e.g., pictures, exact location, ease to contact seller, etc.)
- Disrupted the lucrative market for classified ads which many local papers relied on

Craigslist: 2000

craigslist	san francisco bay area	other craigslists ▾ go
help? post a listing FAQ subscriptions search craigslist <input type="button" value="community ▾"/> <input type="button" value="search"/> feedback our policies about craigslist questions@craigslist.org nonprofit venture forum updated 19 June	community & events events / entertainment tech events classes / workshops artists / musicians community pets / animals volunteers personals women for women women for men men for women men for men misc romance activity partners carpool / rideshare discussion boards	housing apts / housing apts / housing wanted rooms / shared rooms / shared wanted sublets / temporary / vac office / commercial parking / storage sale / wanted barter / swap / free bikes / cycles / scooters cars / trucks computer / tech stuff general for sale items wanted small biz ads tickets resumes freelance services 1099

Craigslist: 2016

craigslist

post to classifieds
my account
search craigslist
search

event calendar
M T W T F S S
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 1 2 3 4
5 6 7 8 9 10 11

help, faq, abuse, legal
avoid scams & fraud
personal safety tips
terms of use
privacy policy
system status

about craigslist
craigslist is hiring in sf
craigslist open source
craigslist blog
best-of-craigslist
craigslist TV
"craigslist Joe"
craig connects
progressive directory

weather quake tide

community

- activities
- artists
- childcare
- classes
- events
- general
- groups

housing

- local news
- lost+found
- musicians
- pets
- politics
- rideshare
- volunteers

personal

- strictly platonic
- women seek women
- women seeking men
- men seeking women
- men seeking men
- misc romance
- casual encounters
- missed connections
- rants and raves

discussion forums

- apple
- arts
- atheist
- autos
- beauty
- bikes
- celebs
- comp
- crafts
- diet
- divorce
- dying
- eco
- educ
- feedback
- film
- fitness
- fixit
- food
- frugal
- gaming
- garden
- haiku
- help
- history
- housing
- jobs
- jokes
- kink
- legal
- linux
- mfm
- manners
- marriage
- media
- money
- motocyc
- music
- nonprofit
- open
- outdoor
- over 50
- parent
- pets
- philos
- p.o.c.
- politics
- psych
- queer
- recover
- religion
- romance
- science
- spirit
- sports
- tax
- travel
- tv
- vegan
- w4w
- wed
- wine
- women
- words
- writing
- yoga

for sale

- antiques
- appliances
- arts+crafts
- atv/uTV/snow
- auto parts
- baby+kid
- barter
- beauty+hlth
- bikes
- boats
- books
- business
- cars+trucks
- cds/dvds/vhs
- cell phones
- clothes+acc
- collectibles
- computers
- electronics
- farm+garden
- free
- furniture
- garage sale
- general
- heavy equip
- household
- jewelry
- materials
- motorcycles
- music instr
- photo-video
- rvs+camp
- sporting
- tickets
- tools
- toys+games
- trailers
- video gaming
- wanted

services

- automotive
- beauty
- cell/mobile
- computer
- creative
- cycle
- event
- farm+garden
- financial
- household
- labor/move
- legal
- lessons
- marine
- pet
- real estate
- skilled trade
- sm biz ads
- therapeutic
- travel/vac
- written/ed/trans

jobs

- accounting+finance
- admin / office
- arch / engineering
- art / media / design
- biotech / science
- business / mgmt
- customer service
- education
- food / bev / hosp
- general labor
- government
- human resources
- internet engineers
- legal / paralegal
- manufacturing
- marketing / pr / ad
- medical / health
- nonprofit sector
- real estate
- retail / wholesale
- sales / biz dev
- salon / spa / fitness
- security
- skilled trade / craft
- software / qa / dba
- systems / network
- technical support
- transport
- tv / film / video
- web / info design
- writing / editing
- [ETC]
- [part-time]

gigs

- computer
- creative
- crew
- domestic
- event
- labor
- talent
- writing

resumes

english

nearby cities

- bakersfield
- chico
- fresno
- gold country
- hawthorne
- humboldt
- inland empire
- klamath falls
- las vegas
- los angeles
- medford
- mandocino co
- merced
- modesto
- monterey
- orange co
- palm springs
- redding
- reno
- roseburg
- sacramento
- san luis obispo
- santa barbara
- santa maria
- siskiyou co
- stockton
- susanville
- ventura
- visalia-dulare
- yuba-sutter

us cities

us states

canada

ol worldwide

Craigslist: example

← → C https://boston.craigslist.org/search/aap

CL boston > all boston > housing > all apartments

all apartments search all apartments

search titles only
 has image
 posted today
 bundle duplicates
 include nearby areas

MILES FROM ZIP
miles from zip

PRICE
min max

BEDROOMS
min - max

BATHROOMS
min - max

FT²
min max

AVAILABILITY
all dates

cats ok
 dogs ok
 furnished
 no smoking
 wheelchair access

► housing type
► laundry
► parking

OPEN HOUSE DATE
all dates

reset update search

thumb << < prev 1 - 120 / 3000 next >

 ★ Jun 2 ► Brighton Center 3 Bed w/ Parking Included- Avail Sept 1st, PETS OK!!!
\$3500 | 3br - 1660ft² - (Brighton) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► Prime BU Campus Location- Spacious 3 Bed! Heat & Hot Water Included!
\$3900 | 3br - (Brookline) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► PET FRIENDLY Brighton Studio w/ Renovated Kitchen & Bath- June 1st!
\$1950 | 430ft² - (Brighton) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► Stunning Brighton 3 Bed Close to Cleveland Circle- Brand New Reno!
\$3950 | 3br - 975ft² - (Brighton) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► BEAUTIFUL Beacon Hill 2 Bed, 2 Bath Close to MGH- Avail June 1st!
\$3195 | 2br - (Beacon Hill) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► Modern Fenway 1 Bed Close to Northeastern- Only 1/2 Broker Fee!
\$2375 | 1br - (Fenway) [pic](#) [map](#) [✉](#)

 ★ Jun 2 9/1 - Pristine - High Ceilings - Heat and Hot Water - Exotic Tile
\$2550 | 2br - (Harvard & Comm) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► Amazing Location North End 2 Bed, 2 Bath w/ ROOF DECK, Avail NOW!
\$3225 | 2br - 1200ft² - (North End- Hanover St) [pic](#) [map](#) [✉](#)

 ★ Jun 2 ► Spacious Lower Allston 6 Bed, 2 Bath Single Family Avail September 1!
\$4430 | 6br - (Allston) [pic](#) [map](#) [✉](#)

Evolution of newspaper revenues by source (1997-2013)

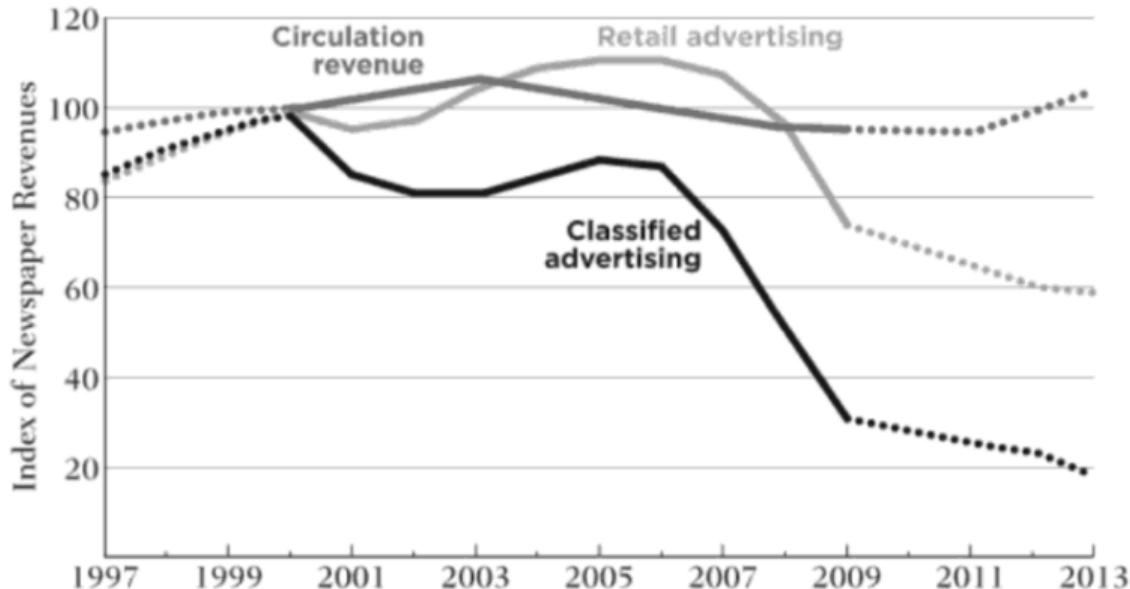


Figure 4: U.S. Newspaper Revenues over Time (Index: year 2000 = 100).

Source: Newspaper Association of America

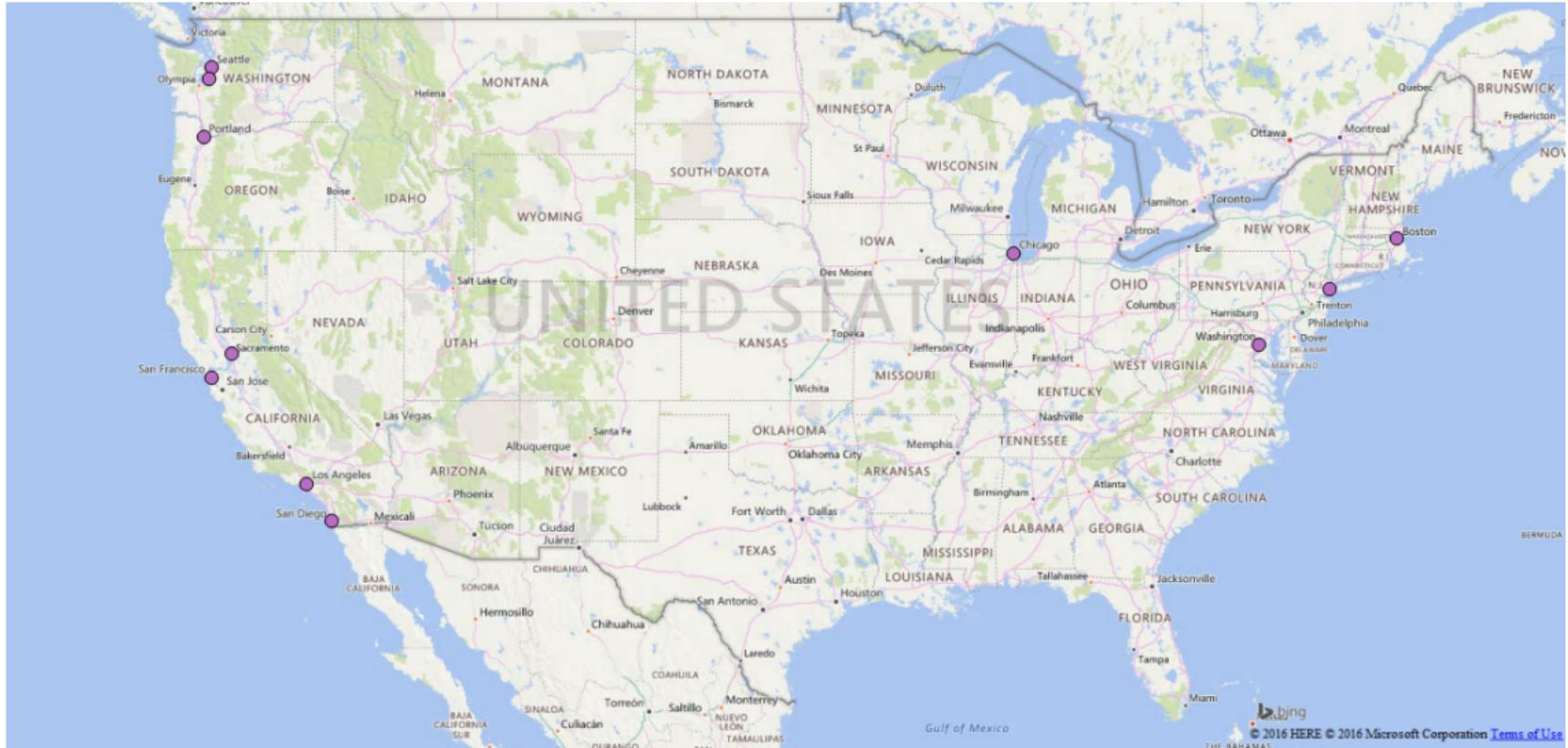
Craigslist expansion: 1995-1999



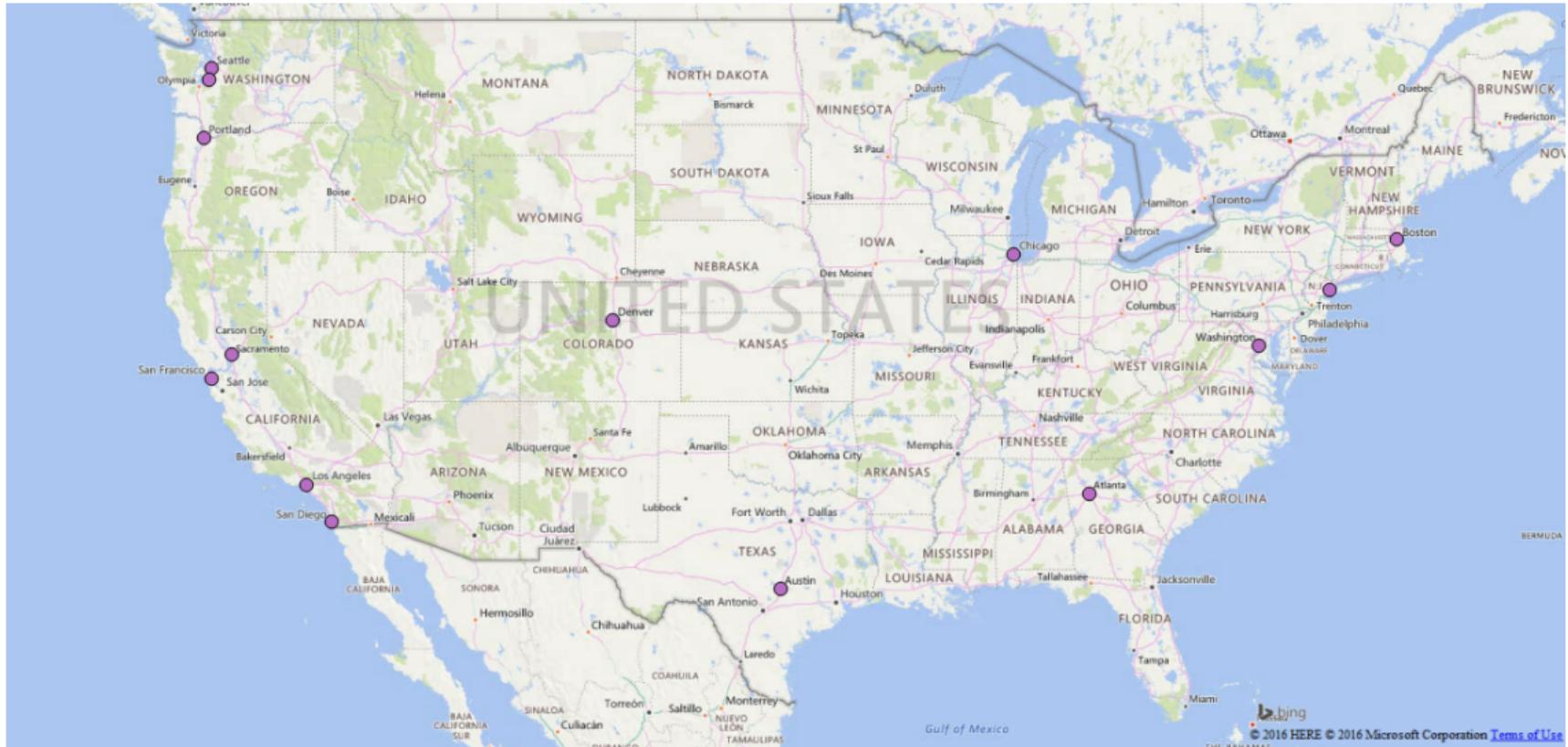
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© 2016 HERE © 2016 Microsoft Corporation [Terms of Use](#)

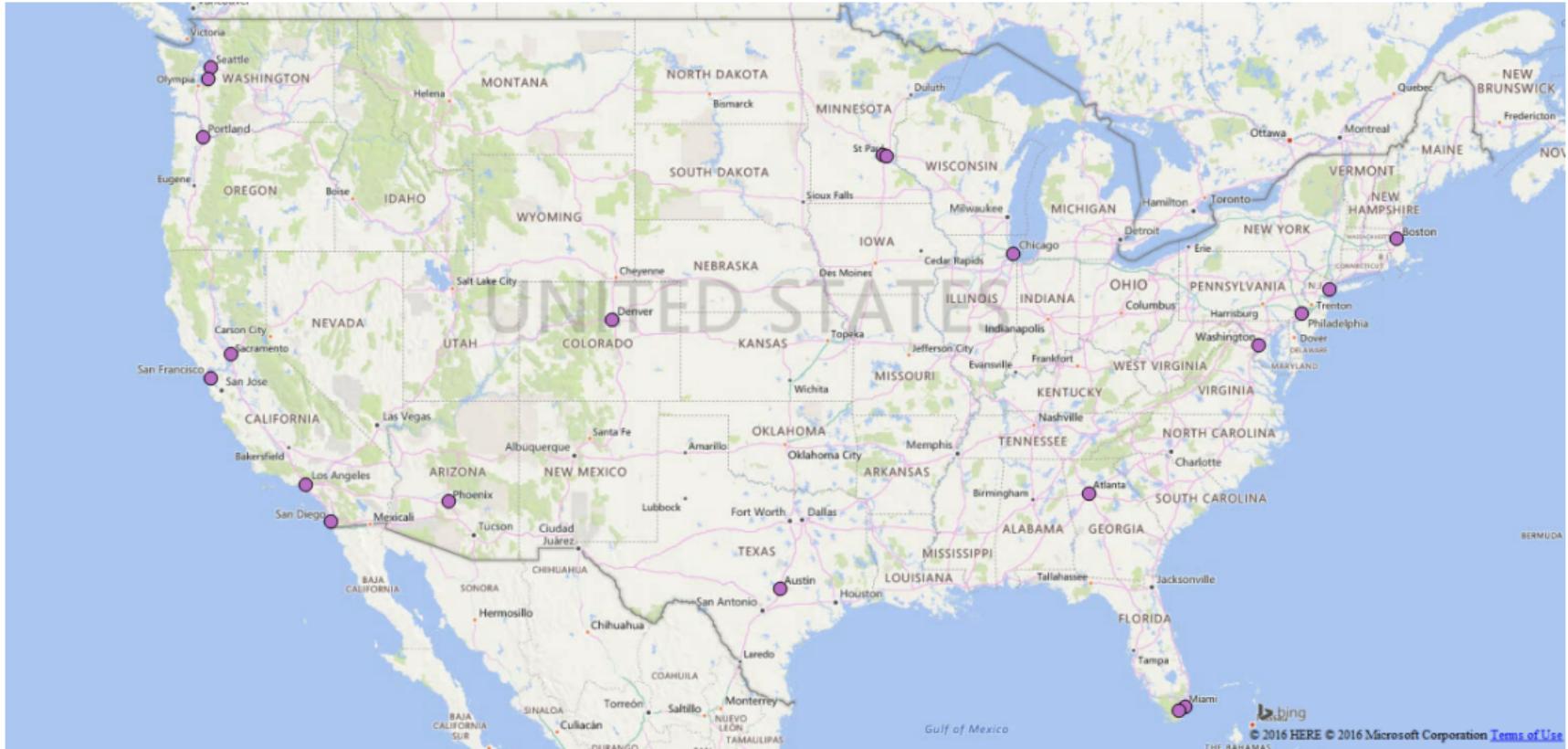
Craigslist expansion: 2000



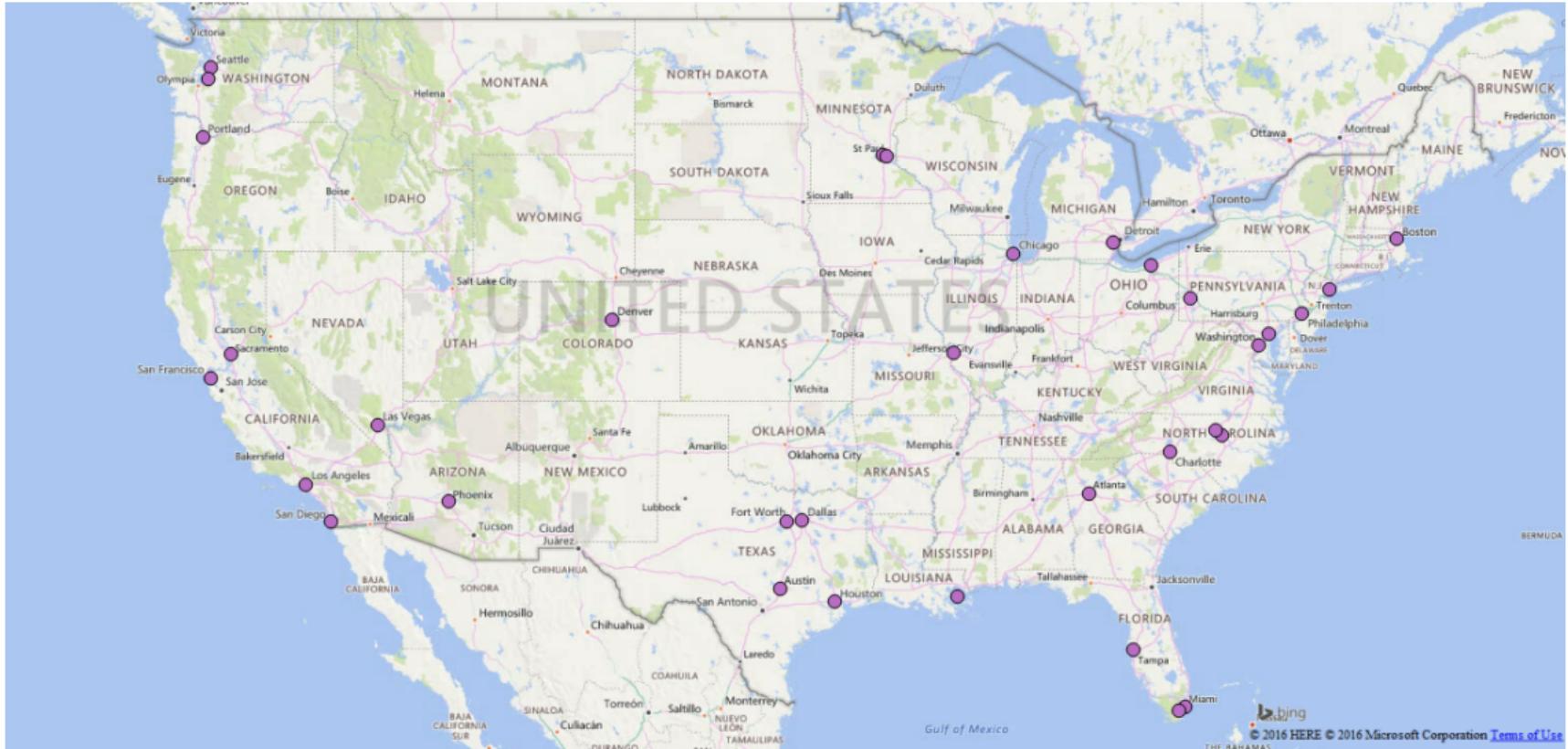
Craigslist expansion: 2001



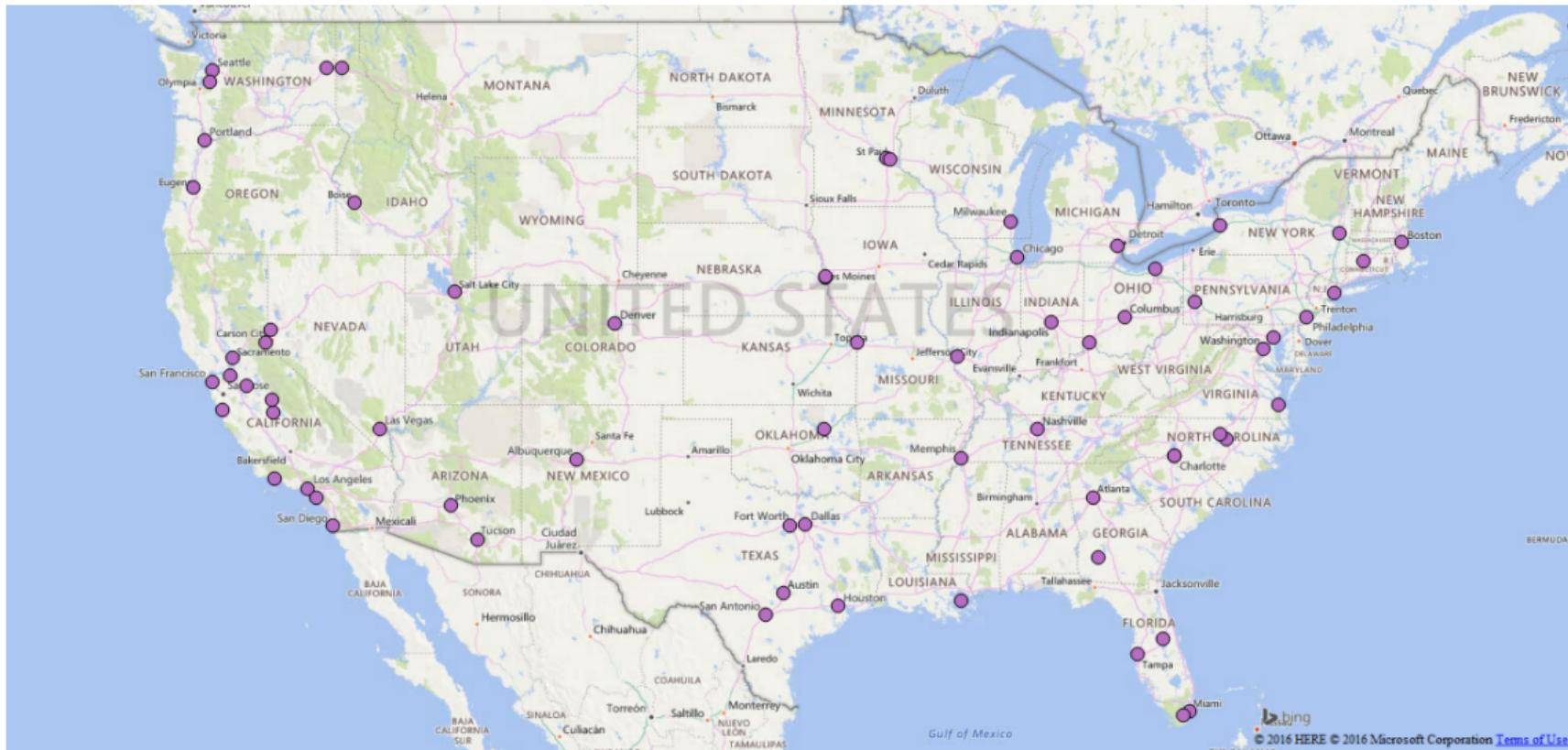
Craigslist expansion: 2002



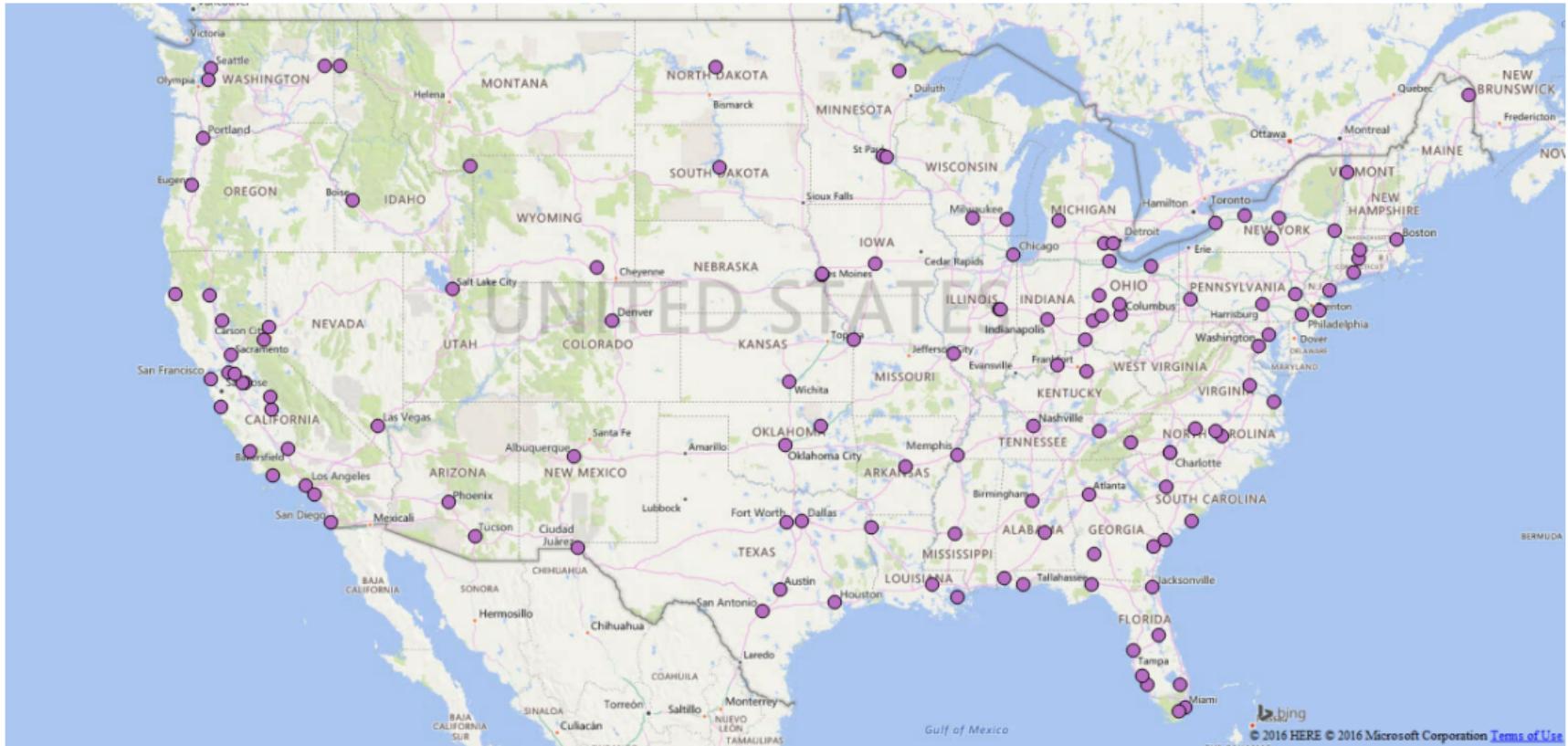
Craigslist expansion: 2003



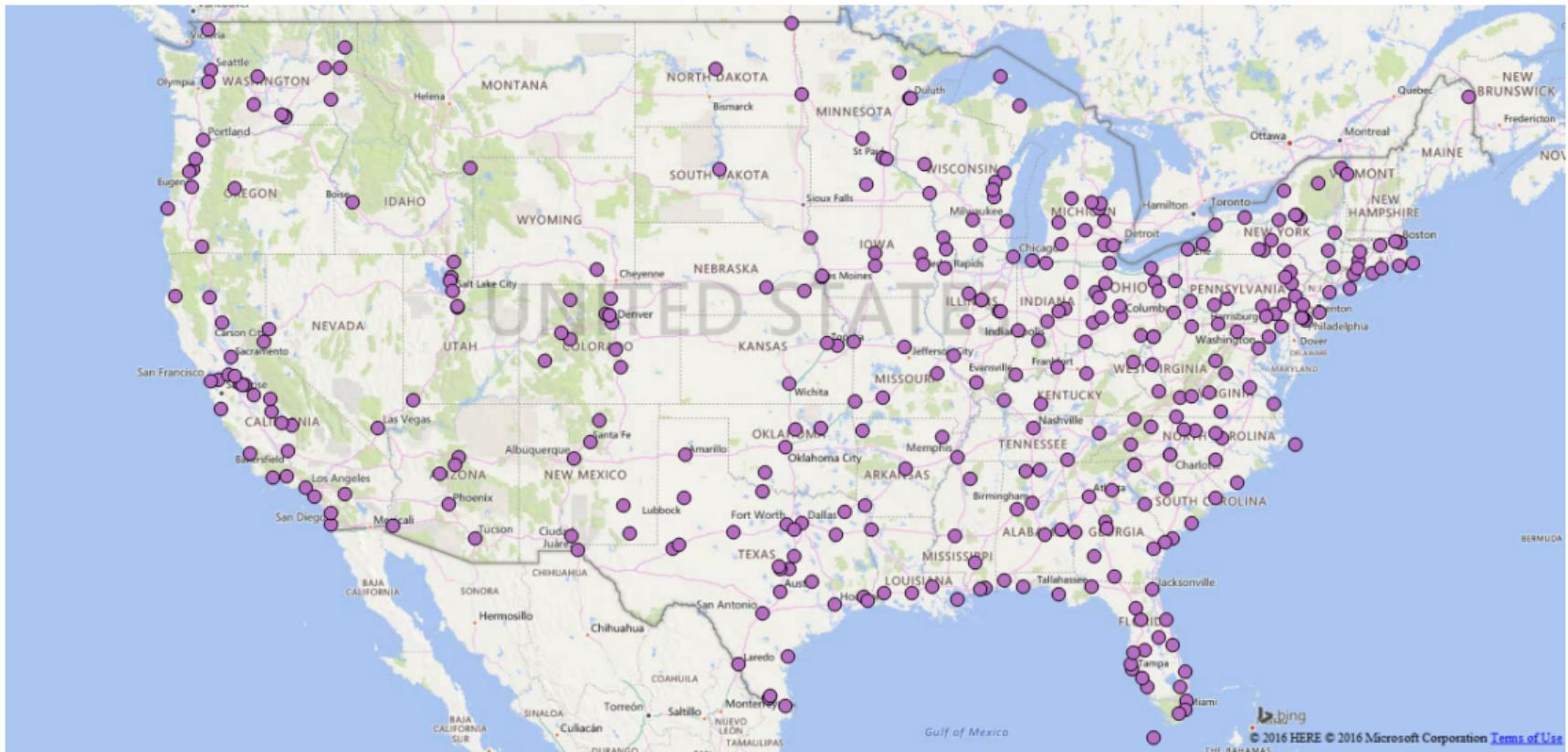
Craigslist expansion: 2004



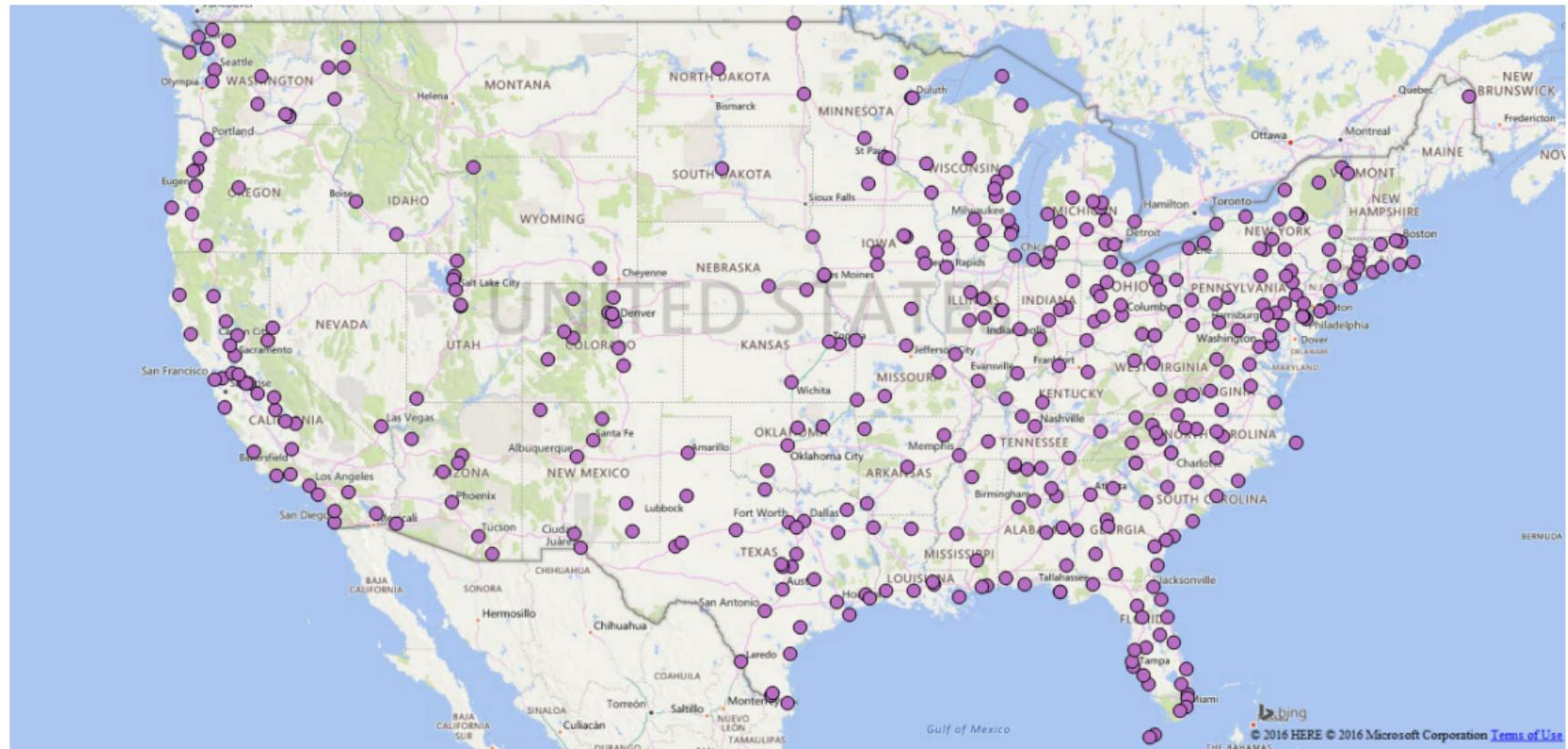
Craigslist expansion: 2005



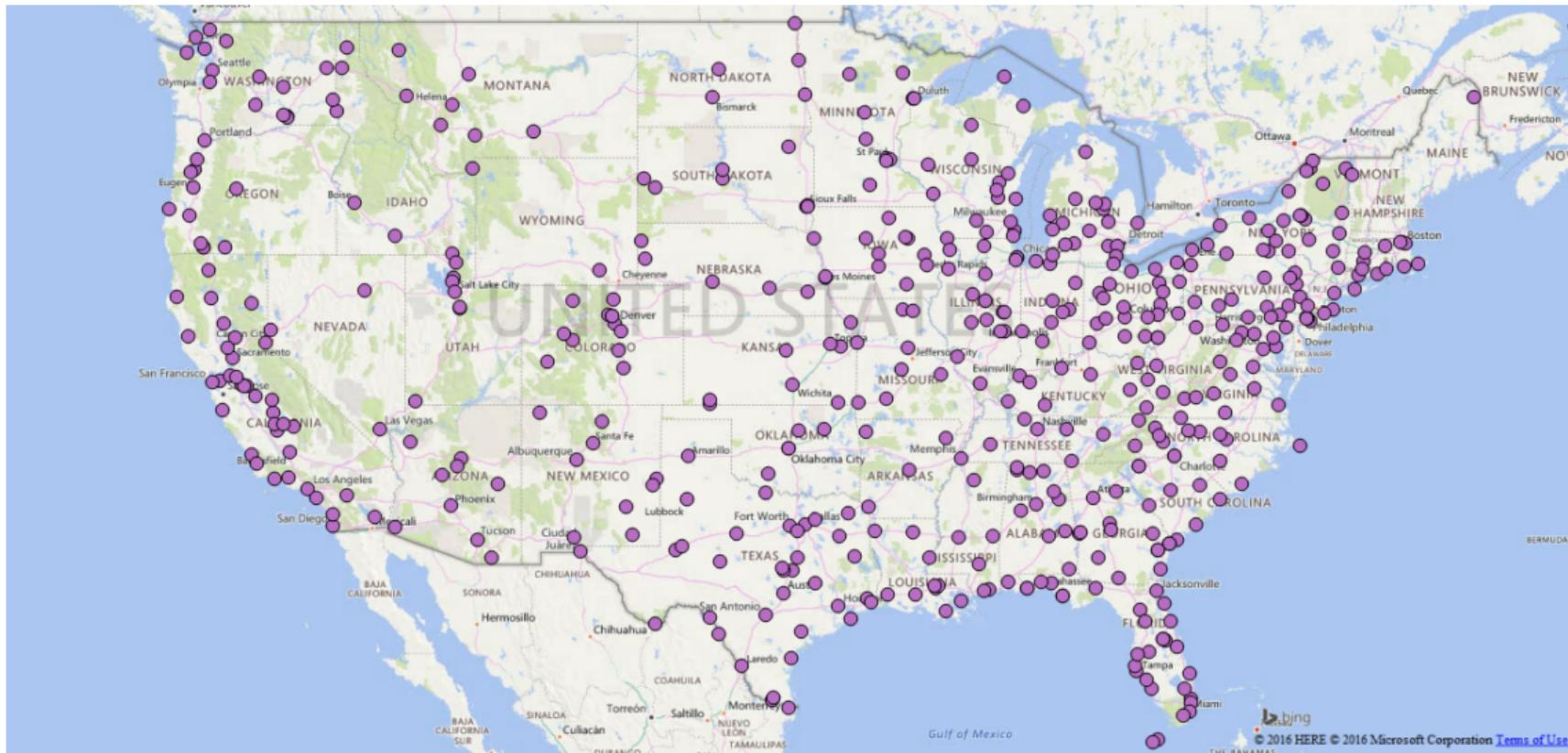
Craigslist expansion: 2006



Craigslist expansion: 2008



Craigslist expansion: 2009

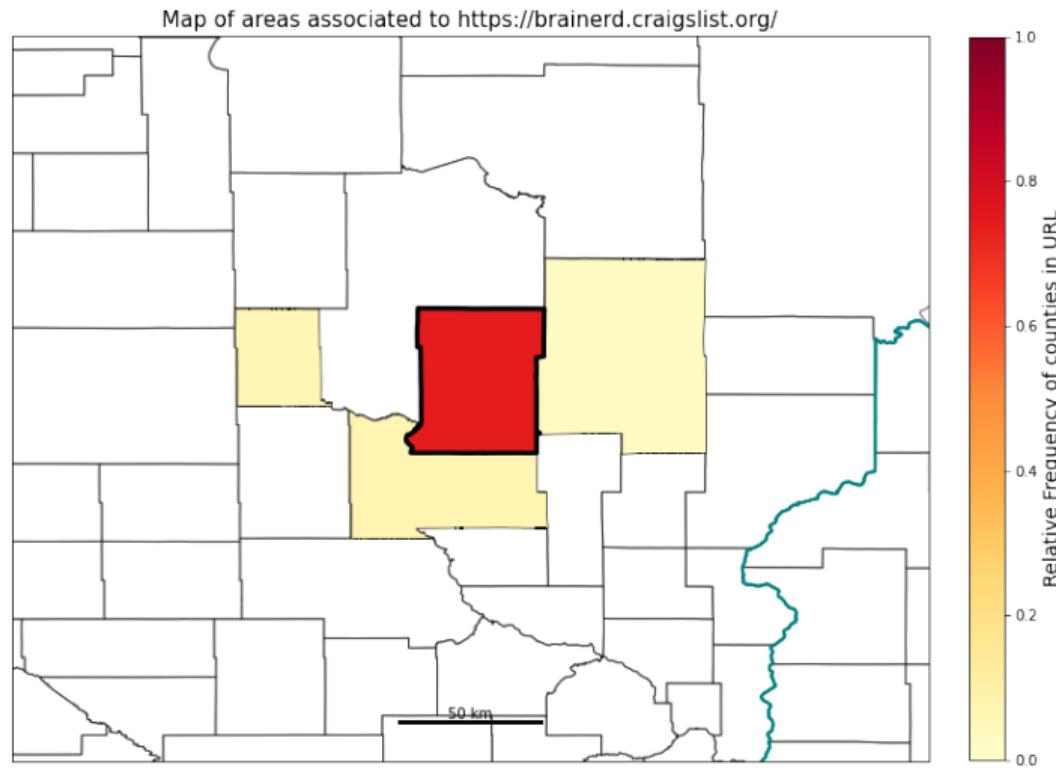


QUESTIONS #1

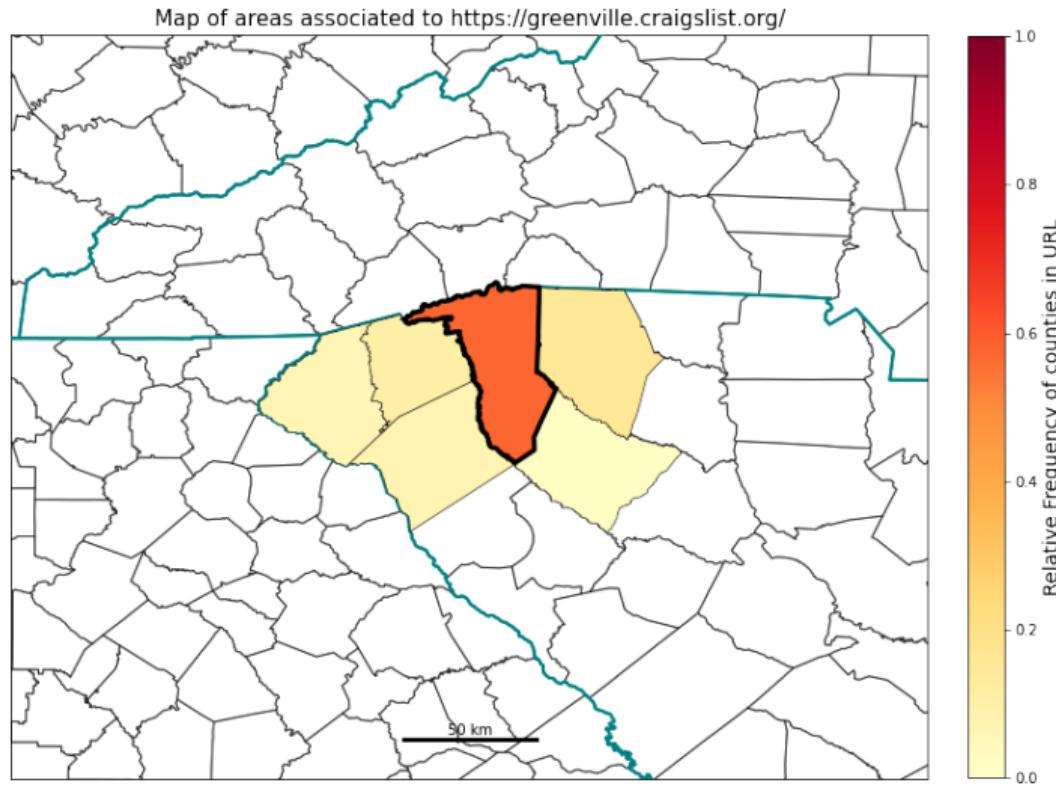
Data: Craigslist

- **Source:** www.craigslist.org + Wayback Machine
- **Period:** 1995-2010
- **Information:** date of entry for each local website
 - e.g., <http://chicago.craigslist.org>
- **Identify Craigslist websites' relevant market:**
 - ▶ Match location reported in URL to respective counties
 - e.g., [Chicago → Cook county + DuPage county](#)
 - ▶ Alternative: recover ads posted in the two years after entry and map their locations
(scrape all first-page ads in the housing, jobs, and sales sections in years 1 and 2 since entry)

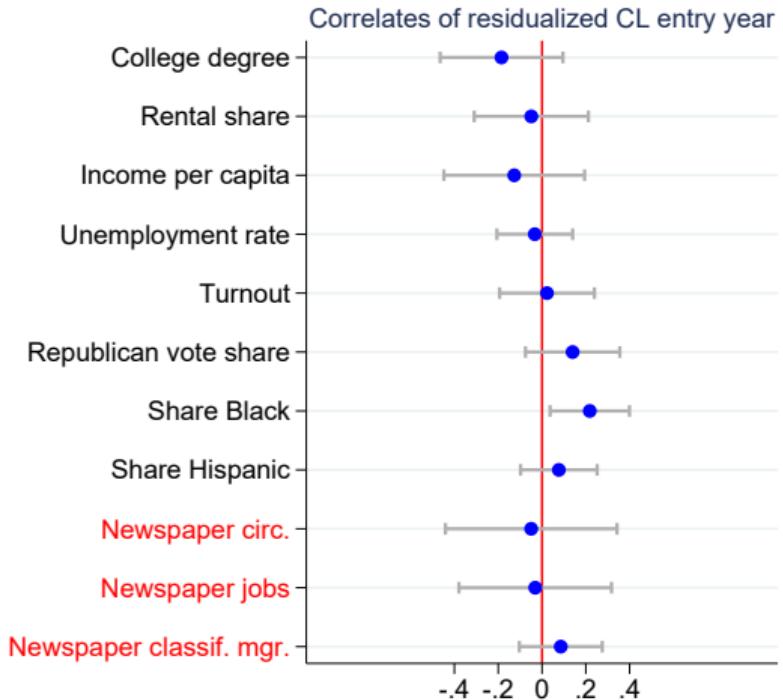
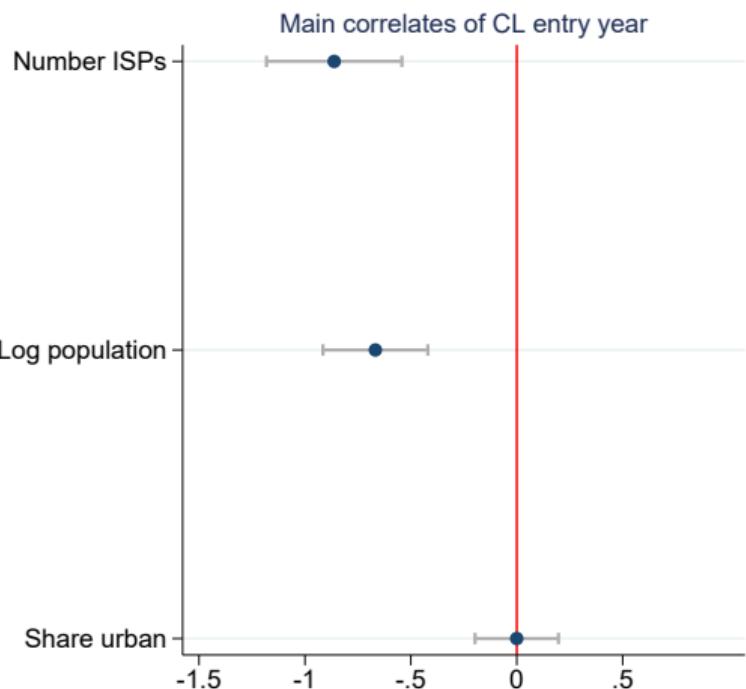
Craigslist website relevant market: example



Craigslist website relevant market: example (cont.)



Correlates of CL's time of entry



Data: Newspaper organization and outcomes

- **Source:** Editor & Publisher Yearbooks (paper editions)
- **Period:** 1995-2010 (8,000 pages)
- **Sample:** \approx 1600 newspapers; balanced panel \approx 1200
- **Information:**
 - ▶ HQ address
 - ▶ Circulation, subscription price, advertising rate, ownership, etc.
 - ▶ Staff names & job titles + topical areas
 - ▶ **Crucial:** presence of classified ads editor(s)
- **Identify newspaper's relevant market:**
 - ▶ Consider county in which newspaper's HQ is located (follow Gentzkow-Shapiro 2010)
 - ▶ Alternative: look at actual distribution of each newspaper circulation by county
(using data from Alliance for Audited Media, available for about 600 newspapers)

Newspaper info: example

The Reporter

(m-mon to fri; m-sat)

The Reporter, 307 Derstine Ave.; PO Box 390,
Lansdale, PA 19446; gen tel (215)
855-8440; adv tel (215) 361-8849; ed tel
(215) 361-8814; gen fax (215) 855-6147;
ed fax (215) 855-3432; adv email imaging@
theresporteronline.com; ed email letters@
theresporteronline.com; web site
<http://www.theresporteronline.com>.

Group: Journal Register Co.

Circulation: 17,808(m); 15,590(m-sat); ABC
Sept. 30, 2003.

Price: \$0.50(d); \$0.50(sat); \$3.00/wk (carrier);
\$156.00/yr (carrier), \$196.00/yr (mail).

Advertising: Open inch rate \$33.83(m);
\$33.83(m-sat). **Representatives:** Landon Media
Group; U.S. Suburban Press Inc.; Robert
Hitchings & Co.

News Services: AP, GNS.

Politics: Independent. **Established:** 1870.

CORP. MGMT./GEN. MGMT.

Pres./Pub. Al Frattura

Controller/Purchasing Agent Bernard DeAngelis

ADVERTISING SALES MGMT.

Adv. Dir. Robert Twesten

Display Adv. Mgr. Angel Hernandez

NEWS EXECUTIVES

Exec. Ed. Nona Breaux

EDITORIAL MGMT.

City Ed. Monica Thompson

Lifestyles Ed. Aixa Torregrosa

Night Ed. Linda Doell

Page 1 Ed. Dan Sharer

Chief Photographer Geoff Patton

Special Sections Kass Picozzi

Sports Ed. Kevin Lilley

Newspaper info: example (cont.)

Chicago Tribune

(m-mon to tues; m-wed to fri;
m-sat; S)

Chicago Tribune, 435 N. Michigan Ave., Chicago, IL 60611; gen tel (312) 222-3232; gen fax (312) 222-2595; gen email tribletter@tribune.com; web site <http://www.chicagotribune.com>.

Group: Tribune Co.

Circulation: 680,879(m); 512,455(m-mon to tues); 571,576(m-sat); 1,002,166(S); ABC Sept. 30, 2003.

Price: \$0.50(d); \$0.50(sat); \$1.79(S);

\$4.40/wk; \$228.80/yr.

Advertising: Open inch rate \$580.00(m); \$580.00(m-sat); \$842.00(S). **Representatives:** Western States Associates Inc.

News Services: AP, RN, NYT, TMS, DJ, KRT.

Politics: Independent. **Established:** 1847.

Advertising not accepted: Handguns, ammunition and tobacco.

CORP. MGMT./GEN. MGMT.

Pres./Pub./CEO	Scott C. Smith
Sr. Vice Pres./Gen. Mgr.	Richard Malone
Sr. Vice Pres./Ed.	Ann Marie Lipinski
Vice Pres., Circ./Consumer Mktg.	Vincent Casanova

Vice Pres./Chief Tech. Officer	Darko Dejanovic
---------------------------------------	-----------------

Vice Pres., Adv. Mktg./Sales	Ken DePaola
-------------------------------------	-------------

Vice Pres., Finance	Phil Doherty
----------------------------	--------------

Vice Pres., Human Resources	Janice Jacobs
------------------------------------	---------------

Vice Pres., Devel.	Owen Youngman
---------------------------	---------------

Vice Pres./Dir., Ops.	Tony Hunter
------------------------------	-------------

Gen. Mgr., Chicago Tribune Interactive	Alison Scholly
---	----------------

Dir., Technical Devel.	Scott Tafelski
-------------------------------	----------------

Dir., Technical Ops./Help Desk	Robert Trinchet
---------------------------------------	-----------------

Dir., Client Servs.	Deepak Agarwal
----------------------------	----------------

ADVERTISING SALES MGMT.

Dir., Nat'l Adv.	Dan Dunn
Dir., Network Adv.	Ron Goldberg
Dir., Classified Adv.	Barbara Swanson
Dir., Major Accts.	Douglas Thomas

Dir., Preprint Adv.	John Wollney
Dir., Adv. Planning/Analysis	Margaret Durkin
Dir., Adv. Devel.	Kathy Manilla
Dir., Regt. Accounts	Steve Brooks
Dir., Group Sales/Mktg.	Robert Fleck
Dir., Devel.	Susan Zukrow
Dir., Devel.	Sue Kluse

MARKETING MGMT.

Sr. Mgr., Multimedia Mktg.	Tom Gamitano
Dir., Community Rel.	Frank Gihan
Dir., Brand Mktg.	Kelly Shannon

CIRCULATION MGMT.

Dir., Distr.	Sheila Davidson
Dir., Consumer Mktg.	Carrie Hoyer
Dir., Circ. Planning/Opns.	Becky Brubaker

NEWS EXECUTIVES

Mng. Ed.	James O'Shea
Publ. Ed.	Don Wycliff
Deputy Mng. Ed., Features	Jim Warren
Deputy Mng. Ed., News	George de Lama
Deputy Mng. Ed., Ops.	Randy Weissman
Assoc. Mng. Ed., Electronic News	Mark Hinojosa
Assoc. Mng. Ed., Features	Mary Elson
Assoc. Mng. Ed., Financial News	Rob Karwath
Assoc. Mng. Ed., Foreign News	Tim McMurtry
Assoc. Mng. Ed., Graphics/Design	Stacy Sweat
Assoc. Mng. Ed., Lifestyle	Geoff Brown
Assoc. Mng. Ed., Metropolitan News	Hanke Grattreau

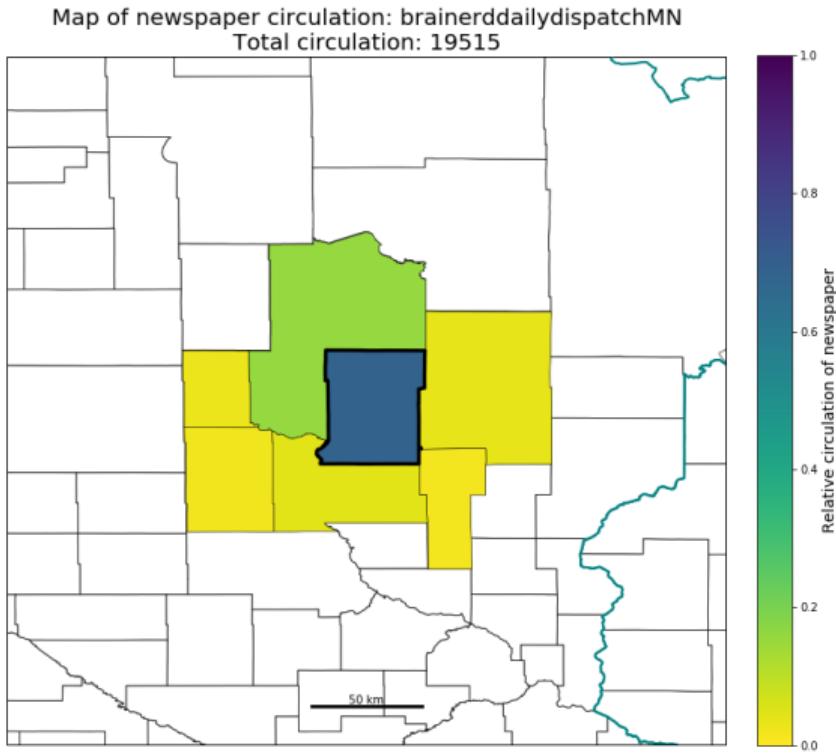
Assoc. Mng. Ed., Nat'l News	Joycelyn Winnecke
Assoc. Mng. Ed., Photography	Bill Parker
Assoc. Mng. Ed., Sports	Dan McGrath
Assoc. Mng. Ed., Washington Bureau	Vicki Walton-James

Sr. Ed.	Tony Mayer
Sr. Ed., Recruiting	Sheila Solomon

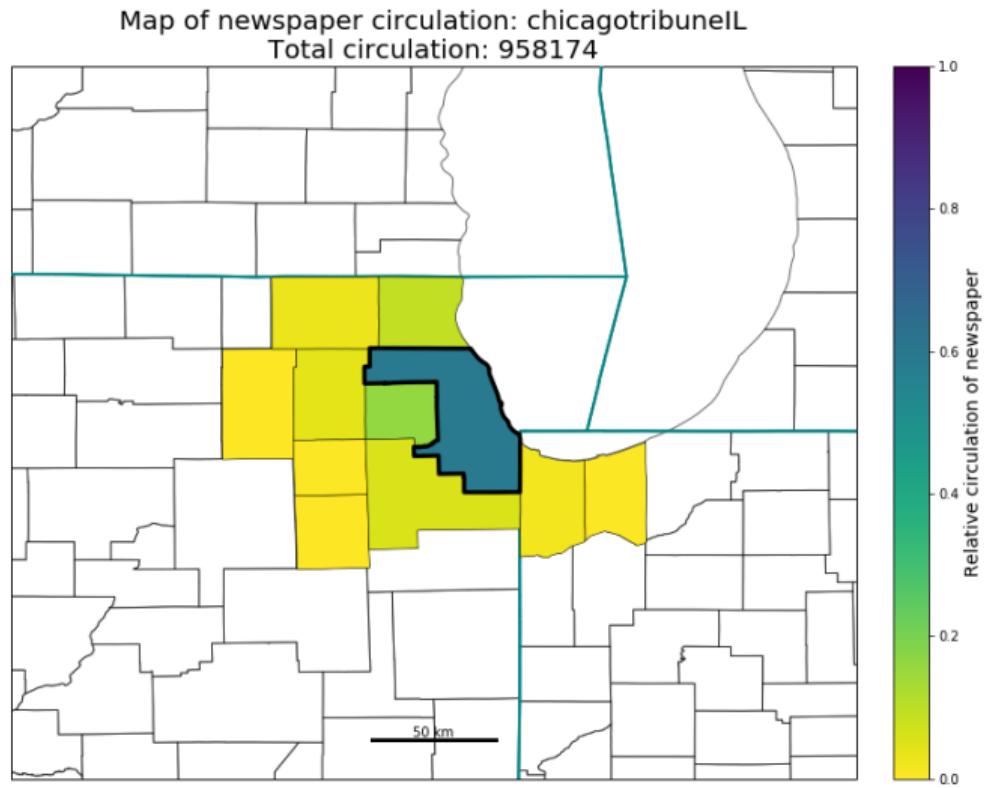
EDITORIAL MGMT.

Books Ed.	Elizabeth Taylor
Editorial Page Ed.	Bruce Dold
Entertainment Ed.	Scott Powers
Foreign Ed.	Colin McMahon
Good Eating Ed.	Carol Haddix
Nat'l Ed.	Storer Rowley
Special Sections Ed.	Janet Franz
Sports Ed.	Bill Adey
Sunday Magazine Ed.	Elizabeth Taylor
Tempo Ed.	Tim Bannon
Travel Ed.	Randy Curwen
Womanews Ed.	Cassandra West

Newspaper relevant market: example



Newspaper relevant market: example (cont.)



NEWSPAPER-LEVEL OUTCOMES

Empirical Strategy

$$Outcome_{nct} = \beta PostCL_{ct} + \phi_n + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{nct}$$

$$Outcome_{nct} = \beta PostCL_{ct} + \gamma PostCL_{ct} \times ClassifiedMgr_{n0} + \phi_n + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{nct}$$

- $Outcome_{nct}$: outcome of newspaper n , HQed in county c , at time t
- $PostCL_{ct}$: dummy for period after CL's entry in county c (alternative: years since CL website entry)

Empirical Strategy

$$Outcome_{nct} = \beta PostCL_{ct} + \phi_n + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{nct}$$

$$Outcome_{nct} = \beta PostCL_{ct} + \gamma PostCL_{ct} \times ClassifiedMgr_{n0} + \phi_n + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{nct}$$

- $Outcome_{nct}$: outcome of newspaper n , HQed in county c , at time t
- $PostCL_{ct}$: dummy for period after CL's entry in county c (alternative: years since CL website entry)
- $ClassifiedMgr_n$: presence of classified ads manager(s) in newspaper n between 1995 and 2000

Empirical Strategy

$$Outcome_{nct} = \beta PostCL_{ct} + \phi_n + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{nct}$$

$$Outcome_{nct} = \beta PostCL_{ct} + \gamma PostCL_{ct} \times ClassifiedMgr_{n0} + \phi_n + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{nct}$$

- $Outcome_{nct}$: outcome of newspaper n , HQed in county c , at time t
- $PostCL_{ct}$: dummy for period after CL's entry in county c (alternative: years since CL website entry)
- $ClassifiedMgr_n$: presence of classified ads manager(s) in newspaper n between 1995 and 2000
- X_{ct} : time-varying county-level controls (population, ISPs)
- Z_{c0} : other county-level controls at baseline year 2000 interacted with year FEs (% college, % rental, income p.c, unemployment, turnout, Republican vote share, % Black, % Hispanic)
- ϕ_n, ψ_t : newspaper and year fixed effects
- Standard errors clustered by newspaper
- Sample: all daily papers except national ones (i.e., NYT, USA Today, WSJ)

Classified manager and importance of classified ads: validation

- Data on the number of pages devoted to classified ads scraped from [Newspapers.com](#)

Share of pages devoted to classified ads by presence of classified manager in 2000

	Share Pages Devoted to Classifieds (1)	Share Pages Devoted to Classifieds (2)	Share Pages Devoted to Classifieds (Sundays) (3)	Share Pages Devoted to Classifieds (Sundays) (4)
Classif. Mgr.	0.031 ** (0.016)	0.023 (0.015)	0.038 ** (0.018)	0.028 * (0.017)
Pop / Circ controls	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
Weekday FE	Yes	Yes	No	No
Observations	30,383	30,223	23,526	23,400
Number of Papers	266	266	266	266
R ²	0.0152	0.028	0.01185	0.02491

*Standard errors clustered by newspaper in parentheses. ***: 0.01, **: 0.05, *: 0.1*

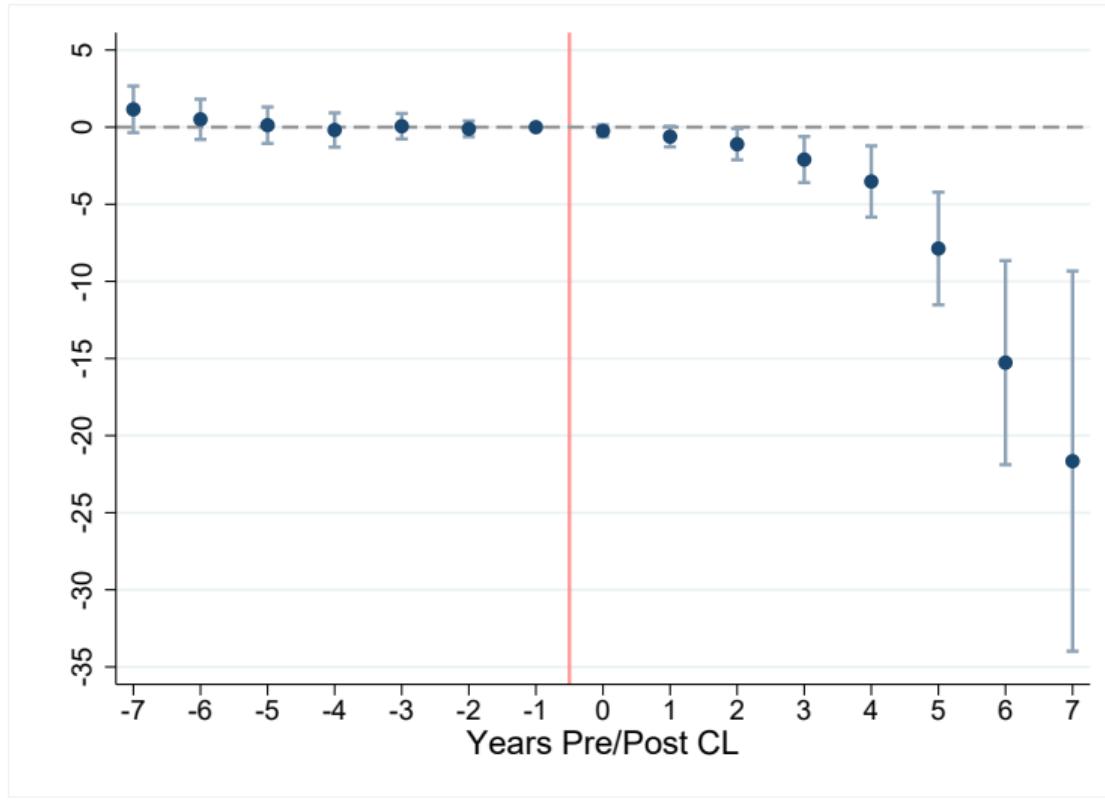
Notes: An observation is a newspaper-day. Columns 1 and 2: issues published on all days. Columns 3 and 4: Sunday issues only. Columns 2 and 4: controls for log population of the newspaper's county of headquarters and for total circulation.

QUESTIONS #2

Circulation

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: Circulation (thousands)					
Panel A						
Post-CL	-0.954*	-1.463**	-1.172	0.998	0.106	0.410
	(0.543)	(0.633)	(0.761)	(0.818)	(0.897)	(0.976)
Post-CL × Classified Mgr.				-3.668***	-2.982***	-2.876***
				(1.206)	(1.138)	(1.096)
Panel B						
Years Post-CL	-1.775***	-1.511***	-1.505***	-0.761**	-0.691	-0.692
	(0.631)	(0.572)	(0.532)	(0.330)	(0.444)	(0.438)
Years Post-CL × Classif. Mgr.				-1.789**	-1.473*	-1.435*
				(0.825)	(0.800)	(0.804)
Log population, share urban, # ISPs	Yes	Yes	Yes	Yes	Yes	Yes
Additional county characteristics × Year FEs	No	Yes	Yes	No	Yes	Yes
Newspaper FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
State × Year FEs	No	No	Yes	No	No	Yes
Observations	23060	22916	22914	22743	22599	22597
Number of newspapers	1558	1549	1549	1509	1500	1500
R ²	0.98	0.98	0.98	0.98	0.98	0.98
Mean dependent variable	33.81	33.38	33.38	33.87	33.43	33.43

Circulation: dynamic diff-in-diff



Newspaper readership (individual survey data)

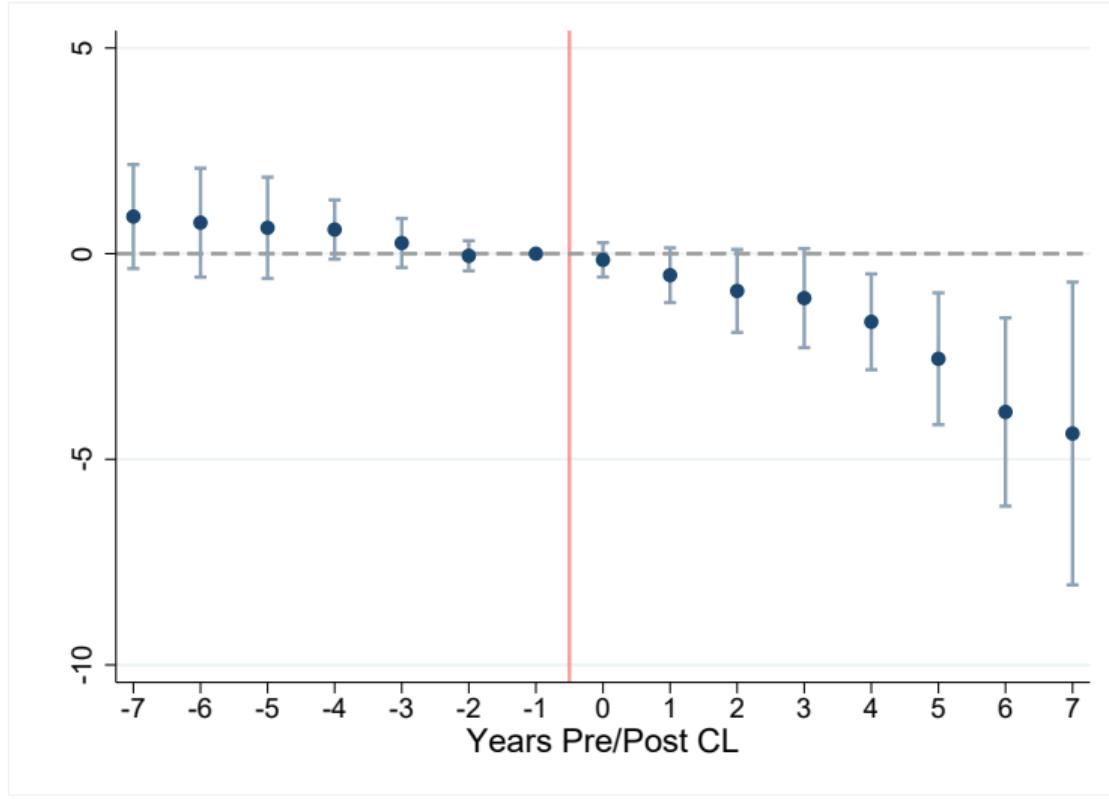
- Unit of observation: respondent \times county \times survey year. Sample: all counties with newspaper HQ
- Classified manager: circulation-weighted average of all newspapers HQed in the county

	(1) Read newsp. days per wk	(2) Read newsp. dummy	(3) Read newsp. days per wk	(4) Read newsp. dummy
Post-CL	0.117 (0.108)	0.019 (0.015)		
Post-CL \times Classified Mgr.	-0.283* (0.161)	-0.053** (0.026)		
Years Post-CL			0.089 (0.095)	0.022 (0.016)
Years Post-CL \times Classif. Mgr.			-0.201** (0.101)	-0.041** (0.016)
Respondent characteristics	Yes	Yes	Yes	Yes
Full county controls	Yes	Yes	Yes	Yes
County FEs	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes
Observations	107503	107503	107503	107503
Number of counties	1203	1203	1203	1203
R ²	0.14	0.06	0.14	0.06
Mean dependent variable	3.71	0.75	3.71	0.75

Number of jobs

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: Number of jobs					
Panel A						
Post-CL	-1.117*** (0.401)	-1.083*** (0.393)	-1.243*** (0.425)	0.385 (0.414)	0.446 (0.413)	0.269 (0.436)
Post-CL × Classified Mgr.				-2.914*** (0.567)	-2.959*** (0.549)	-2.900*** (0.551)
Panel B						
Years Post-CL	-0.483*** (0.142)	-0.514*** (0.149)	-0.551*** (0.169)	0.126 (0.110)	0.124 (0.111)	0.083 (0.129)
Years Post-CL × Classif. Mgr.				-1.044*** (0.202)	-1.097*** (0.198)	-1.089*** (0.196)
Log population, share urban, # ISPs	Yes	Yes	Yes	Yes	Yes	Yes
Additional county characteristics × Year FEs	No	Yes	Yes	No	Yes	Yes
Newspaper FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
State × Year FEs	No	No	Yes	No	No	Yes
Observations	22832	22688	22687	22624	22480	22479
Number of newspapers	1543	1534	1534	1508	1499	1499
R ²	0.91	0.91	0.91	0.91	0.91	0.91
Mean dependent variable	21.37	21.30	21.30	21.44	21.38	21.38

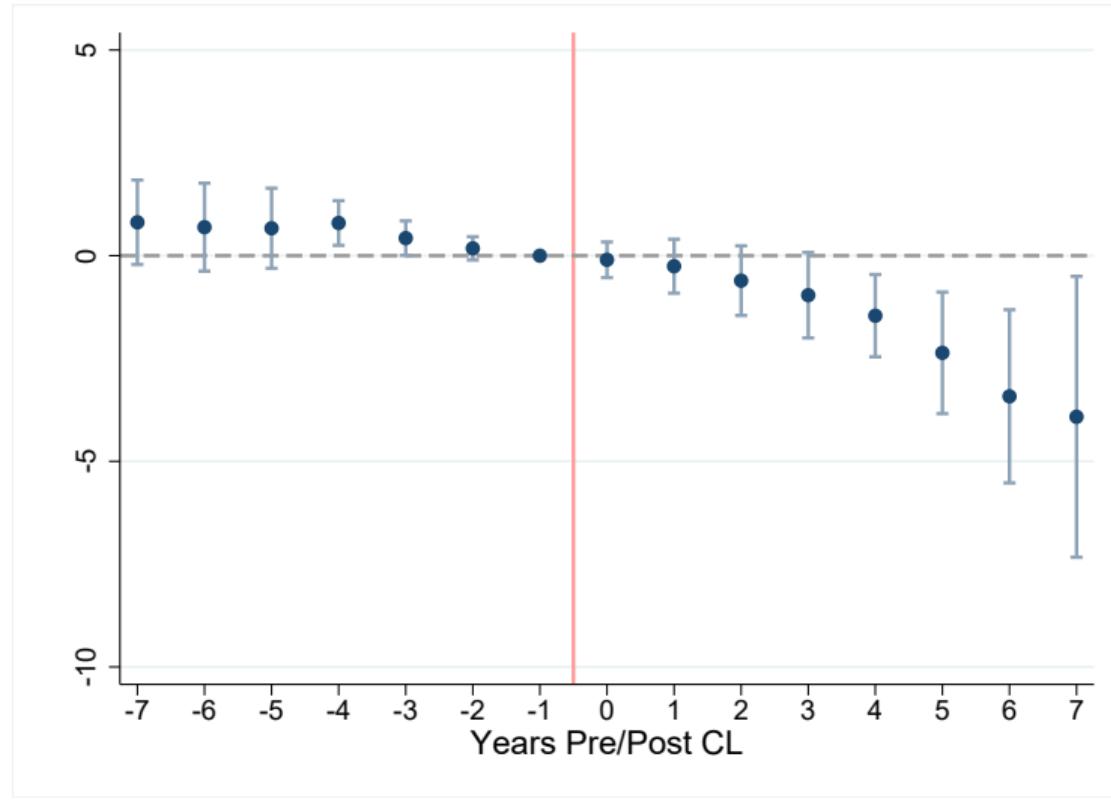
Number of jobs: dynamic diff-in-diff



Staff count

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: Number of employees					
Panel A						
Post-CL	-1.042*** (0.323)	-1.011*** (0.332)	-1.106*** (0.350)	0.198 (0.333)	0.255 (0.343)	0.128 (0.353)
Post-CL × Classified Mgr.				-2.432*** (0.498)	-2.478*** (0.476)	-2.395*** (0.473)
Panel B						
Years Post-CL (broad)	-0.404*** (0.097)	-0.382*** (0.113)	-0.413*** (0.132)	0.069 (0.071)	0.093 (0.078)	0.063 (0.089)
Years Post-CL (broad) × Classif. Mgr.				-0.872*** (0.151)	-0.872*** (0.146)	-0.893*** (0.143)
Log population, share urban, # ISPs	Yes	Yes	Yes	Yes	Yes	Yes
Additional county characteristics × Year FEs	No	Yes	Yes	No	Yes	Yes
Newspaper FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
State × Year FEs	No	No	Yes	No	No	Yes
Observations	22905	22761	22760	22691	22547	22546
Number of newspapers	1543	1534	1534	1508	1499	1499
R ²	0.92	0.92	0.92	0.92	0.92	0.92
Mean dependent variable	17.90	17.84	17.84	17.96	17.90	17.90

Staff count: dynamic diff-in-diff



Number of jobs by type

	(1) Num. Managers	(2) Num. Editors	(3) Num. Managers	(4) Num. Editors
Post-CL	0.047 (0.087)	0.136 (0.298)		
Post-CL × Classified Mgr.	-0.663*** (0.121)	-0.772* (0.451)		
Years Post-CL			0.044 (0.033)	-0.041 (0.073)
Years Post-CL × Classif. Mgr.			-0.254*** (0.039)	-0.356** (0.144)
Full county controls	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	21798	22120	21798	22120
Number of newspapers	1497	1498	1497	1498
R ²	0.80	0.89	0.80	0.89
Mean dependent variable	3.46	10.60	3.46	10.60

Robustness

- Using the approach proposed by Chaisemartin-D'Haultfœuille's (AER 2020) instead of traditional diff-in-diff [here](#)
- Using broad definition of relevant market for both CL (based on ads location) and newspapers (based on circulation) [here](#)
- Focusing on newspapers in the sample for the entire period (no exits or entries)
- Excluding newspapers that were never affected by CL
- Considering the presence of classified manager(s) right before the entry of CL, rather than in 1995-2000 [here](#)

NEWS CONTENT

Data on news content

- Keyword searches in *Newsbank*:
 - ▶ Names of House representatives by Congress and district
 - ▶ Names of national politicians: president, speakers, majority leader, party leaders, etc.

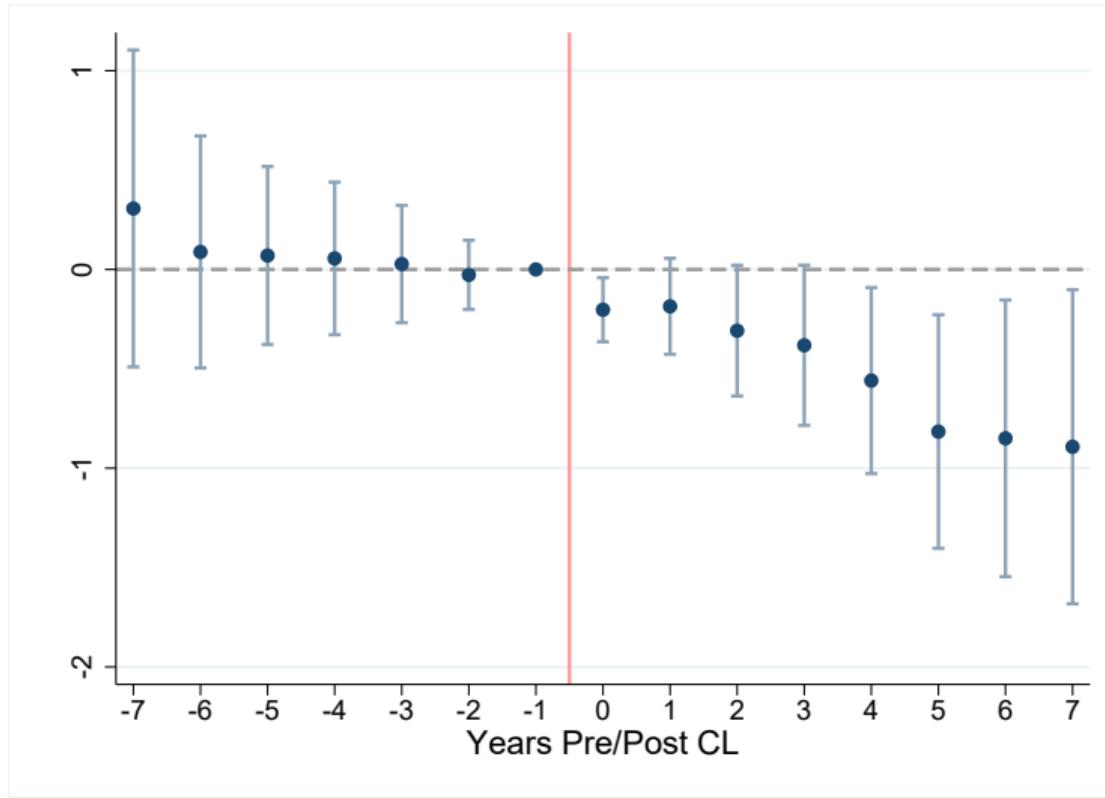
Data on news content

- Keyword searches in [Newsbank](#):
 - ▶ Names of House representatives by Congress and district
 - ▶ Names of national politicians: president, speakers, majority leader, party leaders, etc.
- Draw random *unrestricted* sample of over 2M articles from [Newslibrary.com](#) (first paragraph)
 - ▶ *Corex* topic model
 - ▶ 10 topics, with anchors for 4 types of political content: national, foreign, Congressional and local
- Sample period: 2000-2010
- ≈ 900 newspapers. Focus on newspapers that mention keywords of interest at least once

Mentions of congressmen from the state of HQ

	(1)	(2)	(3)	(4)	(5)	(6)
	Articles mentioning Congressmen from state of HQ (ISH)					
Panel A						
Post-CL	-0.189 (0.131)	-0.126 (0.137)	-0.208 (0.160)	0.075 (0.198)	0.181 (0.203)	0.081 (0.234)
Post-CL × Classified Mgr.				-0.387* (0.217)	-0.452** (0.217)	-0.416* (0.238)
Panel B						
Years Post-CL (core)	-0.086 (0.052)	-0.055 (0.055)	-0.087 (0.067)	0.001 (0.067)	0.036 (0.068)	-0.008 (0.081)
Years Post-CL (core) × Classified Mgr.				-0.114** (0.052)	-0.130** (0.052)	-0.118** (0.057)
Log population, share urban, # ISPs	Yes	Yes	Yes	Yes	Yes	Yes
Additional county characteristics × Year FEs	No	Yes	Yes	No	Yes	Yes
Newspaper FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
State × Year FEs	No	No	Yes	No	No	Yes
Observations	3731	3676	3665	3714	3659	3648
Number of newspapers	343	338	337	341	336	335
R ²	0.68	0.70	0.76	0.68	0.70	0.76
Mean dependent variable	4.51	4.53	4.53	4.52	4.53	4.54

Mentions of congressmen from the state of HQ: dynamic diff-in-diff



Mentions of national politicians

	(1)	(2)	(3)	(4)	(5)	(6)
	Articles mentioning national politician (ISH)					
Panel A						
Post-CL	-0.395** (0.157)	-0.266 (0.167)	-0.199 (0.166)	-0.394** (0.153)	-0.251 (0.165)	-0.337* (0.199)
Post-CL × Classified Mgr.				0.037 (0.247)	-0.020 (0.243)	0.282 (0.243)
Panel B						
Years Post-CL	0.089 (0.057)	0.065 (0.060)	0.135** (0.063)	0.046 (0.066)	0.022 (0.070)	0.079 (0.076)
Years Post-CL × Classified Mgr.				0.078 (0.079)	0.084 (0.077)	0.096 (0.074)
Log population, share urban, # ISPs	Yes	Yes	Yes	Yes	Yes	Yes
Additional county characteristics × Year FEs	No	Yes	Yes	No	Yes	Yes
Newspaper FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
State × Year FEs	No	No	Yes	No	No	Yes
Observations	2800	2792	2698	2766	2758	2664
Number of newspapers	520	518	513	514	512	507
R ²	0.71	0.73	0.80	0.71	0.73	0.80
Mean dependent variable	4.51	4.51	4.53	4.50	4.50	4.51

Topic model

0: presid,feder,govern,compani,tax,washington,percent,increas,pai,billion
1: council,mayor,board,plan,student,educ,fund,commun,project,program
2: repres,senat,congress,republican,elect,democrat,vote,candid,polit,gov
3: intern,war,foreign,iraq,militari,movi,film,american,soldier,terrorist
4: man,kill,injuri,injur,accid,crash,woman,diseas,victim,suffer
5: music,art,food,festiv,featur,concert,event,artist,band,holidai
6: car,vehicl,driver,road,truck,traffic,highwai,drive,mile,street
7: di,born,funer,son,daughter,church,surviv,servic,cemeteri,obituari
8: game,team,coach,win,season,plai,victori,footbal,score,player
9: polic,charg,court,arrest,judg,investig,attornei,accus,sheriff,suspect

Politics-related topics

	(1) national	(2) local	(3) congress	(4) foreign	(5) national	(6) local	(7) congress	(8) foreign
Post-CL	-0.001 (0.005)	-0.003 (0.007)	-0.000 (0.003)	0.005 (0.004)				
Post-CL × Classified Mgr.	-0.017*** (0.006)	-0.013 (0.008)	-0.011** (0.005)	-0.011** (0.004)				
Years Post-CL					0.002 (0.002)	0.001 (0.002)	0.001 (0.001)	-0.001 (0.001)
Years Post-CL × Classif. Mgr.					-0.007*** (0.002)	-0.001 (0.002)	-0.002** (0.001)	-0.003** (0.001)
Full county controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7129	7129	7129	7129	7129	7129	7129	7129
Number of newspapers	862	862	862	862	862	862	862	862
R ²	0.52	0.47	0.40	0.53	0.52	0.47	0.40	0.54
Mean dependent variable	0.21	0.31	0.10	0.10	0.21	0.31	0.10	0.10

Other topics

	(1) accidents	(2) events	(3) traffic	(4) obituaries	(5) sports	(6) crime	(7) accidents	(8) events	(9) traffic	(10) obituaries	(11) sports	(12) crime
Post-CL	-0.003 (0.004)	-0.007 (0.006)	-0.004 (0.004)	0.002 (0.010)	0.008 (0.008)	-0.002 (0.003)						
Post-CL × Classified Mgr.	0.006 (0.006)	-0.003 (0.007)	-0.001 (0.006)	0.013 (0.012)	0.012 (0.008)	0.003 (0.004)						
Years Post-CL							-0.001 (0.001)	-0.003 (0.002)	0.001 (0.001)	0.000 (0.003)	0.002 (0.003)	0.001 (0.001)
Years Post-CL × Classif. Mgr.							0.001 (0.001)	0.001 (0.002)	0.000 (0.001)	0.004 (0.003)	-0.001 (0.002)	-0.001 (0.001)
Full county controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7129	7129	7129	7129	7129	7129	7129	7129	7129	7129	7129	7129
Number of newspapers	862	862	862	862	862	862	862	862	862	862	862	862
R ²	0.43	0.41	0.39	0.56	0.44	0.44	0.43	0.41	0.39	0.56	0.44	0.44
Mean dependent variable	0.12	0.17	0.14	0.15	0.21	0.11	0.12	0.17	0.14	0.15	0.21	0.11

QUESTIONS #3

POLITICS

Political outcomes

Coverage of representatives declines in newspapers, but does this matter? We look at:

- **Participation** (turnout)
- **Representation** (behavior of MCs)

Political outcomes

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Turnout at county level, with specification:

$$Turnout_{ct} = \beta PostCL_{ct} + \gamma PostCL_{ct} \times ClassifMgr_{c0} + \phi_c + \psi_t + \rho' X_{ct} + v'_t Z_{c0} + \epsilon_{ct}, \quad (1)$$

Political outcomes

Coverage of representatives declines in newspapers, but does this matter? We look at:

- **Participation** (turnout)
- **Representation** (behavior of MCs)

Turnout at county level, with specification:

$$Turnout_{ct} = \beta PostCL_{ct} + \gamma PostCL_{ct} \times ClassifMgr_{c0} + \phi_c + \psi_t + \rho' X_{ct} + v_t' Z_{c0} + \epsilon_{ct}, \quad (1)$$

MC behavior at newspaper \times district level, with specification:

$$Outcome_{dnt} = \beta PostCL_{nt} + \gamma PostCL_{nt} \times ClassifMgr_{n0} + \phi_d + \psi_t + \rho' X_{nt} + v_t' Z_{n0} + \epsilon_{dnt}, \quad (2)$$

weighting by share of readers of paper n in district d .

Turnout in presidential elections

	Turnout in Presidential Election					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Post-CL (broad)	-0.005 (0.003)	0.0006 (0.003)	-0.003 (0.002)	0.003 (0.004)	0.009*** (0.003)	0.0007 (0.002)
Post-CL (broad) × Classif. Mgr.				-0.012** (0.005)	-0.011*** (0.004)	-0.005* (0.003)
Panel B						
Years post CL (broad)	-0.001*** (0.0005)	-0.0006 (0.0008)	-0.0004 (0.0006)	0.0001 (0.001)	0.0009 (0.001)	0.0005 (0.0006)
Years post CL (broad) × Classif. Mgr.				-0.002* (0.001)	-0.002** (0.0009)	-0.001** (0.0005)
Log population, #ISPs	✓	✓	✓	✓	✓	✓
2000 Demographics × Year FE		✓	✓		✓	✓
County FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓		✓	✓	
State × Year FE			✓			✓
Observations	4,903	4,903	4,903	4,903	4,903	4,903
R ²	0.92531	0.94294	0.96964	0.92508	0.94302	0.96971

MC behavior: measures

1

ADA Score extremity

- ▶ Americans for Democratic Action selects 20 bills per year and scores members on voting the (liberal) ADA line
- ▶ Extremity defined as ADA score for Ds, 1 – ADA score for R's.
- ▶ Measure used in classic studies of accountability (e.g., Canes-Wrone et. al. 2002)

MC behavior: measures

1 ADA Score extremity

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2 Voting the party line

- ▶ Across all roll calls, share of time that an MC voted with his/her party leadership
- ▶ Used by Snyder & Strömberg (2010)
- ▶ S&S interpretation: higher values → less responsiveness to local constituents

3 Bill sponsorship

- ▶ Number of bills/resolutions introduced
- ▶ Measure of “position taking” effort

MC behavior: ADA score extremity

	Dependent variable: ADA extremity					
	(1)	(2)	(3)	(4)	(5)	(6)
Post-CL (broad)	0.013*** (0.004)	0.011** (0.004)	0.007* (0.004)	0.010** (0.004)	0.008* (0.004)	0.005 (0.004)
Post-CL (broad) × Classif. Mgr.				0.006*** (0.002)	0.006** (0.002)	0.005** (0.002)
Log population, #ISPs	✓	✓	✓	✓	✓	✓
2000 Demographics × Year FE		✓	✓		✓	✓
District FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓		✓	✓	
State × Year FE			✓			✓
Observations	21,023	20,855	20,855	20,393	20,225	20,225
R ²	0.45515	0.46991	0.5625	0.45581	0.47102	0.56471

Standard-errors clustered by CL market in parentheses. ***: 0.01, **: 0.05, *: 0.1

MC Behavior: voting the party line

	Dependent variable: Share of roll calls with party leadership					
	(1)	(2)	(3)	(4)	(5)	(6)
Post-CL (broad)	0.051 *** (0.012)	0.020 *** (0.007)	0.016 ** (0.006)	0.052 *** (0.012)	0.019 ** (0.008)	0.014 ** (0.006)
Post-CL (broad) × Classif. Mgr.				-0.004 (0.004)	0.002 (0.004)	-0.0001 (0.004)
Log population, #ISPs	✓	✓	✓	✓	✓	✓
2000 Demographics × Year FE		✓	✓		✓	✓
District FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓		✓	✓	
State × Year FE			✓			✓
Observations	21,169	20,999	20,999	20,534	20,364	20,364
R ²	0.65791	0.70337	0.74776	0.66031	0.70369	0.74885

Standard errors clustered by CL market in parentheses. ***: 0.01, **: 0.05, *: 0.1

MC Behavior: bill sponsorship

	Dependent variable: Number of bills/resolutions sponsored					
	(1)	(2)	(3)	(4)	(5)	(6)
Post-CL (broad)	-0.937** (0.452)	-0.967* (0.494)	-0.557** (0.283)	-1.02*** (0.368)	-1.01** (0.411)	-0.579** (0.245)
Post-CL (broad) × Classif. Mgr.				0.029 (0.249)	0.012 (0.219)	-0.037 (0.209)
Log population, #ISPs	✓	✓	✓	✓	✓	✓
2000 Demographics × Year FE		✓	✓		✓	✓
District FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓		✓	✓	
State×Year FE			✓			✓
Observations	20,438	20,270	20,270	19,827	19,659	19,659
R ²	0.47133	0.47626	0.54101	0.4613	0.46428	0.53179

Standard errors clustered by CL market in parentheses. ***: 0.01, **: 0.05, *: 0.1

Conclusions

- Competition from online platforms (CL) leads to a reduction in circulation and newsroom workforce
- Staff cuts affect both managerial and editorial positions
- Changes in news content and editorial priorities (i.e, less politics, especially local)
- Local voters less likely to get informed and to turnout in elections
- Evidence of elected officials becoming more extreme and less responsive to local constituents

Next steps

- More on editorial priorities and transition to the web using data on job titles and homepages
- Extend and refine analysis on voter and politician behavior
- More ideas to exploit the E&P data?

CEPR Virtual IO Seminar Series

THANK YOU FOR WATCHING