



Reading China

Predicting Policy Change with Machine Learning

Julian TszKin Chan (Bates White Economic Consulting)

Weifeng Zhong (Mercatus Center at George Mason University)

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policychangeindex.org

Policy Change Index (PCI) project

- Predict authoritarian policies based on propaganda;
- First use cases:
 - **PCI-China**: China's major policy moves;
 - PCI-Crackdown: China's response to Hong Kong protests;
 - PCI-Outbreak: true scale of COVID-19 in China.
- Future: North Korea, Iran, Cuba, Russia,...
- Open-source (GitHub).

The problem PCI solves

“Value” of closed regimes’ propaganda

High, because



Analyzing closed regimes' propaganda

Easier said than done!

- Unstructured data;
- Labor-intensive;
- Objective mixed with subjective.

Monitoring “unusual” content in *People’s Daily*

- Easy to spot a surprise article on the front page.

1 day’s worth



Monitoring “unusual” content in *People’s Daily*

- Easy to spot a surprise article on the front page.
- Harder to establish a pattern.

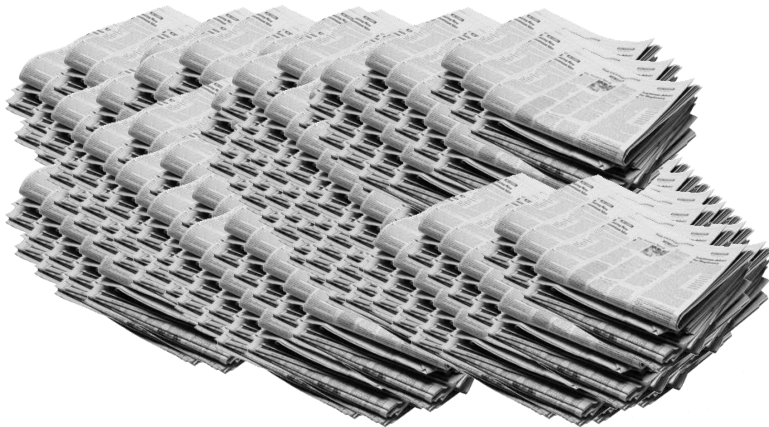
3 months’ worth



Monitoring “unusual” content in *People’s Daily*

- Easy to spot a surprise article on the front page.
- Harder to establish a pattern.
- Even harder to establish an *unusual* pattern.

5 years’ worth



3 months’ worth

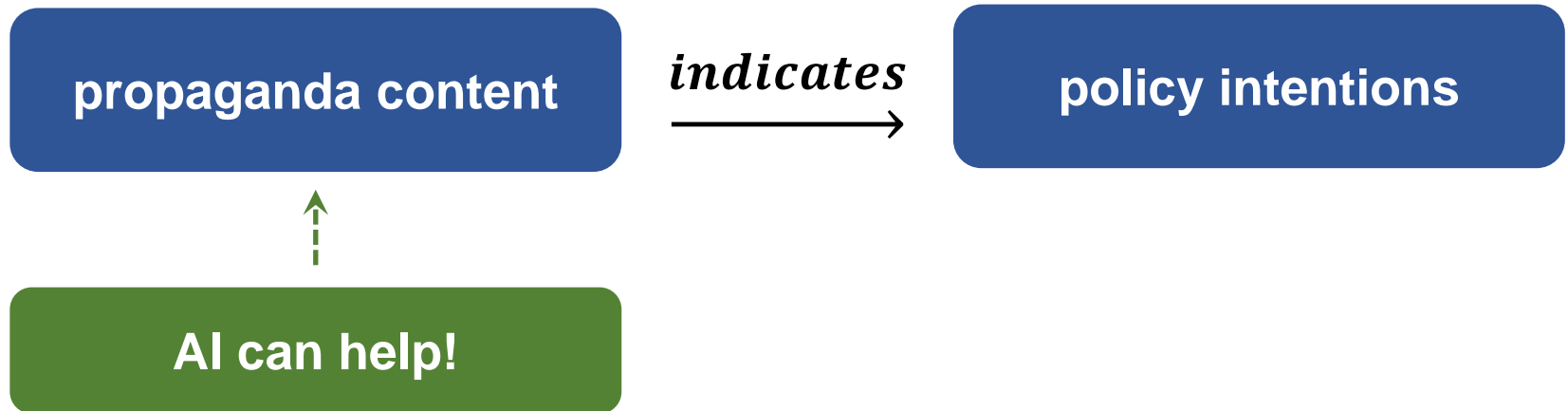


Monitoring “unusual” content in *People’s Daily*

- Easy to spot a surprise article on the front page.
- Harder to establish a pattern.
- Even harder to establish an *unusual* pattern.
- A question for every day!
- Unclear how to evaluate the analysis.

PCI's solution

Core idea



Two features:

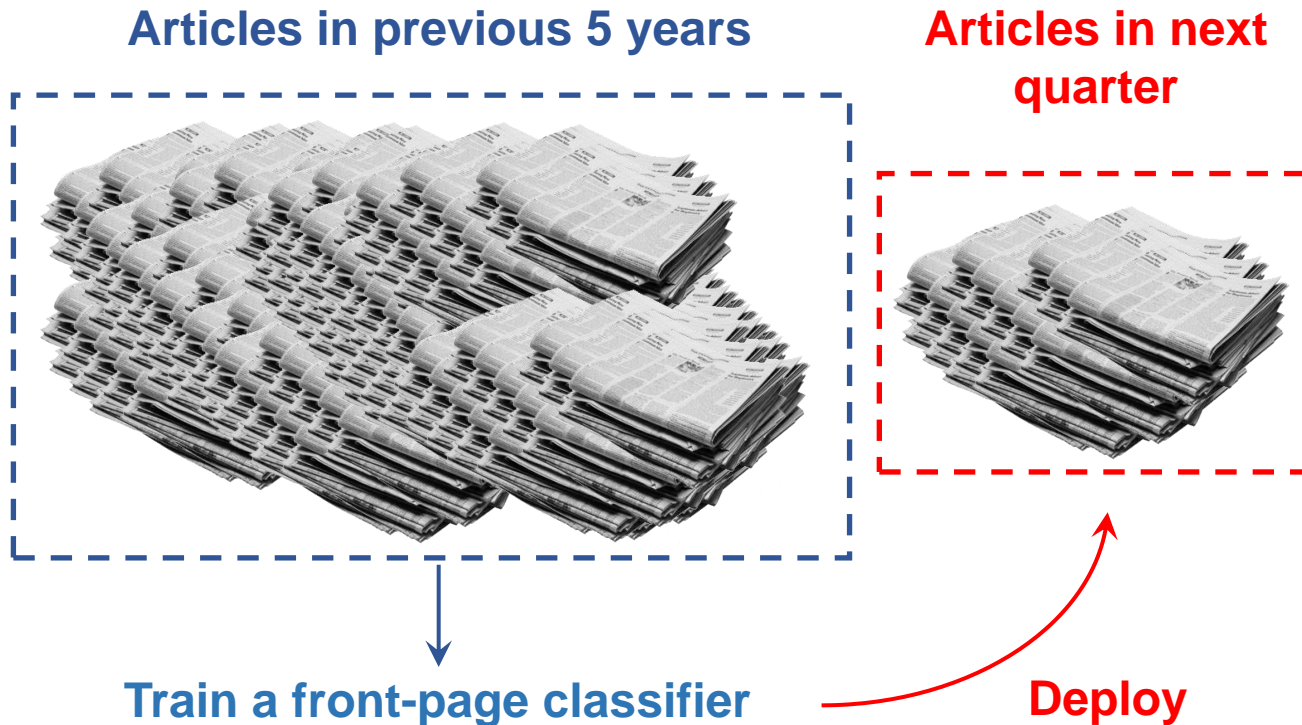
- Automate content analysis of propaganda;
- Delineate boundaries between objective & subjective components.

PCI-China

PCI-China

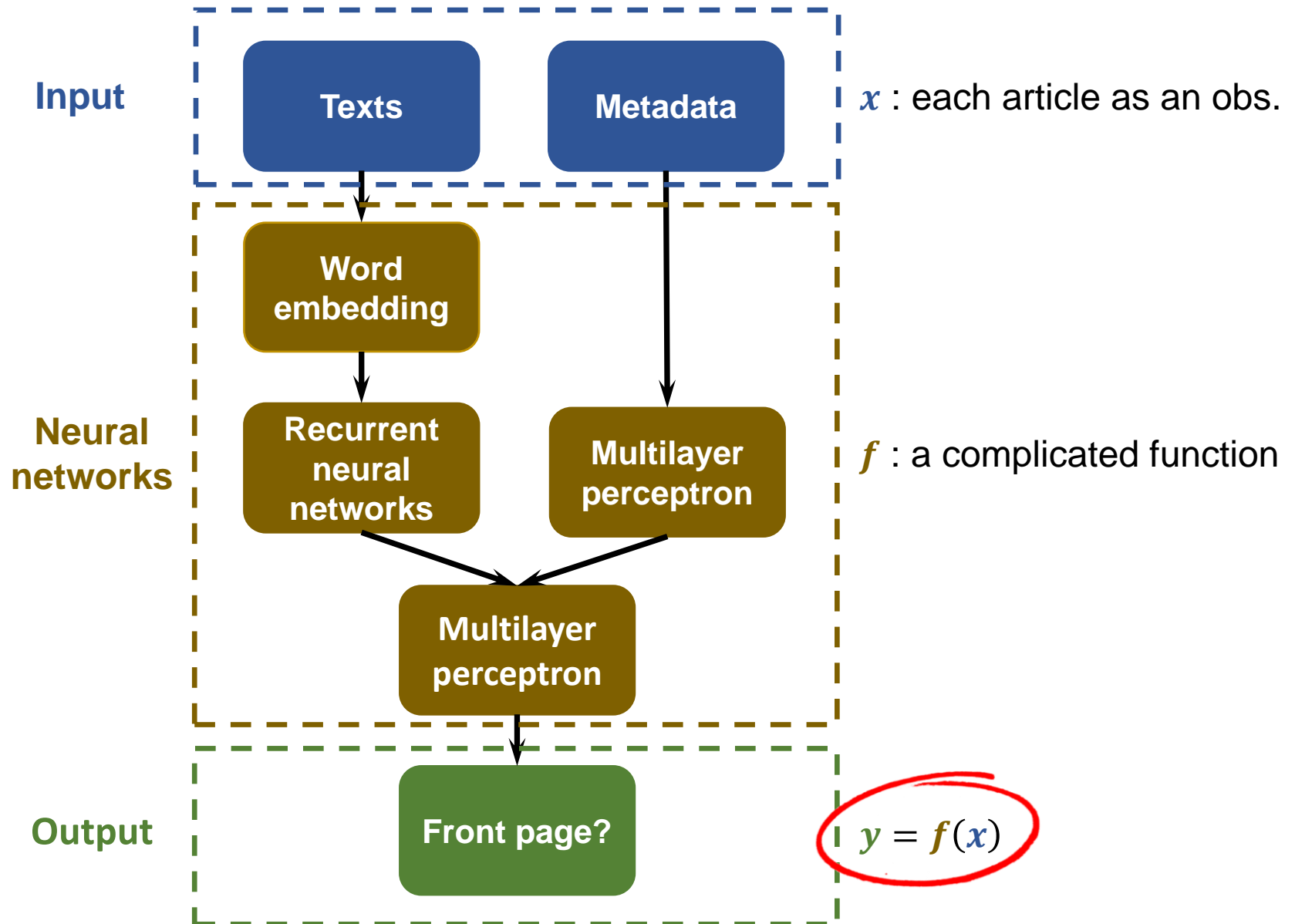
- Input: *People's Daily* full text, 1946-present;
- Output: quarterly index of major policy changes.

PCI-China: algorithm



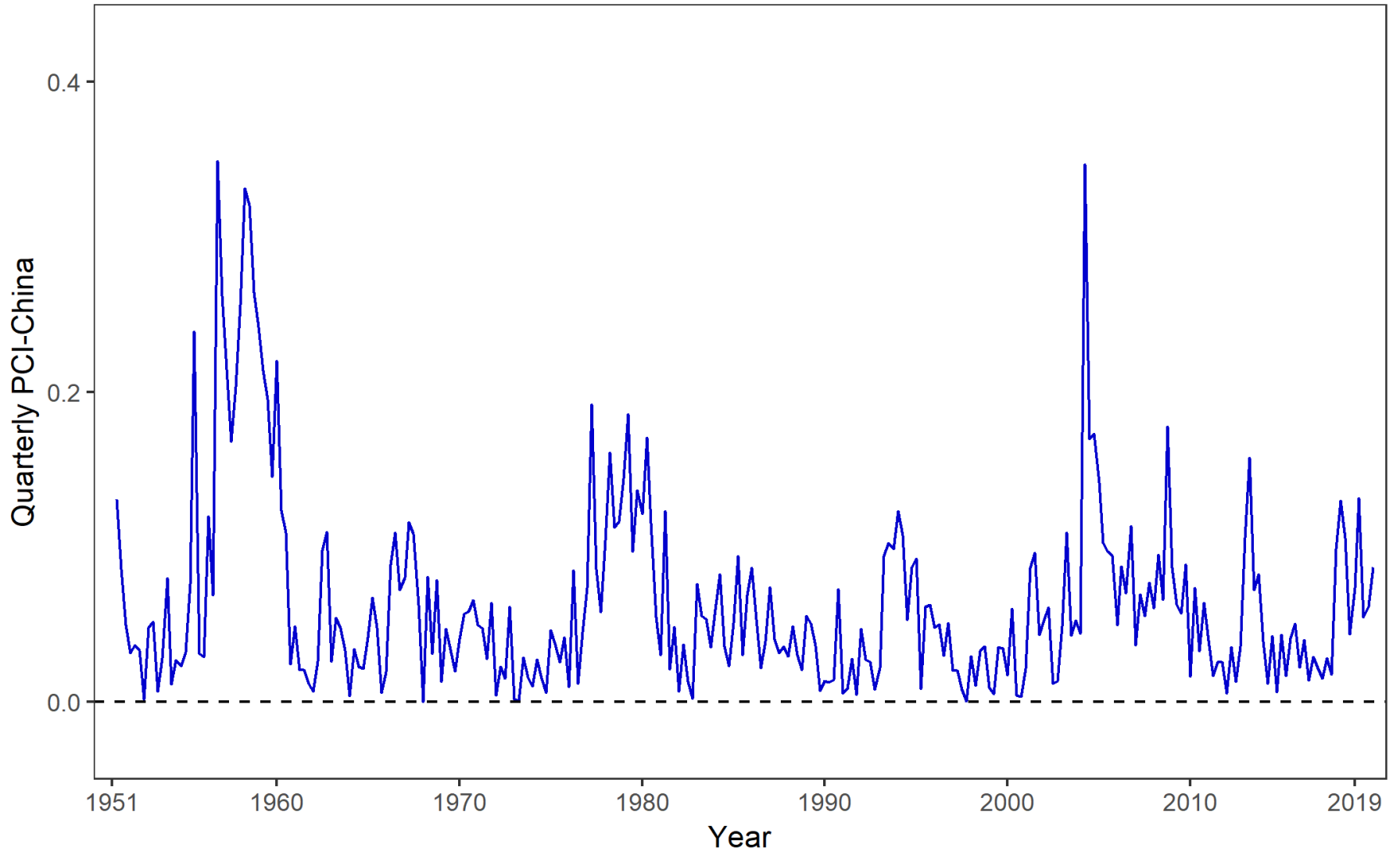
PCI-China: difference in performance

PCI-China: model



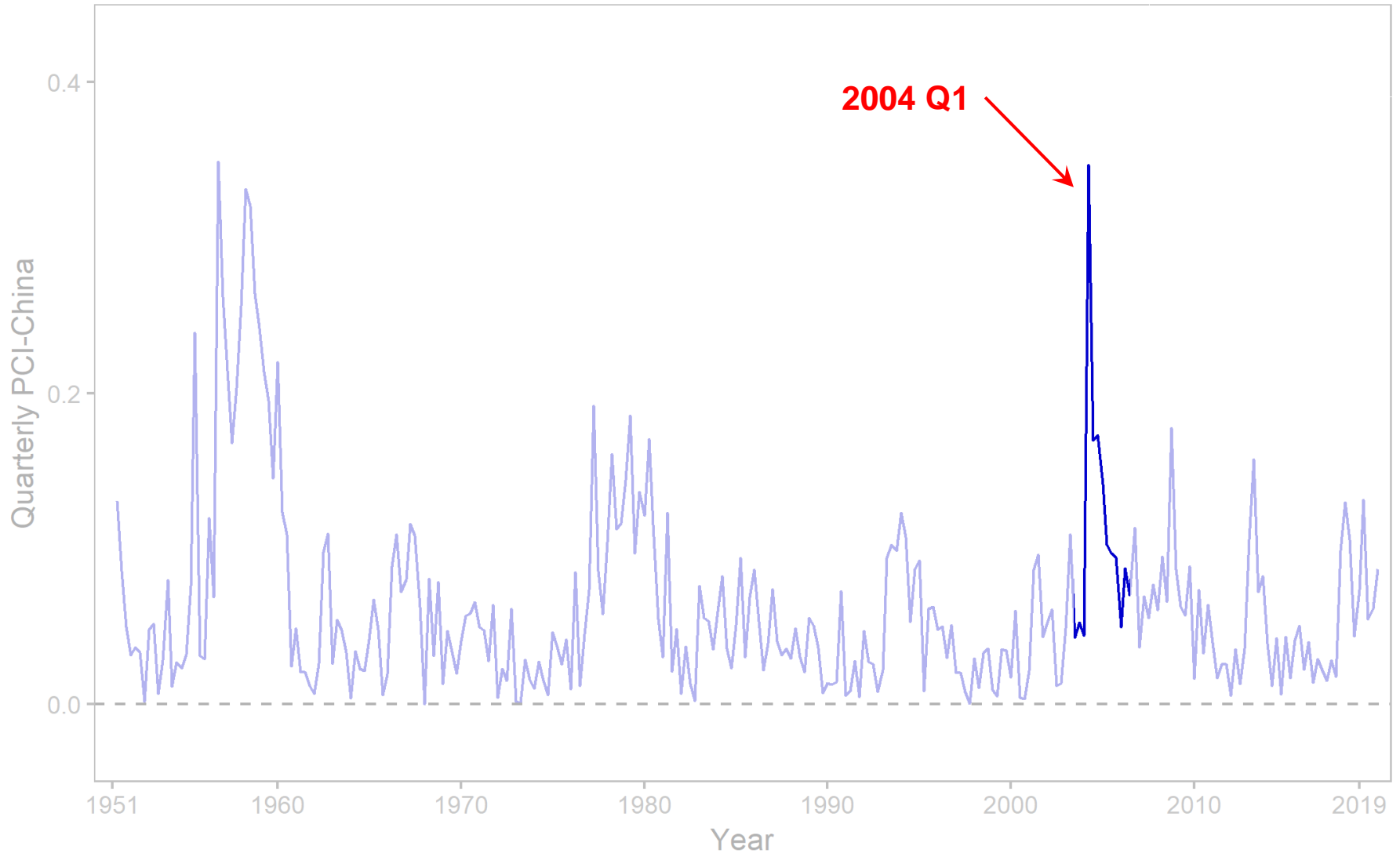
PCI-China: result

(1951 Q1 to 2019 Q4)



PCI-China: how to interpret it?

(1951 Q1 to 2019 Q4)

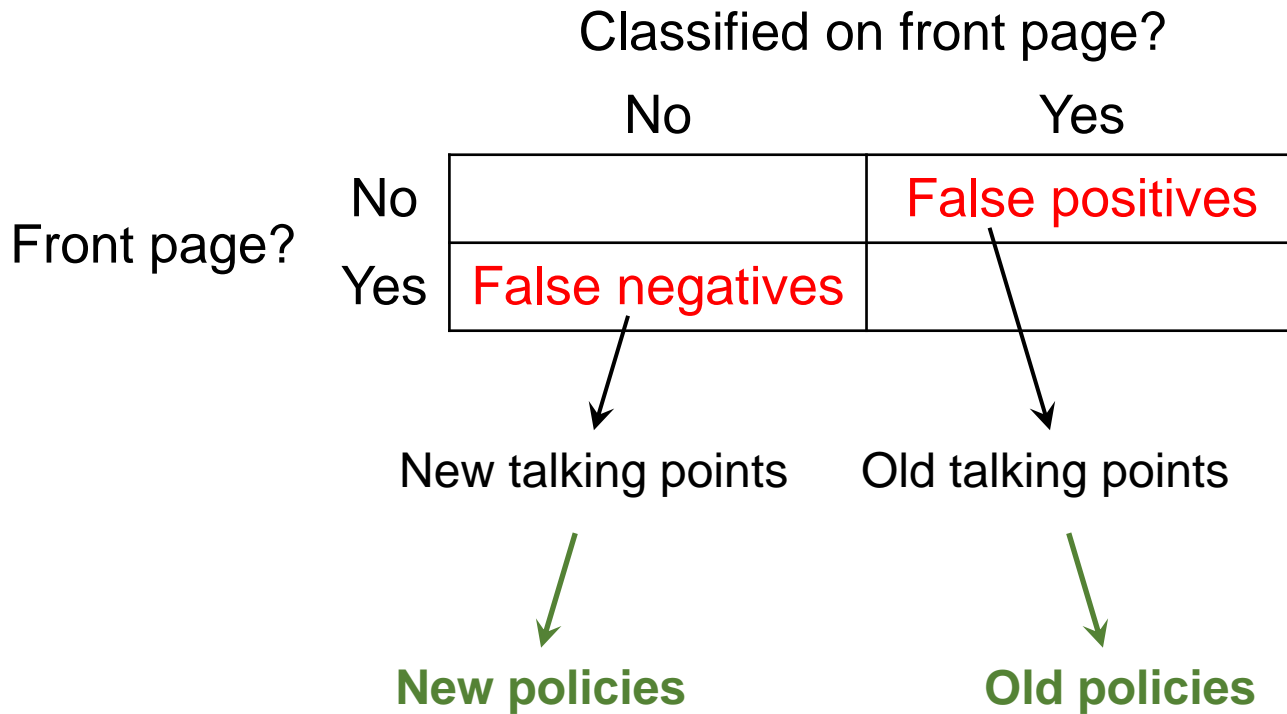


Machine's mistakes are meaningful

		Classified on front page?	
		No	Yes
Front page?	No		False positives
	Yes	False negatives	

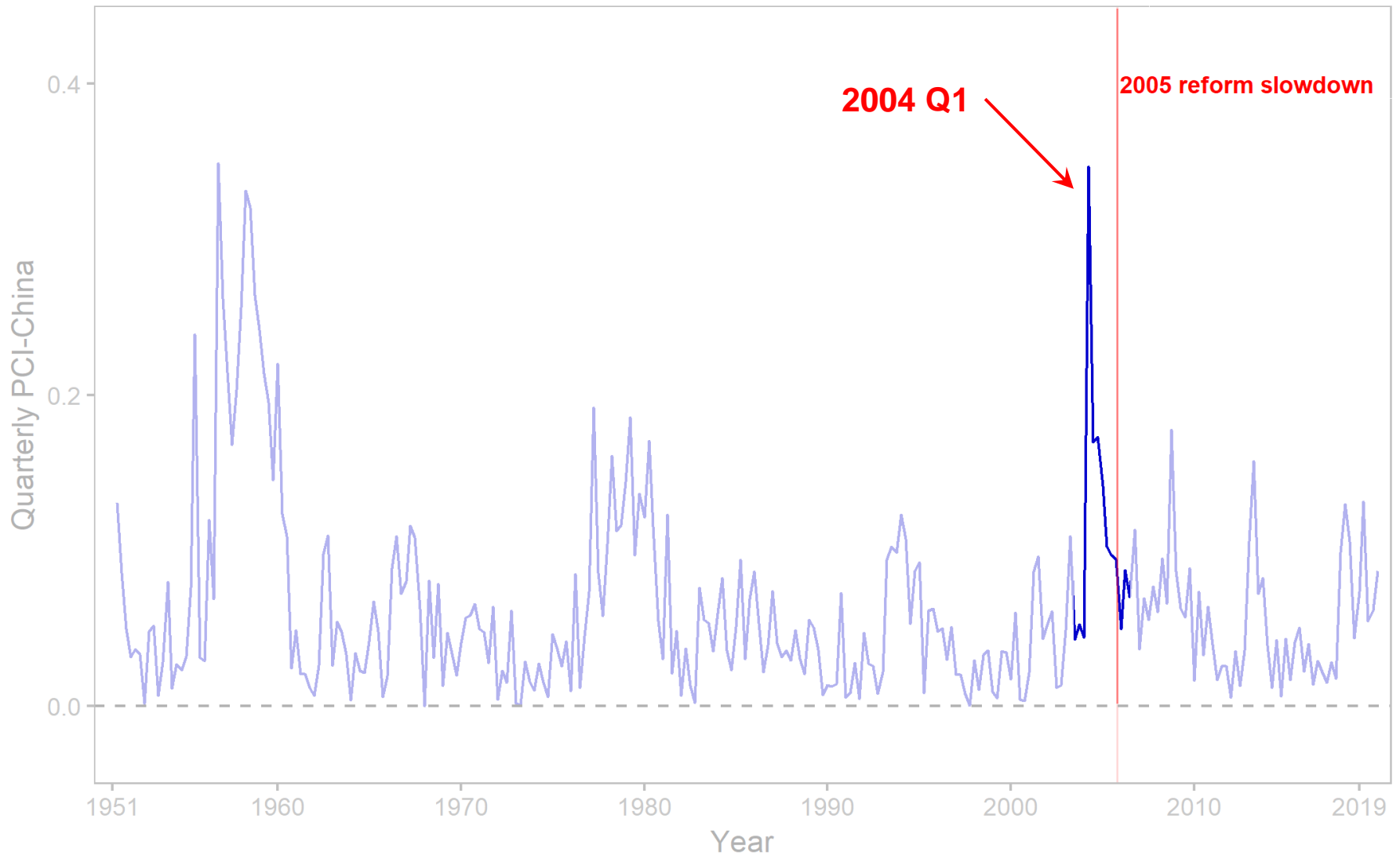
New talking points Old talking points

From propaganda to policy



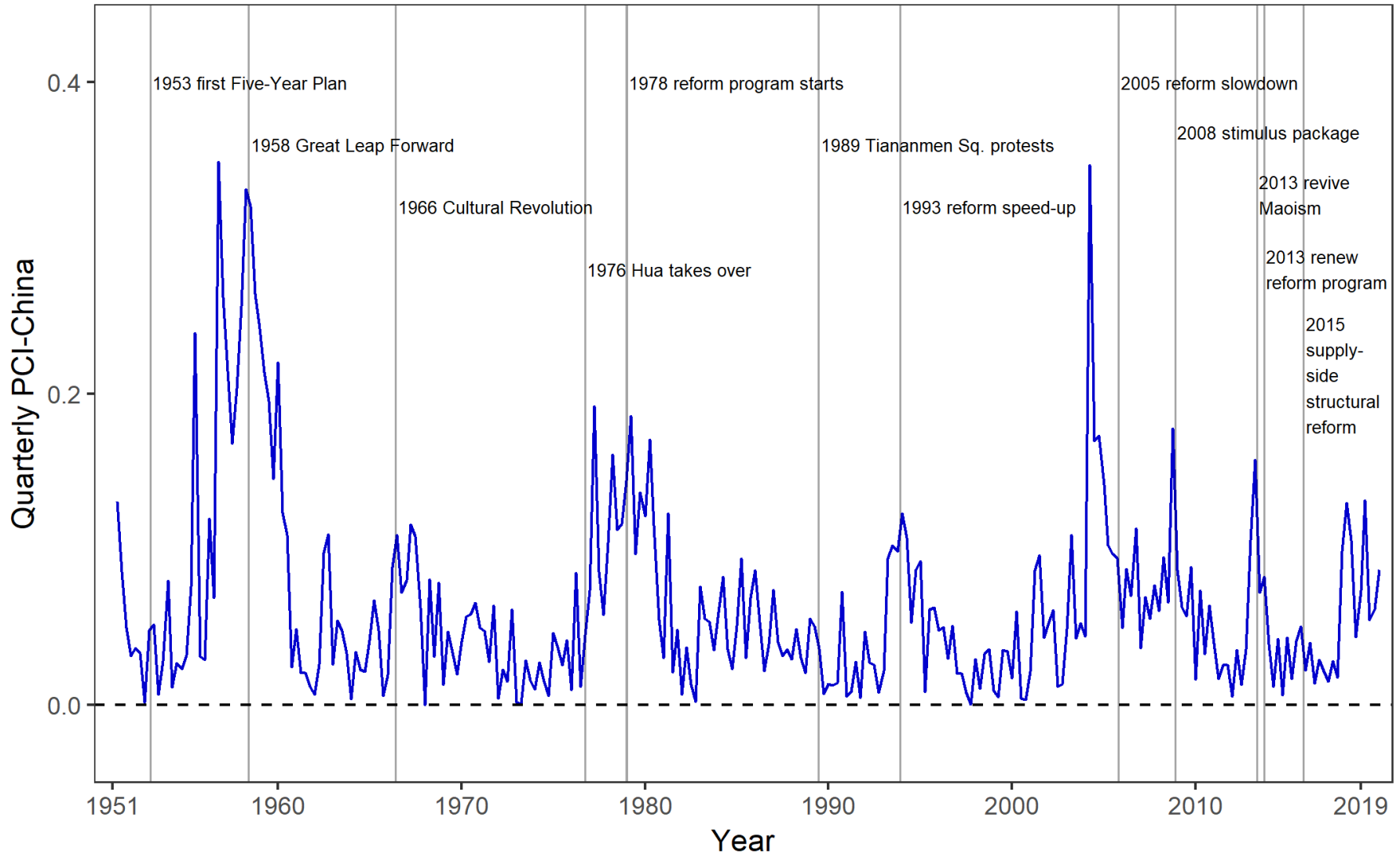
PCI-China predicts major changes

(1951 Q1 to 2019 Q4)

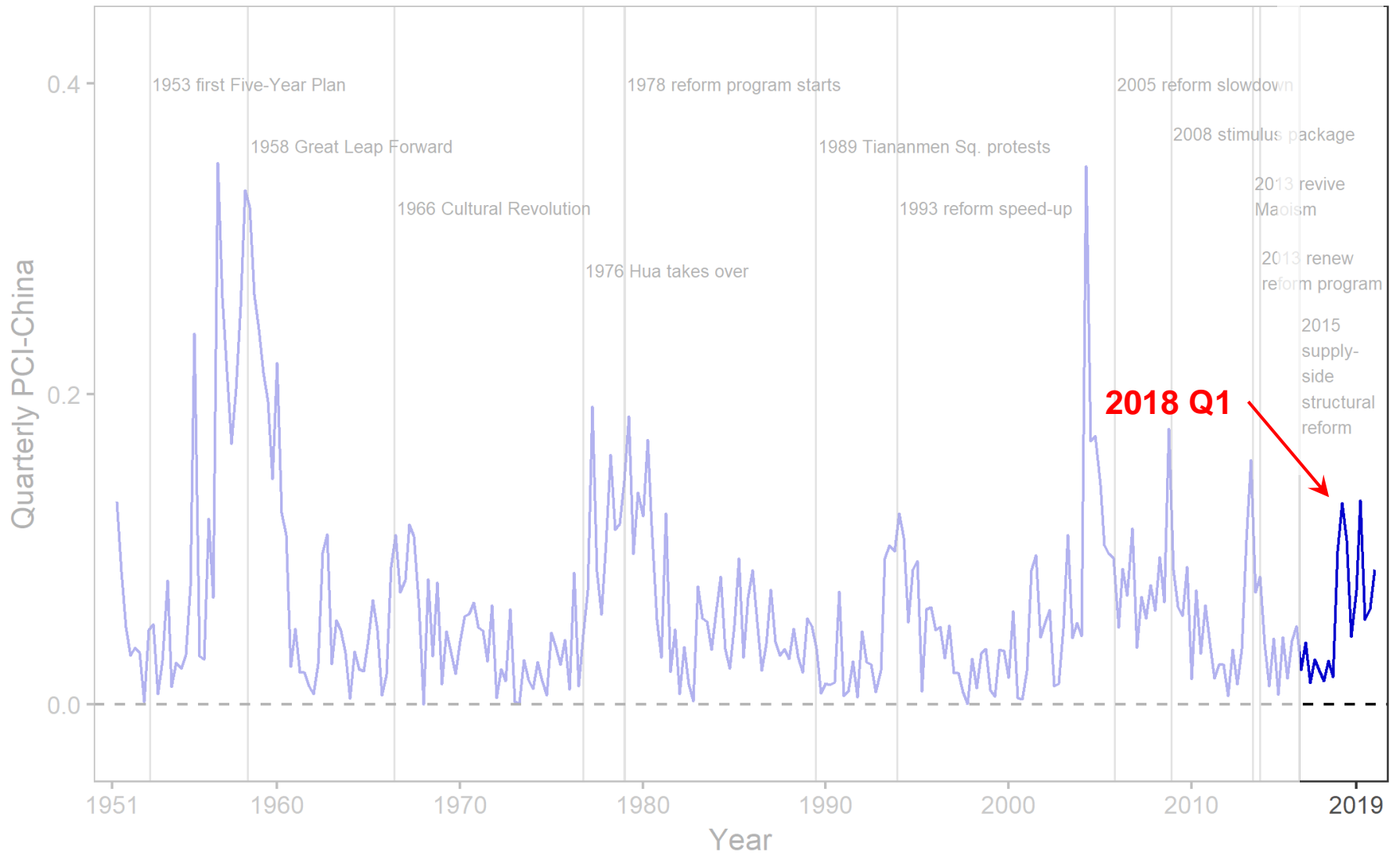


PCI-China predicts major changes

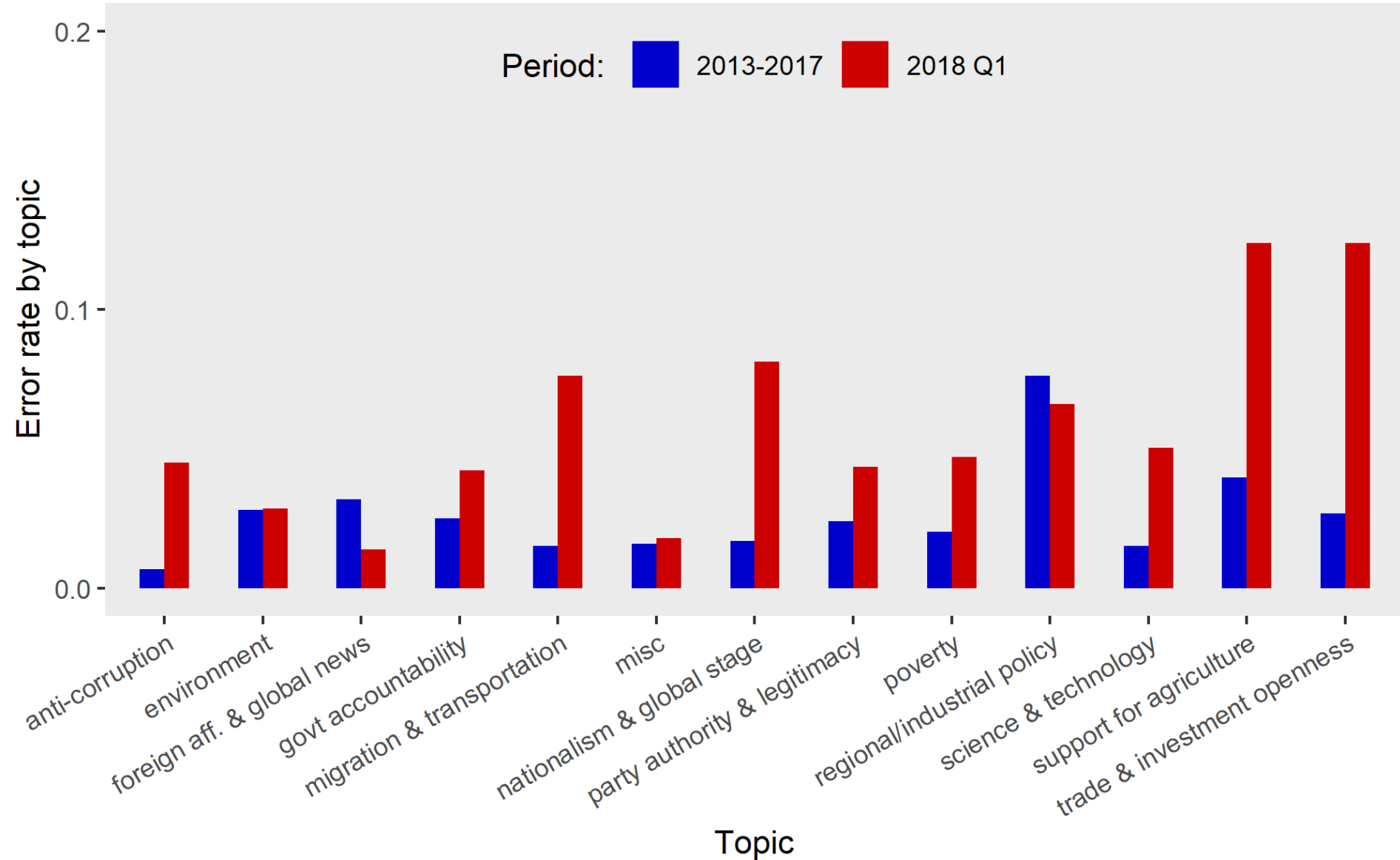
(1951 Q1 to 2019 Q4)



2018 Q1 spike



2018 Q1 spike



US-China trade implications



Contains
judgment

- Two spikes in 2018 Q1 and 2019 Q1:
 - Internal: strengthening party authority;
 - External: nationalism and global leadership.
- Our prediction since 2019 Q1: curb your enthusiasm.
- 2019 Q4: still no signs of serious changes.
- 2020 Q1: coming soon.

Bottom line

Hard-line

propaganda content

~~indicates~~
→

Pro-market

policy intentions

Bottom line

The algorithm's two features:

- Detecting “unusual” content;
- Delineating boundaries between what’s “unusual” and how to interpret it.

Scaling up: other closed regimes?


- PCI-NK;
- PCI-Iran;
- PCI-Cuba;
- PCI-Russia (and PCI-USSR);...

Other use cases

- First use cases:

- **PCI-China**: China's major policy moves;

3:15-3:45 pm today



- **PCI-Crackdown**: China's response to Hong Kong protests;

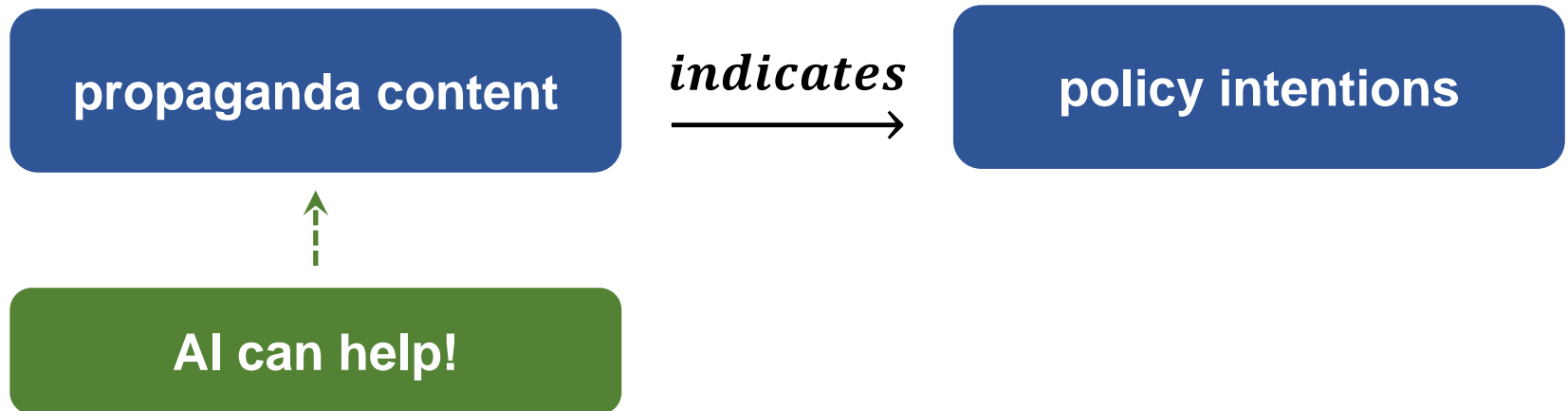
- **PCI-Outbreak**: true scale of COVID-19 in China.

Coming soon!



To conclude...

Core idea



Thank you!

- First step toward policymaking is to better understand the problem.
- PCI's mission: crack a window to otherwise closed systems with new techniques.

Thank you!

- Website: policychangeindex.org
- Newsletter: mercatus.org/PCInewsletter
- Code: github.com/PSLmodels/PCI-China
github.com/PSLmodels/PCI-Crackdown
[github.com/PSLmodels/PCI-Outbreak \(TBA\)](https://github.com/PSLmodels/PCI-Outbreak)
- Developers:
 - Julian Chan (Bates White), julian.chan@policychangeindex.org
 - Weifeng Zhong (Mercatus), wzhong@mercatus.gmu.edu