Reverse-Engineering Censorship in China$^1$

Gary King$^2$

Institute for Quantitative Social Science
Harvard University

(Talk at IARPA seminar on “Science, Intelligence, and Security”,
Virginia Tech Research Center, 11/16/2015)

---

$^1$Based on joint work with Jennifer Pan and Margaret Roberts
$^2$GaryKing.org
Papers

- An Observational Study: 
  *How Censorship in China Allows Government Criticism but Silences Collective Expression* (APSR)

- Experimental and Participatory Studies: 
  *Reverse Engineering Chinese Censorship* (Science)

- Methods:
  - General Purpose Computer-Assisted Clustering and Conceptualization (PNAS)
  - A Method of Automated Nonparametric Content Analysis for Social Science (AJPS)
  - Computer-Assisted Keyword and Document Set Discovery from Unstructured Text

Copies at GaryKing.org
Chinese Censorship

The largest selective suppression of human expression in history: implemented manually (within a few hours of posting), by $\approx 200,000$ workers, located in government and inside social media firms. A huge censorship organization: (obviously) designed to suppress information (paradoxically) very revealing about the goals, intentions, and actions of the Chinese leadership.
Chinese Censorship

- The largest selective suppression of human expression in history:
Chinese Censorship

- The largest selective suppression of human expression in history:
  - implemented *manually* (within a few hours of posting),
Chinese Censorship

- The largest selective suppression of human expression in history:
  - implemented *manually* (within a few hours of posting),
  - by $\approx 200,000$ workers,
The largest selective suppression of human expression in history:
- implemented *manually* (within a few hours of posting),
- by $\approx 200,000$ workers,
- located in government and inside social media firms
Chinese Censorship

- The largest selective suppression of human expression in history:
  - implemented *manually* (within a few hours of posting),
  - by \( \approx 200,000 \) workers,
  - located in government and inside social media firms

- A huge censorship organization:
Chinese Censorship

- The largest selective suppression of human expression in history:
  - implemented *manually* (within a few hours of posting),
  - by $\approx 200,000$ workers,
  - located in government and inside social media firms

- A huge censorship organization:
  - (obviously) designed to suppress information
Chinese Censorship

- The largest selective suppression of human expression in history:
  - implemented *manually* (within a few hours of posting),
  - by $\approx 200,000$ workers,
  - located in government and inside social media firms

- A huge censorship organization:
  - (obviously) designed to suppress information
  - (paradoxically) very revealing about the goals, intentions, and actions of the Chinese leadership
Chinese Social Media: Fractured over 1,400+ sites
The Goals of Censorship make Social Media Actionable

What Could be the Goal?

1. Stop collective action

Implications: Social Media is Actionable!

Chinese leaders:

- measure criticism: to judge local officials
- censor: to stop events with collective action potential

Thus, we can use criticism & censorship to predict:

- Officials in trouble, likely to be replaced
- Policies that generate dissent (& interest of leaders)
- Government action outside the Internet
- Dissidents to be arrested; peace treaties to sign; emerging scandals
- Disagreements between central and local leaders

⇝

A big prize, but payable only if we have the goals right
The Goals of Censorship make Social Media Actionable

- Everyone knows the Goal:
The Goals of Censorship make Social Media Actionable

- Everyone knows the Goal:
  Stop criticism, protest, & collective action about the state, its leaders, and their policies
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies **Wrong**
Everyone knows the Goal: Stop criticism, protest, & collective action about the state, its leaders, and their policies Wrong

What Could be the Goal?
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state
  2. Stop collective action
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:** Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state *Wrong*
  2. Stop collective action
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies \textit{Wrong}

- **What Could be the Goal?**
  1. Stop criticism of the state \textit{Wrong}
  2. Stop collective action \textit{Right}

\textbf{Implications: Social Media is Actionable!}

- Chinese leaders: measure criticism: to judge local officials
- Censor: to stop events with collective action potential
- Thus, we can use criticism & censorship to predict:
  - Officials in trouble, likely to be replaced
  - Policies that generate dissent (& interest of leaders)
  - Government action outside the Internet
  - Dissidents to be arrested; peace treaties to sign; emerging scandals

\Rightarrow A big prize, but payable only if we have the goals right
The Goals of Censorship make Social Media Actionable

- Everyone knows the Goal:
  Stop criticism, protest, & collective action about the state, its leaders, and their policies \textit{Wrong}

- What Could be the Goal?
  1. Stop criticism of the state \textit{Wrong}
  2. Stop collective action \textit{Right}

- Implications: Social Media is Actionable!
The Goals of Censorship make Social Media Actionable

- Everyone knows the Goal:
  Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- What Could be the Goal?
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*

- Implications: Social Media is Actionable!
  - Chinese leaders:
The Goals of Censorship make Social Media Actionable

- Everyone knows the Goal: Stop criticism, protest, & collective action about the state, its leaders, and their policies **Wrong**

- What Could be the Goal? 
  1. Stop criticism of the state **Wrong**
  2. Stop collective action **Right**

- Implications: Social Media is Actionable!
  - Chinese leaders:
    - measure criticism: to judge local officials
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies **Wrong**

- **What Could be the Goal?**
  1. Stop criticism of the state **Wrong**
  2. Stop collective action **Right**

- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:** Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*

- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:** Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*

- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
    - Officials in trouble, likely to be replaced
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*

- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
    - Officials in trouble, likely to be replaced
    - Policies that generate dissent (& interest of leaders)
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- What Could be the Goal?
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*

- Implications: Social Media is Actionable!
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
    - Officials in trouble, likely to be replaced
    - Policies that generate dissent (& interest of leaders)
    - Government action outside the Internet
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:** Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*

- **What Could be the Goal?**
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*

- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
    - Officials in trouble, likely to be replaced
    - Policies that generate dissent (& interest of leaders)
    - Government action outside the Internet
    - Dissidents to be arrested; peace treaties to sign; emerging scandals
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies *Wrong*
- **What Could be the Goal?**
  1. Stop criticism of the state *Wrong*
  2. Stop collective action *Right*
- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
    - Officials in trouble, likely to be replaced
    - Policies that generate dissent (& interest of leaders)
    - Government action outside the Internet
    - Dissidents to be arrested; peace treaties to sign; emerging scandals
    - Disagreements between central and local leaders

⇒ A big prize, but payable only if we have the goals right
The Goals of Censorship make Social Media Actionable

- **Everyone knows the Goal:**
  Stop criticism, protest, & collective action about the state, its leaders, and their policies **Wrong**

- **What Could be the Goal?**
  1. Stop criticism of the state **Wrong**
  2. Stop collective action **Right**

- **Implications: Social Media is Actionable!**
  - Chinese leaders:
    - measure criticism: to judge local officials
    - censor: to stop events with collective action potential
  - Thus, we can use criticism & censorship to predict:
    - Officials in trouble, likely to be replaced
    - Policies that generate dissent (& interest of leaders)
    - Government action outside the Internet
    - Dissidents to be arrested; peace treaties to sign; emerging scandals
    - Disagreements between central and local leaders

  ▸ A big prize, but payable **only** if we have the goals right
Our Observational Research Design: 5 Steps

1. Monitor 85 content areas over 6 months
2. Download each social media post, the instant it appears
3. Revisit each later to check if it was censored (carefully, from computers all over the world)
4. Repeat 11,382,221 times
5. Analyze with new methods of computer-assisted text analysis
Our Observational Research Design: 5 Steps

1. Monitor 85 content areas over 6 months
Our Observational Research Design: 5 Steps

1. **Monitor** 85 content areas over 6 months
2. **Download** each social media post, the instant it appears
Our Observational Research Design: 5 Steps

1. Monitor 85 content areas over 6 months
2. Download each social media post, the instant it appears
3. Revisit each later to check if it was censored (carefully, from computers all over the world)
Our Observational Research Design: 5 Steps

1. Monitor 85 content areas over 6 months
2. Download each social media post, the instant it appears
3. Revisit each later to check if it was censored (carefully, from computers all over the world)
4. Repeat 11,382,221 times
Our Observational Research Design: 5 Steps

1. **Monitor** 85 content areas over 6 months
2. **Download** each social media post, the instant it appears
3. **Revisit** each later to check if it was censored  
   (carefully, from computers all over the world)
4. **Repeat** 11,382,221 times
5. **Analyze** with new methods of computer-assisted text analysis
Censorship is not Ambiguous: BBS Error Page

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

Jingjing, one of China's cartoon internet police
Post Volume & Censorship are “Bursty”
Post Volume & Censorship are “Bursty”

Collective Support for Environmental Lottery

- Count Published
- Count Censored

- Found 87 volume bursts in our 85 topic areas
- Identified real-world event associated with each burst
- Our hypothesis: The government censors all posts in volume bursts associated with events with collective action potential (regardless of how critical or supportive of the state)
Post Volume & Censorship are “Bursty”

- Found 87 volume bursts in our 85 topic areas
Post Volume & Censorship are “Bursty”

- Found **87 volume bursts** in our 85 topic areas
- Identified **real world event** associated with each burst
Post Volume & Censorship are “Bursty”

- Found 87 volume bursts in our 85 topic areas
- Identified real world event associated with each burst

Our hypothesis: The government censors all posts in volume bursts associated with events with collective action potential (regardless of how critical or supportive of the state)
Post Volume & Censorship are “Bursty”

- Found 87 volume bursts in our 85 topic areas
- Identified real world event associated with each burst

Our hypothesis: The government censors all posts in volume bursts associated with events with collective action potential (regardless of how critical or supportive of the state)
Post Volume & Censorship are “Bursty”

- Found 87 volume bursts in our 85 topic areas
- Identified real world event associated with each burst

Our hypothesis: The government censors all posts in volume bursts associated with events with collective action potential (regardless of how critical or supportive of the state)
Post Volume & Censorship are “Bursty”

Our hypothesis: The government censors all posts in volume bursts associated with events with collective action potential (regardless of how critical or supportive of the state).

- Found 87 volume bursts in our 85 topic areas
- Identified real world event associated with each burst
Post Volume & Censorship are “Bursty”

- Found **87 volume bursts** in our **85 topic areas**
- Identified **real world event** associated with each burst

Our hypothesis: The government censors **all posts in volume bursts** associated with **events with collective action potential** (regardless of how critical or supportive of the state)
Classification of Events Generating the Bursts
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
5. Government Policies
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
5. Government Policies
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
5. Government Policies
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
5. Government Policies
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
5. Government Policies
Classification of Events Generating the Bursts

Event classification (each category can be +, −, or neutral comments about the state)

1. Collective Action Potential
2. Criticism of censors
3. Pornography
4. (Other) News
5. Government Policies
What Types of Events Are Censored?

![Chart showing distribution of censorship magnitude and types of events](chart.png)
What Types of Events Are Censored?

Protests in Inner Mongolia
-0.2

Popular Book Published in Audio Format
0

Disney Announced Theme Park
0.1

EPA Issues New Rules on Lead
0.3

Chinese Solar Company Announces Earnings
0.5

China Puts Nuclear Program on Hold
0.7

Gov't Increases Power Prices

Jon Huntsman Steps Down as Ambassador to China

News About Iran Nuclear Program

Indoor Smoking Ban Takes Effect

Popular Video Game Released

Education Reform for Migrant Children

Food Prices Rise

U.S. Military Intervention in Libya

Policies

Collective Action

Criticism of Censors

Pornography

News

Collective Anger At Lead Poisoning in Jiangsu

Localized Advocacy for Environment Lottery

Fuzhou Bombing

Students Throw Shoes at Fang BinXing

Rush to Buy Salt After Earthquake

New Laws on Fifty Cent Party

Baidu Copyright Lawsuit

Pornography Mentioning Popular Book

Ai Weiwei Arrested

Google is Hacked

Collective Action

Criticism of Censors

Pornography

-0.2 0 0.1 0.3 0.5 0.7

Censorship Magnitude
Censoring Collective Action: Riots in Zengcheng
Censoring Collective Action: Ai Weiwei’s Arrest

Ai Weiwei arrested
Low Censorship on Policy: One Child
Low Censorship on News: Power Prices

Power shortages
Gov't raises power prices to curb demand
### Uncensored: Non-Collective Action Posts

<table>
<thead>
<tr>
<th>Percent Censored</th>
<th>Criticize</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.2</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.4</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.6</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.8</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>1.0</td>
<td>Criticize</td>
<td>Support</td>
</tr>
</tbody>
</table>

Topics:
- One Child Policy
- Corruption Policy
- Food Prices Rise
Uncensored: Non-Collective Action Posts

Regardless of whether Supportive *or* Critical

<table>
<thead>
<tr>
<th>Percent Censored</th>
<th>Criticize</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.2</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.4</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.6</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>0.8</td>
<td>Criticize</td>
<td>Support</td>
</tr>
<tr>
<td>1.0</td>
<td>Criticize</td>
<td>Support</td>
</tr>
</tbody>
</table>

One Child Policy  
Corruption Policy  
Food Prices Rise
Uncensored: Non-Collective Action Posts
Regardless of whether Supportive or Critical

One Child Policy  Corruption Policy  Food Prices Rise

Percent Censored

Criticize  Support  Criticize  Support  Criticize  Support
Censored: Collective Action Posts
### Censored: Collective Action Posts

Regardless of whether Supportive or Critical

<table>
<thead>
<tr>
<th>Percent Censored</th>
<th>Ai Weiwei</th>
<th>Inner Mongolia</th>
<th>Fuzhou Bombing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Criticize</td>
<td>Support</td>
<td>Criticize</td>
</tr>
<tr>
<td>0.2</td>
<td>Criticize</td>
<td>Support</td>
<td>Criticize</td>
</tr>
<tr>
<td>0.4</td>
<td>Criticize</td>
<td>Support</td>
<td>Criticize</td>
</tr>
<tr>
<td>0.6</td>
<td>Criticize</td>
<td>Support</td>
<td>Criticize</td>
</tr>
<tr>
<td>0.8</td>
<td>Criticize</td>
<td>Support</td>
<td>Criticize</td>
</tr>
<tr>
<td>1.0</td>
<td>Criticize</td>
<td>Support</td>
<td>Criticize</td>
</tr>
</tbody>
</table>

16/25
Censored: Collective Action Posts

Regardless of whether Supportive or Critical

Ai Weiwei
Fuzhou Bombing
Inner Mongolia

Percent Censored

Criticize Support Criticize Support Criticize Support

16/25
Predicting Ai Weiwei’s Arrest
Predicting Ai Weiwei’s Arrest

Mar. 29, 5 days prior
Apr. 3, Ai Weiwei Arrested

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data

Mar. 29
Apr. 3

% of Posts Censored

0.0 0.2 0.4 0.6 0.8 1.0
Mar 19 Mar 29 Apr 08 Apr 18

2011

Mar. 29, 5 days prior
Apr. 3, Ai Weiwei Arrested

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data
Predicting Ai Weiwei’s Arrest

Mar. 29, 5 days prior

Apr. 3, Ai Weiwei Arrested

% of Posts Censored

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data

Mar. 29, 5 days prior

Jan. 3, Ai Weiwei Arrested

% of Posts Censored

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data

Mar. 29, 5 days prior

Jan. 3, Ai Weiwei Arrested

% of Posts Censored

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data

Mar. 29, 5 days prior

Jan. 3, Ai Weiwei Arrested

% of Posts Censored

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data

Mar. 29, 5 days prior

Jan. 3, Ai Weiwei Arrested

% of Posts Censored

Actual % censorship

Predicted % censorship trend based on 3/19−3/29 data
Predicting Ai Weiwei’s Arrest

Placebo Test: Most extreme of all effects

Actual % censorship

Predicted % censor trend based on 3/19–3/29 data

Mar. 29, 5 days prior
Apr. 3, Ai Weiwei Arrested
Predicting the South China Sea Peace Agreement
Predicting the South China Sea Peace Agreement

Jun. 20, 5 days prior
Jun. 25, Peace Agreement

Predicted % censor trend based on 6/10–6/20 data

Actual % censorship

% of Posts Censored

Jun 12 Jun 22 Jul 02
2011
Predicting the South China Sea Peace Agreement

Placebo Test:
Predicting the South China Sea Peace Agreement

Predicted % censor trend based on 6/10–6/20 data

Actual % censorship

Jun. 20, 5 days prior
Jun. 25, Peace Agreement

Placebo Test: Most extreme of all effects
Predicting Wang Lijun’s Demotion
Predicting Wang Lijun’s Demotion

Jan. 28, 5 days prior

Feb. 2, Wang Lijun demoted

Actual % censorship

Jan 23 Jan 30 Feb 06 Feb 13

−0.2 0.0 0.2 0.4 0.6 0.8 1.0

2012

% of Posts Censored

Predicted % censorship trend based on 1/18–1/28 data

Placebo Test: Most extreme of all effects 19/25
Predicting Wang Lijun’s Demotion

Placebo Test:
Predicting Wang Lijun’s Demotion

Jan. 28, 5 days prior
Feb. 2, Wang Lijun demoted

Actual % censorship

Predicted % censorship trend based on 1/18–1/28 data

Placebo Test: Most extreme of all effects
Randomized Experiment (for causal inferences)

Selected 100 top social media sites (∼87% of blogs, >500M Users, geographically diverse)
Created 2 accounts on each (from inside China all over the country)
Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
Submitted posts randomly assigned to type
Checked on censorship (from computers in many countries)

Participatory Study (for descriptive inferences)

Current method of learning how they censor: ask (carefully!)
Our goal: change our sources' incentives
Procedure: create our own social media website in China
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(!)
Additional Research Designs

1. Randomized Experiment (for causal inferences)

- Selected 100 top social media sites (∼87% of blogs, >500M Users, geographically diverse)
- Created 2 accounts on each (from inside China all over the country)
- Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
- Submitted posts randomly assigned to type
- Checked on censorship (from computers in many countries)

2. Participatory Study (for descriptive inferences)

- Current method of learning how they censor: ask (carefully!)
- Our goal: change our sources’ incentives
- Procedure: create our own social media website in China
- 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(!)
Additional Research Designs

1. Randomized Experiment (for causal inferences)

- Selected 100 top social media sites (∼87% of blogs, >500M Users, geographically diverse)
- Created 2 accounts on each (from inside China all over the country)
- Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
- Submitted posts randomly assigned to type
- Checked on censorship (from computers in many countries)

2. Participatory Study (for descriptive inferences)

- Current method of learning how they censor: ask (carefully!)
- Our goal: change our sources' incentives
- Procedure: create our own social media website in China
- 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(!)
Additional Research Designs

1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (~87% of blogs, >500M Users, geographically diverse)

2. Participatory Study (for descriptive inferences)
Additional Research Designs

1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (\(\sim\) 87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)

2. Participatory Study (for descriptive inferences)

   Current method of learning how they censor: ask (carefully!)
   - Our goal: change our sources' incentives
   - Procedure: create our own social media website in China
     - 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(!)
Additional Research Designs

1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (~87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)

2. Participatory Study (for descriptive inferences)
   - Current method of learning how they censor: ask (carefully!)
   - Our goal: change our sources' incentives
   - Procedure: create our own social media website in China
     - 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(!)
Additional Research Designs

1 Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (\(\sim 87\%\) of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
   - Submitted posts randomly assigned to type

2 Participatory Study (for descriptive inferences)
1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (≈87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
   - Submitted posts randomly assigned to type
   - Checked on censorship (from computers in many countries)

2. Participatory Study (for descriptive inferences)
Additional Research Designs

1 Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (∼87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
   - Submitted posts randomly assigned to type
   - Checked on censorship (from computers in many countries)

2 Participatory Study (for descriptive inferences)
   - Current method of learning how they censor: ask (carefully!)
Additional Research Designs

1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (≈87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
   - Submitted posts randomly assigned to type
   - Checked on censorship (from computers in many countries)

2. Participatory Study (for descriptive inferences)
   - Current method of learning how they censor: ask (carefully!)
   - Our goal: change our sources’ incentives
Additional Research Designs

1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (∼87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
   - Submitted posts randomly assigned to type
   - Checked on censorship (from computers in many countries)

2. Participatory Study (for descriptive inferences)
   - Current method of learning how they censor: ask (carefully!)
   - Our goal: change our sources’ incentives
   - Procedure: create our own social media website in China
Randomized Experiment (for causal inferences)

- Selected 100 top social media sites (~87% of blogs, >500M Users, geographically diverse)
- Created 2 accounts on each (from inside China all over the country)
- Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
- Submitted posts randomly assigned to type
- Checked on censorship (from computers in many countries)

Participatory Study (for descriptive inferences)

- Current method of learning how they censor: ask (carefully!)
- Our goal: change our sources’ incentives
- Procedure: create our own social media website in China
- Bought URL; contracted with firms for servers & software; posted and censored ourselves
Additional Research Designs

1. Randomized Experiment (for causal inferences)
   - Selected 100 top social media sites (~87% of blogs, >500M Users, geographically diverse)
   - Created 2 accounts on each (from inside China all over the country)
   - Wrote 1,200 unique social media posts (CA/not CA, Pro/Anti)
   - Submitted posts randomly assigned to type
   - Checked on censorship (from computers in many countries)

2. Participatory Study (for descriptive inferences)
   - Current method of learning how they censor: ask (carefully!)
   - Our goal: change our sources’ incentives
   - Procedure: create our own social media website in China
   - 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

Post is published after review

Post is removed (within 24 hours)

Post remains online

Publish immediately

Submit text for posting

Immediately held for review before publication

Administrator has set up review for new topics, your post will be shown after it has passed review.

By 2020 China will have 30 million bare branches (extra men), this is a critical situation. Behind it is the fact that every year more boys than girls are born, which is due to the one-child policy. Over the years, the one-child policy has created many social problems...

(Post reviewed then deleted)

You have been silenced by the administrator, the type of silence is forever!
Mechanisms of Censorship

- Submit text for posting
  - Immediately held for review before publication
    - Administrator has set up review for new topics, your post will be shown after it has passed review.
  - Post deleted during review
    - (Post reviewed then deleted)
- Publish immediately
  - Post remains online
- Post is removed (within 24 hours)
  - Sorry, the host you were looking for does not exist, has been deleted, or is being investigated
- Post is published after review
  - By 2020 China will have 30 million bare branches (extra men), this is a critical situation. Behind it is the fact that every year more boys than girls are born, which is due to the one-child policy. Over the years, the one-child policy has created many social problems...
- Account blocked
  - You have been silenced by the administrator, the type of silence is forever!
Mechanisms of Censorship

- **Submit text for posting**
  - **Publish immediately**
    - Post is published after review
      - Post deleted during review
        - (Post reviewed then deleted)
      - Account blocked
    - Post remains online
      - Post is removed (within 24 hours)
        - Sorry, the host you were looking for does not exist, has been deleted, or is being investigated

- **Observational study**

- **64% of websites review some content**
- **40% of all submissions reviewed**

The government goes on about anti-corruption everyday, but is it doing anything? Today, it's Guo Yongxiang from Sichuan... All officials are corrupt, it's only those who have offended someone that are investigated...
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect

Censorship Difference (Pro − Anti)

Panxu Protest
Tibetan Self-Immolations
Ai Weiwei Album
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect

Censorship Difference (Pro − Anti)

-0.5 0.0 0.5 1.0

Panxu Protest
Ai Weiwei Album
Corruption Policy
Tibetan Self-Immolations
Protests in Xinjiang

Protests in Xinjiang
Posts For v. Against Government: Zero Causal Effect

-0.5 0.0 0.5 1.0
Censorship Difference (Pro − Anti)

Panxu Protest
Tibetan Self-Immolations
Ai Weiwei Album
Protests in Xinjiang
Corruption Policy
Eliminate Golden Week
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect

Censorship Difference (Pro − Anti)

-0.5 0.0 0.5 1.0

-0.5

Panxu Protest
Ai Weiwei Album
Corruption Policy
Tibetan Self-Immolations
Protests in Xinjiang
Eliminate Golden Week
Rental Tax
Yellow Light Fines
Protests in Xinjiang
Corruption Policy
Tibetan Self-Immolations
Panxu Protest
Ai Weiwei Album
Corruption Policy
Tibetan Self-Immolations
Protests in Xinjiang
Eliminate Golden Week
Rental Tax
Yellow Light Fines
Posts For v. Against Government: Zero Causal Effect

-0.5 0.0 0.5 1.0
Censorship Difference (Pro - Anti)

Panxu Protest
Ai Weiwei Album
Corruption Policy
Eliminate Golden Week
Yellow Light Fines
Stock Market Crash

Tibetan Self-Immolations
Protests in Xinjiang
Rental Tax

Censorship Difference (Pro - Anti)
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect
Posts For v. Against Government: Zero Causal Effect

Censorship Difference (Pro − Anti)

-0.5 0.0 0.5 1.0

Panxu Protest
Ai Weiwei Album
Corruption Policy
Tibetan Self-Immolations
Protests in Xinjiang
Eliminate Golden Week
Yellow Light Fines
Stock Market Crash
Gender Imbalance
Investigation of Sichuan Vice Governor
Li Tianyi Scandal
Rental Tax
Collective Action Events: Large Causal Effect
Collective Action Events: Large Causal Effect

Censorship Difference (CA Event − Non−CA Event)
Collective Action Events: Large Causal Effect
Collective Action Events: Large Causal Effect
Collective Action Events: Large Causal Effect

Censorship Difference (CA Event - Non-CA Event)

Panxu Protest
Tibetan Self-Immolations

Censorship Difference (CA Event - Non-CA Event)
Collective Action Events: Large Causal Effect

Panxu Protest
Tibetan Self-Immolations
Ai Weiwei Album

Censorship Difference (CA Event − Non-CA Event)
Collective Action Events: Large Causal Effect

- Panxu Protest
- Tibetan Self-Immolations
- Ai Weiwei Album
- Protests in Xinjiang
The Chinese people: Individually free, Collectively in Chains

Social Media (analyzed the right way):
Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc. Predicts state actions when other sources are silent.

Applicable to other countries:
New statistical methods widely applicable beyond China: Following conversations when people try to evade authorities, use language creatively, achieve political purposes, etc. Understanding or predicting action on the ground. Understanding large volumes of text in any language.
Applications to brand monitoring, intelligence analysis, sentiment analysis, investments, news, advertising, etc.
Conclusions

- The Chinese people:
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains
- Social Media (analyzed the right way):
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains

- Social Media (analyzed the right way):
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains

- Social Media (analyzed the right way):
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains

- Social Media (analyzed the right way):
  - Enables detailed, continuous, predictive monitoring of every Chinese
government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
  - Applicable to other countries
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains

- Social Media (analyzed the right way):
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
  - Applicable to other countries

- New statistical methods widely applicable beyond China:
Conclusions

- **The Chinese people:**
  - Individually free, Collectively in Chains

- **Social Media (analyzed the right way):**
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
  - Applicable to other countries

- **New statistical methods widely applicable beyond China:**
  - Following conversations when people try to evade authorities, use language creatively, achieve political purposes, etc.
Conclusions

- **The Chinese people:**
  - Individually free, Collectively in Chains

- **Social Media (analyzed the right way):**
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
  - Applicable to other countries

- **New statistical methods widely applicable beyond China:**
  - Following conversations when people try to evade authorities, use language creatively, achieve political purposes, etc.
  - Understanding or predicting action on the ground
Conclusions

- **The Chinese people:**
  - Individually free, Collectively in Chains

- **Social Media (analyzed the right way):**
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
  - Applicable to other countries

- **New statistical methods widely applicable beyond China:**
  - Following conversations when people try to evade authorities, use language creatively, achieve political purposes, etc.
  - Understanding or predicting action on the ground
  - Understanding large volumes of text in any language
Conclusions

- The Chinese people:
  - Individually free, Collectively in Chains

- Social Media (analyzed the right way):
  - Enables detailed, continuous, predictive monitoring of every Chinese government, leader, policy, dissident, scandal, company, etc.
  - Predicts state actions when other sources are silent
  - Applicable to other countries

- New statistical methods widely applicable beyond China:
  - Following conversations when people try to evade authorities, use language creatively, achieve political purposes, etc.
  - Understanding or predicting action on the ground
  - Understanding large volumes of text in any language
  - Applications to brand monitoring, intelligence analysis, sentiment analysis, investments, news, advertising, etc.
For more information:
Gary King
King@Harvard.edu
For more information:
Gary King
King@Harvard.edu