

Reverse Engineering Chinese Censorship

Gary King, Jennifer Pan, Molly Roberts

Institute for Quantitative Social Science
Harvard University

(talk at MIT Operations Research Center, 11/21/2013)

- An Observational Study:

How Censorship in China Allows Government Criticism but Silences Collective Expression (*American Political Science Review*, May 2013)

- Experimental and Participatory Studies:

A Randomized Experimental Study of Censorship in China

Copies at GaryKing.org

Chinese Censorship

The largest selective suppression of human expression in history

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- by $\approx 200,000$ workers,
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Either or both could be right or wrong.

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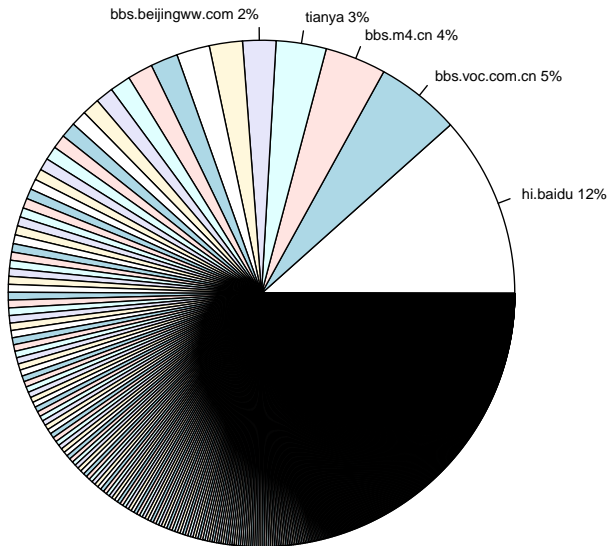
None

(They also censor 2 other smaller categories we'll talk about)

Chinese Social Media: Fractured over 1,400+ sites



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(Plus 59% from Sina Blog)

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 - (Carefully) revisit each later to determine if it was censored
 - Use computer-assisted methods of text analysis (some existing, some new, all adapted to Chinese)

Censorship is not Ambiguous: Example Error Page



The image shows a screenshot of a Chinese forum website, '金羊社区' (Golden Sheep Community), with the URL 'bbs.ycwb.com'. The page features a blue header with navigation links like '首页', '论坛', '博客', '家园', and '排行榜'. A search bar is present with the text '请输入搜索内容'. A central error message box is highlighted with a yellow border and contains the text: '抱歉, 指定的主题不存在或已被删除或正在被审核' (Sorry, the specified topic does not exist or has been deleted or is being investigated) and a link: '【点击这里返回上一页】' (Click here to return to the previous page). A red arrow points from the English text below to this message box.

Sorry, the host you were looking for does not exist, has been deleted, or is being investigated

Censorship is not Ambiguous: BBS Error Page

404 ERROR

The page you requested is temporarily down. How about you go look at another page.



你访问的页面暂时找不到了哦，去看看别的页面吧。

[返回首页](#)

[反馈错误](#)

Jingjing, one of China's cartoon internet police

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[新ICP备07500354号]互联网违法和不良信息举报中心 有害信息举报中心 互动频道举报奖励办法

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增值电信业务经营许可证A2.B1.B2-20090001 网络文化经营许可证080626 广播电视节目制作经营许可证编号：(新)字第051号



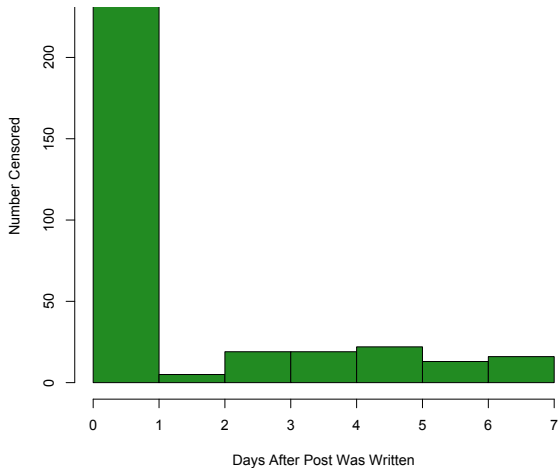
The Censors are Fast; Our Automated Methods are Faster

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Example: Shanghai Subway Crash

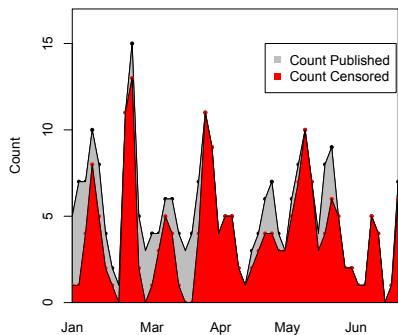
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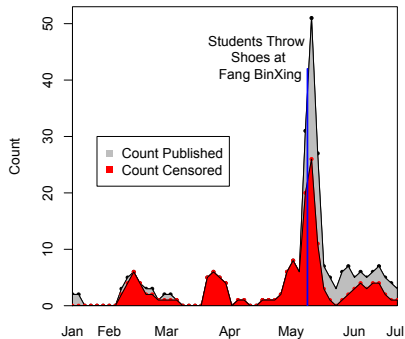


For 2 Unusual Topics: Constant Censorship Effort

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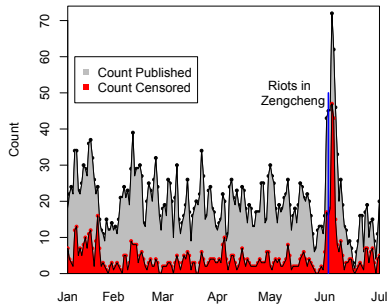
Pornography



Criticism of the Censors

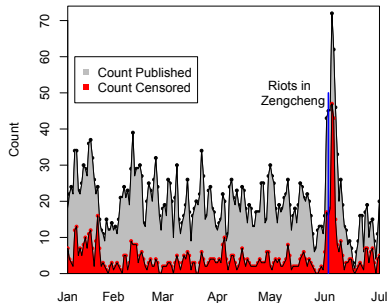
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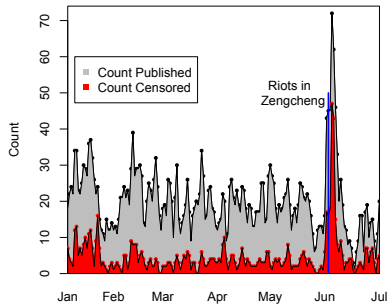
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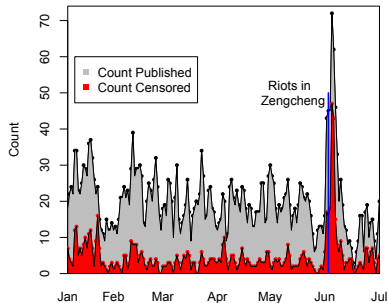


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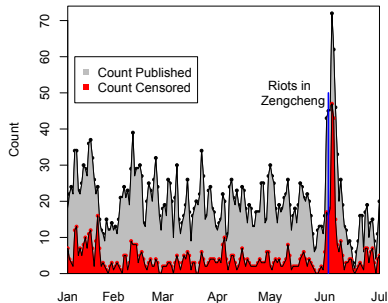


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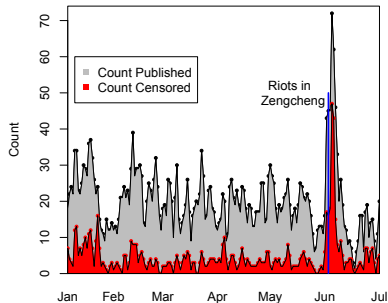
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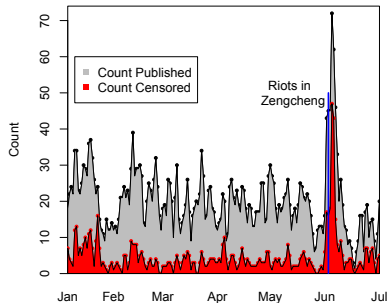
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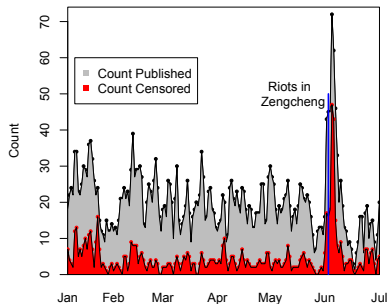
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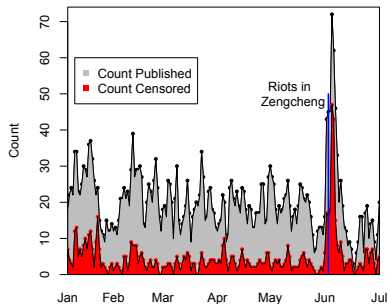
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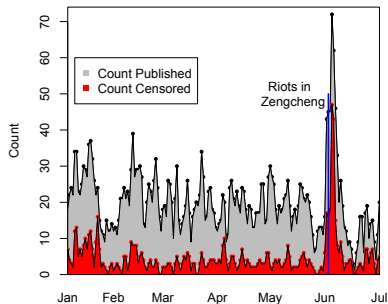
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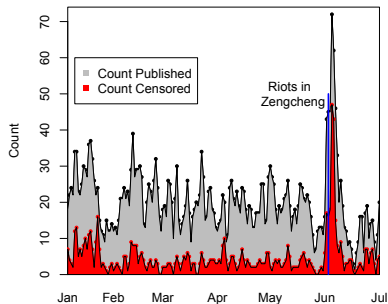
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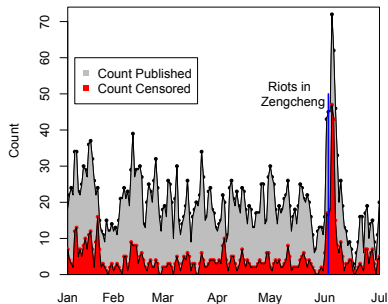
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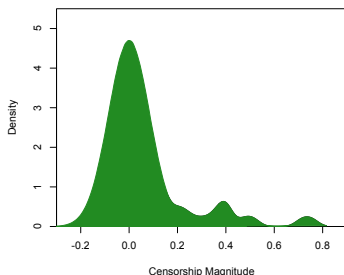
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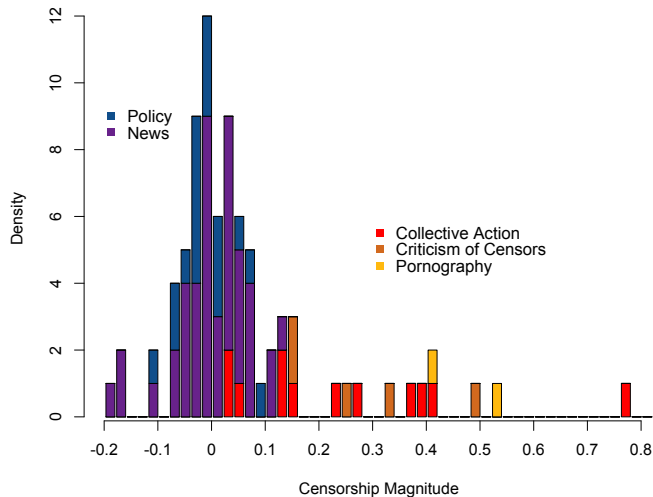
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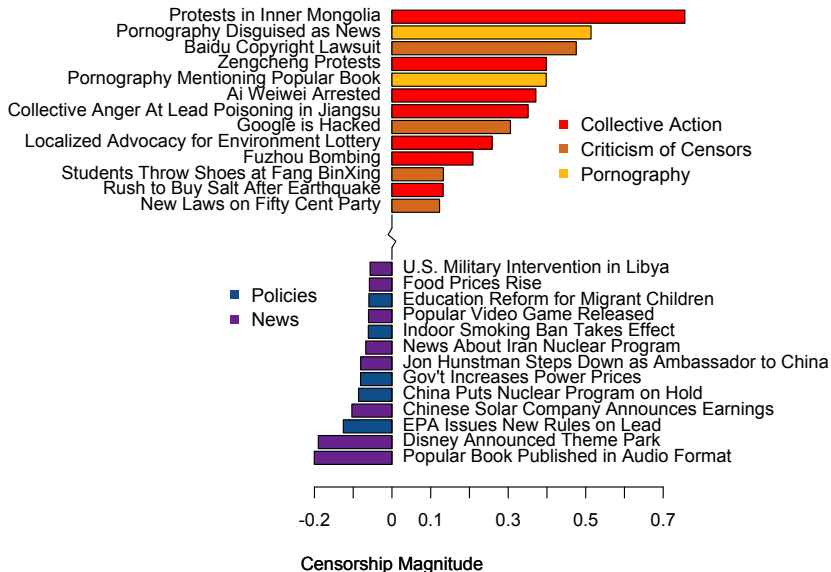
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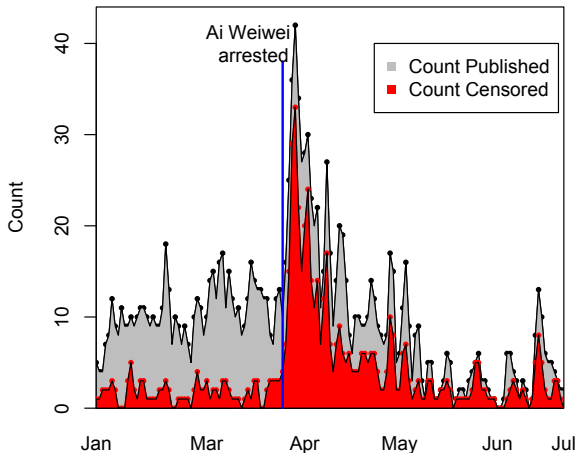
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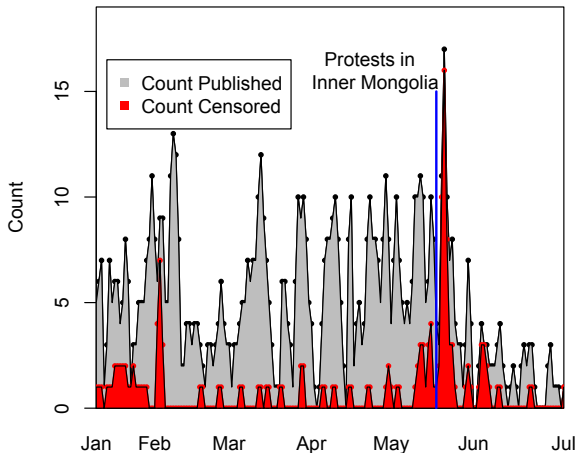
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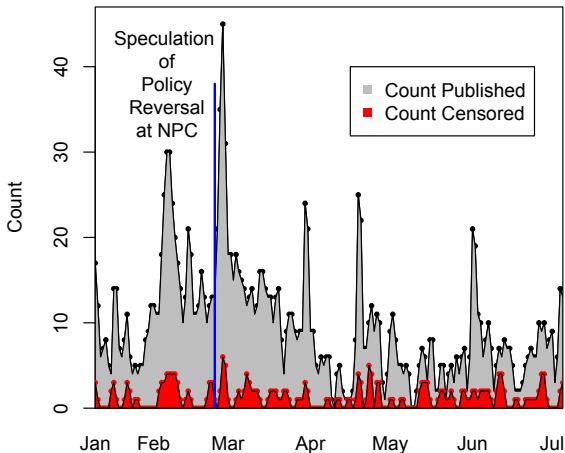
Censoring Collective Action: Ai Weiwei's Arrest



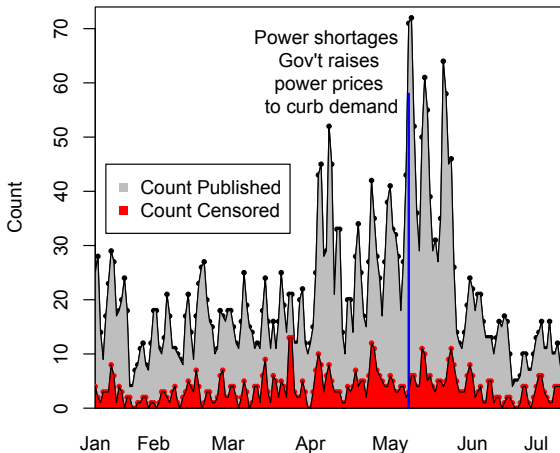
Censoring Collective Action: Protests in Inner Mongolia



Low Censorship on One Child Policy



Low Censorship on News: Power Prices



Observational Test 3: Content of Posts

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 - ReadMe estimates: % of posts in each category
 - Quantity of interest: % of posts censored in a category

Observational Test 3: Content of Posts

We adapted “ReadMe” (Hopkins-King) methodology to the content of censored posts in Chinese

- Standardize encoding of Chinese text
- Eliminate punctuation and stop words
- Experiment with segmenting characters into words
- Calculate the quantity of interest (% censored by category)
 - Code a validation set
 - ReadMe estimates: % of posts in each category
 - Quantity of interest: % of posts censored in a category

$$P(\text{Censored}|\text{Category}) = \frac{P(\text{Category}|\text{Censored})P(\text{Censored})}{P(\text{Category})}$$

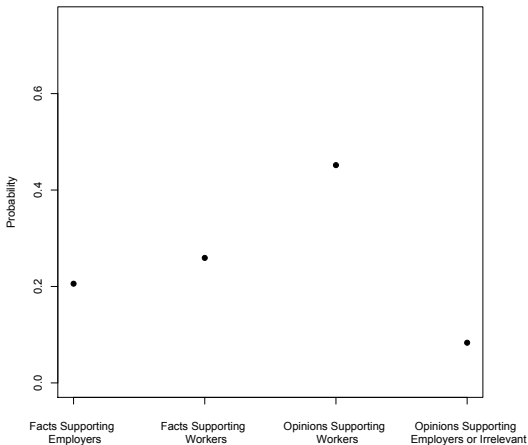
“ReadMe” Algorithm Validated in Chinese

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Example: Labor Strikes, 2010 (Training set: 100; Test set: 900)

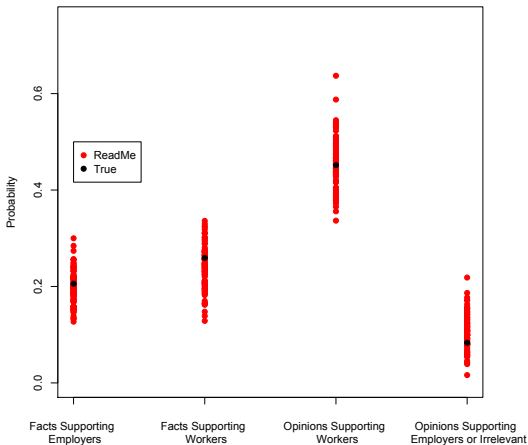
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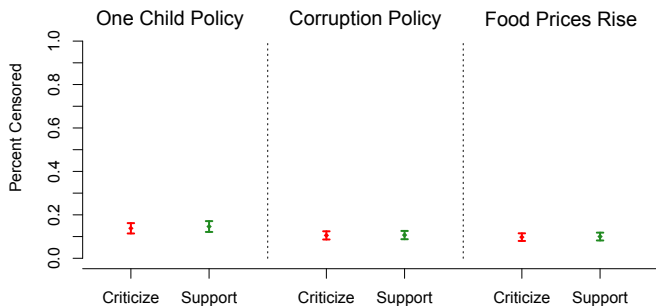
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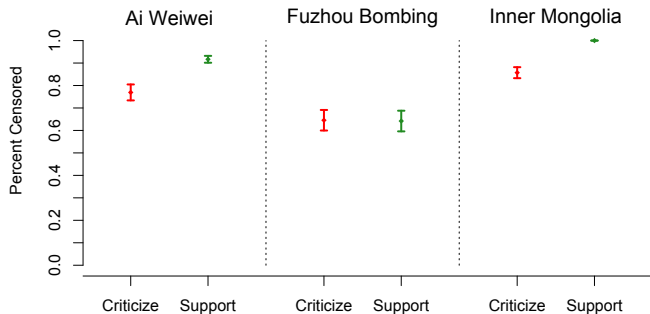
Uncensored: Non-Collective Action Posts (that Support *or* Oppose the State)

Uncensored: Non-Collective Action Posts (that Support or Oppose the State)



Censored: Collective Action Posts (that Support *or* Criticize the State)

Censored: Collective Action Posts (that Support or Criticize the State)



Additional Research Designs

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- 1 Randomized Experiment (for causal inferences)

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- 2 Participatory Study (for descriptive inferences)

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- ① Randomized Experiment (for causal inferences)
 - Selected 100 top social media sites (~87% of blogs, >500M Users, geographically diverse)
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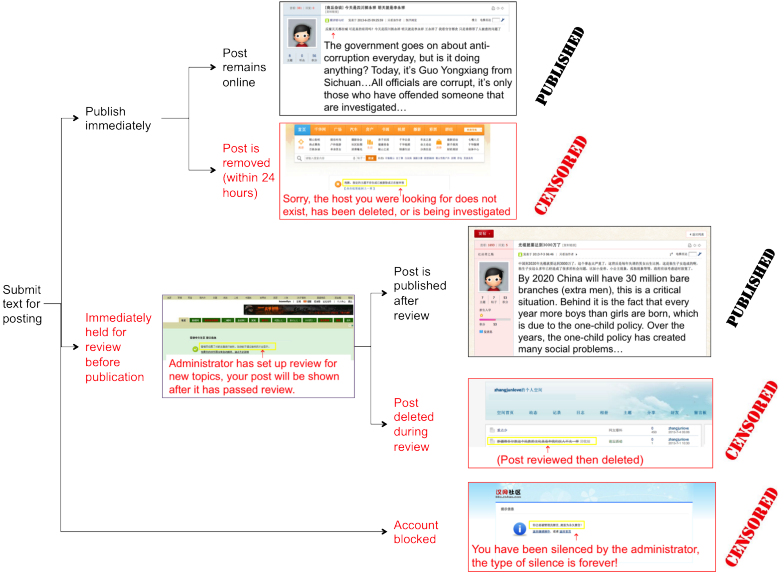
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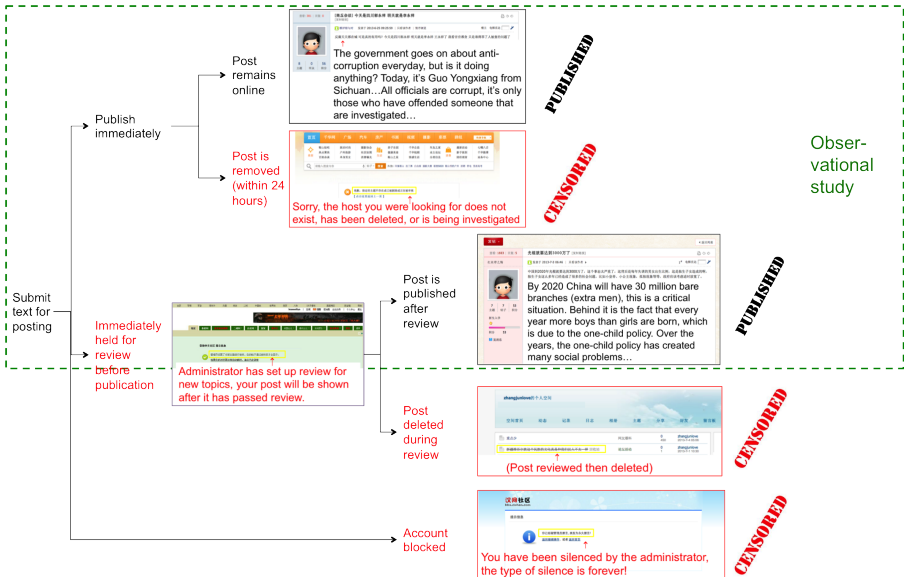
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- Bought URL; contracted with firms for servers & software; posted and censored ourselves
- To learn: we tried every software option, read the documentation, and called customer support(!)

Mechanisms of Censorship

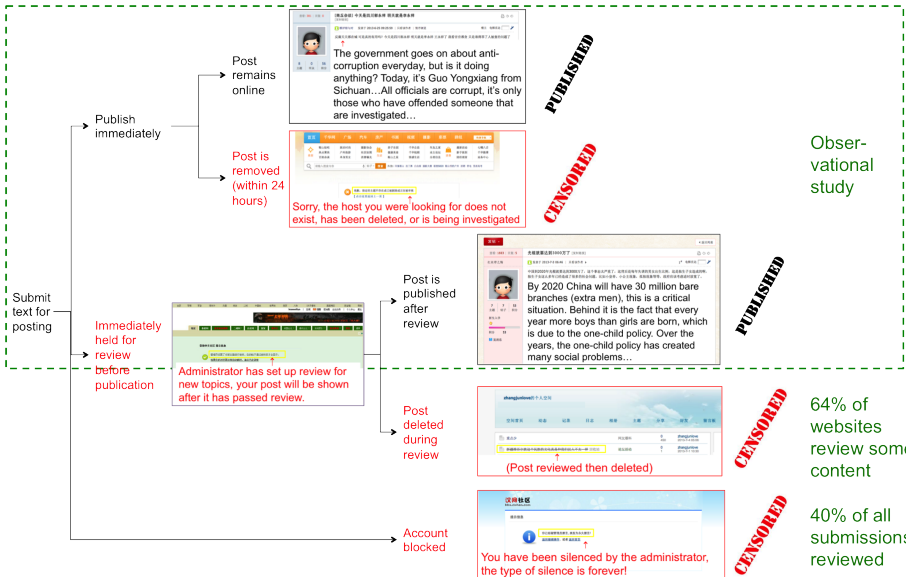
Mechanisms of Censorship



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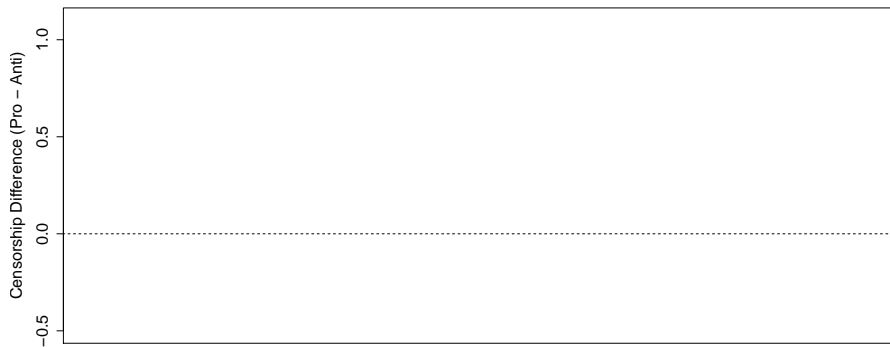


Mechanisms of Censorship

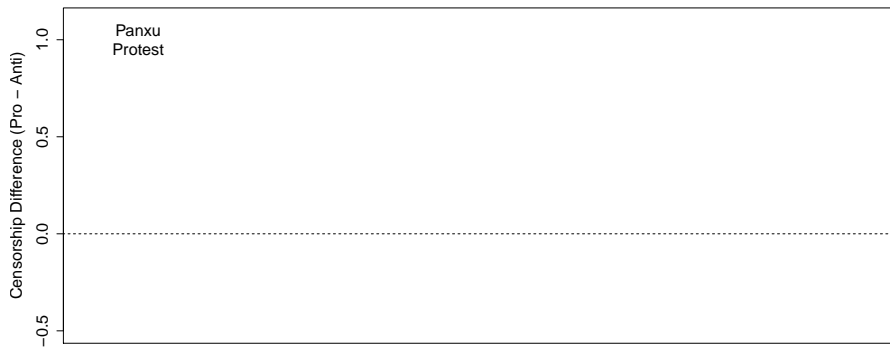


Posts For v. Against Government: Zero Causal Effect

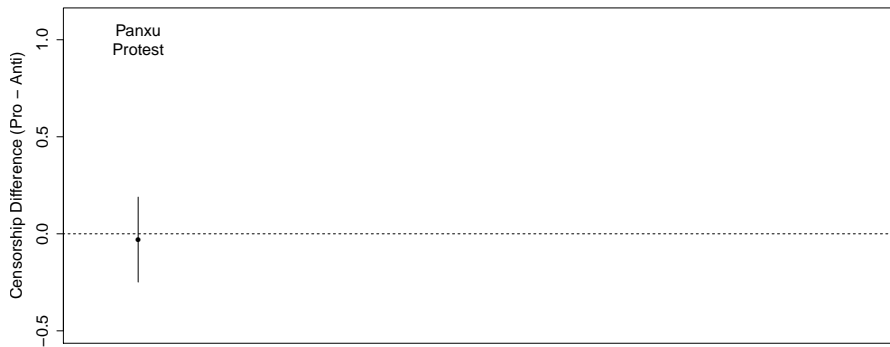
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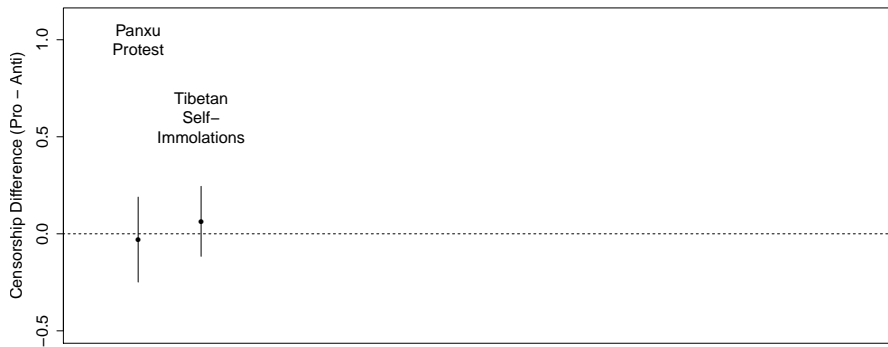
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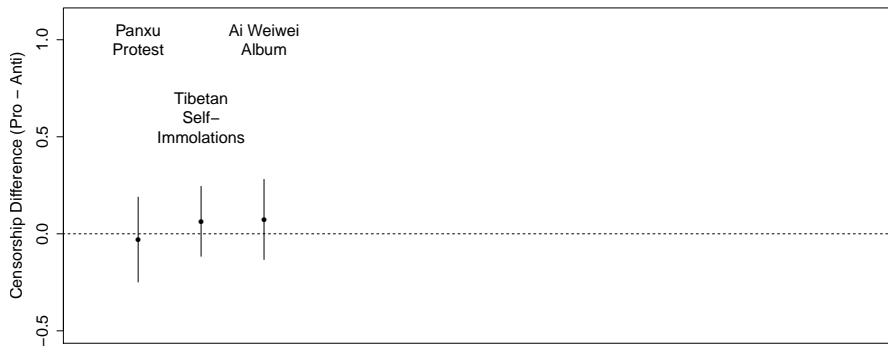
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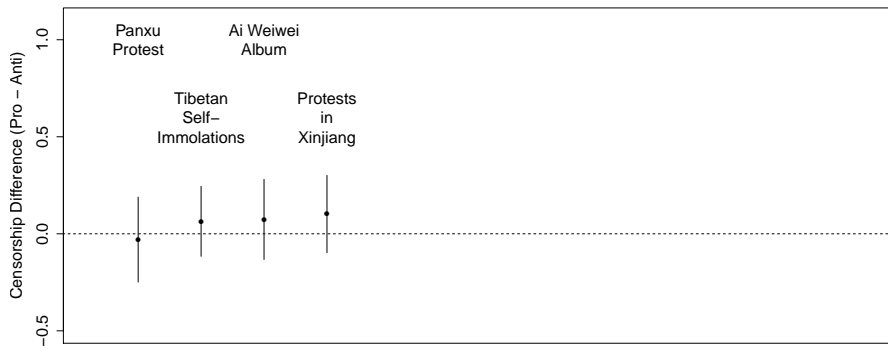
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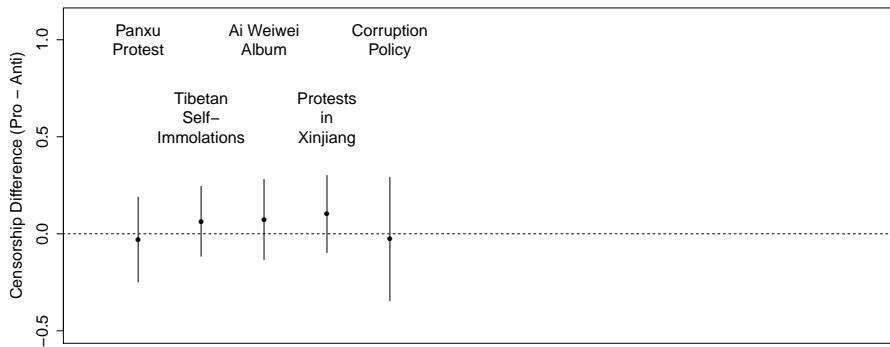
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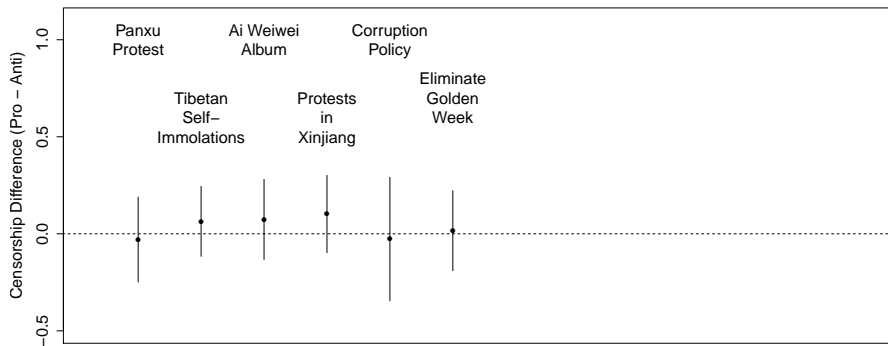
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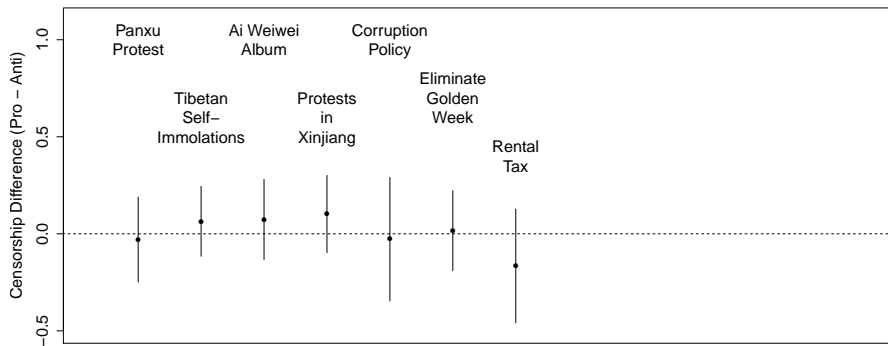
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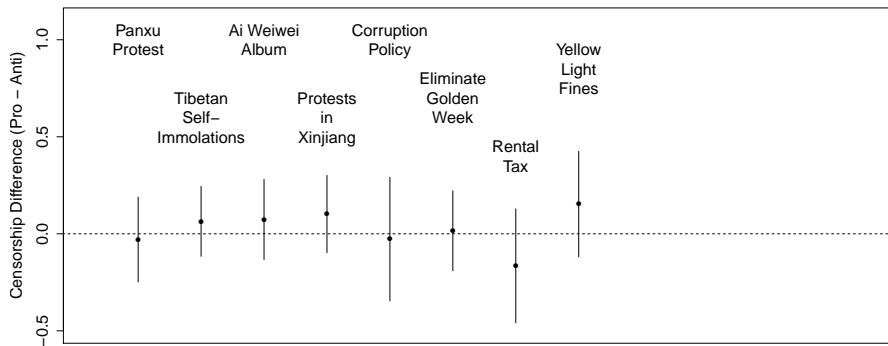
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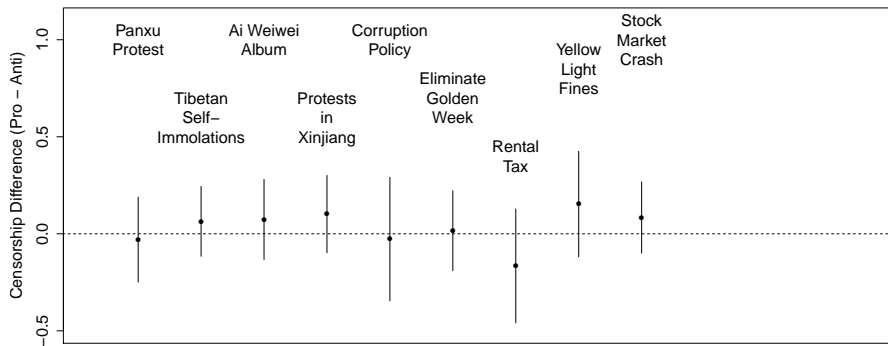
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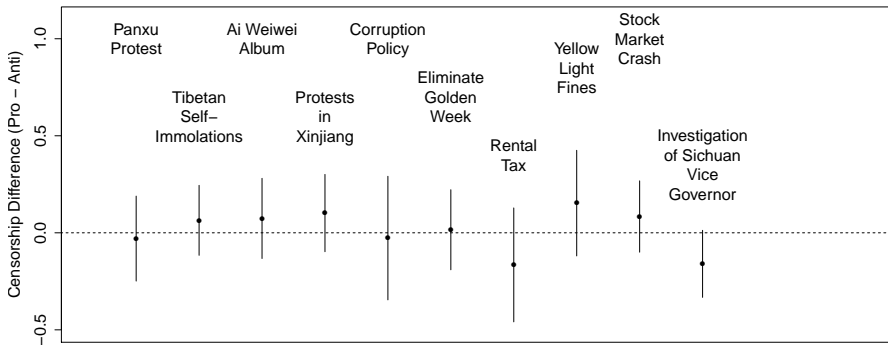
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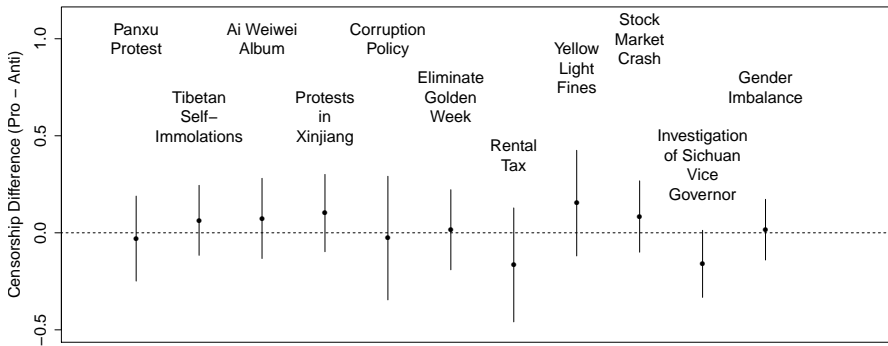
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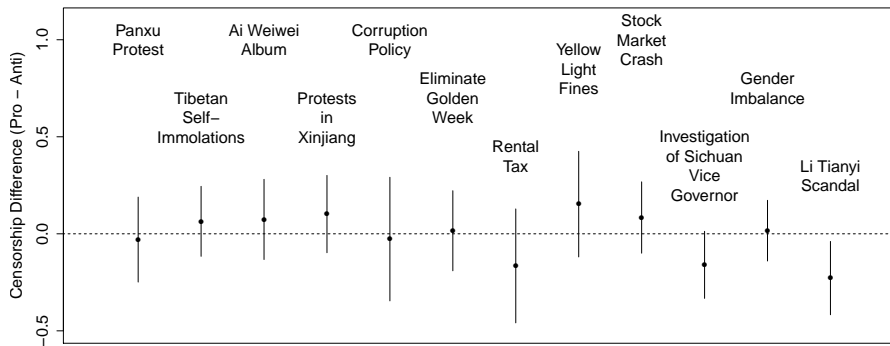
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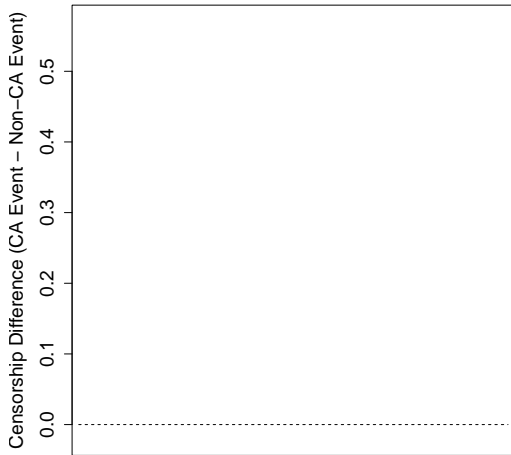


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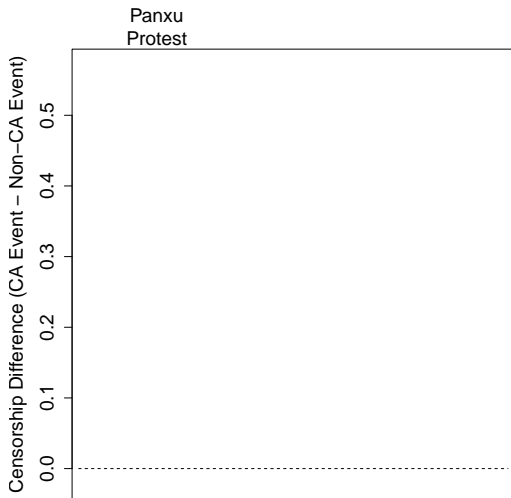


Collective Action Events: Large Causal Effect

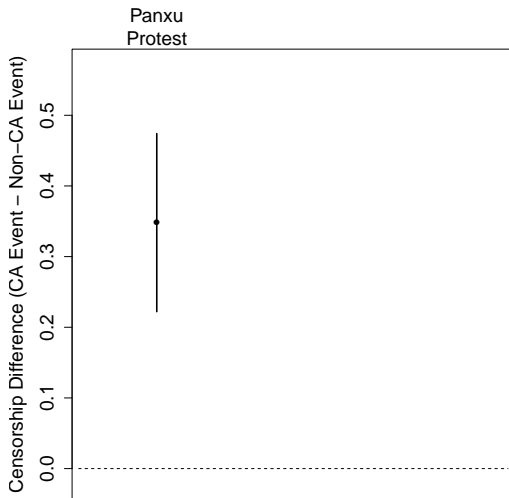
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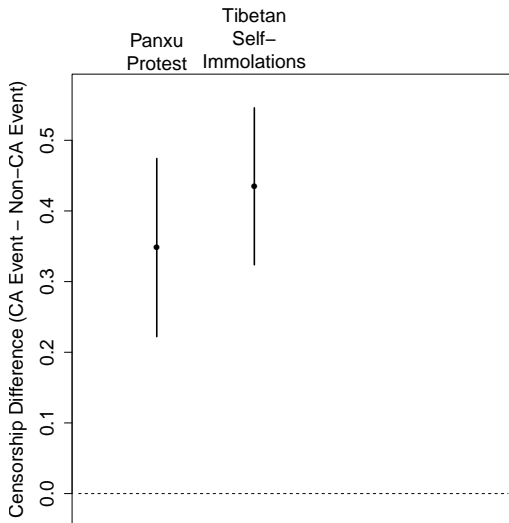
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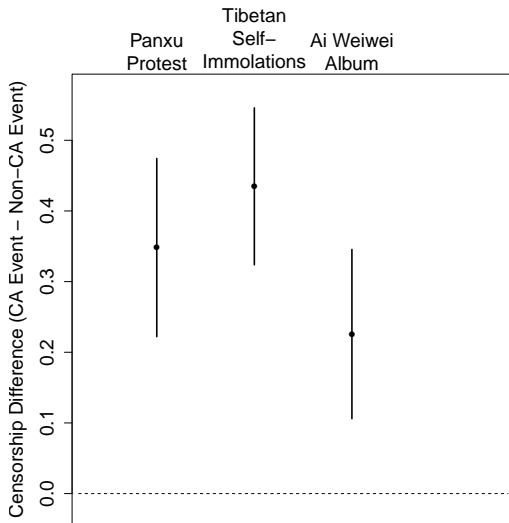
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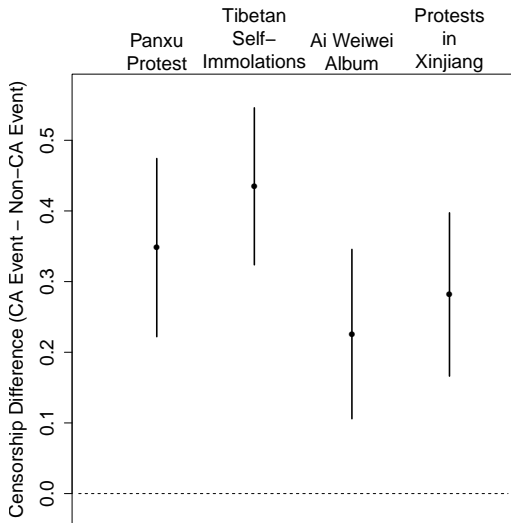
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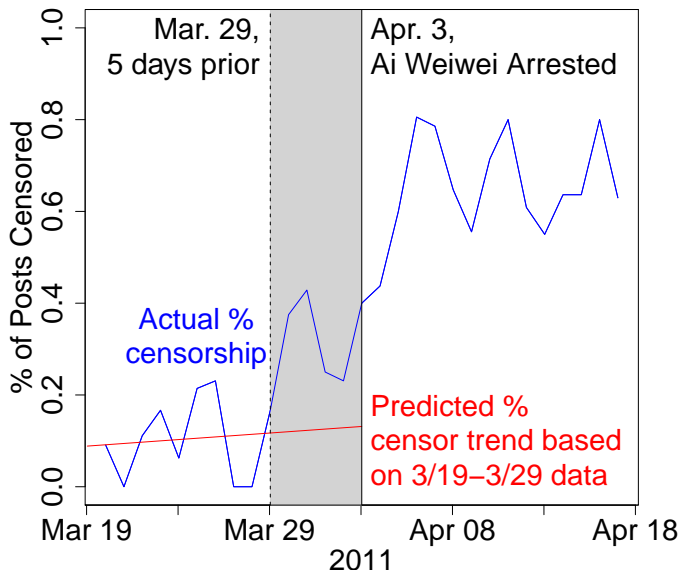


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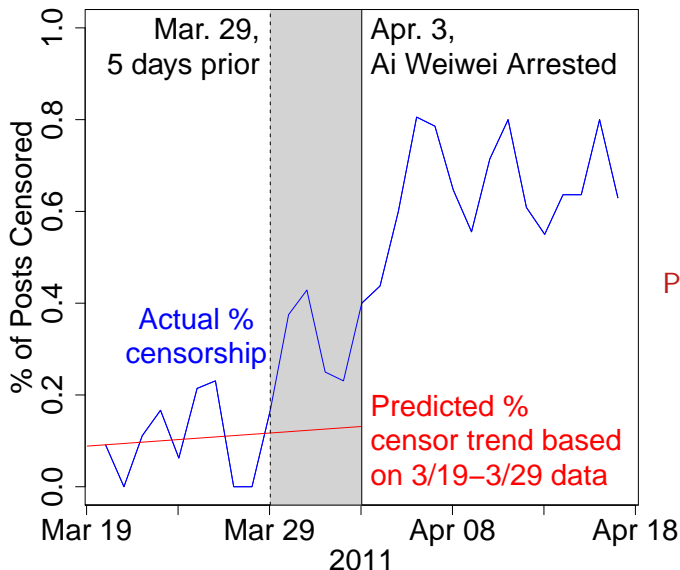


Censorship to Preempt Collective Action: Ai Weiwei's Arrest

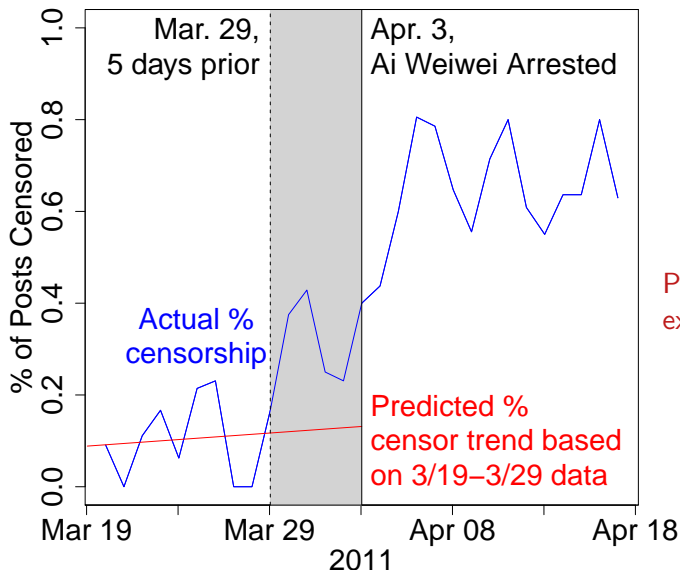
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Placebo Test: Most extreme of all effects

Concluding Remarks

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 - Reveals information about state action when traditional media is silent
 - Possibly applicable to other countries

For more information



GaryKing.org



j.mp/JenPan

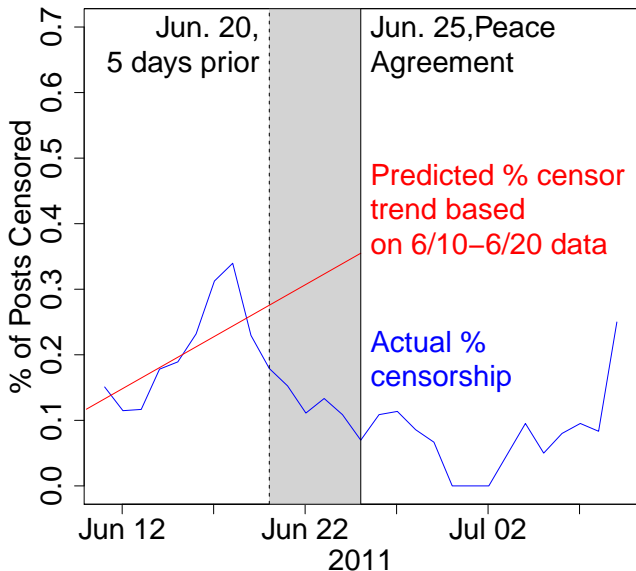


j.mp/MollyRoberts

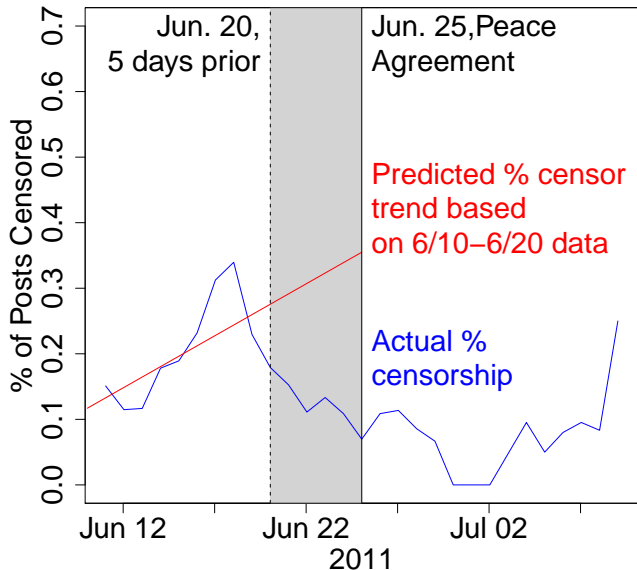
Appendix

Predicting the South China Sea Peace Agreement

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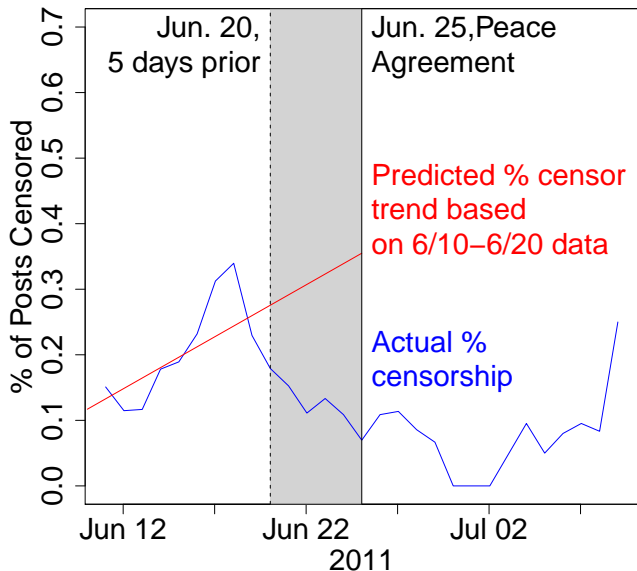


Predicting the South China Sea Peace Agreement



Placebo Test:

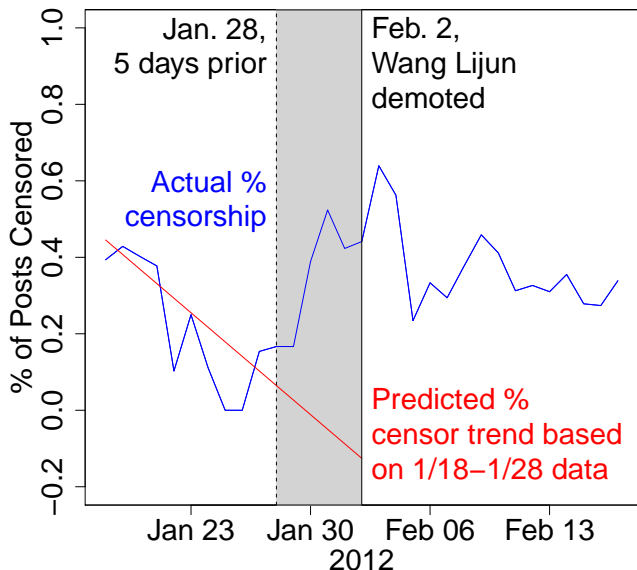
Predicting the South China Sea Peace Agreement



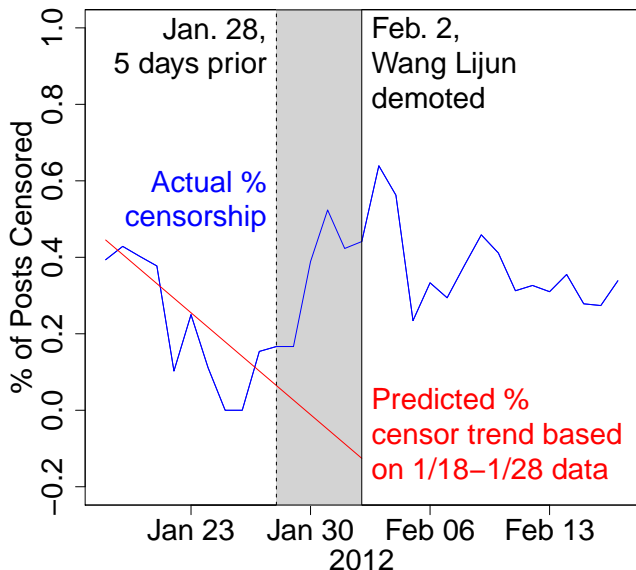
Placebo Test: Most extreme of all effects

Censorship Pre-empting Collective Action: Wang Lijun's Demotion

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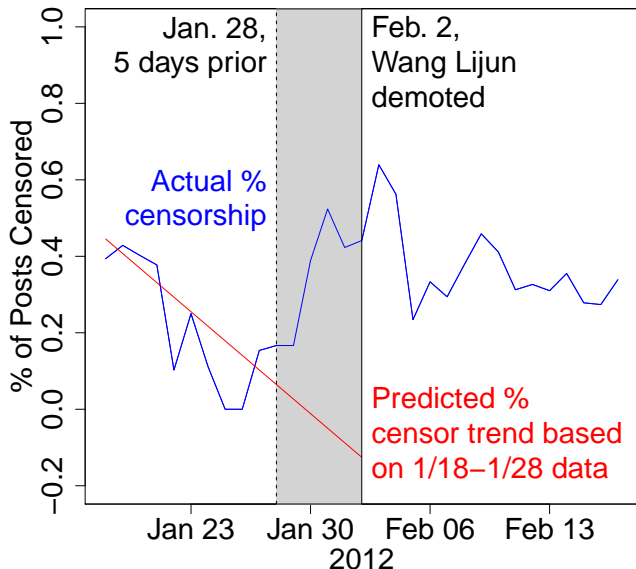


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Placebo Test:

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Uncensored Posts (w/o Collective Action Potential) Critical of the State

Uncensored Posts (w/o Collective Action Potential) Critical of the State

		Collective Action	
		yes	no
State Critique	yes	CENSORED	Free
	no	CENSORED	Free

Uncensored Posts (w/o Collective Action Potential) Critical of the State

This is a city government [Yulin City, Shaanxi] that treats life with contempt, this is government officials run amuck, a city government without justice, a city government that delights in that which is vulgar, a place where officials all have mistresses, a city government that is shameless with greed, a government that trades dignity for power, a government without humanity, a government that has no limits on immorality, a government that goes back on its word, a government that treats kindness with ingratitude, a government that cares nothing for posterity. . .

这是一个漠视生命的市政府[陕西省榆林市]、一个官员横行的市政府、一个没有公正的市政府，一个低级趣味的市政府，一个包二奶的市政府，一个为钱不要脸的市政府，一个为个权不要人格的市政府，一个没有血性的市政府，一个没有道德低线的市政府，一个出尔反尔的市政府，一个忘恩负义的市政府，一个不要子孙后代的市政府，一个什么怪事都出的市政府，一个什么的市政府，只要你想到的就有…

Censored Post (with Collective Action Potential) Supporting the State

Censored Post (with Collective Action Potential) Supporting the State

		Collective Action	
		yes	no
State Critique	yes		Free
	no		Free

Censored Post (with Collective Action Potential) Supporting the State

The bombing led not only to the tragedy of his death but the death of many government workers. Even if we can verify what Qian Mingqi said on Weibo that the building demolition caused a great deal of personal damage, we should still condemn his extreme act of retribution. . . . The government has continually put forth measures and laws to protect the interests of citizens in building demolition. And the media has called attention to the plight of those experiencing housing demolition. The rate at which compensation for housing demolition has increased exceeds inflation. In many places, this compensation can change the fate of an entire family.

爆炸案造成他本人和多名政府工作人员死伤的悲剧，即使钱明奇在微博里所称拆迁造成的个人损失是属实的，我们也应谴责他的极端报复行为. . . . 政府在连续出台保护被拆迁者利益的政策法规，媒体也在为公平对待被拆迁者大声疾呼，各地拆迁补偿款的上升速度，大多高于商品房售价上升的速度，在不少地方，补偿款已经足以改变一个家庭的命运。