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### Publication Date

2018

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UNIVERSITY OF CALIFORNIA SAN DIEGO

**Mass Communication Techniques in the Age of Social Media: The Case of China and Weibo**

A dissertation submitted in partial satisfaction of the  
requirements for the degree  
Doctor of Philosophy

in

Political Science

by

Brian Tsay

Committee in charge:

Professor Margaret Roberts, Co-Chair  
Professor Victor Shih, Co-Chair  
Professor James Fowler  
Professor Ruixue Jia  
Professor Susan Shirk

2018

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Co-Chair

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University of California San Diego

2018

DEDICATION

To my parents.

## TABLE OF CONTENTS

Signature Page	. . . . .	iii
Dedication	. . . . .	iv
Table of Contents	. . . . .	v
List of Figures	. . . . .	viii
List of Tables	. . . . .	ix
Acknowledgements	. . . . .	x
Vita	. . . . .	xii
Abstract of the Dissertation	. . . . .	xiii
Chapter 1	Theory . . . . .	1
	1.1 Propaganda Yesterday, Mass Communication Techniques Today . . . . .	4
	1.1.1 Role of Propaganda . . . . .	4
	1.1.2 Propaganda in Modern History . . . . .	5
	1.2 The Internet and the Attention Economy . . . . .	12
	1.2.1 Censorship . . . . .	15
	1.2.2 Government Communication and Attention Competition . . . . .	19
	1.2.3 Contributions . . . . .	23
	1.3 Data . . . . .	23
	1.3.1 Why Police . . . . .	24
	1.3.2 Why Forwards . . . . .	28
	1.3.3 Collection . . . . .	30
	1.4 Layout of the Dissertation . . . . .	33
Chapter 2	Sina Weibo and the Chinese Government . . . . .	36
	2.1 History . . . . .	37
	2.2 Government Concerns About Weibo . . . . .	42
	2.3 Government Goals in Regards to Weibo . . . . .	43
	2.4 Bureaucratic Incentives and Weibo . . . . .	48
	2.5 Summary . . . . .	53
Chapter 3	Engaging Content . . . . .	54
	3.1 Introduction . . . . .	54
	3.2 Background . . . . .	58
	3.2.1 Soft versus Hard News . . . . .	58
	3.2.2 Changing Styles . . . . .	60

	3.3	Operationalizing Style and Content . . . . .	62
	3.3.1	Style . . . . .	62
	3.3.2	Content . . . . .	63
	3.4	Changing Style and Content . . . . .	65
	3.5	Style and Content Effectiveness . . . . .	67
	3.6	Spillover Effects . . . . .	70
	3.7	Discussion . . . . .	74
Chapter 4		Artificial Engagement . . . . .	77
	4.1	Introduction . . . . .	77
	4.2	Police Forwards . . . . .	80
	4.2.1	Who are Forwarding Police Posts? . . . . .	80
	4.2.2	What Type of Police Accounts are Forwarding Police Posts? . . . . .	83
	4.2.3	What is Being Said in Police Forwards . . . . .	85
	4.2.4	What Types of Posts are Being Forwarded by Police Accounts . . . . .	87
	4.3	Fake Forwards . . . . .	92
	4.3.1	Previous Work . . . . .	92
	4.3.2	Identifying Fake Accounts . . . . .	94
	4.3.3	Differences between “Fake” and “Real” Users . . . . .	96
	4.3.4	Topics Forwarded by Fake Accounts . . . . .	100
	4.4	Police and Fake Account Coordination . . . . .	102
	4.5	Estimating the Total Number of Police and Fake Forwards . . . . .	104
	4.6	Discussion . . . . .	105
Chapter 5		Picking Strategies . . . . .	108
	5.1	Background . . . . .	108
	5.2	Challenges in Administrating a Social Media Account . . . . .	110
	5.2.1	Funding the Police . . . . .	112
	5.2.2	Learning to Engage Versus Buying Forwards . . . . .	113
	5.3	Resources and Fake Forwards . . . . .	116
	5.4	Discussion . . . . .	121
Chapter 6		Conclusion . . . . .	124
	6.1	Implications . . . . .	126
	6.1.1	Propaganda Today, Propaganda Tomorrow . . . . .	126
	6.1.2	Hierarchical Trust . . . . .	127
	6.2	Future Research . . . . .	128
	6.3	Final Thoughts . . . . .	133
Appendix A		Appendix for Chapter 3 . . . . .	135
	A.1	A Few Words on Media and Public Opinion . . . . .	135
	A.2	Soft Style Words . . . . .	136
	A.3	Changing Style and Content by Province . . . . .	137

	A.4 Results (Supplemental) . . . . .	138
Appendix B	Appendix for Chapter 4 . . . . .	144
	B.1 A Note on Topic Models . . . . .	144
	B.2 Training Classifiers . . . . .	145
	B.2.1 k-Nearest Neighbors . . . . .	145
	B.2.2 Logistic Regression . . . . .	145
	B.2.3 Random Forest . . . . .	146
	B.2.4 SVM . . . . .	146
	B.2.5 XGBoost . . . . .	146
	B.3 Features Used for Classifying Fake Accounts . . . . .	147
	B.4 Calculating Chains of Forwards . . . . .	149
Appendix C	Appendix for Chapter 5 . . . . .	151
	C.1 Comparing Scaled GDP vs. Log GDP . . . . .	151
	C.2 Other Estimators . . . . .	154
Appendix D	Appendix for Conclusion . . . . .	160
	D.1 Hierarchical Trust in China . . . . .	160
	D.1.1 Cultural Values . . . . .	161
	D.1.2 Measurement Error . . . . .	161
	D.1.3 Decentralization . . . . .	162
	D.2 Experiment to Evaluate Soft Style and Content Effectiveness . . . . .	164
	D.2.1 Operationalization . . . . .	165
	D.2.2 Baseline / Pre-Treatment Survey . . . . .	166
	D.2.3 Posts to Use . . . . .	168
	D.2.4 Theory Behind Questions . . . . .	174
	D.2.5 Questions to Ask . . . . .	175
	D.2.6 Power Analysis . . . . .	178
Bibliography	. . . . .	180



## LIST OF FIGURES

Figure 1.1:	Distrust in Institutions . . . . .	26
Figure 1.2:	Forwards per Post . . . . .	32
Figure 2.1:	Police Account Creation Over Time . . . . .	38
Figure 3.1:	An Older Post from Wuhan . . . . .	55
Figure 3.2:	A Newer Post from Wuhan . . . . .	56
Figure 3.3:	Overall Change in Style and Content Over Time . . . . .	66
Figure 3.4:	Main Results . . . . .	70
Figure 3.5:	Difference in Means for Post- and Pre-Fun Forwards . . . . .	72
Figure 3.6:	Spillover Models . . . . .	73
Figure 4.1:	A Karamay Police Post . . . . .	78
Figure 4.2:	Forwards of a Karamay Police Post . . . . .	79
Figure 4.3:	Number of Forwards by Group . . . . .	82
Figure 4.4:	Average Forwards Per User . . . . .	83
Figure 4.5:	Administrative Levels of Police User Accounts . . . . .	84
Figure 4.6:	Anhui and Henan Forwards . . . . .	86
Figure 4.7:	Forwards with No Additional Comments . . . . .	87
Figure 4.8:	Forwards that Copy the Original Post . . . . .	88
Figure 4.9:	Difference in Badges . . . . .	97
Figure 4.10:	Difference in Post Content . . . . .	98
Figure 4.11:	Difference in Post Popularity . . . . .	99
Figure 4.12:	Difference in User Attributes . . . . .	100
Figure 4.13:	Post-Level Police vs. Fake (Square Root Scale) . . . . .	103
Figure 5.1:	Geographic Distribution of Fake Forwards Proportion . . . . .	109
Figure 5.2:	Fake Forward Proportion vs. GDP . . . . .	116
Figure 5.3:	Proxies for Engaging Content vs. GDP . . . . .	120
Figure 5.4:	Post Length vs. GDP . . . . .	121
Figure 5.5:	Proxies for Engaging Content vs. GDP (Proportion) . . . . .	122
Figure A.1:	Changing Style and Content by Province . . . . .	143
Figure C.1:	Diagnostic Plots for Log and Scale Models . . . . .	153
Figure C.2:	Beta vs. OLS Fit . . . . .	156
Figure C.3:	Partial Pooling: OLS and Beta . . . . .	158
Figure C.4:	Posterior Predictive Check: OLS and Beta . . . . .	159

## LIST OF TABLES

Table 3.1:	First Stage Classifiers . . . . .	63
Table 3.2:	Paired <i>t</i> -tests . . . . .	73
Table 4.1:	Police Affiliation Keywords . . . . .	81
Table 4.2:	Account Classifiers . . . . .	96
Table 4.3:	Forwards of Forwards . . . . .	104
Table 5.1:	Public Opinion Training Classes . . . . .	114
Table 5.3:	Purchasing Interaction . . . . .	115
Table 5.4:	Fake vs. GDP OLS Models . . . . .	118
Table A.1:	Soft-Style Words . . . . .	137
Table A.2:	Basic Results . . . . .	139
Table A.3:	Spillover Results . . . . .	141
Table A.4:	Spillover Results: Likes . . . . .	142
Table B.1:	Distribution of Forwards by Account Type . . . . .	149
Table C.1:	Fake vs. [Scaled] GDP OLS Models . . . . .	152
Table C.2:	Fake vs. GDP Models (Other Specifications) . . . . .	155

## ACKNOWLEDGEMENTS

A big thanks to my committee – Molly Roberts, Victor Shih, Susan Shirk, James Fowler, and Ruixue Jia – for all their patience and invaluable feedback throughout this process while I struggled first to find a topic and then to actually execute the ideas. Without their comments and suggestions, this dissertation would have gone absolutely nowhere. While I take sole responsibility for all the various flaws of this dissertation, any of the strengths or contributions of this dissertation are a product of their help and support. In particular, I would like to thank my co-chairs, Molly and Victor, for their continued support. Discussions with Victor have sharpened key aspects of the dissertation, and his reading suggestions have always forced me to examine my own argument with a more critical and improved eye. In addition, his levity and sense of humor have always kept me grounded. Molly’s help can be found in every part of the dissertation. From the topic to the theory to the empirics, all aspects of the dissertation have been shaped by Molly for the better. Her positivity has always kept my spirits up.

Many thanks to the faculty of the political science department here for the education on social science research. Within the department, special thanks to Scott Desposato, for introducing us to quantitative research, and to Yiqing Xu, whose help was invaluable for planning my post-grad school life. Thanks also to faculty in the ECON, GPS, and CSE departments for helping me learn the skills required for analyzing the data used in the dissertation. Tai Ming Cheung gave me my first taste of research and has been supportive throughout my graduate career. Outside of UCSD, HU Ruifa, MA Liang, and MENG Tianguang were of great help during my fieldwork in China; Jean Oi was very gracious and helpful during my time in China as well. ZHOU Jianghua was very hospitable and eased my transition in Beijing when I first arrived.

Yingjie Fan, Zhenyun Guo, and Xiaolan Lu were also of great help for this research. Their assistance and suggestions helped enable many of the findings presented in this dissertation. Kai Lin and Jeff Fritsch provided the computing resources and support required for data collection and analysis. Thanks to the staff of the political science department for handling all the various

administrative questions I had. Funding for my time here was provided by the Gramercy Fellowship and the political science department. Fieldwork was supported by a Fulbright U.S. Student grant.

Friends and classmates inside the department were of tremendous help during my time at UCSD, even if they don't know it. Outside of UCSD, I'd like to single out Olivia, who had to suffer through years of whining, complaining, and general hand-wringing, and without whose support I would never have finished.

Finally, I'd like to thank my parents. None of this is possible without them.

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ABSTRACT OF THE DISSERTATION

**Mass Communication Techniques in the Age of Social Media: The Case of China and Weibo**

by

Brian Tsay

Doctor of Philosophy in Political Science

University of California San Diego, 2018

Professor Margaret Roberts, Co-Chair

Professor Victor Shih, Co-Chair

The Internet has fundamentally changed society and the way people communicate with one another. Advances in technology have made it possible for virtually anyone to create and distribute information. Social media has given voice to the formerly marginalized, allowing them to express themselves to populations worldwide at the click or tap of a button. Authoritarian governments now find themselves in a “many-to-many” communication model of the world, where the government no longer holds a monopoly on information.

I use the examples of prefectural-level police accounts to show in this dissertation how

the Chinese government is adapting to this new state of the world. Since it must compete with the plethora of voices on social media, it has learned to mimic the styles and adopt the language of social media users. Over time, police accounts have allocated more of their posting volume to non-police topics and have increasingly applied softer styles to their posts. This strategy appears to be paying dividends for the police, as the posts that have softer styles and are not about police topics tend to get forwarded more often.

The changes wrought by the Internet are not limited to just empowering more voices; the anonymity of the Internet enables the regime's second strategy: buying accounts to interact with its posts, artificially inflating the popularity of the post. Some accounts exert great effort to hide the fact that they are "fake" accounts, making it difficult for the outside observer to ascertain the true popularity of a post. The government can also rely on other government accounts to promote its posts.

The other appeal of purchasing forwards and likes is that it is relatively cheap. Many local governments are resource-constrained and lack the funds – or perhaps even the inclination – to improve the administration of their social media accounts. Compared to the costs of hiring a social media account manager or training an existing worker, just buying interactions may be much more cost-effective in the eyes of a local government.

# Chapter 1

## Theory

The word “propaganda” usually conjures up images of staid and boring newspaper articles or awkward films extolling eyeroll-inducing virtues. It is thus with apparent amusement that Western journalists have noted some of China’s recent propaganda efforts:

“China’s President Xi is ‘so cute,’ says world’s creepiest propaganda video”<sup>1</sup>

“Groovy Chinese Propaganda Video Promotes Country’s Five-Year Plan”<sup>2</sup>

“Chinese propaganda machine places hopes in cartoon rappers”<sup>3</sup>

“Propaganda With a Millennial Twist Pops Up in China”<sup>4</sup>

“China’s education group releases a cartoon encouraging kids to embrace counterespionage”<sup>5</sup>

Indeed, some of these efforts appear quite ham-handed; many of the articles cited above question whether this new propaganda can be effective, noting that it is met with derision by some Chinese viewers. What then, is the purpose of these new techniques?

Traditionally, the Chinese Communist Party (CCP) has employed propaganda and other methods of mass communication to accomplish a variety of goals using a variety of mediums. Under Mao Zedong, propaganda – in the form of films, newspapers, and other mass media –

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<sup>1</sup>Rauhala 2015.

<sup>2</sup>Sheehan 2015.

<sup>3</sup>Shih and Parra 2016.

<sup>4</sup>Hernandez 2016.

<sup>5</sup>Liao 2017.



was used to help defeat the Chinese Nationalist Party, mobilize the masses, and achieve other CCP aims. However, the rise of the Internet offers both new challenges and new opportunities for how a government communicates with its people. With the rise of the aptly-named “self-media” (自媒體), where regular people themselves are the subject of the media, competition for people’s attention is in theory fiercer than ever, despite the censorship regime put in place by the CCP. In this environment, government messages suffer from a variety of issues. For one, the information being propagated by the government often lacks appeal, with government officials finding it difficult to drum up interest in their pronouncements. In addition, even if people do pay attention to government messaging, it does not necessarily lead to more positive feelings for the regime. In fact, Chen and Shi (2001) and Huang (2018) argue that exposure to news media or hard propaganda in China actually leads to greater distrust in the government. The overall challenge for the regime, then, is how to spread its message without reducing credibility and boring people.

The role of propaganda and government messages have remained the same for the regime. What differs is the available avenues by which the regime can deliver its message. The government has evolved along with the times and is updating how it communicates with its citizens to reflect the changing times. While new communication mediums can ease coordination or reveal anti-regime sentiment, authoritarian regimes historically have been able to leverage these new technologies for furthering their own ends. This dynamic is playing out in China today, as the Chinese government contends with the challenge posed by the rise of the Internet. Authoritarian regimes have two tools to tackle this problem: censorship and propaganda. Censorship is used to silence dissenting voices and raise the costs of collective action, while propaganda is used to signal the power of the regime and to change citizen preferences. One important arena on the Internet for propaganda is the social media platform Sina Weibo, which in theory has the potential to disrupt the regime; the potential for a post on Weibo to “go viral” is of tremendous concern to the Chinese government. However, the Chinese state has developed a fairly sophisticated cen-

sorship regime to tame discussion and limit information on the Internet. At the same time, it is altering the way in which it communicates its message to make it more palatable to citizens.

This dissertation uses the example of Chinese local governments – specifically local police forces – to show how newer mass communication techniques help the government achieve its goals. Despite the new information environment it finds itself in, the Chinese government has shown that its capable to adapt to new technologies and the changing times to have its message heard on new communication mediums. The Internet and social media has made it so that governments now have to compete with a plethora of other voices for people’s attention. To compete with these alternative voices, the Chinese government has employed strategies that include the ones described in the above news stories. While the headlines poke fun at these attempts, this dissertation will show that these new strategies are successful in garnering more attention. If government organizations can successfully attract attention, despite all the new sources of news and entertainment available, then it can successfully set the tenor and direction of public discourse, shoring up support for the government and heading off potential discontent.

Here, I focus on how local governments – namely governments at the prefecture (地級市) level – operate on a relatively new communication medium: the social media platform Sina Weibo. I argue that the government generally approaches this in two ways. The first approach is to put in the effort in creating engaging content that people would be more likely to pay heed to. However, the government often does not have the personnel with the requisite skillset for generating engaging content (Zheng 2013). For those resource-limited local governments, it can be more cost-effective to simply pay others to spread their content for them and raise forward and follower counts, rather than investing in the resources to build up the capacity to create attractive content themselves.

## 1.1 Propaganda Yesterday, Mass Communication Techniques

### Today

While this dissertation is fundamentally about the techniques of mass communication employed by the Chinese government today, it would be helpful to first review the historical role of propaganda. An oft-cited definition of propaganda by Harold D. Lasswell is reproduced below

Propaganda is the management of collective attitudes by the manipulation of significant symbols. The word attitude is taken to mean a tendency to act according to certain patterns of valuation [...] The valuational patterns [...] may be primitive gestures of the face and body, or more sophisticated gestures of the pen and voice. Taken together, these objects which have a standard meaning in a group are called significant symbols [...] Such significant symbols are paraphernalia employed in expressing the attitudes, and they are also capable of being employed to reaffirm or redefine attitudes [...] the collective attitude, as a pattern, is a distribution of individual acts (Lasswell 1927, 627-628)

In other words, propaganda is the usage of various methods to influence attitudes and actions.<sup>6</sup> The fundamental logic of propaganda remains the same as for authoritarian regimes before the inception of the Internet and underpins the techniques the Chinese government employs to increase receptivity to their messaging. Propaganda serves functions beyond signaling regime strength; oftentimes, the goal is to change public opinion.

#### 1.1.1 Role of Propaganda

The typical discussion of authoritarian state propaganda in the literature focuses on what are essentially overly-positive lies put forward by the government (Geddes and Zaller 1989; Wedeen 1999; Stockmann and Gallagher 2011; Huang 2015, 2018). Explanations for propaganda generally examine why authoritarian governments would bother to put in the effort to generate

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<sup>6</sup>Lasswell's definition does not limit propaganda to being produced only by the government. Lasswell (1927, 629) notes that propaganda can be "carried on by organizations like the Anti-Cigarette League" or other "civic associations."

blatant lies about the true state of the world. Huang (2015) categorizes potential answers to this question into two complementary camps: signaling and indoctrination. According to the signaling argument, authoritarian regimes utilize propaganda to signal how powerful they are (Wedeen 1999). Latham (2000) applies a similar argument to China, where he argues that the hegemony of the Chinese party-state is a product of compliance rather than beliefs. Huang (2015) himself argues that “propaganda is not meant to ‘brainwash’ people with its specific content [...], but rather to forewarn society about how strong it is via the act of propaganda itself” (Huang 2015, 420). Studies that make arguments along these lines essentially assume that the majority of people just would not believe government information sources.

However, there is more to propaganda than just signaling regime strength. The indoctrination side more or less argues the opposite: propaganda is aimed at convincing the masses in believing government doctrine and internalizing its narrative (Brady 2008). Propaganda is meant to distort information and alter public preferences. This is seen in historical applications of propaganda by authoritarian regimes.

To increase receptivity of the government message, propagandists use various techniques to adjust the style and content of their messaging. In the past, this propaganda behavior has differed based on the medium of choice. In the following section, I will detail techniques used by propagandists of yesteryear to tailor their messages to fit the mediums and audiences they were targeting.

### **1.1.2 Propaganda in Modern History**

To understand Chinese mass communication on the Internet today, it is helpful to put it in historical context. In this section, I will describe some of the uses of propaganda in the Nazi regime in Germany, in the Soviet Union, and in China under Mao. I recount these examples to impress upon the reader the following two points. The first is that propaganda is not uniform; instead, it is tailored to specific audiences and specific mediums. The second is that propaganda

is not simply an “information dump” on the masses. Oftentimes, this information is linked with other attributes – such as an appeal to emotions – to help increase people’s receptivity to the government message. These two themes hold true even with the Chinese government today.

## **Nazi Propaganda**

Sadly, the Nazi leadership in Germany were quite cognizant of the benefits of propaganda to a dictatorial regime. Adolf Hitler himself held strong beliefs in regards to how propaganda could further his aims. Germany’s defeat at the hands of the Allied Powers in World War I – which Hitler attributed to, among numerous other things, campaigns by the “social democrat press” and “Jewish financiers” – left Hitler with an appreciation for the power of propaganda. Indeed, Hitler was most impressed with British propaganda. On the other hand, he blamed German propaganda for failing to strengthen the German resolve to fight (Somerville 2012, 91).

Nazi propaganda did not “create something out of nothing,” so to speak. For the most part, it did not break or subvert people’s longly-held beliefs. In fact, it utilized people’s discontent and grievances to reinforce its own message. Exploiting people’s anxiety and anger, Nazi propaganda presented a grand vision of German revival and greatness to control public opinion (Somerville 2012, 92). This anger was unfortunately leveraged to dehumanize entire swathes of people in the eyes of Nazi Germany’s subjects and helped pave the way for the attempted annihilation of the Jewish people. Note that this propaganda was not uniformly effective; Adena et al. (2015) argues that Nazi propaganda achieved the most results in areas that were historically more anti-Semitic, where exposure to propaganda was associated with a greater number of Jewish people deported to concentration camps and more anti-Semitic open letters.

While Nazi propaganda utilized many propaganda mediums, it appears that the radio may have been the greatest weapon at its disposal. Perhaps the main advantage of the radio over other forms of media, such as the newspaper, is its ability to project not only raw information but also the human voice, which could potentially convey emotion more viscerally than just text. Another

advantage that radio had was speed and frequency; the ubiquity of radio broadcasts throughout the day meant that propagandists could regularly fine-tune its message and react to sudden events (Somerville 2012, 111-112).

The main point here is that the Nazis took full advantage of the capabilities that radio offered over a more traditional medium such as the newspaper: the power to project emotion. The Nazis were able to exploit this feature of radio to improve the effectiveness of their propaganda to devastating success. In addition, the Nazis knew to target their propaganda to specific groups (Welch 2002, 18). The logic of propaganda – tailoring it to specific mediums and to specific audiences – remains the same today.

### **Soviet Propaganda**

Another regime with a vast propaganda apparatus was the Soviet Union. Even prior to its inception, the leadership understood the power of propaganda; the success of the Bolsheviks in the Russian Civil War has been partially attributed to its success in conveying its message to the people (Kenez 1985, 4). Once the Soviet state was established, any form of organized activity that had the potential to influence public opinion became subject to party scrutiny (Inkeles 1962, 36). Mass culture, education, and the media became tools of popular indoctrination for the party (Berkhoff 2012, 4).

For the Bolsheviks, adjusting propaganda to fit the audience was quite important. In fact, the Bolshevik distinction between “propaganda” and “agitation” is mainly a distinction in target audience. What Bolshevik theory calls propaganda is the messaging targeted at what may be considered the higher levels of society, including party members, the intelligentsia, and leaders in various sectors. Agitation is the messaging targeted at the masses, seeking to familiarize them with the party’s slogans and policies and to engage them in mobilization. The idea was that not all people could truly understand the party theory and policy. Instead, those who couldn’t fully comprehend Marxist doctrine would be taught its “spirit.” Therefore, the shaping of public opin-

ion had two overall steps. In the first step, party policy is taught to the “advanced” segments of society in the form of propaganda. In the second step, these “advanced” segments of society teach agitators the policy, who then transmit the information to the masses in a presumably simplified form (Inkeles 1962, 41-42).

Therefore, a key function of propaganda is to prepare for agitation. Propaganda for intelligentsia was meant to prevent them from becoming an independent force outside of the party. While the party had initially focused their communication efforts on workers, shifting propaganda efforts towards the intelligentsia meant that the mode of communication needed to change. While information transmission for workers had emphasized oral information transmission in a group or classroom environment, it changed to an emphasis on self-study for the intelligentsia. The party leadership feared that more independent participants would come to conclusions that run counter to official interpretations. Propaganda for cadres meant attending multi-year courses that served not only as a source of Marxist indoctrination but also as a resource for making them more effective party officials. The rank-and-file members attended general education schools and study circles, supplemented by self-study (Inkeles 1962, 43-62).

What the Soviet example demonstrates is that authoritarian regimes are quite cognizant of the differences in the receptivity to propaganda of the citizens they aim to control. The difference in how to appeal to the masses versus how to appeal to Party members and the intelligentsia is enshrined in the Bolshevik distinction between agitation and propaganda. By tailoring propaganda to specific sections of the population, the Soviets improved reduced the ineffectiveness of their propaganda.

### **Propaganda Under Mao**

For the Chinese Communist Party (CCP), propaganda served to support its legitimacy. The propaganda system (系統) under Mao was quite broad, including the writers, professors, researchers and journalists (Cheek 1998, 15-16). As with the Soviets, propaganda efforts under

Mao Zedong in China also had to deal with the issue of illiteracy among broad swathes of the population. One way that the CCP dealt with this is by employing propaganda methods that even those who were unable to read could understand the message. One prominent example is the promotion of the “Three Rules of Discipline and Eight Points for Attention” (三大紀律、八項注意) among the army. The rules are meant to govern how the military should treat civilians and were written in a deliberately simple manner, including injunctions such as “do not hit or insult people” (不打人罵人). Not only were they written in a straightforward manner, they were later paired with the melody from a popular song in CCP base areas called “The Land Revolution Succeeded” (土地革命成功了) to further facilitate internalization of the Party message (Yu 2015, 127). The ability to sing these relatively humane rules probably helped with engendering support for the Party among civilians as well.

Films were also used to spread the Party message among those who had difficulties reading. Movies were often released in concert with political movements to emphasize the message. Part of the power of films was that it made it easier for viewers to relate the Party message to their own daily lives, as films often portrayed regular citizens as their main protagonists. Films therefore could prime citizens to look for class enemies in their own surroundings, since they could actually show how supposed class enemies would behave (Yu 2015, 191-192). At the conclusion of many films, audience members would be engaged in discussions to ensure that viewers retained the message the Party was communicating in the film (Yu 2015, 186).

Indeed, study and discussion sessions appear to be a major part of how the CCP leadership could communicate its decisions down the Party and to the masses (Schurmann 1971, 60-61). These small group (小組) meetings were partially inspired by the Soviets. In the Soviet Union, Party members were expected to study political texts and Party policies (Whyte 1974, 23-24). Because of China’s high illiteracy rates, small groups were used to transmit information from top to bottom. In small group meetings, government policy would be communicated to small group members orally and be subject to discussion and debate. The structure of small groups also meant



that social pressure could be brought to bear to align people's thinking with the government's. Small groups also served as a method of transmitting information from bottom to top, as small group members reveal their attitudes and preferences, which are ideally then transmitted upwards (Whyte 1974, 12-13).

For those that were literate, governments could use newspapers such as the *People's Daily* (人民日報) to transmit information. According to Brady (2008), newspapers were important tools for implementing theoretical education work. Newspapers shared with its readers various pieces of information, including policy decisions at both the national and local levels; details about policy implementation; general principles that the Party wanted the people to understand, which revealed the thought processes of leaders in regards to major questions; criticisms, usually of individuals; public information such as news about natural disasters; and “propaganda” such as commentaries on theory and principles, ideological discussions, and so on (Schurmann 1971, 63-66).

In other words, the Party did not solely rely on the dry transmission of information to get its message to the people. While it did share information via newspapers, the Party used other mediums to communicate, including film and small group meetings. As with the other examples mentioned in this section, propagandists under Mao did not attempt to shape thought and behavior simply by throwing information at people; they also enlisted emotions. According to Solomon (1971), Mao believed that political motivation could be drawn from an “emotional storm” of hatred and resentment. For Mao, these emotions could be harnessed to turn what were a passive oppressed people into an aggressive and liberated one (Solomon 1971, 166-169). It is via emotions that the Party sought to inculcate its ideology. Emotions played a part in small group sessions as well, as people were encouraged to “speak bitterness” (訴苦) and detail the injustices they suffered in front of others. Example topics of discussion included the cruelty suffered by peasants at the hand of landlords and brutal treatment by warlord troops prior to the founding of the PRC (Solomon 1971, 196-201).

As with the Soviets and the Nazis, propagandists under Mao understood how to target their message and how to exploit their propaganda mediums to maximize results. Those handling propaganda in pre-reform Communist China understood that vast swathes of the population were illiterate and tailored their messaging appropriately. Likewise, they understood how to adjust their messaging style in a way that provoke a greater response.

### **Linking Yesterday's Propaganda With Today's Mass Communication Techniques**

Today, the Chinese government continues to take advantage of the features a medium has to offer to enhance its own propaganda. Just as Mao-era propagandists tailored their propaganda to fit the audience and the mediums of their time, so do those government cadres responsible for mass communication today. Chapter 3 will describe how local police departments leverage the various features of the social media platform Sina Weibo to tailor its message to Weibo's overall younger audience. The characteristics that define Weibo also define government cadres' approach to its usage as a tool for the mass dissemination of information. This is readily acknowledged by those involved in training government cadres in how to use Weibo.

For most netizens, going on Weibo is a light-hearted and entertainment-oriented extracurricular activity. They are mostly not willing to expend effort to look for dry documents produced by government organizations. If they are enthusiastic about using Weibo to interact with government accounts, it's only because there's a topic that relates to their regular lives or their personal interests. If a government Weibo account just posts the exact same content as what's posted outside of Party and government offices – just posting government documents and one-sided political achievements – then it may result in “Three No's Weibo” – no followers, no comments, and no forwards.

對於大多數網民來說，上微博是一件很輕鬆、娛樂的業餘消遣，他們大都不願意費心勞神地去博覽一些枯燥的機關文件，他們之所以對參與微博問政抱有很高的熱情，主要也是因為那些事件活問題與自己的現實生活或者切身利益有着一定的關係，如果政務微博的內容跟黨政機關的宣傳窗一樣，單純發布公文，單向宣傳政績，其結果很可能就是成為“三無微博” – 無“粉絲”、無評論、無轉發 (政務微博實用指南 2012, 145)

In other words, without adapting to the needs and desires of the Weibo population, government messaging will fall on deaf ears. I will show in Chapter 3 how local cadres have adopted the

language and methods of communication on the Weibo medium – namely by discussing topics not directly related to government work and adopting informal styles – to serve the government’s ends.

The Internet is simply a new medium that practitioners of mass communication can play with. Social media offers new ways for the regime to communicate with its populace. Two features of Sina Weibo help affect how the regime shapes its messaging on the platform. First, users on Sina Weibo are younger than the overall population (*2017 微博用户发展报告 2017*). Second, posts on social media can combine text with a number of other multimedia, such as emojis. The regime therefore adjusts its message to fit the medium. Chapter 3 shows that government social media accounts have begun to take advantage of these capabilities, using more emojis and internet slang over time. Again, this is consistent with the basic logic of propaganda and mass communication from the past; the Chinese government of today is simply adjusting its mass communication strategy to fit the medium. While the logic underpinning propaganda and mass communication has remained the same, there are features of the new Internet medium that influence government strategy in critical ways.

## **1.2 The Internet and the Attention Economy**

With the arrival of the internet, authoritarian regimes now had another communication medium that they needed to contend with and utilize. The main challenge of the internet is that, in its unfettered form, it democratizes the production and distribution of information. In previous eras, propagandists operated more or less in a few-to-many information propagation model of the world. The authoritarian regime held a near-monopoly on the provision of information via its control over the production of information via propaganda and its control over the distribution of information via censorship. The Internet effectively threatens both, turning what was once a few-to-many mode of information propagation to a many-to-many mode. One book on training

government cadres how to operate Weibo accounts describes the situation thusly, “The situation has gone from a ‘one person speaks for many people to listen’ one-sided transmission of information logic to a ‘everybody speaks for everyone to listen’ model” [“由官方’一人說給多人聽’的單向傳播邏輯，並向’所有人講給所有人聽’的模式轉化”] (政府如何开微博 2011, 29). Before going further into my argument, it is necessary to first discuss the hope supporters of democracy had for the Internet and the role of censorship in information control.

Some initially argued that the Internet and social media would pose unprecedented challenges to autocratic regimes such as China; former President Bill Clinton famously remarked that the Party trying to crack down on the Internet would be “like trying to nail jello to the wall.” Scholars had proposed numerous mechanisms as to how these new technologies could disrupt and destabilize autocratic regimes, arguing that the diversity of actors on the Internet would expose all to new ideas that threatened the regime. This plethora of new information sources created the new many-to-many mode the regime operates in today.

As Shirky (2011) argues, social media facilitates online discussion and coordination, both of which threaten the regime. For one, the Internet can facilitate protest movements. Garrett (2006) provides a fairly comprehensive overview about the myriad mechanisms by which the Internet can promote collective action. As Steinert-Threlkeld (2017) demonstrates, Twitter enabled coordination among peripheral members of the social network in the Middle East and North Africa, converting online coordination to offline protest. The Internet provides a relatively convenient communication channel, which reduces the cost of participation (Rheingold 2000). This in turn helps community formation and perhaps the promotion of a collective identity within that community. In addition to this horizontal communication, the Internet can facilitate the flow of information vertically; information about elite behavior is diffused more easily, potentially aiding in holding leaders accountable. Finally, the Internet, due to its relatively dispersed and decentralized nature, can be more difficult to regulate. The decentralized nature of the Internet meant it was difficult for nondemocratic regimes to fully control the flow of information on-

line, allowing citizens to encounter information that can run counter to the government narrative (Taubman 1998). Rather than coordinating in-person, potential opponents to the regime could meet and coordinate online. While the internet decreases mobilization costs for the citizens, it increases control costs for authoritarian governments;

Other scholars have advanced arguments that pertain to China specifically. Zheng (2007) argues that the Internet is a public and visible space where regular citizens can go and access information with relative ease. Because of this, coordination costs are reduced, thus facilitating social movements offline that can challenge the regime. While Yang (2009) does not outright argue that the Internet leads to democracy, he does argue that the internet does “reveal the democratic aspirations of the common people” (Yang 2009, 12).<sup>7</sup> He argues that the Internet positively interacts with market forces, civil society, and transnationalization to promote online activism that can be targeted against the state. The argument here is that contentious activity boosts Web traffic (market forces); there is a positive feedback loop between civil society and the Internet, where one reinforces the other; and transnationalization – or globalization – increases the scale and intensity of contentious activity. Lei (2011) argues that the Internet has politicized segments of the Chinese population, finding that netizens are more likely to support democracy and be critical of the CCP regime and are also more likely to engage in collective action relative to their peers that only consume traditional media. According to Tong and Lei (2013), microblogging services such as Sina Weibo have made it easier for regular citizens to pressure government authorities into reversing unpopular decisions; indeed, the government is often a target of netizen ire.

Though these studies do not claim that the Internet spells the inevitable doom of autocracy, they are certainly on the more optimistic side in terms of the potentially democratizing effects of the Internet. Many of these optimistic arguments do sound quite compelling. However, the China of today is not a democracy, nor is its Internet free. For all its potential, the Internet is still “just”

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<sup>7</sup>Yang (2009) decries the argument of the Internet leading to democracy as being overly simplistic.

another communication medium. The CCP has found many ways to blunt the democratizing effects that the Internet could have. Tools used in the past by the CCP are still relevant today; the difference lies in their manifestations. Propaganda and censorship have been updated to meet the challenges of the modern era.

### **1.2.1 Censorship**

How China manages and manipulates communication on the Internet via censorship is an active area of research. The Chinese government has put in place an always-on system that provides automated control of content and browsing behavior on the Internet. One form of control that is employed often is keyword filtering. Certain keywords appear to be banned; if a user attempts to post content that contains a banned keyword on certain websites, the post will be blocked. A particularly insidious twist on this is that users are sometimes not notified that their posts have been blocked. Users can see their own posts, but these are made invisible to everyone else. Even if a post makes it through this blocking gauntlet, censors can manually remove the post later (Ng 2013). This is especially visible during incidents that lead to bursts of activity online, as censors scramble to remove posts that contain collective action potential (King, Pan, and Roberts 2013).

Not only is posting behavior censored, but browsing behavior is censored as well. It is well-known that the so-called “Great Firewall” (GFW) employs various technical approaches to blocking certain foreign websites – Google, Facebook, and Twitter to name a few. Getting around these blocks can be fairly straightforward for the somewhat motivated Internet user, as VPNs and other software solutions such as Shadowsocks allow those curious enough about the Internet beyond the wall to get relatively easy access. In fact, Roberts (2018) argues that this is a feature, not a bug, since it allows the small minority of users who care enough about “hopping the wall” (翻牆) to satiate their curiosity while preventing the majority of Chinese netizens from being exposed to much outside information. As Roberts (2018) argues, the amount of

“friction” imposed by the GFW is enough to prevent the general public from seeking out blocked information. Even if Chinese internet users are given the means to access blocked information freely, they generally choose not to do so without further inducements (Chen and Yang 2018).

An interesting feature of the China’s censorship apparatus is that it is in some ways “crowd-sourced.” Foreign technology companies often accede to Chinese demands in order to operate in the Chinese market. Domestic companies are held even more captive. It is often incumbent on the websites and social media platforms themselves to enforce the government’s censorship directives. Because the onus falls on the shoulders of the content providers and hosts, the government has essentially incentivized actors on the Internet to censor themselves. King, Pan, and Roberts (2014) explores the censorship tools available to Chinese social media sites. Those companies that fall afoul of government policy are punished.

A recent example involves Beijing Bytedance Technology (字節跳動), the company behind the popular news app “Today’s Headline” (今日頭條). In April 2018, the company suffered twice at the hands of the government. First, it was punished for “violating social morality” (違法社會道德) and told to remove its vulgar, violent, gory, pornographic, and harmful content and punish those that upload some government. The government also forced the closure of Bytedance’s popular entertainment app “Neihan Duanzi” (內涵段子) for helping distribute improper and vulgar content (“‘內涵段子’ 存在導向不正, 格調低俗等突出問題”).<sup>8</sup> In addition, the “Today’s Headline” app was removed from app stores for 3 weeks.<sup>9</sup> Finally, the CEO ZHANG Yiming (張一鳴) issued a public apology on WeChat – China’s most popular communications app – where he apologized for his company’s failure to understand Xi Jinping’s “four consciousnesses” (四個意識); failure to allow its technology to be led by core socialist values (“技術必須要用社會主義核心價值觀來引導”); and failure to broadcast positive energy (傳播正能量).<sup>10</sup> By parroting these government lines, it appears that Zhang is signaling his loyalty

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<sup>8</sup>“‘內涵段子’ 被永久關停” 2018.

<sup>9</sup>Jing and Dai 2018.

<sup>10</sup>Bandurski 2018.

– or at least his unwillingness to rock the boat. This may perhaps be similar in nature to how government officials signal their loyalty (Shih 2008).

Perhaps one question is, given the dangers social media poses, why does the autocrat not simply cut off all access to social media and leave citizens in the virtual dark? Potential dissidents and others with grievances would find it more costly to share their thoughts and organize collective action if social media were to be blocked. This would restore China to the original few-to-many model of information propagation that it enjoyed in the past.

Part of the issue is that an authoritarian government essentially faces the same “dictator’s dilemma” articulated in Wintrobe (1998), where the dictator faces the competing incentives of needing to know his own popularity while simultaneously suppressing dissent. Social media further complicates this dilemma. On the one hand, a free social media would provide the dictator with virtually unfiltered access to raw public opinion data. According to Egorov, Guriev, and Sonin (2009), a freer media results in a higher quality of government. The key argument presented in Botero, Ponce, and Shleifer (2013) is that a larger number of citizen complaints results in improved accountability and governance. Lorentzen (2014) argues that allowing independent investigative reporting can improve governance by serving as a check on corruption by local officials. Noesselt (2014) argues that microblogs give the regime more information about public opinion and allows the regime to respond to it. This is similar to the argument presented in Chen and Xu (2017), where vertical information flows from citizens to the government aid the government in setting policy in favor of the citizens, thereby reducing the potential for collective action. In other words, there are incentives in place for the regime to allow the existence of the many-to-many communication model. The ability of the Internet to enable information spread – which is what many commentators believed would be its democratizing effect – is what helps the regime stay in power. By abstaining from censoring everything and completely controlling the distribution of information, it is able to leverage the information to strengthen its own rule. On the other hand, a free social media could lead to the problems described above for the autocrat.



How does the autocrat balance these two competing issues? I argue here in this work that they push the balance in their favor by amplifying their own messages online. In dealing with social media, the government basically has two handles by which they can grasp and control social media. The first is information control, where governments control what information can be found on social media. However, on the flip side of information control is information production – what is often referred to as propaganda. Those that argue for the democratizing effects of social media perhaps overlook that social media can also serve as another tool in the authoritarian toolbox (Morozov 2012). While regime opponents could use social media to spread their message, so too can the regime.

The dangers posed by social media are attenuated if the government is able to set the agenda of discussion online. In order to set the agenda, the government must be able to spread its message. This is part of what Perry (2013) refers to as “cultural governance,” whereby the Chinese government utilizes new technology and forms of media to communicate a message and interact with society. In other words, the concept of amplification is key to the government’s vision for managing the internet. The government censors unfavorable information while simultaneously amplifying its own message. This will be further explored in Section 1.2.2.

Overall, censorship is a powerful tool in curtailing information in the authoritarian toolbox. A wide array of technical and legal censorship methods create a chilling effect, leading to what Link (2002) refers to as the “anaconda in the chandelier;” the mere threat of censorship is enough to silence individuals from fully expressing themselves. However, censorship is not the *only* tool in the authoritarian toolbox. The research described above has illuminated the strategic interaction between censors and the online public by elucidating the negative aspect of information control: content removal. This dissertation will instead study the flip-side of the information-control coin: content production and how the Chinese government spreads its message, with a focus on the social media platform Sina Weibo.

## 1.2.2 Government Communication and Attention Competition

To recap the argument up until now, China previously existed in a “few-to-many” mode of information dissemination. Government control over the means of information production meant that Party propaganda dominated the information space. The Party apparatus penetrated deep into society, making it difficult for any other actors to both produce and distribute information that could serve as an alternative to the Party line. However, the rise of the Internet and social media has altered that paradigm.

Before, the regime was essentially the only content producer. However, the network connectivity enabled by the Internet and the ubiquity of smartphones, combined with the growing popularity of “self-media” (自媒體), means that virtually anyone can be a content producer now. Prior to the Internet’s rise, party propaganda was more or less the “only game in town.” While there were of course alternative sources of information before the Internet, these other voices could not compete with the information distributional capabilities of the authoritarian regime. Only the Party had the machinery in place to spread its message far and wide. The Internet has altered this state of the world, however, and now the regime is forced to contend with millions of alternative voices. Government departments now have to compete with everyone else in order to get their message heard. While the government has in place a technically sophisticated censorship regime that could in theory suppress all other voices, it does not apply it wholesale since it is quite interested in what these millions of alternative voices have to say.

What this means is that the government must now compete for the attention of its citizens. While the number of sources of information has experienced a dramatic increase, it is quite unlikely that the attention span of the average citizen has experienced a concomitant increase as well. Those government cadres responsible for mass communication in China have responded to this by mimicking the style and content of discussion on the Internet. The logic underlying this decision is simple and is the same logic that underpins smartphone manufacturers copying Apple’s

iPhone X's "notch" design in 2018;<sup>11</sup> teams around the NBA drawing from the "small ball" and "space-and-pace" offense that the Golden State Warriors – NBA champions in 2015, 2017, and 2018 – implements;<sup>12</sup> and the recent proliferation of battle royale video games.<sup>13</sup> It is rational to copy successful strategies. I had argued in Section 1.1.2 that authoritarian regimes have always tailored their propaganda to the mediums they employ. I argue here that the "many-to-many" nature of government communication in the age of the Internet incentivizes propagandists to adopt the style of their competitors: other social media users. By copying the language of social media, the Party is attempting to have its message compete with the other sources of information on social media. This results in what Lagerkvist (2008) calls "ideotainment."

Copying other social media users' styles is not the only strategy however. Another strategy takes advantage of the relative anonymity that the Internet and social media can afford its users. Even on platforms that have so-called "real-name" policies, where users must register using their real names, accounts can remain anonymous as seen by other accounts. On Sina Weibo, posts are accompanied by the number of times the post was forwarded, the number of comments on the post, and how many "likes" the post received. Unless the user specifically looks for it, there is no indication of which users are interacting with the post. Government accounts can take advantage of this fact and interact with each other's posts, "artificially inflating" the numbers. Nevertheless, if a user is willing to click through, they would be able to identify the official government accounts interacting with each other's posts. Government accounts, however, can also purchase "artificial interactions." One can purchase forwards, comments, and likes from online vendors who control a stable of accounts that can be used to boost the numbers for users that solicit their services.

There are three potential reasons for doing this. First, social media rewards popular topics and posts. Were the government to purchase fake interactions in sufficient numbers, it will

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<sup>11</sup>Byford 2018.

<sup>12</sup>Lazenby 2015.

<sup>13</sup>Grubb 2018.

increase the likelihood that social media algorithms will promote the post in search rankings.<sup>14</sup> Another reason is that the usage of these fake interactions can serve as a signaling mechanism. I had briefly described in Section 1.1.1 how propaganda can be used to signal regime strength. The type of signaling used here is similar in nature, yet slightly different. The final reason, which is explored later in Section 2.4, is to satisfy bureaucratic requirements. Local governments are rewarded by upper levels of government if their social media posts receive more interaction in the form of forwards, likes, and comments. Fake forwards, therefore, also serve the role of satisfying bureaucratic demands.

The democratized nature of social media means that anyone can purchase fake interactions, so the usage of fake accounts by the state would not signal any overwhelming power. Instead, the usage of fake interactions on social media is more similar, in some sense, to the implementation of elections in authoritarian polities. The role of elections in authoritarian regimes has been extensively studied. One of the proposed reasons for using electoral fraud to overwhelmingly win elections is to signal to potential opponents that the regime is popular (Gandhi and Lust-Okar 2009; Simpson 2013). Remember that unless a user decides to investigate, by default they would only see how many times posts were forwarded or liked. If fake accounts are employed, these numbers will be inflated, and government posts may appear more popular than they truly are. Even if the netizen knows that some proportion of the forwards and likes are fake, the netizen does not know the magnitude of the deception. The netizen could investigate every like and forward, but that would mean digging through an unwieldy number of accounts. If the netizen were actually willing to go through all of them, they still might not be able to distinguish real from fake accounts. Fake accounts put enough efforts into their posts, they could be nigh indistinguishable from true supporters of the regime or members of the “voluntary fifty-cent army” (自帶乾糧的五毛).<sup>15</sup> The result is that citizens are left unaware of the true extent of support

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<sup>14</sup>Note that users can also just work with Weibo directly if they want to increase post viewership. Users can pay Weibo to have their posts promoted to the top of the feed of their followers – or even to users that do not follow the account. Users can also pay to have terms appear in the most popular search terms.

<sup>15</sup>For more on the voluntary fifty-cent army see Han (2015a).

or opposition to the regime. Chapter 4 will describe how many of the forwards on government posts fall into this category.

The overall goal is to amplify the government message online. Aping the language commonly used by netizens and using police-affiliated accounts are all efforts targeted towards disseminating information far and wide across the Internet. An interview with a local police department showed in China in June 2017 that one of the greatest concerns for the government is making sure that information put out by the government is actually heard by citizens. The tactics employed described above are part of the government's larger strategy for amplifying their message. If the message is not amplified, and therefore does not spread, then local governments will be incapable of guiding public opinion, one of the key functions of government Weibo accounts.<sup>16</sup>

To sum up, the government has two strategies in amplifying its message. The first is that it adjusts the delivery of the message to make it more palatable for its audience, depending on the audience and the medium. The other strategy is to have other government accounts or paid accounts amplify its message. I argue in Chapter 5 that resource-poor are more likely to rely on other accounts than learn to adapt. While the general trend of government messaging and communication has been to adapt to its environment, this strategy is not available to everyone. By studying how governments communicate with netizens at the local level, I am able to elucidate the heterogeneity of how new communication technologies are used by an authoritarian regime such as China.

## **Inequality**

Previous studies on propaganda and mass communication have tended to treat them at the national level in an almost uniform manner. To be fair, this study mainly does the same thing, but Chapter 5 discusses how government communication differs among China's various prefectures.

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<sup>16</sup>The goals of government Weibo accounts will be explored further in Section 2.3.

We find that some prefectures exhibit greater reliance on fake forwards than others, with the primary differentiator being the resources a prefecture has at its disposal. The implications of this could potentially be far-reaching.

For one, the differences in reliance on fake forwards maps onto existing inequality between localities. Poorer prefectures are more likely to rely more on purchased accounts to spread their posts, while richer prefectures are less likely, meaning that poorer prefectures are less capable of communicating with their denizens. This may exacerbate existing inequalities.

### **1.2.3 Contributions**

The contribution of this dissertation is twofold. First, this dissertation quantifies the adaptation of Chinese local governments to social media environments. This is not the first study to notice that government organs have been adjusting their behavior on social media or in other outlets, nor is it the first to quantify the content of government social media accounts. However, as far as I am aware, no other study has the same scope and scale as this project. Other studies on Chinese government social media accounts tend to focus on a single or a small handful of accounts; the data in this dissertation comes from more than 100 police social media accounts from nearly every province in China. In addition, the literature, understandably, has focused on propaganda bureaus or media outlets in China. This study, on the other hand, focuses on the communication and messaging efforts of a government bureau whose sole purpose is not the propagation and dissemination of information. The dissertation illuminates how these non-propaganda government branches are still active in communicating the government message.

## **1.3 Data**

The major source of data analyzed in this dissertation comes from prefectural-level police posts made on the Chinese social media platform Sina Weibo. Section 1.3.1 describes my ratio-

nale for studying police behavior on social media. Section 1.3.2 describes my rationale for using forwards as the main metric throughout this dissertation. Section 1.3.3 describes the sampling procedure used to procure the data.

### **1.3.1 Why Police**

The police as an institution represent both the “hard” and front lines of authoritarianism. The coercive aspects of authoritarianism that citizens ostensibly find the most unpalatable manifest themselves most visibly through the police. Unlike democracies, security forces in more dictatorial regimes are generally not subject to legislative or judicial oversight and are the direct agent of the dictator or ruling elite; operate under a broader definition of what constitutes a crime; and are less circumscribed in terms of the tactics that can be deployed (Gregory 2009).

The Ministry of Public security (公安部/MPS) is the primary police organization in China. Historically, it has had departments that handle intelligence, police operations, prison administration, political and economic security, and communications security (Guo 2012). The police in China are responsible for monitoring internet users, managing the family registration system (户口), spying on political dissidents, monitoring unrest, and handling protests (Wang 2014). During protests, police will identify protestors’ relatives and friends, exerting pressure on them to persuade the protestors to give up (Light, Mota Prado, and Wang 2015). While the MPS is technically part of the government, it has always operated under the purview of the Chinese Communist Party (CCP) (Guo 2012). If the police are incapable of achieving its internal security mission, it will have knock-on effects for Chinese policy elsewhere:

The Party-state’s capacity to successfully carry out its internal security mission by relying overwhelmingly upon its civilian and paramilitary security organs – with only limited support from the PLA – is critical to freeing the PLA to reform its overwhelming historical orientation toward ground forces, and allow it to modernize and concentrate its resources and capacity on mastering its Taiwan mission as well as its other largely externally-oriented mission. Thus [...] any sign that the Beijing leadership believes its civilian and paramilitary forces are unable to carry out their

internal security missions without significant support from the regular PLA [...] has important ramifications for the army's other missions. (Tanner 2009, 40-41)

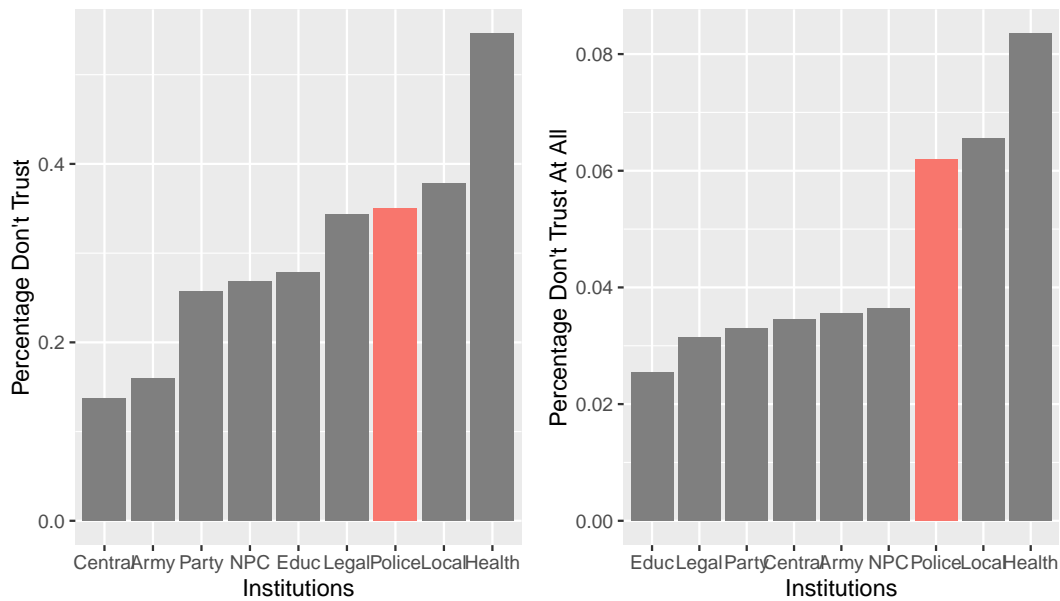
The actual work of police in maintaining public security is important on its own. Some scholars note the argument that China's police force has historically relied on close relationships with residents with the expectation that they know all residents personally (Guo 2012). Tanner (2009) argues that China's police force has a relatively low ratio of police officers to citizens, necessitating cooperation between both groups to maintain social order and stability. However, police work in China sometimes relies on "strike-hard" (嚴打) campaigns, which are characterized by heightened police activity, numerous arrests, and, at least in the past, liberal application of the death penalty. These campaigns can have deleterious effects on public opinion, potentially creating a general sense of trepidation among citizens and generating backlash against the police and the state (Tanner 2005).

The Chinese citizenry are concerned with police officers who have reputations for beating suspects, taking bribes, and committing other illegal acts (Scoggins and O'Brien 2016). The litany of accusations levied at the police include using power for personal gain (以權謀私), having a lack of regard for human life (草菅人命), conspiring to engage in crime (訊辦滋事), engaging in crime (□非作歹), perpretrating fraud (弄虛作假), having poor attitudes (態度惡劣), engaging in personal corruption (生活腐化), and interrogation by torture (刑訊逼供), (Wong 2004). Torture practices used by the Chinese police include beatings with electric batons and hammers; spraying chili oil into suspects' nose and genitalia; exposure to sustained cold; blinding lights; sustained periods of being suspended by the wrists or being strapped to an iron chair; and food, water, and sleep deprivation (Barriga et al. 2015). There are also high-profile issues where suspects die under mysterious circumstances while under the care of the police. A recent case that drew widespread interest and condemnation in China is the death of Lei Yang, an environmental activist, while in police custody (Tatlow 2016).

Despite this, some scholars argue that Chinese trust in police is overall positive. For



example, Wu and Sun (2009) use survey data from the 2006 Asian Barometer to argue that trust of police in China is overall positive, though perhaps lower than trust in the police in the United States. However, using the data from the same 2006 Asian Barometer, the left half of Figure 1.1 shows that levels of distrust – measured as the percentage of respondents that either responded “Don’t Really Trust” or “Don’t trust at all” – in the police are actually relatively high compared to other state institutions, with levels of distrust in the police more than double the levels of distrust in the central government and the army. The differences are even more stark when comparing only the percentage of respondents that did not trust the police at all versus other state institutions in the right half of Figure 1.1.



**Figure 1.1:** Distrust in Institutions

Perhaps because of these issues, police departments have been among the most active on Weibo. In the 2011 annual rankings of government Weibo accounts by the People’s Daily Online “Media Opinion Monitoring Office,” four police accounts were ranked in the top ten of all government Weibo accounts in China, far outstripping other government departments, including Information and Propaganda departments.<sup>17</sup> This includes the number one spot, which Beijing’s

<sup>17</sup>More details about these annual rankings can be found in Section 2.4

police Weibo account held (刘 2011). In 2016, six of the top ten government accounts were police accounts (*2016 Government Weibo Influence Report [2016 年人民日报政务指数微博影响力报告]* 2017).<sup>18</sup> Throughout the years, police Weibo accounts, overall, have been among the most active of all government Weibo accounts.

I argue here that the police are an example of state institution that potentially has the most to gain from effective propaganda. In general, it is in the interest of police organizations to shape people's perception of them. These perceptions are often shaped by third parties. Chermak and Weiss (2005) discusses how police organizations work with the media to propagate information. Dowler and Zawilski (2007) argue that perceptions of the police are influenced by the type of media they consume. Police can also engage with the public directly. This is the case here, with the Public Security Bureau Weibo accounts. Hohl, Bradford, and Stanko (2010) argue that dissemination of police newsletters led to greater confidence in the police. With the advent of the Internet and social media platforms, the police have found it easier to engage with the public directly (Heverin and Zach 2010). As one Chinese scholar puts it, police propaganda can potentially familiarize citizens with police work, policies, and organizations; allow the masses to gain a better understanding of the law; gives the police to bring certain problems, and how they are solving said problems, to the forefront of public attention; and reduces the metaphorical distance between citizen and state, facilitating cooperation between the two (陈 2008). The fact that the police are the main coercive apparatus of the authoritarian Chinese state, coupled with its scandals and citizens' relatively lower levels of trust in them, means that the police are an institution of interest when it comes to studying the effectiveness of propaganda.

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<sup>18</sup>In 2017, they stopped ranking all government Weibo accounts overall, only ranking the top ten national level accounts or by sub-category. Despite this, police accounts still occupy three of the top ten (*2017 年年度人民日报政务指数微博影响力报告* 2018).

### 1.3.2 Why Forwards

Throughout this dissertation, the number of forwards a post receives will be the standard metric used to measure the spread of a post. While conducting fieldwork in China, I asked a local police department what their goals were in operating a Weibo account; they replied that one of the most important goals of the Weibo account was to have their message spread throughout social media. Forwards – equivalent to retweets on Twitter – are one of the most direct ways to measure the propagation of a post. Suppose there are two social media users Bill and Andrew. If Bill comes across a post made by Andrew and decides to forward it, all of Bill’s followers will see Andrew’s original post, even though Bill’s followers may not necessarily follow Andrew. If Connie follows Bill but not Andrew, she will still see Andrew’s original post. If Connie elects to forward Andrew’s original post, then all of Connie’s followers will see Andrew’s posts as well, even if Connie and her followers do not follow Andrew. It is in this way that an information cascade can occur. A chain of forwards can allow a social media user’s message to spread widely beyond the original poster’s immediate social network. On Twitter, spreading tweets to new audiences is one of the major motivations for users to retweet at all (Boyd, Golder, and Lotan 2010). This type of information cascade is what the police are interested in when they post on social media.

Forwards, or their platform-specific equivalent, are a common metric to use for computer scientists and others that study the diffusion of information on Weibo-like social media platforms such as Twitter (Lerman and Ghosh 2010; Stieglitz and Dang-Xuan 2013; Huang and Sun 2014; Morales et al. 2014; Zhao et al. 2015). Bhattacharya and Ram (2012) uses retweets to measure the spread of news stories from different sources on Twitter. Hui et al. (2012) and Yoo et al. (2016) uses retweets to show the spread of warning messages during a disaster. Starbird and Palen (2012) shows the propagation of information and memes using retweets on Twitter during the 2011 Egyptian uprising. Zhou et al. (2010) uses retweets to measure the spread of information in protests after the 2009 Iranian presidential elections. In terms of Weibo specifi-

cally, Yu, Asur, and Huberman (2012) find that forwards on Weibo are far more important than retweets on Twitter are for creating persistent trends and having information spread. Forwards or retweets are the natural measure of information propagation, since the purpose of forwarding and retweeting is to propagate a message to a social media user's followers.

Not only do forwards play a crucial role in generating information cascades, they affect network structure. In the literature on Twitter, retweets are found to help generate new followers, generally through a mechanism called triadic closures. Consider the example above, where Bill forwards one of Andrew's posts and Connie, who follows Bill but not Andrew, sees Andrew's post. Before, Connie may have never heard of Andrew or seen his posts before. However, she may find that Andrew posts interesting content and decides to follow Andrew in addition to following Bill, thus generating a triadic closure. Using data from a social microblogging platform called *Yahoo! Meme*, Weng et al. (2013) find that triadic closures are a common mechanism in social network link creation and that users who follow other users based on the information they see act as spreaders of information across the network. On Twitter, Myers and Leskovec (2014) find that a burst of retweets tend to be followed by a burst in new followers. Similarly, Farajtabar et al. (2015) find on Twitter that retweet intensities tend to co-occur with link creation – new followers for social media users. This phenomenon is not limited to just Western social media platforms. In their study on link prediction on Sina Weibo, the same platform utilized in this dissertation, Li et al. (2016) find that including features based on the forwards of posts, improves link prediction. Generating more followers via forwards and triadic closures should be of interest of the police, whose goal in operating social media accounts is to have their information spread. More followers means a larger audience for what the police have to say. In addition, police are rewarded for having more followers for their Weibo account.<sup>19</sup>

There are potentially other ways that information can spread. For example, other studies have used hashtags as a measure of information diffusion (Yang and Leskovec 2010; Romero,

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<sup>19</sup>See Section 2.4 for more details.

Meeder, and Kleinberg 2011; Lehmann et al. 2012; Bruns and Burgess 2015). In his work, Steinert-Threlkeld (2017) uses hashtags as a measure of coordination to argue that greater coordination among the periphery of social media users – rather than the core – led to greater protest during the Arab Spring. I will argue here that using forwards as the main metric is preferable to using hashtags. Unlike Steinert-Threlkeld (2017), this study is mainly concerned with the spread of information online, not offline coordination. In neither public statements nor personal interviews by the author with local police departments have local Chinese police demonstrated an interest or desire to use social media to coordinate people; they are mainly concerned with using social media to spread their message. In addition, some might be concerned that forwards are only shown to the immediate network of the police department making the post. The literature cited previously in this section demonstrate that this is not the case. Posts can be found via Weibo’s search function, and posts with a greater number of forwards are rewarded by being placed closer to the top of search results. In fact, Zhou et al. (2010) estimate that at least 37% of retweets of tweets related to the 2009 Iranian presidential election came from public posts or the public timeline, rather than from accounts that users were following directly.

To summarize, forwards are chosen because they best represent the spread of information, a metric that police social media accounts are interested in. Forwards create the possibility of information cascades and increase the likelihood of expanding the police departments’ audiences. A chain of forwards can increase the reach of police messages far beyond its immediate follower network and bring more followers into the fold.

### **1.3.3 Collection**

I first obtained a list of every prefecture in China. I then manually went through the list of prefectures to see which had opened police accounts on Weibo by searching for the prefecture name alone, limiting search results to verified users, and checking to see if police accounts for that prefecture were included in the search results. For inclusion in the dataset, the account must

have met the following criteria:

1. The account is “officially” verified. Like Twitter, Weibo offers a verification system for accounts to prove that they are who they claim to be. Unlike Twitter, there are two types of verification: individual (微博個人認證) and official (微博官方認證). Official verification is offered to organizations, while individual verification is offered to individual users. Only those accounts that went through the process of obtaining the official verification were included. This meant excluding a small handful of accounts that claimed to represent a certain prefecture but did not go through the verification process.
2. The account represents the entire police force of that prefecture. Oftentimes, a single prefecture will have multiple police accounts, each one representing a specific branch of the local Public Security Bureau. For example, prefectures often have separate accounts for the traffic police (交警) or SWAT teams (特勤). These were not included in the dataset. If a prefecture had accounts for specific branches but no general police account, this prefecture would not be included in the dataset. This was a rare occurrence.

This resulted in a list of nearly 320 prefectural police accounts representing 32 provinces.<sup>20</sup> I then collected every post made by the police account from its inception until the end of 2016, resulting in the collection of around 3.8 million prefectural police posts. These posts were forwarded more than 66 million times in total.

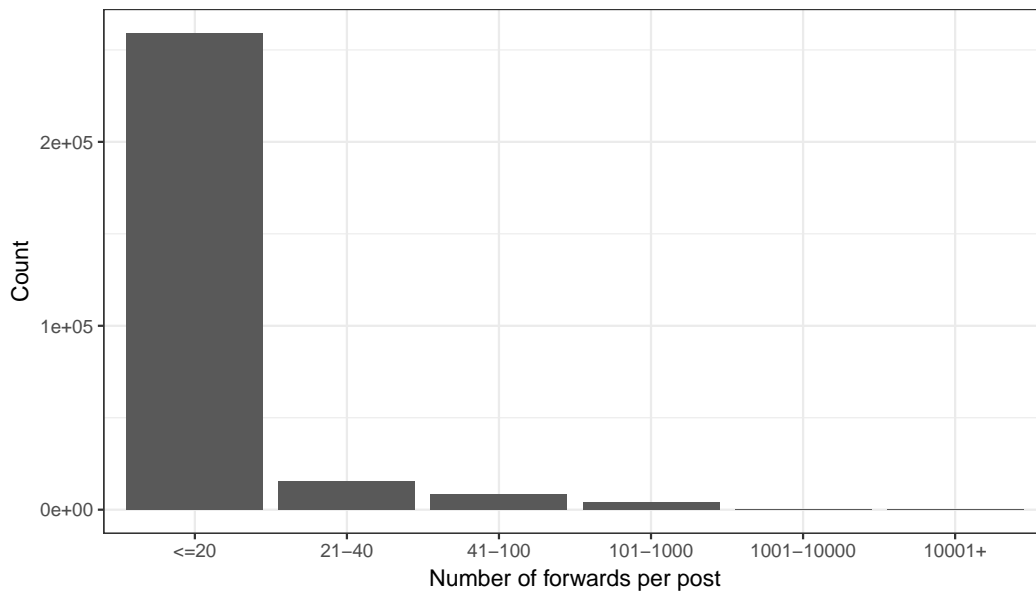
To determine whether these forwards came from another police account, I would need to collect the forward itself. Unfortunately, I did not have the time to collect all 66 million forwards. Instead, I collect a random sample of all prefectural public security accounts, a random sample of all posts made by the previously sampled prefectural public security accounts, and a random sample of forwards made on the randomly sampled posts. This resulted in roughly 280,000 posts made by prefectural-level police accounts.

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<sup>20</sup>The number 32 includes the 4 special municipalities (直轄市) in China, which are “cities” that hold provincial rank. They are Beijing, Tianjin, Shanghai, and Chongqing.

First, 10% of posts with at least 1 retweet were randomly selected to be in the dataset. This resulted in roughly 280,000 posts made by prefectural-level police accounts. The next task was to collect the forwards. Weibo organizes forwards into pages of around 20 forwards per page. Therefore, sampling at this stage was at the page level rather than the individual forward level. The goal at this point was to sample at least 10% of pages for each post. The number of pages to sample was determined simply by taking 10% of the total number of pages, rounding up to the nearest integer, and adding 1.<sup>21</sup> This means that generally, more than 10% of retweets are collected.<sup>22</sup> This sampling strategy led to the collection of approximately 2.2 million forwards (out of a total of 3.9 million forwards) made by around 850,000 unique users.

While the page sampling strategy targets a little over 10% of pages, more than 10% of total retweets are collected. Note that this sampling strategy leads to the entire population of forwards being collected if there are 40 or fewer forwards (2 pages of forwards or less) on a post.



**Figure 1.2:** Forwards per Post

Figure 1.2 shows the distribution of forwards on the collected 280,000 police posts with at

<sup>21</sup>  $\text{sampledpages} = \lceil 0.1 \times \text{totalpages} \rceil + 1$

<sup>22</sup> For example, if a post has 2-10 pages of forwards, 2 pages are collected; if a post has 11-20 pages of forwards, 3 pages are collected, and so on.

least 1 forward. The vast majority of posts that contain forwards contain 1-40 forwards, meaning that much more than 10% of forwards are collected.

To classify forwards as coming from fake accounts or not, I also needed to collect the user information of accounts as well as a sample of their recent posts. I therefore collected the user information a random sample of roughly 600,000 accounts. In addition to their profile pages, I also collected a sample of their recent posts – usually anywhere from roughly two to twenty posts.<sup>23</sup>

## **1.4 Layout of the Dissertation**

Chapter 2 provides context for the relationship between the Sina Weibo social media platform and the Chinese government and seeks to provide an answer for why the Chinese government was interested in creating and operating Weibo accounts in the first place. It begins by providing a brief history of how Chinese government departments first came to open Weibo accounts. It then goes on to describe the motivation for government departments to open their own Weibo accounts, explaining how the government became concerned about the ability of information to spread rapidly on Weibo and the democratization of information production induced by the Internet and social media. Government goals in regards to Weibo – mainly maintaining social stability and guiding public opinion – are then discussed. The chapter concludes with a description of the various bureaucratic incentives local governments and cadres have to operate a Weibo account.

After local governments establish Weibo accounts, have they adjusted their communication and posting techniques? If so, do these changes actually result in greater engagement? The goal of Chapter 3 is to answer these questions. In this chapter, police posts are disaggregated among two dimensions: style and content. Chapter 3 shows that police social media posts are

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<sup>23</sup>When one goes to an account's feed, it will display some of the account's recent posts. This is where the sample of posts comes from.



becoming both “softer” in style and less oriented towards police topics over time. Overall, police posts have become more likely to use emojis and internet slang while also beginning to post more about non-police topics over time. Posts that have a softer style or are about non-police topics receive on average more forwards than posts that are more formal or are about police business. There is mixed evidence on whether these softer posts have spillover effects on non-soft posts.

One of the difficulties in measuring engagement is the presence of government-affiliated accounts. What appears to be organic engagement may just be government accounts interacting with other government-affiliated accounts. The situation becomes even murkier when one accounts for the presence of government-affiliated accounts who hide their affiliation. Chapter 4 seeks to quantify and describe the nature of these government-affiliated accounts and their engagement with local police accounts. First, I identify police accounts by username, and I then identify “fake” accounts – police-affiliated accounts that hide their affiliation – using standard machine learning techniques. I estimate that roughly 40% of all forwards of police posts come from either other police accounts or fake accounts. Police accounts that forward other police posts tend to be lower-level – administratively – police bureaus from the same province as the police account they are forwarding. They are also more likely to forward police content rather than non-police content. Fake accounts, on the other hand, do not appear to be associated with certain topics. There appears to be little coordination in applying fake forwards and police forwards.

The previous two chapters showed two strategies that local governments used to adapt mass communication techniques to the Sina Weibo social media platform. Chapter 5 explores which prefectural police departments choose which strategy. I show that poorer prefectures are more likely to rely on fake forwards than richer prefectures. This chapter shows some of the general price disparities between training a cadre and employing fake forwards and likes. In fact richer prefectures are more likely to have more active social media accounts in general, making more posts that are not just forwards, more posts with emojis, and more posts with pictures.

The dissertation concludes with Chapter 6, which discusses some of the implications of this research on the prospects for personalized propaganda and mechanisms behind hierarchical trust. Future avenues for research are explored, which will hopefully be helpful to scholars that would be interested in this general line of research.

## **Chapter 2**

# **Sina Weibo and the Chinese Government**

Sina Weibo is often referred to as the equivalent of Twitter in China, where Twitter has been blocked since 2009. Any user with access to the Internet can create a Weibo account for free and post their own content. In addition, unlike a social media platform such as Facebook, Twitter and Weibo allow for one-sided connections between users. On a platform like Facebook, user A sends a friend request to user B; it is only if user B accepts the friend request that user A becomes connected to user B. On Weibo, however, user A can follow user B without user B also following user A, meaning that a single user can amass an extremely large following very quickly. This is of tremendous concern to the Chinese government. Section 2.1 describes how two mass incidents involving social media – the Wenzhou train crash and the Arab Spring – alerted the government to the potentially destabilizing effects of social media. The Wenzhou train crash in particular demonstrated how powerful Weibo could be in spreading anti-government sentiment. Because of this, the Chinese government now views Weibo as a useful tool in guiding public opinion and promoting a positive image of the government and the Party, which is discussed in Sections 2.2 and 2.3. As revealed by the codification of Weibo account operations into cadre and local government evaluation systems, discussed in Section 2.4, the government is serious about including Weibo as a tool of mass communication.

## 2.1 History

The following mainly comes from Tan[譚] (2014). The rise of Sina Weibo was preceded by what is sometimes referred to as “self-media” (自媒體), which includes communication mediums such as instant messaging, online forums, and blogs. Twitter was created in 2006, and Chinese microblog services modeled on Twitter – such as Fanfou (飯否), Digu (嘀咕), and others – followed in its wake. However, one of the microblog services with the greatest staying power is Sina Weibo (新浪微博) (Tan[譚] 2014).

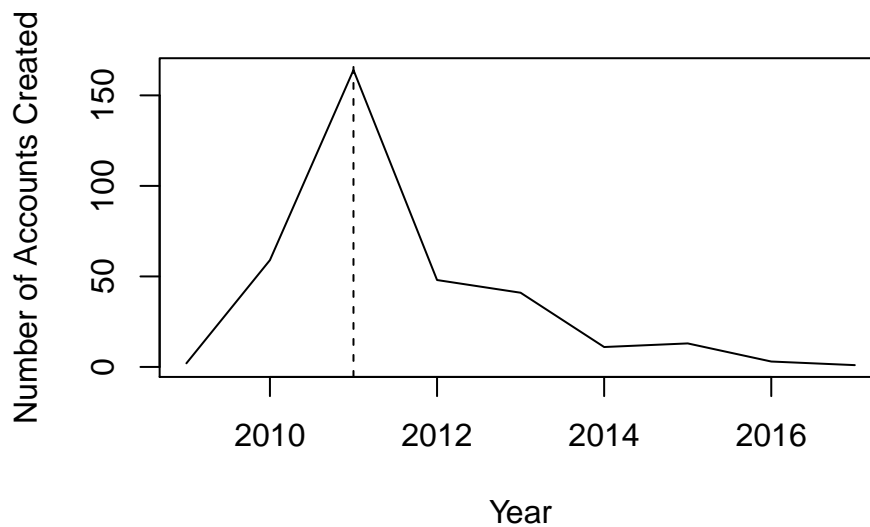
Sina Weibo was released in August 2009, and one of the the first government Weibo accounts – the Yunnan Information Office-ministered (雲南省政府新聞辦) Weibo Yunnan (微博雲南) – was registered in November 2009 after the Luosiwan (螺螄灣) incident in Kunming (昆明) (Tan[譚] 2014). This incident is most likely referring to the demolition of the Luosiwan wholesale market and the refusal of a number of vendors to leave (史 and 趙 2009). According to Tan[譚] (2014), the acting deputy minister of Yunnan’s provincial propaganda department was motivated by the Luosiwan incident to open China’s first government Weibo account.<sup>1</sup> In the beginning, it seemed that some local governments did not take their Weibo accounts all that seriously. For example, local governments are often encouraged to use their Weibo accounts to follow other relevant government accounts or public opinion leaders. However, the Weibo account run by the police in Dalian’s Xigang district (大連市公安局西崗分局) followed only one other account, that of a Japanese adult film actress.

Figure 2.1 shows the number of prefectural police Weibo accounts created by year. We can see that there is a sharp increase in the year 2011. There are two possible drivers for this burst: the 2011 Wenzhou train crash and the Arab Spring. According to Tan[譚] (2014), the major impetus for change among government Weibo accounts was the 2011 Wenzhou train crash.

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<sup>1</sup>Prior to the Luosiwan incident was another incident that also occurred in Yunnan in the same year known as the “hide-and-seeK” incident (躲貓貓事件), where a man in police custody died from brain injuries supposedly while playing a particularly vigorous game of hide-and-seeK with other inmates (Schott 2009). It is possible that this incident played a role as well.

On July 23, 2011, two high-speed trains collided near Wenzhou, resulting in around 40 deaths and 200 injuries and leading to an outpouring of criticism of the government on Weibo (Chin 2011). 政务微博实用指南 (2012) claims that there were more than 300 million posts about the incident on Sina Weibo within a week of the crash. One retrospective compared the handling of the Wenzhou train crash with that of another more serious train crash – in terms of death toll and injuries – that occurred in 2008. (政务微博实用指南 2012). While both incidents were about a similar accident and were handled in similar ways, the reaction to the handling of the Wenzhou train crash was far more vitriolic. 政务微博实用指南 (2012) concludes that difference could be attributed mainly to changes in the media environment and the rise of Weibo.



**Figure 2.1:** Police Account Creation Over Time

Another potential stimulus was the Arab Spring. One book published by the Central Party School Publishing House discusses the role of social media technologies like Facebook and Twitter in bringing down regimes in Tunisia and Egypt, saying that these new technologies promoted a narrative that clearly differed from official government rhetoric and were a key force in the mobilization of grassroots activists (政府如何开微博 2011). 政府如何开微博 (2011) concludes

at the end of its section on the Arab Spring that the government needs to be cognizant of the potential effects that social media has on social control (社會治理) and national security. These two incidents may explain the spike in police account creation in 2011 as shown in Figure 2.1.

Interestingly, according to remarks made by HUANG Ming (黃明), former Vice Minister of the Ministry of Public Security, police Weibo accounts can perhaps trace their roots to an earlier national conference on social management innovation work [全國公安機關社會管理創新工作座談會], held in Guangdong province from June 26-29, 2010 (黃 2012). It is perhaps significant that the conference was held in Guangdong province. Prefectural police in Guangdong are among the earliest adopters of Sina Weibo. In the dataset used in this dissertation, only one prefectural police bureau creates a Sina Weibo account before Guangdong prefectures: Wenzhou in Zhejiang province.<sup>2</sup> Virtually all of Guangdong's prefectures create Sina Weibo accounts in March and April of 2010, with a majority of them being created on April 29 and April 30. The then-Minister of Public Security MENG Jianzhu (孟建柱) called for the usage of information technology methods to implement social management innovation and raise the efficiency of social management service; and to respect and encourage grassroots innovation, using the results of grassroots innovation to push social management innovation [“要善於運用信息科技手段推進社會管理創新，提升社會管理服務效能；要珍重鼓勵基層創新，用基層創新成果推動社會管理創新”] (周 2010). In a national meeting for China's provincial and prefectural public security department heads [全國公安廳局長會議] held on December 20, 2010 in Beijing, Meng specifically called for public security organizations to use Weibo to set up platforms where police can interact with citizens and communicate with them (唐 2010).

After the June 2010 conference, many public security leaders remarked on the importance of Weibo to public security work. For example, the vice-head of Guangdong's public security department [廣東省公安廳廳長], LIANG Weifa [梁偉發] said that using and familiarizing

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<sup>2</sup>Some references to police Weibo accounts claim that Zhaoqing [肇慶] prefecture in Guangdong province created the first police Weibo account on February 25, 2010. For example, see 政府如何开微博 (2011, 122). However, if one checks the police Weibo account for Wenzhou, one can see that their first post is made on November 26, 2009.

themselves with Weibo would allow the province's public security organizations to seize the commanding heights and firmly grasp the initiative [“認識微博、應用微博，才能成功搶佔制高點，牢牢把握主動權”] (廣東省公安廳 2012, 74). The vice-head of Anhui's public security department, XU Liquan [徐立全], said that the usage of Weibo by public security organizations would not only serve the development of the economy and society and protect social stability, it would also contribute to harmonious police-citizen relations [“公安機關主動開通微博，不僅是服務經濟社會發展、維護社會穩定的需要，更是新時期擴展警民交流渠道、創新社會管理、構建和諧警民關係的必然選擇”] (安徽省公安廳 2012, 54).

A conference on the implementation and prospects for police Weibo accounts [公安微博: 實踐與前景] was held on September 25-26, 2011. Representatives from various provincial and prefectural public security departments came together to discuss their social media accounts and share experiences. In his remarks to attendees, then-Vice Minister of Public Security HUANG Ming that police Weibo accounts are an innovative adaptation to the needs of the developing times (黃 2012). Representatives from Hubei mentioned that in this “Weibo era,” “everyone has a microphone” [“人人有麥克風”] (湖北省公安廳 2012). In other words, anyone can produce their own content that can be amplified to reach out across social media.

National-level government organs beyond public security began to make more pronouncements on the use of Weibo. In October of 2011, the Central Committee issued the “Decision of the CPC Central Committee on Major Issues Pertaining to Deepening Reform of the Cultural System and Promoting the Great Development and Flouring [sic] of Social Culture” (中共中央關於深化文化體制改革推動社會主義文化大發展大繁榮若干重大問題的決定), saying that the government's “ability to guide public opinion needs to be improved, and Internet development and supervision urgently needs to be strengthened and reformed” (輿論引導能力需要提高，網絡建設和管理亟待加強和改進) (“Decision of the CPC Central Committee on Major Issues Pertaining to Deepening Reform of the Cultural System and Promoting the Great Development and Flouring of Social Culture” 2011). In November, the director of the State In-

ternet Information Office (國家互聯網信息辦主任) Wang Chen (王晨) penned an article in the *People's Daily* (人民日報) saying,

[The government must] use new platforms, actively carrying out public opinion channeling work through microblogs [...] [The government hopes] that various regions and various units will actively put microblogging [technology] to use, maintaining closeness to the truth, closeness to life and closeness to the masses, releasing more healthy and beneficial new content, revealing more fully a positive new [climate of] prevailing practices [on social media], reflecting more fully the new gesture of protecting the people's fundamental interests, further raising the capacity for public opinion channeling and response [to sudden-breaking incidents and news stories], better serving economic reform and opening and modernization [...] [The government must] build internet civilization through microblogs [...] Strengthening the use and management of microblogs and other new media, promoting the building of internet culture, is a pressing demand in the strengthening of the building of the governing capacity of the Party and the government in the new era (Bandurski 2011; 王 2011).

Other government officials began to proclaim the importance of Weibo and having the government assert itself in the online space. For example, in August of 2012, the Vice Procurator-General of the Supreme People's Procurate (最高人民檢察院黨組副書記) Hu Zejun (胡澤君) declared at the 10th National Prosecutors Forum (十屆全國檢察長論壇) that new media forms (新興媒體) should be respected and that the commanding heights of information distribution should be seized (搶佔信息發佈的“制高點”) (2012 年新浪政務微博報告 2012). In 2013, the State Council issued the “Suggestions on Improving Government Information Dissemination and Government Credibility in Response to Social Concerns” (關於進一步加強政府信息公開回應社會關切提升政府公信力的意見), which called on the ministries and local governments to open their own Weibo accounts to improve information dissemination and promote interactions between the government and the people and to draft relevant regulations regarding information dissemination and the handling of inquiries from the public. This is echoed in the State Council's 2014 Key Points for Government Information Transparency (2014 年政府信息公開工作要點) and its 2016 Implementing Regulations for the “Suggestions on Promoting Government Work



Transparency” (《關於全面推進政務公開工作的意見》實施細則). These Weibo accounts also figure into China’s Internet+Government (互聯網 + 政務) plan.

## 2.2 Government Concerns About Weibo

微时代危处理 (2011) describes some of the characteristics of Weibo that interests the Chinese government. Perhaps the most important is the speed at which information can spread on Weibo, with regular citizens being capable of breaking a story before a reporter. The ubiquity of smartphones in China means that potentially anyone can become a source of news. In the eyes of the government, these “citizen reporters” (公民記者) are problematic because they are neither trained nor socialized as journalists (政府如何开微博 2011). Put another way, they can present a narrative that differs from the government line, the same problem that was attributed to the role of social media during the Arab Spring. The rise of these potential citizen reporters created an unprecedented challenge to the Party’s and government’s narrative (“在微時代，隨着過億微博用戶群體和衆多微博紅人的崛起，黨政部門的話語權面臨着前所未有的挑戰”) (政务微博实用指南 2012, 6).

The nature of relationships between accounts also facilitates the potentially rapid spread of information on Weibo. On social media sites like Weibo, one does not require an account’s permission to follow it, allowing a chain of accounts to link up with virtually no obstacles. Without the need to be “close friends” before forming a following relationship, information has the potential to spread rapidly among disparate groups (政府如何开微博 2011).

Another major concern is the ability of “rumors” to overtake the “truth” on social media platforms such as Weibo, creating difficulties for the government. 微时代危处理 (2011) also notes that negative opinion can be magnified on Weibo; while the venting of public opinion online can relieve some social pressure, it will still have a negative impact on online opinion.

As Hassid (2012) argues, if public opinion and negativity gets ahead of the official agenda,

the result will actually be increased social tension. The regime's wariness regarding information rapidly spreading online lies in its fear of collective action (King, Pan, and Roberts 2013). As information spreads, it can lead to an "informational cascade" that threatens the viability of the regime (Lohmann 1994). The revealing of what would have been private preferences regarding support for the government can create a "revolutionary bandwagon" that could topple the regime (Kuran 1991).

### 2.3 Government Goals in Regards to Weibo

The goals the government has for Weibo can be elucidated from the social media skills it wishes to impart in its cadres. In 2011, the Central Party School Publishing House [中共中央黨校出版社] released a series of books that were essentially meant to teach government cadres how to operate a Weibo account. Anhui Province's police department bought copies of at least the first book in the series and sent them to both the police leadership and those responsible for managing social media accounts in the various administrative levels of police departments in Anhui (安徽省公安廳 2012, 56).<sup>3</sup> In an interview with someone involved in the writing of the books in China in May 2017, the interviewee noted that he had taught classes to government cadres on how to operate Weibo accounts. In other words, this series seems to have made it into the hands of at least some government cadres.

In the foreword to the series, the vice chancellor of the Central Party School [中共中央黨校], CHEN Baosheng [陳寶生], made extensive use of an atomic metaphor to describe the power of Weibo. Chen wrote that Weibo is a "public opinion atomic bomb" ["輿論原子彈"]. Like an atom, an individual Weibo post is quite small ["每條上線為 140 個字的微博如原子般微小"], but through endless forwarding by an account's followers, this atom can undergo nuclear fission,

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<sup>3</sup>For "various levels," the original Chinese is "各級," which is vague. Later on, 安徽省公安廳 (2012) discusses building up of Weibo accounts in Anhui at the provincial, prefectural, county, and local police office and teams [基層所隊].

resulting in a atomic explosion of information propagation [“可以通過關注者的不斷轉發，實現核裂變式的傳播 [...] 最終像原子彈一樣”]. It is through this process that a “small piece of information” rapidly becomes a “big public opinion [issue]” [由“微信息”迅速生成“大輿論”] (政府如何开微博 2011, 1-2). It is clear that Chen has a great appreciation for the potential of Weibo. He goes on to note that Party and government departments [黨政部門] who put in the effort to study Weibo will reap the benefits in the form of spreading authoritative information, especially when a mass incident [突發事件] occurs; providing benefits and services to the people, resulting in alleviating social conflicts [緩解社會矛盾] and promoting social harmony; lowering administrative costs; and creating a healthy Weibo public opinion environment [營造健康微博輿論環境] and maintaing social stability [維護社會穩定] (政府如何开微博 2011, 3).

The first book in the series is titled *How the Government Can Open Weibo* [政府如何開微博]. This book mainly serves as an introduction to Weibo, detailing how to open a Weibo account and describing some of the features that Weibo has to offer. It includes features about Weibo that are especially useful for a government Weibo account, such as using the search function and the “hot topics” function to gauge public opinion and keep an eye out for issues that have the potential for becoming a mass incident [突發性輿情事件]. There are suggestions for how to run the Weibo account, such as avoiding formal “government language” [官話] and making sure to interact with netizens. In addition, there are positive case studies on government Weibo accounts that perform well in interacting with netizens and dispelling rumors, as well as a section devoted to how individual government cadres can operate their own accounts.

Of greatest relevance to this section of the dissertation is the book’s chapter on why governments should open Weibo accounts, which reveals the goals the government has for Weibo. The first goal is to meet the challenges of a new issues in social management [社會管理]. Information spreads much more quickly on new forms of media, and traditional media is unable to keep up. The big public opinion incidents [輿情事件] arose from the Party and government departments’ lack of understanding of both Weibo and the overall new media environment. Weibo

can also be used as a platform to facilitate communication with the masses. By communicating with them and providing services for their needs, government Weibo accounts can receive greater support from the people [“政府開微博，有助於更好地得到群眾支持”] (政府如何开微博 2011, 24).

Importantly, 政府如何开微博 (2011) claims that opening government Weibo accounts is a matter of national security. Using the role of social media during the Arab Spring as a warning, the book argues that Party and government officials must become more familiar with Weibo by opening up Weibo accounts, lest the same fate befalls China. By opening a Weibo account, Party and government departments can keep an eye on public opinion and be able to address their concerns before it becomes too big of an issue. Opening a government Weibo account is also framed in terms of preserving the government’s “right to speak” [話語權], warning that if the government does not enter Weibo’s public opinion arena, others will take over [“思想輿論陣地，你不去佔領，別人就會佔領”] (政府如何开微博 2011, 33). In other words, if government and Party departments refuse to partake in communication on Weibo, they will have no voice in an important incubator of public opinion, which would be unhelpful for Party and government work as well as social harmony and stability (政府如何开微博 2011, 35). This holds particularly true during mass incidents (政府如何开微博 2011, 39-41). If government and Party departments do not have the ability to transmit authoritative information that people will believe during mass incidents, then these incidents will spiral out of the government’s control.

The theme of public opinion guidance [輿論引導] is a common justification for opening up government Weibo accounts. For example, the director of the Cyberspace Administration of China, WANG Chen [王晨], remarked in 2011 that he hoped that Party and government department organizations and leaders and cadres, especially those departments that interact the most with citizens, would use microblogging to guide societal public opinion and enhance the government’s influence on society [“希望黨政機關和黨政領導幹部、特別是與民生密切相關的部門和公職人員，通過微博客 [...] 努力引導好社會輿論 [...] 擴大社會影響”] (王 2011). Once

the government understands what is being discussed on Weibo, they can release information that would be relevant to the discussion or that demonstrates that the government is putting forth the effort to resolve the issue, improving the perception of the government in the eyes of the people. These points are echoed by Beijing's police Weibo 平安北京, which states that Weibo accounts can be used to spread positive information about the police's major work and promote a positive image of the police (“抓好全局重點工作的正面宣傳報道 [...] 抓好隊伍形象宣傳報道”) (北京市公安局 2012). 政务微博实用指南 (2012) also recommends that government Weibo account administrators should work with public opinion leaders to promote positive discussions online.

政务微博实用指南 (2012) notes that Weibo and government Weibo accounts can be used for improving anti-corruption efforts (反腐監督). One way is simply by publicizing the anti-corruption drives that are already being implemented. The other is by using government Weibo accounts to receive reports from citizens. People can send private messages to Weibo accounts, but they can also draw the attention of an account by “mentioning” it (using the “@” symbol) in a public message.

At the aforementioned 2011 conference on police Weibo, Vice Minister HUANG Ming laid out the following goals for Weibo. Police Weibo accounts would be used to communicate with netizens, respond to social concerns, and satisfy citizen appeals. Overall, Weibo would be used to strengthen police-citizen relations and help bring together the real and the virtual worlds. Huang also envisioned Weibo as a multi-service platform. Weibo can be a platform for government transparency, giving citizens more information about police work.<sup>4</sup> Weibo can also be used to provide various government services and resolve conflicts for citizens. These services often come in the form of answering questions posed to police Weibo accounts by netizens. For example, police Weibo accounts can answer questions about registering their *hukou*. (黃 2012) Importantly, as previously mentioned, Weibo can be used to guide public opinion and

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<sup>4</sup>Weibo accounts can fall under the broad umbrella of e-government, which encourages government transparency. For more details, see Ma, Chung, and Thorson (2005), Seifert and Chung (2009), and Jun, Wang, and Wang (2014).

promote a positive image of the police. Using Weibo, the police can monitor popular points of discussion [熱點話題] and transmit authoritative information to reveal the truth and dispel rumors. In addition, according to Huang, Weibo can be used to show off police accomplishments and demonstrate the love and closeness of the police towards citizens (黃 2012).

Finally, in an interview with a local police department on June 2017 in China, the interviewee noted that one of the main reasons for opening a Weibo account and posting interesting information was to build up engagement during in normal operating times. That way, when a mass incident occurs, the Weibo account will already have an audience built up from its previous engagement. With this audience, the police can more effectively broadcast authoritative information and dispel any “rumors.” This dissertation examines the first half of this logic: building up engagement during “normal” times. The second half, having people believe official government accounts during mass incidents, will be left for future research.

To sum up, the Chinese government’s goals in regards to Weibo can broadly be categorized under maintaining social stability. The means by which government Weibo accounts can accomplish this task mainly revolve around guiding public opinion. Since information criticizing the government has the potential to go viral on Weibo, it behooves government and Party organizations to establish accounts on Weibo so they “have a seat at the table,” so to speak. Weibo accounts can be used to monitor public opinion, guide it in the direction government organizations want, and improve their own public images. The latter two objectives are accomplished by using Weibo accounts to post “authoritative” information that netizens will accept over “rumors” posted by non-government sources. This task becomes even more important during mass incidents. The concomitant explosion of information during mass incidents makes it even more difficult for the government to have its voice heard above the cacophony of “rumors” that spread during these times. Thus, according to the interview of a local police department mentioned in the previous paragraph, government Weibo accounts build up engagement in “regular” times. When a mass incident occurs, the government Weibo account would then have the necessary

audience and social authority to guide public opinion in the direction it desires.

## 2.4 Bureaucratic Incentives and Weibo

The operation of government Weibo accounts [政務微博] has formally entered the evaluation system for many local governments. Unfortunately, it does not appear to be the case that every local government releases their evaluation criteria. However, the information available indicates that local governments and cadres are indeed evaluated in part based on the operation of their Weibo accounts.

In Hubei province, Weibo criteria became part of the police's "Three Levels, Two Types, One Net" [三級兩類一網考] evaluation system.<sup>5</sup> The criteria is determined by the provincial public security bureau's Party Committee and is used to evaluate both police departments and individual police officers. The criteria for evaluation include the number of posts made, the number of followers an account has, and the number of forwards of and comments on posts made by the account (湖北省公安廳 2012).

Some government documents and regulations reveal the actual point reward system for fulfilling certain criteria. For example, Fujian province lists Weibo operations as part of its 2016 E-Government Performance Evaluation Index [2016 年度福建省電子政府績效考核指標]. In this index, Weibo falls under the "New Technologies Applications" [新技術應用] category, which accounts for a total of 8 points. Successfully opening a Weibo account and using it to post timely and effective government information ["開通政務微博且具有有效內容 [...] 政務微博持續進行內容維護並及時發布最新政府信息情況"] nets a prefecture 2 points (福建省人民政府 2016). In reality, this is a small amount; the entire index has a total of 100 points, so the Weibo portion only accounts for 2% of what a prefecture is evaluated on under the e-government performance index. However, the fact that it is even formally listed in the criteria indicates that

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<sup>5</sup>The three levels refer to all non-central levels of government: province, prefecture, and county. The two types refer to law enforcement [執法] and duty [執勤]. The "net" refers to the police website [公安信息網].

Weibo matters.

Other guidelines are slightly more specific. The Communist Youth League (CYL) for Lishui prefecture [麗水市] in Zhejiang province laid out specific criteria for how county-level CYL Weibo accounts in Lishui would be evaluated in their 2012 guidelines. If an account was opened in the first, second, or third quarter of 2012, then they would receive 3, 2, or 1 points respectively. If the account was opened up after the third quarter, then no points would be awarded. If CYL Weibo accounts in Lishui posted 20 relevant posts a month, then they would receive 5 points. If the number of followers exceeds 500, then that is another 5 points (共青团丽水市委 2012).

Local governments can also offer incentives to individual cadres for creating their own Weibo accounts and interacting with the official Weibo account. For example, the environmental protection bureau in Shandong province's Rizhao prefecture [日照市] in 2013 ranked individual cadres and gave the top ten a reward. Cadres are evaluated among three categories: contribution to Rizhao's environmental protection Weibo, individual environmental Weibo account, and individual level of followers on Weibo. The number of points acquired in each category follow a strict formula. The number of points calculated in the first category are determined using the following formula

$$\begin{aligned} \text{Contributions to official Weibo} = & \text{number of posts used or forwarded by official account} \times 3 + \\ & \text{number of forwards of official account} \times 1 + \\ & \text{number of comments on official account} \times 2 \end{aligned}$$



Points allocated for the second category are determined using the formula below

$$\begin{aligned} \text{Individual Weibo account} = & \text{number of posts about the environment} \times 1 + \\ & \text{number of forwards of environment posts} \times 0.1 + \\ & \text{number of comments on environment posts} \times 0.1 \end{aligned}$$

For the third category, if an individual cadre account has between 0 and 100 followers, between 100 and 500 followers, between 500 and 1000 forwards, or more than 2000 followers, then the cadre is awarded 1, 2, 3, 4, or 5 points, respectively. Finally, if the individual cadre account does not follow the official Rizhao environmental protection government account, 10 points are automatically deducted (日照市环境保护局办公室 2013). Chapter 4 further explores the execution of having government-affiliated accounts interact with each other.

Government Weibo accounts are also ranked annually by the *People's Daily* Online "Media Opinion Monitoring Office" in a *Sina Government Weibo Report* [新浪政务微博报告]. Local governments are at the very least aware of these rankings and its accompanying report. When I interviewed a local police department in June 2017, the social media administrators there mentioned that their superiors "were happy" if their Weibo account appeared higher in these rankings. In addition, the release of the reports are occasionally accompanied by awards ceremonies attended by representatives from ranked government departments. For example, the 2014 report was released at the 2015 Mobile Government Services Summit [2015 移动政务峰会], where awards were handed out to government Weibo account administrators. In addition to leaders from local government, the summit was attended by representatives from the Cyberspace Administration of China, Weibo, the *People's Daily*, and academia. Award winners received trophies and posed for pictures ("《2014 政务微博报告》在北京发布广西四大官微获表彰" 2015). In other words, these rankings are not irrelevant. Studying these rankings may offer us insight into what types of Weibo activity and behavior are rewarded and thus what local governments are

incentivized to pursue in the operation of their Weibo accounts.

The first report appears to have been released in 2012, evaluating the performance of government Weibo accounts in 2011. Back then, there were only two sets of rankings: one for government organization accounts and one for individual cadre accounts. Each ranking only had ten entries, and the report did not exceed 100 pages. Supplementing the rankings were case studies describing successful Weibo accounts and how they handled certain incidents. In recent years, the reports exceed 200 pages and consist mainly of tables showing the rankings of government Weibo accounts categorized by government function. For example, police accounts are ranked against other police accounts, environmental protection accounts against environmental protection accounts, and so on. As the number and diversity of government Weibo accounts have increased over the years, the categories have become more and more fine-grained. In addition, entire provinces and prefectures are ranked against each other. For example, Sichuan was considered the province with the most competitive Weibo accounts in 2017 (*2017 年年度人民日报政务指数微博影响力报告 2018*). Prefectures are ranked nationally against each other first, and then against only other prefectures in their province.

Every account is awarded a numeric score, with the highest possible score being 100. The numeric score is a composite of other component metrics. From 2011-2013, there were three component measures: “activity levels” [活躍度], “broadcast strength” [傳播力], and “guidance strength” [引導力]. “Activity levels” measure how active a Weibo account is. The metrics that make up this score include the number of posts made by the account, how often the account posts, the percentage of posts that are original posts and are not forwards of other posts, the number of comments the account makes, the number of other accounts that the government Weibo account follows, and an index that measures how much content posted by the account concerns government business. The “broadcast strength” score is meant to measure the government account’s potential audience, how fast the message can spread, and how influential the account can be. The determinants of this score include the number of followers the account has, the activity lev-

els of the account's followers, the number of followers that the followers themselves have, the proportion of followers that have been verified by Weibo, the rate at which the account's posts are forwarded, and how much attention the traditional media pays to the account. "Guidance strength" is meant to measure the potential the account has to guide public opinion and have netizens pay attention to it. In terms of the components that make up this score, there is actually some overlap with the "broadcast strength" components, such as the rate of forwarding and the number of followers. However, the "guidance strength" score is also determined by the number of comments on the account's posts, the comment rate on the account's posts, the number of private messages sent and received by the account, a sentiment index that measures whether the sentiment of posts is positive or negative, a sentiment index that measures whether comments made on the account's posts are positive or negative, and whether media coverage of the Weibo account is positive or negative (2013 年新浪政务微博报告 2013).<sup>6</sup>

The report for 2014 underwent a change in the metrics used to score Weibo accounts. The "activity levels" and "guidance strength" scores were removed and replaced with "service strength" [服務力] and "interaction strength" [互動力] scores. The "service strength" score is determined by the number of times a government account replies to comments on its posts, how many times it replies to direct messages, and how many users it sent direct messages to. The "interaction strength" score is determined by the number of times the account's posts have been forwarded, commented on, or liked. Interestingly, the score guidelines specifically note that they will only count trustworthy accounts [僅統計可信用戶], indicating that the issue with government Weibo accounts employing "fake" accounts to inflate their numbers has been noticed. Chapter 4 will discuss in further detail how police accounts employ fake accounts. While the name for the "broadcast strength" score had not changed, its constituent parts did. It was now determined by how many times the account's posts have been read, how many posts

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<sup>6</sup>The exact formulas used to generate the scores are not included in the reports, perhaps to prevent gaming of the rankings. However, if the descriptions of the metrics in the reports are accurate, then the individual components are structurally collinear.

posts the account made, and how many original, non-forward posts the account made (2014 年度人民日报政务指数报告 2015). This scoring system remains mainly unchanged until 2017. In 2017, the number of times a video is played was added to the “broadcast strength” score. In addition, the number of posts that include videos was added to the “service strength” score, and the number of times a government account is mentioned using the @ mechanism was added to the “interacting strength” score (2017 年年度人民日报政务指数微博影响力报告 2018).

This section demonstrates that there are a variety of bureaucratic incentives in place for local governments to operate Weibo accounts. The administration of Weibo accounts is now formally a part of many local governments’ cadre and government evaluation system. In addition, ranking systems such as the one provided by *People’s Daily* Online Media Opinion Monitoring Office pit account against account and locality against locality, further incentivizing active usage of government Weibo accounts.

## 2.5 Summary

Managing a social media platform like Sina Weibo is an important part of how the Chinese government controls and produces information online. While some local governments opened Weibo accounts as early as 2009, many come into existence after the Arab Spring and the online response to the Wenzhou train crash shocked Chinese government departments into action. These incidents revealed the power and potential of Weibo: ordinary citizens now had the power to transmit their own message at the same large scale as the regime’s. Part of the government response to Weibo’s abilities was to open their own accounts so as to have a better lever by which to guide public opinion and dispel “rumors.” To incentivize administering Weibo accounts, the operation of Weibo accounts has been formally entered into the local government and cadre evaluation systems for at least some local governments.

# Chapter 3

## Engaging Content

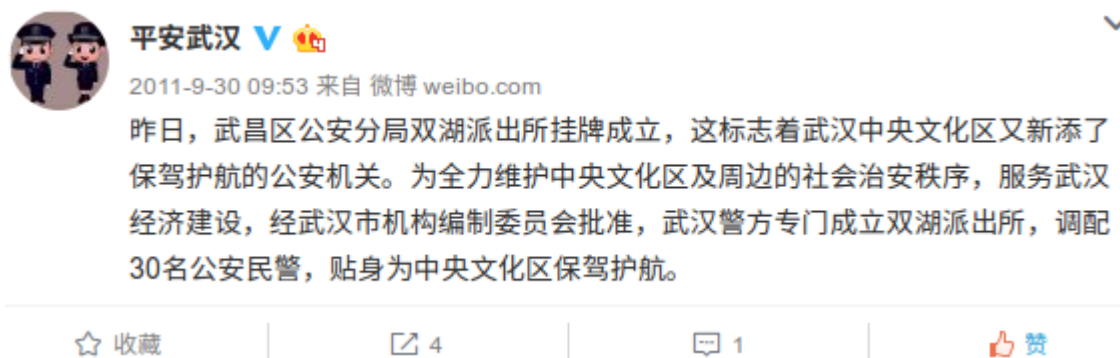
### 3.1 Introduction

While all states are concerned with their public image, Leninist regimes are particularly active in trying to mold public opinion. China, with its Leninist roots, is no exception. Propaganda techniques of the past – partially described in Chapter 1.4 – often lacked subtlety. This has changed, as the Chinese Communist Party has begun wrappings its propaganda in more attractive packaging (Brady 2008; Stockmann and Gallagher 2011).

Consider Figure 3.1, which shows a post made in 2011 by the police account in Wuhan, the capital of Hubei province in China. The post in English reads

Yesterday, the Wuchang District Shuanghu Local Police Office was established, demonstrating that Wuhan’s Central Cultural District has again added another public security protection organization. For the sake of completely protecting the social security of the Central Cultural District and its surrounding areas and servicing the building up of Wuhan’s economy, Wuhan’s Institutional Organizational Commission has especially established the Shuanghu Local Police Office and assigned 30 police officers to it to personally provide for the protection of the Central Cultural District.

The content of the post is fairly dry and simply details the opening of a new branch using “official-speak.”



**Figure 3.1:** An Older Post from Wuhan

Contrast this with Figure 3.2, which shows a post made by the same account in 2016. Even if one does not read Chinese, one can still tell that the style is very different relative to the post shown in Figure 3.1. For example, this post takes advantage of emojis that the Sina Weibo social media platform offers; one can see there is a thumbs-up emoji near the beginning of the post and a “doge” emoji at the end. In addition, an included picture shows a soccer ball along with the scores from soccer matches played between China and the Philippines.

The post itself states

[Today’s most interesting] Historically, the [Chinese] national soccer team has completely owned the Philippines. You [the Philippines] can’t even beat the national soccer team and you want to beat the PLA [People’s Liberation Army]?

For context, this post was made shortly after the international tribunal in The Hague ruled against China in a suit brought by the Philippines over China’s actions in the South China Sea.<sup>1</sup> The language used in Figure 3.1 and Figure 3.2 are also quite different. While the older post uses fairly formal language, the newer post makes generous use of colloquialisms. For example, the phrase I have translated as “owned” (完爆) has its origins in online gaming, and the phrase I have translated as “beat” (幹過) is a relatively informal phrasing.<sup>2</sup>

Note also that the content is quite different. Figure 3.1 shows a post that is about local

<sup>1</sup>For more information, see <https://www.nytimes.com/2016/07/13/world/asia/south-china-sea-hague-ruling-philippines.html>.

<sup>2</sup>The first word also happens to be a homonym for a certain vulgarity.



平安武汉 V 🏆

7月12日 20:37

【今日最佳👍】历史上国足完爆菲律宾，你连国足都打不了还想干过解放军？



☆ 收藏

📄 121

💬 25

👍 206

Figure 3.2: A Newer Post from Wuhan

police business, while Figure 3.2 is about an issue that has very little to do with local police business. The approach taken in the newer post is more creative as well, making references to sports.<sup>3</sup>

This chapter therefore seeks to mainly answer two questions:

1. Have the content and style of Chinese police posts on social media changed over time?
2. Do these different types of content and style drive greater engagement with the police on social media?

<sup>3</sup>This post is particularly humorous because the Chinese national soccer team is notoriously bad compared to other countries, qualifying for the World Cup only once.

To preview the answers, the content and style of Chinese police posts have indeed changed over time: the use of “softer” styles has increased, while the proportion of posts that concern non-police content has increased as well. These softer styles and non-traditional content receive more forwards than their more “boring” counterparts.

While other studies have shown that Chinese methods of mass communication are changing, this chapter is one of the few studies that quantitatively describes the extent of its change. It also attempts to quantify the effects of these changes at a relatively large scale. This chapter helps show how much Chinese government messaging actually spreads.

Previous studies have already discussed how Chinese propagandists are learning from Western advertising and public relations techniques. As an extension, this chapter helps show how local governments are concerned in building up their “brand.” Other studies show that Chinese propaganda are now being wrapped in increasingly attractive packaging. However, parts of this chapter demonstrate that not all government messaging is what is commonly considered propaganda; they also provide various “life hacks,” talk about television series, and they discuss the weather. In other words, not all messaging would be considered propaganda in the traditional sense. What these different types of content seem to signify is that local governments are now concerned with building up their brand. In fact, the Shanghai police explicitly say that they are interested in building up brand awareness [“十分注重樹立品牌意識”] for the purpose of expanding their influence [“擴大影響力”] (上海市公安局 2012). Rather than browbeating people exclusively with “boring” messages, the government is attempting to position itself as a source of “fun” and useful news. This chapter examines how effective these efforts are.



## 3.2 Background

### 3.2.1 Soft versus Hard News

One of the changes observed in Chinese propaganda is the discussion of topics beyond what would be considered “hard propaganda.” Official posts on social media these days include discussions about maintaining healthy lifestyles, popular culture, and other topics that would normally not be considered as major issues of concern for the regime. To help answer why they are doing this, it would be helpful to review the literature on soft news versus hard news.

Hamilton (2004) examines news content through the lens of economics. Drawing from Downs (1957), he describes how information can be consumed for either consumption, production, entertainment, or voting purposes. Hard news about politics and current events generally only have utility in voting. Due to the general unlikelihood of a single voter actually influencing an election, it is rational for citizens to save on the costs of acquiring hard news and simply live without it. Because the positive externalities generated by an educated populace is external to each individual citizen’s cost-benefit analysis of news acquisition, there will be suboptimal demand for hard news and, subsequently, underprovision of hard news. Hamilton (2004) then describes how specific factors increase the provision of soft news:

1. If advertisers value soft news consumers more
2. If soft news is cheaper
3. If the number of channels increases
4. If there are more viewers that like soft news

rovision of soft news:

Following a similar argument, Baum (2003) argues that media actors were motivated by market forces to push the “human drama” aspect of what were originally hard news stories. By

packaging hard news in more attractive framing, media organizations reduce the cognitive costs of consuming hard news and increase the probability that potential customers decide to consume the piece of news.

In other words, market forces such as the costs of news provision and the need to generate more revenue help drive differing levels of hard and soft news provision. In theory, market forces should not apply to the behavior of public security accounts on Sina Weibo. While the media organizations studied by Baum (2003) and Hamilton (2004) derive the bulk of their revenue from advertisers and subscribers, Chinese public security accounts certainly do not rely on information dissemination for their financial survival. For this specific set of accounts, market forces are unlikely to be a primary driver for changing news style and content. If market forces are not causing this change, then what is?

Even if public security accounts and media outlets have different susceptibility to market forces, they can both be motivated to engage in the “battle for eyeballs.” Rather than coming from the need to generate revenue, public security accounts disseminate information to spread their message. Whereas revenue generation is important for the continued viability of a media organization, propaganda dissemination is crucial for the continued survival of a regime. Propaganda is now “the very life blood (*shengmingxian* [生命線]) of the Party-State, one of the key means for guaranteeing the CCP’s ongoing legitimacy and hold on power” (Brady 2008, 1).

Because propaganda is important, the government demands that it must be delivered effectively. The turn to soft news is not necessarily a new development for the Chinese government. As Brady (2008) details, entertainment and culture were popular vehicles for propaganda during the Mao years, and the Chinese government post-Tiananmen have been searching for ways to make propaganda more attractive. For government mass communication today, it is no different. As such, government Weibo accounts are encouraged to deliver information that would be of interest to average citizens. Consequentially, one book on training government cadres to use Weibo exhorts its readers to post information that is as close to people’s lives as possible [“政務

微博發布的內容要盡量貼近民生民情”] (政务微博实用指南 2012, 145).

There is some evidence that people will pick up greater amounts of information in a media-rich environment even if they have no actual interest in the information itself (Zukin and Snyder 1984). Building on this, Baum (2003) argues that high-cost political information can be delivered to uninterested citizens by allowing it to “piggy-back” on low-cost entertainment-oriented information. This argument can be adopted for the Chinese situation as well. In this case, the softer news style and content are a Trojan horse, where the payload is whatever propaganda the Chinese government wants its citizens to believe. The softer new styles and content are what – in theory – induce the Chinese citizen to consume and discuss government propaganda.

To summarize the above, the government is incentivized to offer soft news content in order to drum up interest and to compete with other information purveyors. Whether changing up the content is actually more effective in generating more interest is one of the points of focus of this chapter.

### 3.2.2 Changing Styles

Other factors include the style of information delivery. Even hard news can be delivered in a differing styles. Those familiar with government Weibo accounts often discuss the merits of not speaking “government official language” [官話]. As one training manual for government cadres points out, communication on Weibo is more simple and uses more common language than other forms of media. To cater to their audience on Weibo and promote engagement between netizens and the government, government accounts must avoid official-speak and must try using more colloquial and human language [“避免流露’官腔’、’官味’, 嘗試更多’口語化’、’人情化’的用語, 確保與網民形成良好互動”] (政府如何开微博 2011, 105). Another says that in order for government accounts to succeed on Weibo and avoid having no audience for their posts, they should immerse themselves in Weibo’s customs and habits and use the same type of communication that Weibo’s netizens use [“政务微博應該主動融入微博世界的風俗習慣,

使用微博網民通用的語言”] (政务微博实用指南 2012, 147-148). By using Weibo’s language and speaking with other social media users as equals, government Weibo accounts can attract and aggregate followers, in turn aggregating strength [“吸引粉絲、凝聚粉絲、凝聚力量”] (Tan[譚] 2014, 112).

In addition, adjusting the style of information delivery is essentially adjusting the framing of a piece of information. In one chapter of her book, Stockmann (2012) conducts an experiment to determine the effects of newspaper framing and labels on persuasiveness. To test this, she presents people in a popular Beijing park with four potential treatments and asks respondents about their views on a labor law. News stories were presented to participants that varied along two dimensions: newspaper label and frame. The two labels corresponded with a local semiofficial paper and a local official paper. Similarly, the frames corresponded to a nonofficial and official frame. These treatments are arrayed in a 2x2 factorial design; the control group received no news story and were simply asked about their views on the labor law. After analyzing the results, Stockmann (2012) comes to the conclusion that frames have little effect, while the newspaper label had an important effect on persuasiveness of the story, where respondents were more likely to be persuaded by the semiofficial label than the official label.

These are certainly interesting results, but there is room for further research. While the frames may have differed, they did not appear to differ substantially in tone (Stockmann 2012, 271-273). The official frame did not use personal names and included abstract statistical information, while the nonofficial frame used personal names and discussed the relationship between workers and their lawyers. In addition, Stockmann (2012) does not discuss in much detail how persuasiveness changes within label group e.g. how participants responded to the official label with the nonofficial frame versus the official label with the official frame. While her experiment was designed such that she could test this, she only reports the pooled results of official versus nonofficial frames and official versus semiofficial labels.<sup>4</sup>

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<sup>4</sup>She does not report the standard errors for any of her point estimates.

This chapter would then like to study the effect of a soft style on public receptivity to government messaging.

### 3.3 Operationalizing Style and Content

Before any analysis can be performed, style and content must be operationalized in some way.

#### 3.3.1 Style

Style was defined as being “hard” or “soft” using the following two conditions:

1. Does the post have any emojis?
2. Does the post employ informal language or slang?

If a post satisfies any of the two above conditions, it is considered a “soft”-style post. Emojis are used as one of the conditions because the usage of emojis is generally associated with informal contexts (Tigwell and Flatla 2016). Emojis are used by government Weibo accounts to avoid having their posts appearing too stiff [“避免公文式的生硬和呆板”] and to add a human touch to the government’s image [“如果加上表情，政府形象會更有人情味兒”] (政府如何开微博 2011, 74).

For the second condition, it would be near impossible to generate a comprehensive list of internet slang and colloquialisms. It would also require a lot judgment on what constitutes a formal or informal word. Instead, I compile a list of words from a set of books published by the Central Party School Publishing House targeted at local cadres, aiming to teach them how to effectively run a social media account. The books have in certain sections suggestions or examples of informal language that social media accounts can employ.<sup>5</sup> The compiled list itself

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<sup>5</sup>Section 2.3 describes these books in further detail.

is far from comprehensive and is likely outdated – all of the books were published before 2015.<sup>6</sup> However, if the hypothesis that soft style posts do drive *more* engagement, then this fact will likely bias against finding statistically significant results and push point estimates towards zero.

### 3.3.2 Content

Determining content is more involved. It was decided that posts would be considered as discussing topics pertaining to police work and topics not pertaining to police work. First, roughly 2000 posts were randomly sampled from the entire corpus of police posts. A research assistant and I then labeled these posts as either being police-related and not police-related. These labeled posts were used as a training set for creating a classifier that would label the rest of the posts. Table 3.1 shows the results from the classifiers.

**Table 3.1:** First Stage Classifiers

Classifier	F1 Score
XGBoost	0.846
SVM (linear)	0.836
Logistic Regression	0.842
Random Forest	0.868
K-Nearest Neighbors	0.703
fastText + CNN	0.869

The text was first segmented using THULAC (THU Lexical Analyzer for Chinese) (Sun et al. 2016). For the first five classifiers (XGBoost through k-nearest neighbors), the segmented text was converted to the bag-of-words format with only unigrams. Prior to training the model, the number of words fed to the models was pared down using  $\chi^2$  feature selection. Hyperparameters that optimized the F1 score on held-out data for each model – including the number of words to retain using feature selection – were selected via random search and three-fold cross validation.

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<sup>6</sup>The list of words is shown in Section A.2.

The process for the sixth model (“fastText + CNN”) was slightly different. In addition to the roughly 3 million police posts, I have another 7 million social media posts. These 10 million posts were used to generate a set of 300-dimension word embeddings using fastText (Bojanowski et al. 2016).<sup>7</sup> These word embeddings were then used as inputs into a shallow convolutional neural network. The first layer of the neural network is a 1-D convolutional layer with a convolution window of size 3 and a stride value of 1 with a leaky ReLU activation and max pooling. The next layer is a fully connected layer with dropout, again with leaky ReLU activation. The final layer is a sigmoid layer. The entire model was optimized using Adam with a learning rate of  $3 \times 10^{-4}$ .

The models shown in Table 3.1 – with the exception of the k-nearest neighbors classifier – were then used to predict the labels in the labeled training set. Their predictions were then used as inputs into a second stage logistic regression to predict the labels on the posts. This second stage classifier was then used to label the rest of the unlabeled posts.

Some examples of posts classified as being unrelated to police work are shown below.

【这些手势禁忌，你知道吗】原来不经意做的手势在某些地方也有禁忌！竖大拇指、胜利 V、OK、竖手掌表示停止、钩手指等等，这些手势在某些地方可是禁忌啊，切勿乱用。一定看清记牢，以免闹出各种误会哦！ [Did you know these hand gestures are taboo] It turns out that some hand gestures are taboo in some places! A thumbs-up, victory V, OK sign, holding up your hand to indicate stopping, “hooking fingers”, and so on, these gestures are taboo in some places, so don’t use them without thinking! Be careful in order to avoid misunderstandings!

今天，中国人民解放军建军 86 周年，让我们向祖国的卫士、和平的守护神，英勇的中国人民解放军致敬！感谢你们将最美的年华献给祖国，节日快乐！ Today is the 86th anniversary of the founding of China’s People’s Liberation Army. Let’s pay our respects to the defenders of the motherland, our protectors [literally protector Gods], the heroic Chinese People’s Liberation Army! Thank you for providing the most beautiful times for the motherland, happy holidays!

【看韩剧和收入与学历有关系吗?】周二早上，小雨淅沥，蜀黍也来八卦一下近日，中国日报网援引韩国一家媒体报道：最新研究结果显示，高学历高收入的中国人喜欢美剧和日剧，低收入低学历的人喜欢看韩剧和中国台湾的电视剧。

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<sup>7</sup>Aside from the dimensionality, all other parameters were left at their default values. It is possible that tweaking these paramters could have improved performance.

爱看韩剧的亲，你中枪了吗？ [Is there a relationship between watching Korean dramas and one's income and education?] There is the pitter-patter of a light rain on Tuesday morning, and “police uncle” will engage in some gossip. Recently, the *China Daily* cited a Korean report: the newest research has shown, Chinese people with higher education and higher incomes like to watch American and Japanese TV shows, while Chinese people with lower incomes and lower education like to watch Korean and Taiwanese TV shows. My Korean-drama-watching friends, what about you?

Some examples of posts classified as being related to police work

【警视直通车】近日，揭阳市质监局、经信局、公安局、工商局等多个职能部门联合到市区多家酒类零售店进行检查，进一步规范全市酒类市场，改善酒类消费环境。详情请看：O 揭阳市公安局 [Police Express] Recently Jieyang City's bureaus of quality control, economics, public security, trade and industry, and other bureaus have worked together to inspect various liquor establishments, helping regulate the entire alcohol market and improving the alcohol-buying environment. For more details, see [this link].

按照省公安厅党委委员、副厅长赵春波的指示，8月17日，省“破案会战领导小组办公室”召开全省公安机关“破案会战”决战决胜推进会议，深入贯彻8月15日全国公安机关“破案会战”大决战电视电话推进会精神，部署做好最后15天冲刺阶段各项工作。According to the provincial Public Security Department's Party Committee and Vice-Head Zhao Chunbo directions, on August 17, the province's “Case-Solving Campaign Small Group Office” opened up the “Case-Solving Campaign” meeting for all public security organizations in the province and had a decisive victory. To implement deeply the August 15 national “Case-Solving Campaign” television and telephone spirit promotion, this group is undertaking the final 15-day sprint of the campaign.

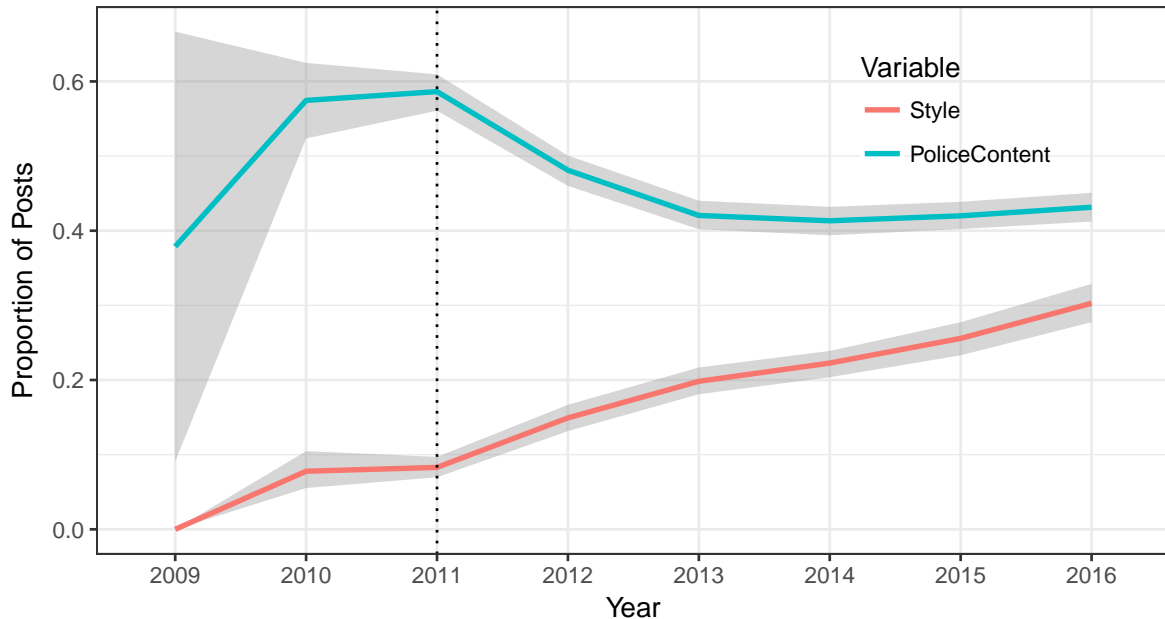
今天上午，市公安局召开全市公安机关反腐倡廉建设会议。This morning, the city Public Security Bureau convened an all-city anti-corruption meeting for all public security organs.

### 3.4 Changing Style and Content

Once style and content have been operationalized, it is straightforward to see whether there is an overall change in style and content of police posts on social media over time. Figure 3.3 shows the overall change in the style and content over time; the lines show the mean proportion



of soft-style posts and posts about police business with 95% bootstrapped confidence intervals by account. One can see that the overall proportion of soft-style posts has increased over time, while the overall proportion of posts that are about police business has decreased.



**Figure 3.3:** Overall Change in Style and Content Over Time

Those concerned that just a few accounts are driving the trends seen in Figure 3.3 can consult Figure A.1 in Appendix A.3, which demonstrates that while these trends do not hold across all provinces uniformly, the overall trend is there in many provinces.

In other words, police accounts overall are indeed changing how and what they post over time. Soft-style posts – posts that use an emoji or include a “soft” word – make up a greater proportion of police posts as time goes on. In 2009, no police posts were considered soft-style.<sup>8</sup> By 2016, roughly 30% of posts made by police accounts could be considered soft style using the operationalization defined in Section 3.3. The reverse trend is seen with police content. As with the proportion of soft-style posts, there is little change in the proportion from 2010 to 2011,

<sup>8</sup>Note that there were only two police accounts in 2009. Neither of these accounts posted soft-style posts immediately after their inception, which is why the confidence interval is of width 0 – and why the corresponding point for the police proportion has such a wide interval.

with posts about police content forming about 60% of all police posts. However, after 2011, we observe that this proportion has decreased down to a little above 40%.

### **3.5 Style and Content Effectiveness**

In this section, I will evaluate the effectiveness of these different types of style and content. The metric used to evaluate effectiveness will be the number of forwards. Forwards are essentially the equivalent of retweets on Twitter. Users have the option of “forwarding” a post by copying the post to their personal feed with the click of a button. Followers of the forwarding user are then able to see the forward and the original post. When conducting interviews in China, I asked local police bureaus what their overall goal is for creating these Sina Weibo accounts and establishing a presence on social media. They answered that the overarching goal, unsurprisingly, was to spread their message and have their posts reach the most eyeballs possible. The concept of spreading the message is most directly operationalized with the number of forwards a post receives.

An issue with using the number of forwards as a variable of interest is the presence of “fake” or “non-organic” forwards. To clarify, not all forwards are made by “regular” netizens. Some forwards are made by other police accounts, be they other police bureaus or individual police officers. Other forwards are made by “fake” accounts: accounts that forward other posts in exchange for money. Finally, there are duplicate forwards where the same account will forward the post more than once. When a post is forwarded by the same account, the post is not reaching new audiences. These duplicate forwards – along with the fake and police forwards – must first be removed.

Unfortunately, the data requirements for identifying and removing fake and police forwards necessitate using a smaller sample rather than the entire population of prefectural police posts. Details surrounding the sampling procedure and identification of fake and police forwards

are described in Chapter 1.4. The data for the number of forwards adjusted for fake, police, and duplicated forwards is then recombined with the posts from the full dataset that received zero forwards. Not all posts with zero forwards are included. Here, I follow the same sampling strategy I used to get the sample of posts to find fake and police forwards. To refresh the reader's memory, I first took a list of all of China's provinces and sampled roughly four accounts from each province; then I sampled 10% of posts with at least one forward from this list of accounts. To reintroduce the posts with zero forwards, I took the same list of accounts and sampled 10% of posts that had zero forwards. Finally, posts that had no content were removed. A post was considered to have no content if it were an empty forward or reply to another post with no additional content.<sup>9</sup>

I will estimate the effectiveness of style and content using OLS models with the logged number of forwards as the response variable.<sup>10</sup> The unit of analysis is a single post. The key explanatory variables are

- **Soft style:** A dummy indicating whether a post is considered soft-style or not
- **Police content:** A dummy indicating whether a post has police content or not
- **Soft-Police Interaction:** An interaction term between the soft style dummy and police content dummy

In addition to these main explanatory variables, I employ the following controls

- **Forward status:** A dummy indicating whether the post is a forward of another post
- **Video:** A dummy indicating whether the post includes a video or not
- **Picture:** A dummy indicating whether the post includes a picture or not

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<sup>9</sup>On Weibo, users can forward posts without adding any additional commentary. They can also reply to posts but add nothing in the reply. In the first situation, the post simply says “轉發微博” and nothing else. In the second situation, the post starts with double backslashes “//” and repeats the post that is being replied to.

<sup>10</sup>The number 1 was added to every observation to allow the logging of posts with zero forwards.

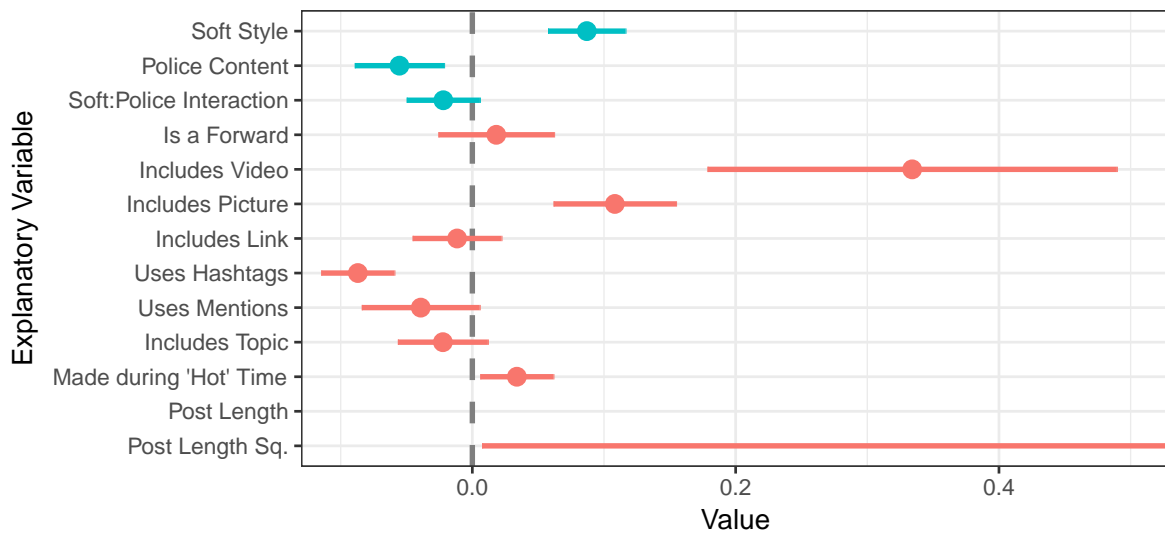
- **Link:** A dummy indicating whether the post includes a link or not
- **Hashtag:** A dummy indicating whether the post includes any hashtags or not. Hashtags link posts to broader topics and allows other users to more easily find posts.
- **Mention:** A dummy indicating whether the post includes any mentions or not. Mentions are used to call the attention of other users. If a post uses a mention, whichever user gets “mentioned” receives a notification from Weibo that they were mentioned in a post.
- **Includes topic:** A dummy indicating whether the post includes the topic of the post at the beginning of the post inside brackets. This is a practice that is encouraged by the training manuals.
- **Hot time:** A dummy indicating whether the post was posted during a “hot time.” The training manuals provide suggestions to social media account administrators about optimal times to post. The dummy is given a value of 1 if the post was made between the hours of 9-10AM, 4-6PM, and 9PM-12AM and 0 otherwise.
- **Post length:** The number of characters in a post.

In addition to the above controls, I also included account and day dummies and clustered standard errors by province and month.

Figure 3.4 shows the coefficients and 95% confidence intervals from the OLS model estimated using the above specifications.<sup>11</sup> Under the standard null hypothesis testing framework, the coefficients on the soft style dummy and the police content dummy are both considered statistically significant. On average, posts that employ a soft style receive more forwards than equivalent posts that do not have a soft style. In addition, posts that are not about police business have on average more forwards than those that are about typical police business. There does not seem to be any interaction effect between the soft style and police content dummies.

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<sup>11</sup>The actual numbers for Figure 3.4 can be found in Table A.2 in Appendix A.4



**Figure 3.4:** Main Results

The model predicts that a non-soft-style post would receive about a 8.7% increase in forwards if it had been a soft-style post, while a post about non-police business would experience about a 5.5% decrease in forwards had it been about police business.

### 3.6 Spillover Effects

The results presented in Section 3.5 demonstrate that, on average, soft-style posts are forwarded more often than their non-soft counterparts; while posts that are about police business receive fewer forwards than posts that are not about police business. This section seeks to address the possibility that the increased attention paid to soft and non-police content posts spills over onto other posts. For this analysis, I will define two types of posts:

**Definition 1.** A “fun” post is defined as being both soft style and not about police business.

**Definition 2.** A “boring” post is defined as being both not a soft style and about police business.

The analysis in this section will examine whether the presence of “fun” posts is associated with more forwards of “boring” posts. The assumed mechanism is that a fun post will have a

short-term effect on the number of forwards on boring posts that come after the fun post. The idea then is to compare the number of forwards on boring posts that come before the fun post[s] with the number of forwards on boring posts that come after the fun post. I will restrict this analysis to single account-days to make it more clean.

I subset the data by account-days using the following criteria:

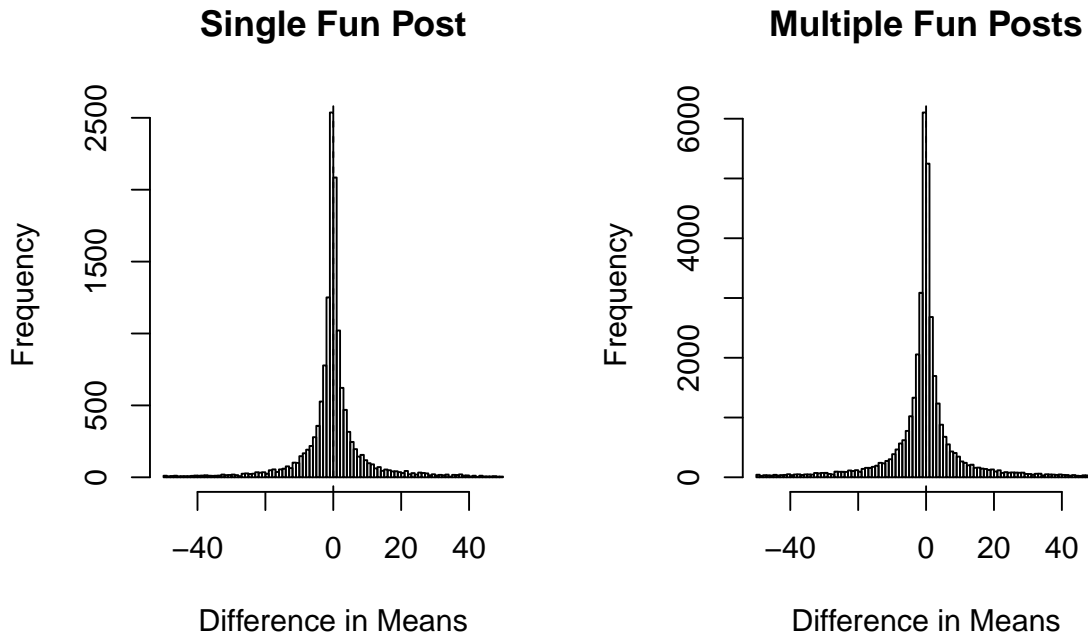
1. An account makes one or more fun post that day.
2. The account makes at least one boring post prior to making the fun post and at least one boring post after the fun post.

For getting the list of account-days that satisfy the above criteria, I create two separate sets. Under the “single” formulation, posts are limited to those account-days where there is only *one* fun post and there are boring posts before and after the single fun post. Under the “multiple” formulation, the posts are limited to account-days where there are possibly multiple fun posts and there are borings posts before and after the *first* fun post.

Because this analysis depends heavily on the full sequence of posts within a single account-day, I cannot use the data used in Section 3.5 with duplicated, fake, and police forwards removed. The data from Section 3.5 is based on a simple random sample of posts from certain accounts. Had I done a random sample stratified by both account and day, then I could have used the data with the true number of forwards. In the full dataset, there is a total of about 3.9 million posts from about 420,000 account-days. Under the single formulation, there are around 87,000 posts from about 14,000 account-days. Under the multiple formulation, there are around 250,000 posts from about 40,000 account-days.

The first step is simply to compare the difference in means of the number of forwards of boring posts before and after a fun post. The distribution of the difference in means is shown in Figure 3.5, where the plot on the left shows the distribution of the difference in means under the single formulation and the plot on the right shows the distribution under the multiple formulation.

It appears that the distribution of mean differences is roughly normally distributed around 0, perhaps indicating little systematic difference between the average number of forwards that come before a fun post and the average number of forwards that come after a fun post.



**Figure 3.5:** Difference in Means for Post- and Pre-Fun Forwards

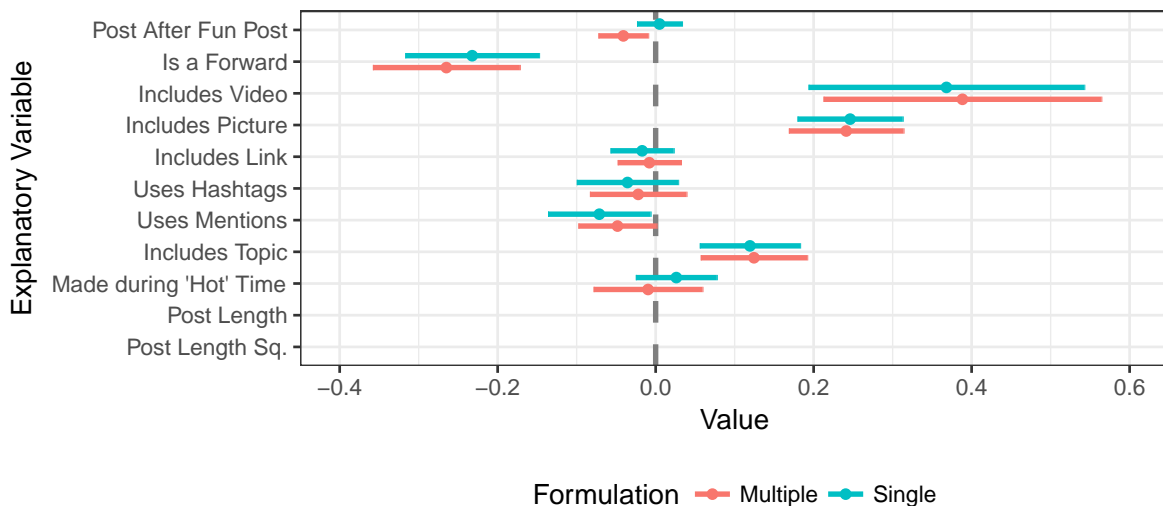
Table 3.2 shows the results of the paired  $t$ -tests comparing post-fun boring forwards and pre-fun boring forwards. Under the single formulation, post-fun boring posts have on average 0.4 more forwards than boring posts made before the single fun post. However, this is a noisy result, with this small difference having a relatively high probability of being just due to random chance. Under the multiple formulation, post-fun boring posts actually have on average 3-4 fewer forwards than boring posts that were made before the first fun post that day. At the typical  $\alpha = 0.05$  value, this difference is considered statistically significant.

It is possible that some of the post attributes described in Section 3.5 as controls may be correlated with both the timing of a boring post and with the number of forwards it receives. I therefore run OLS regressions using the same general framework as the model presented in

**Table 3.2:** Paired *t*-tests

Formulation	Difference in Means (Post - Pre)	p-value
Single	0.437	0.628
Multiple	-3.57	$4.39 \times 10^{-4}$

Section 3.5. The unit of analysis is a single post, though now the data has been subsetting to fulfill the criteria delineated previously in this section. The main explanatory variable of interest this time is a dummy indicating whether the boring post came after or before a fun post. A boring post is coded as a 1 if it came after the fun post and a 0 if it became before.<sup>12</sup> The response variable is the logged number of forwards, account-day dummies are included in the estimation, and standard errors are clustered by province and month. The control variables are the same as well. I ran two separate models: one under the single formulation and one under the multiple formulation. The results are shown in Figure 3.6.



**Figure 3.6:** Spillover Models

The main coefficient of interest is at the top of Figure 3.6: “Post After Fun Post.” The results largely mirror the results from the paired *t*-tests. Under the single formulation, the effect of a boring post coming after fun posts in the same day is more or less indistinguishable from zero.

<sup>12</sup>Due to the spam-my nature of some accounts, there are a few boring posts made at the same time as fun posts. These posts are discarded.



Under the multiple formulation, boring posts that come after the fun post are actually associated with fewer forwards relative to the posts that came before.

All in all, it is unlikely that there are any positive spillover effects – in terms of forwards – from fun posts onto boring posts made after the fun post in the same day.

### **3.7 Discussion**

The results in Section 3.4 demonstrate that the strategies employed by local police accounts in China have evolved over time. For one, the style of posts have changed. Police accounts overall are more likely to employ a “softer” style, using emojis, colloquialisms, and internet slang to liven up their posts. They have also adjusted the topics that they post about. Police accounts now are generally more likely to post on topics irrelevant to local police work, such as posts about popular culture or how to maintain healthy lifestyles.

These different styles and content also lead to more forwards, on average. Note though that these increases are very modest. To refresh the reader’s memory, the model shown in Figure 3.4 predicts that a non-soft style post would have a 8.7% increase in forwards had it been a soft style post, while a post about police business would receive 5.5% fewer forwards than a post not about police business. Within the full dataset, the average account posts roughly 9-10 times a day. On average, roughly 2-3 of these posts are soft style, and 3-4 of these posts are about police issues. In the dataset used to estimate this model, the average number of forwards for non-soft posts is 1.46, and the average number of forwards for non-police content posts is 1.73. Under the [naive] predictions of the model, if all the non-soft posts of a single police account were converted to soft-style posts, then this would translate to roughly 0.88 more forwards of police posts per day, or about 320 more forwards a year on average. On the other hand, if all the non-police content posts of a single police account were converted to police posts, then this would translate to about 0.57 fewer forwards of posts per day, or about 205 fewer forwards a year. For a single

police account, these are modest changes.

However, there are a little over 300 prefectural police accounts. If each account on average received 320 more forwards a year, this translates to on average 96,000 more forwards of police content a year. Perhaps on the overall scale of social media and China's population this is a small amount, but it is not an insubstantial number. Note that this is only measures the first stage of forwards. Presumably, the forwards can themselves be forwarded, thus potentially expanding the reach of police content beyond the 96,000.

One of the limitations of this current study is that – after dealing with duplicate, police, and fake forwards – it assumes that all forwards are of equal value. This is obviously not the case, with previous research demonstrating the unsurprising existence of opinion leaders with greater influence on social media platforms such as Weibo (Bolsover 2013; Nip and Fu 2016). Even if these different style and content posts are generating only a few additional forwards, if these forwards are coming from influential accounts, then the spread of the police message goes beyond what the small forward numbers. The current study also does not take into account the people that saw a police post but did not feel strongly enough about it to forward. Data limitations prevented me from studying this possibility thoroughly. Perhaps future research could leverage the number of followers forwarding accounts have to help elucidate the spread of police messages.

While the posts with more “fun” style and content have more forwards on average, this effect does not spill over onto the spread of those “boring” posts that do not employ a soft style and are about police work. The results in Section 3.6 demonstrate that there is no discernible positive spillover effect – in terms of forwards – of the fun posts that police make onto the boring posts. The analysis done in this chapter primarily looks for short-term same-day spillover effects for forwards, essentially finding none. In other words, fun posts do not seem to facilitate the spread of boring posts. This does not necessarily mean there are absolutely no spillover effects though. Again, it is possible that there were more users who viewed the boring police posts after the soft post without being compelled to forward the post and have it appear in their own feeds.

Table A.4 in Appendix A.4 shows some suggestive evidence in this regard. Boring posts that come after a soft post tend to have more likes than boring posts that came before a soft post. It is certainly an avenue worthy of further research.

# Chapter 4

## Artificial Engagement

### 4.1 Introduction

Chapter 3 showed how the state alters the supply-side of information by changing the style and content of their messages. This chapter focuses on how the state manipulates the “demand-side” by using affiliated accounts to forward government social media posts.

One aspect of the Internet that can aid anti-regime forces is the relative anonymity that the Internet provides its users. People who register social media accounts do not need to provide their names or other personal information for other social media users to see, forcing the regime to go undertake further steps to ascertain the identities of people behind social media accounts. However, the relative anonymity of social media can – in a sense – aid the regime as well. For example, consider the post shown in Figure 4.1. It is a post made on April 15, 2016 by the Karamay police department Weibo account about how a person’s personality is reflected in their desk.<sup>1</sup> The bottom shows that the post was forwarded 5 times as indicated by the number next to the small box with an arrow sticking out of it. If we were to only judge by the number, we would think that this post, while not particularly popular, was successful in drawing some attention.

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<sup>1</sup>Karamay (克拉瑪依) is a prefecture-level area in Xinjiang province.



Figure 4.1: A Karamay Police Post

However, Figure 4.2 shows the identities and posts of those that forwarded the post shown in Figure 4.1. The most recent forward comes from a verified police user called “油城警花” (literally “Oil City Police Flower”).<sup>2</sup> Another three forwards come from the same user – “爆汁毛毛虫” (literally “Exploding Juice Caterpillar” or “Juicy Caterpillar”) and say essentially the same things:

14:11 - This post’s analysis was really good, everyone give a “like” for this earnest

<sup>2</sup>Karamay is sometimes called “Oil City.” The term “flower” (花) is sometimes used to refer to a beautiful woman. For example, “校花” (literally “school flower”) is somewhat creepily used to refer to a beautiful female student. For more information, see Helen (2010) for an article in the *China Daily*, an official Chinese English-language paper.

author

13:14 - Not a bad analysis, I gave this earnest author a “like”

13:11 - Not bad, I gave the earnest “Police Flower Ma” a “like”

It appears from the posts that this user is likely affiliated with the police somehow. This is the most logical explanation for why somebody would forward the same post multiple times in the span of an hour, saying nearly the exact same thing in every post. If that wasn’t enough, a closer look at the profile picture shows that it is actually the photo of another policewoman.



Figure 4.2: Forwards of a Karamay Police Post

In other words, there are many “inauthentic” forwards of police posts. In the above ex-

ample, while there were nominally 5 forwards of the post, the reality is that not a single forward was made by an account not affiliated with the police. The purpose of this chapter is to explore how these police-affiliated accounts forward police posts on Sina Weibo.

Why does this matter? Han (2015b) provides a compelling argument for why paid commentators are worthy of study. As mentioned elsewhere in the dissertation, the Internet is a new arena of contention where the state competes with others for limited attention. Much of the current research has focused on the censorship side: how the state limits and suppresses competing voices. This chapter focuses on amplification: how the state magnifies their own voice on the Internet. As Han (2015b) points out, the Internet provides a cheap and effective way for the regime to advance its own agenda and influence public opinion, a theme I will return to in Chapter 5. This chapter will demonstrate how local police bureaus employ an army of police-affiliated accounts to forward their posts and spread their message throughout social media.

## **4.2 Police Forwards**

In this section, I will describe some of the characteristics of the police accounts that forward other police posts. Section 4.2.1 describes how police accounts were identified via their usernames. Section 4.2.2 shows that many of the police forwards come from lower-level police accounts from the same province. Section 4.2.3 demonstrates that most police forwards actually do not contain any additional content. Finally, Section 4.2.4 explores what topics are more likely to be forwarded by police accounts.

### **4.2.1 Who are Forwarding Police Posts?**

This section will provide an overview of the types of users that forward police posts. Users will primarily be broken into categories based on their verification status and their police affiliation.

Weibo accounts can prove their authenticity by going through Weibo’s verification process. Weibo offers two types of verification: individual (微博個人認證) for individual people and organizational (微博官方認證) for institutions such as government bureaus, universities, companies, and other organizations.

Identifying declared police accounts was straightforward by construction. Police affiliation was determined by whether users indicated they were affiliated with the police in their username. Table 4.1 shows the keywords used to identify police. If any of these keywords appear in the username of an account, it is considered a police-affiliated accounts.<sup>3</sup>

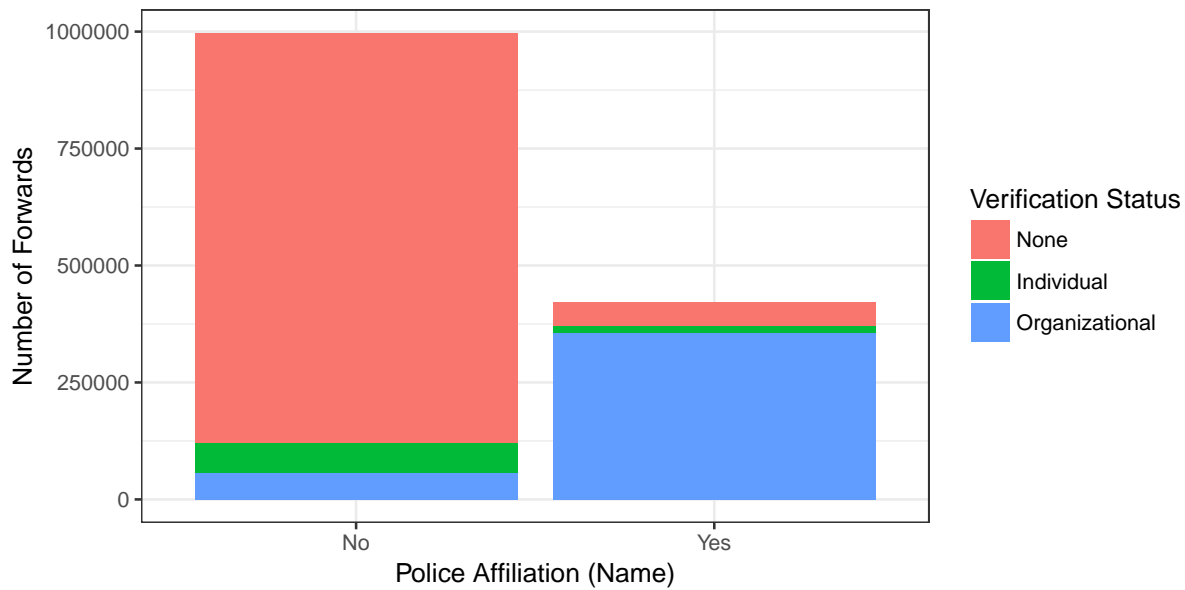
**Table 4.1:** Police Affiliation Keywords

Keyword	Description
警	police
派出所	local police station
公安	police
gongan	pinyin for police
分局	branch station
交管	traffic control
车管	vehicle management (branch under traffic police)
监督	inspection
监管	supervision
平安	“peace” (police accounts often are named “Peace [locality name]”)
pingan	pinyin for “peace”
治安	law and order
网安	internet security
110	police phone number (equivalent to 911 in the U.S.)
消防	fire department (under the public security bureau)
举报	report
出入境	immigration (handled by public security bureau domestically)
刑侦	criminal investigation
大队	brigade (a level of organization within the public security apparatus)
police	

Figure 4.3 shows the number of forwards in the data by verification status and police affiliation. The bulk of forwards come from non-police affiliated accounts – at least those accounts

<sup>3</sup>This likely underestimates the number of individual-verified police accounts. Many individual police do not identify as police in their usernames but rather in their account information sections. Unfortunately, I have only a few users’ account information.





**Figure 4.3:** Number of Forwards by Group

that identify their affiliation with the police in their username – with nearly 1 million forwards coming from non-police affiliated accounts. However, police-affiliated users account for a non-trivial amount of forwards; roughly 29% of all forwards of the police posts in this dataset come from police-affiliated accounts.

As Figure 4.4 demonstrates, the average police account is forwarding much more than the average non-police affiliated account. While the average non-police account only forwards a police post 1-3 times in the dataset, the average organizational-verified police account forwards police posts 32 times.<sup>4</sup> Police accounts are prolific in repeatedly forwarding posts made by other police accounts. While the presence of a large number of police accounts in forwards of police posts is unsurprising, their disproportionate representation warrants further investigation.

<sup>4</sup>The median number of forwards for organizational-verified police accounts is 6, which is still much more prolific than accounts not affiliated with the police.



**Figure 4.4:** Average Forwards Per User

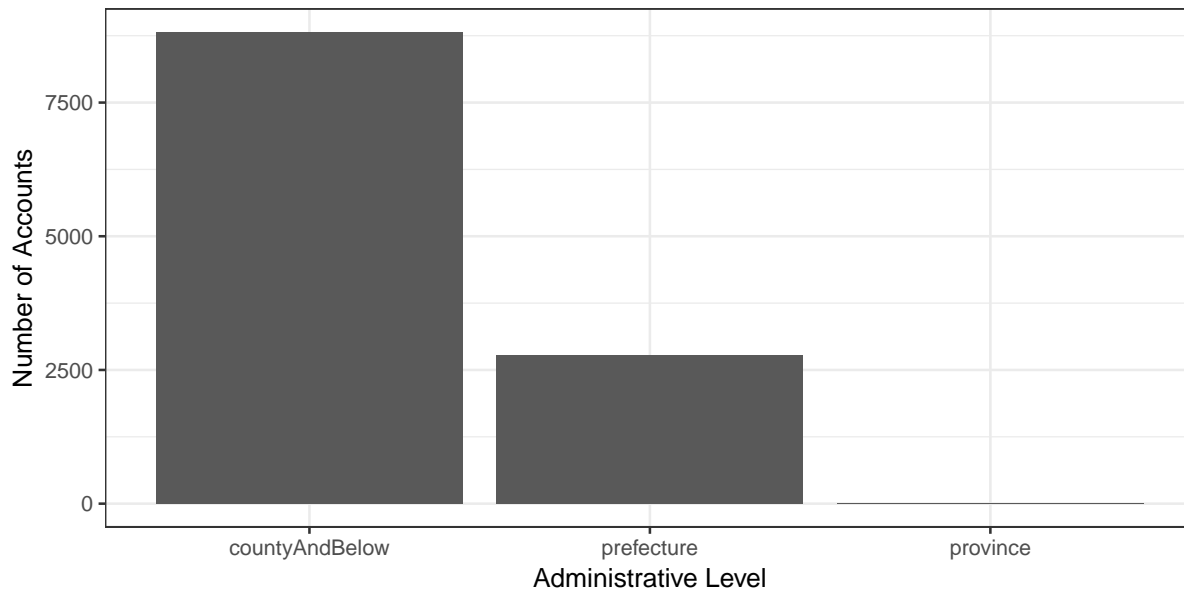
## 4.2.2 What Type of Police Accounts are Forwarding Police Posts?

This section will describe these police accounts in terms of their location and their administrative levels. The administrative levels under consideration are provincial, prefectural, and county and below.<sup>5</sup>

Within this sample of forwards, roughly 18,000 police accounts forwarded approximately 420,000 times. Due to time constraints, these 18,000 police accounts were not manually labeled with their location and administrative levels. Instead, the following mostly-automated procedure was used. A list of every county in China (around 2800) was compiled with their corresponding prefectures and provinces. The names of police accounts typically include the name of the locality that they represent. Their names were first checked to see if any of the 2800 county names were included in the police account username. If yes, then the username is labeled as a county-level account and assigned to that county. If no, then the list of prefectures is checked. If no prefectures are found, then the list of provinces is checked. If at any level there are more

<sup>5</sup>The hierarchy under consideration here in order of higher levels to lower levels is provincial → prefectural → county.

than one locality names found in the username account, then the account is manually labeled either with the correct locality designation or as “unknown” if the locality cannot be determined from the username alone. If no county, prefecture, or province names were found in the username, then the account was left unlabeled.<sup>6</sup> A total of 11,500 police accounts – corresponding to 330,000 forwards – were labeled using this process.



**Figure 4.5:** Administrative Levels of Police User Accounts

Figure 4.5 shows the administrative level distribution of police forwards labeled by the process described above. As can be seen, the majority of police forwarders are at the county level or below – nearly 80% of all police forwards were made by police accounts at the county level or below – with a smaller number of accounts at the prefectural level. There were only 6 accounts at the provincial level. In other words, it was relatively rare for a higher-level account (provincial) to forward posts made by a lower level account (prefectural). Instead most forwards

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<sup>6</sup>Note that this process will introduce incorrect designations if counties have the same names as other localities. As the project moves forward, more accurate methods will be used. One possibility is to collect all the names of subdivisions under the county level, and then use a similar process as before. However, instead of designation at first match, each username is assigned a score for each district that corresponds to the number of matches for that district and its corresponding county, prefecture, etc. names to the username. An alternative is to just manually label all the accounts.

came from police accounts at lower levels.

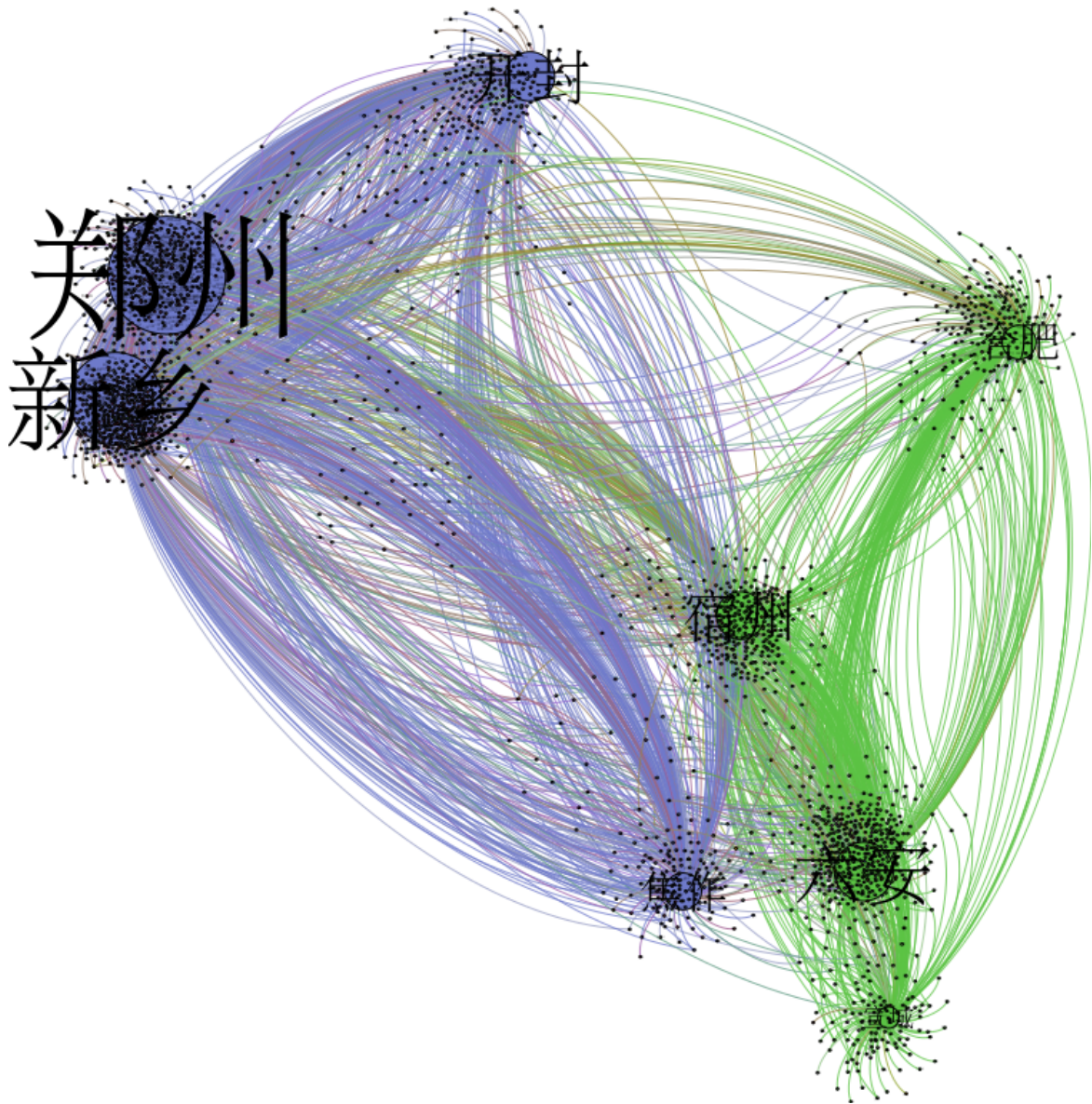
Roughly 60% of police forwards are made by police accounts from the same province. This is illustrated by the example in Figure 4.6, which shows the forwards of posts made by 8 prefectural police accounts in 2 neighboring provinces as visualized using the OpenOrd algorithm (Martin et al. 2011). The plot displays 4 prefectural accounts in Anhui province (Hefei/合肥, Liuan/六安, Suzhou/宿州, and Xuancheng/宣城) and 4 prefectural accounts (鄭州/Zhengzhou, Xinxiang/新鄉, Kaifeng/開封, and Jiaozuo/焦作) in Henan province.<sup>7</sup> The prefectural accounts are the largest nodes, unsurprising since they were the basis from which the forwards were collected. Edges represent forwards and are colored by the province of the source account: green corresponds to forwards from police accounts located in Anhui, while purple corresponds to forwards from police accounts located in Henan. The color for the bulk of the edges match the color of the target node, indicating that – perhaps unsurprisingly – that many forwards are made by police accounts from the same province. Many nodes appear to be clustered around the 8 prefectural accounts and contain single edges, meaning that within this set of two provinces, forwarding accounts tend to forward a single prefecture, though this may be a function of the sampling and inclusion procedure. While most forwards are made by accounts from the same province, Figure 4.6 demonstrates that there is still cross-province forwarding, as seen by the green edges going into the purple regions and vice versa.

### 4.2.3 What is Being Said in Police Forwards

When users forward posts on Weibo, they are given the option of adding their own commentary. The majority of forwards on police posts are not forwarded with any comment whatsoever, with 67% of forwards being a direct forward. However, as Figure 4.7 shows, there are disparities between police-affiliated and non-police-affiliated accounts. On average, police-

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<sup>7</sup>Even if the forwarding accounts have forwarded posts of other prefectures that are included in the overall dataset, they are not included here; only forwards of the posts made by these 8 prefectures are included. A network plot of the entire data is not straightforward to interpret.



**Figure 4.6:** Anhui and Henan Forwards

affiliated accounts add far fewer additional commentary when forwarding relative to their non-police-affiliated counterparts. This disparity is most pronounced in the non-verified police accounts that did not bother registering their affiliation with Weibo.



**Figure 4.7:** Forwards with No Additional Comments

A nonsignificant number of forwards are verbatim copies of the posts they are forwarding. Figure 4.8 shows the distribution of mimicry among accounts. Here, the organization-verified police accounts were far more likely on average to simply copy the exact text of the original post. One potential interpretation is that some organization-verified police accounts are careful not to obscure the message of their peer and superior accounts. Another, less charitable interpretation is that police accounts are not putting much effort into forwarding police posts.

#### **4.2.4 What Types of Posts are Being Forwarded by Police Accounts**

Broadly, police accounts on Weibo post about various topics. These include “typical” public security functions such as missing person reports, the investigation of crimes, and suggestions about how to recognize fraud and avoid being the victim of crimes such as theft. They also



**Figure 4.8:** Forwards that Copy the Original Post

include mundane topics such as the weather that day and traffic conditions. They sometimes also post about current events, including popular movies and national issues such as the South China Sea. Perhaps interesting for those interested in propaganda, they also post about statements put forward by national-level leaders outside of the public security apparatus. The goal of this section is to investigate whether certain topics are more likely to be forwarded by police accounts.

To explore this, I use the structural topic model presented by Roberts, Stewart, and Airolidi (2016). The unit of analysis was a single post made by a prefectural police account. I supplemented the dataset with around 40,000 posts that did not receive a single forward. This was done to help ensure that all topics would be covered, including potentially those that are unpopular. The number 40,000 was chosen because this allowed the ratio of the number of posts with no forwards to the number of posts with forwards to be about the same in the sample as it is in the population. The number of police forwards on the post, the prefectural account that made the post, and the date of the post were used as covariates to help determine topic prevalence.<sup>8</sup> The prior on the topical prevalence covariates included an  $L_1$  penalty to reduce model runtime, where

<sup>8</sup>As per the recommendations, dates were incorporated as b-spline transformed numeric variables.

the shrinkage hyperparameter was determined by AIC.<sup>9</sup> The number of topics was set to 78, which was determined by the software.<sup>10</sup> After estimating the model, the **stm** software allows the user to essentially regress topic distributions on document metadata.<sup>11</sup> Here, I regress them on the number of police forwards a post received. Positive coefficients with larger magnitude presumably correspond to topics more likely to be correlated with a greater number of police forwards.

Below shows the top 5 topics, with keywords and an example post, associated with more police forwards.

### **Hurt Kids [girl (女童); boy (男童); die (身亡); hospital (醫院)]**

[Amazing, 8 year-old girl from Jiangsu nearly dies when her scarf is caught in a wheel] Recently in Suqian, Jiangsu, an 8 year-old girl was riding on her mother's electric bike when her scarf got caught in the rear wheel. The mother frantically tried to remove the scarf, but the girl's face was beginning to change color with her tongue sticking out...fortunately a good Samaritan used a fruit knife to cut off the scarf. The good Samaritan needed to perform CPR in order to save the girl, who had already stopped breathing 【惊讶江苏 8 岁女童丝巾绞进车轮险丧命】近日江苏宿迁一 8 岁女孩乘坐妈妈的电动车时，围着的长丝巾两头被绞进后轮里，脖颈被死死勒在牙盘上，妈妈急忙撕扯，可女孩开始脸色发青，舌头伸长...所幸好心人用水果刀割断丝巾，此时女孩已没了呼吸，好心人给孩子做了人工呼吸才救回她。

### **Scams [scam (詐騙); scammers (騙子); scam techniques (騙術)]**

Many scams are old-fashioned, but people still fall for them. The following are the most typical scams. 1, "Avoid disaster and remove difficulties" uses people's superstitions to scam them: this scam is usually performed by two women and a man. One scammer will approach the victim and say that the victim will definitely encounter some sort of violent misfortune in the future. Another scammer, pretending not to know the first one, will come and agree. However, one will know someone who can dispel this misfortune by selling them something or some other fraudulent

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<sup>9</sup>As implemented in the **stm** package.

<sup>10</sup>More details can be found in Appendix B.1.

<sup>11</sup>Samples from the variational posterior distribution over the normalized document-topic proportions are drawn and used as the response variable in an OLS regression. More details can be found in the accompanying reference for Roberts, Stewart, and Tingley (2017).



technique.<sup>12</sup> 很多街头骗术尽管手法老套，但依然屡屡得手，其中几种骗术最典型。1、“消灾解难”用迷信骗人：此类案件作案人员一般都是两女一男合作诈骗，骗子用“唱双簧”的形式与事主搭讪，然后称其或者佳人有“血光之灾”，但骗子可以找人安排消灾，然后利用调包等办法进行诈骗；

### **E-threats [trojan (木馬); password (密碼); Alipay (支付寶); antivirus (殺毒)]**

#Alert# Copycat cellphone apps will have the same exact logos and text as the original. Users that mistakenly install these fake apps from an app store not only expose themselves to trojans and viruses, popups, and exploding data usage, they also risk the loss of theft of their personal details. These apps can secretly record your conversations with your friends and even steal your bank account information and passwords. #警惕# 山寨手机 APP，图标、文字与正版一模一样，用户通过手机预装的商店搜索，误装山寨 APP，危害不亚于木马病毒，不仅自动接收弹窗广告，导致数据流量暴增，还盗取个人隐私，偷录你与朋友的谈话！甚至会偷取银行账号和密码！

### **Thieves [thief (小偷); pickpocket (扒手); belongings (財物)]**

#Warm reminder# [Uncovering 5 pickpocket secrets] 1 Pretending to read a magazine; 2 Pretending to accidentally bump into people; 3 Pretending that they lost something; 4 Pretending to be a crowded passenger; 5 Covering up with a bag. In public areas with lots of people, there will always be people eyeing others' wallets and phones. They use the above methods to fool people. Be careful after you pass by the stations' security checks and are on a crowded train! #温馨提醒# 【揭秘扒手五种伪装方式】□ 假装看杂志；□ 假装无意撞人；□ 假装东西掉落；□ 佯装拥挤的乘客；□ 以皮包作掩护。在人流密集的公共场所，总有人在盯着别人的钱包、手机，为掩人耳目，他们想方设法进行伪装。进站过安检、列车上人多是时候，大家要多加留意了！

### **Leadership [Meng Jianzhu (孟建柱) [former Minister of Public Security]; Guo Shengkun (郭聲琨) [Minister of Public Security]; reform (改革); society (社會)]; the people (人民); construct (建設); work (工作)**

[Meng Jianzhu: Effectively improving protecting public safety abilities] The National Social Security and Prevention System Construction and Work Conference will be held on the 23rd in Dalian. Meng Jianzhu emphasizes that the content of President Xi's important speeches and the parts with important instructions on the public safety spirit be thoroughly implemented. With improving the people's sense

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<sup>12</sup>Liberal translation to preserve meaning.

of safety and satisfaction as the goal and with the innovation of thought, systems and mechanisms, and methods as the motivation, perfect a multi-dimensional social security and prevention and control system. 【孟建柱：切实提高维护公共安全能力水平】全国社会治安防控体系建设工作会议 23 日在大连召开。孟建柱强调，要深入贯彻习总书记系列重要讲话和关于公共安全重要指示精神，以提高人民群众安全感和满意度为目标，以理念、体制机制、方式手段创新为动力，完善立体化社会治安防控体系。

The above show the five topics with the highest coefficients on the number of police forwards. The first topic essentially consists of stories about children getting hurt, perhaps as a warning to parents about what to watch for or simply because these types of stories prove popular. The next three give advice to people about crimes and criminals to watch out for in their daily lives. These include a topic on how to recognize and avoid various scams; the dangers of various electronic threats including untrustworthy cellphone apps and USB thumbdrives; and how to avoid thieves and pickpockets.

The last of the five topics is interesting from a propaganda perspective. This topic is less advice-oriented than the previous four. Instead, it mainly consists of posts about national-level leadership, with broad statements from former Minister of Public Security Meng Jianzhu and current – as of August 2017 – Minister of Public Security Guo Shengkun featuring prominently. In addition, this topic contains posts about general efforts at the provincial and prefectural levels to improve public safety in the abstract.

Topics that had the most negative coefficients (not shown in the table) – presumably the topics that are least likely to be correlated with a higher number of police forwards – are generally lower in pragmatic content than the ones described above. These topics include posts describing the weather that day, posts that essentially tell readers “good morning” and “good night,” and posts that give readers advice with dubious value. Examples include posts reminding readers not to forget to smile, not to get too stressed out, and to stay positive.

Overall, the results here appear to indicate that despite police forwards on 70% of the posts in this dataset, these police forwards are not being targeted haphazardly. Posts that are

about how to identify scams, thieves, and other criminal problems that people could encounter in their daily lives are more likely to be associated with a higher number of police forwards. While these topics are interesting or relevant to the average citizen, police accounts also seem willing to forward more “boring” and irrelevant posts, namely posts about national-level leadership and abstract descriptions about public safety improvement efforts.

## **4.3 Fake Forwards**

This section will discuss “fake” forwards. These are forwards made by accounts affiliated with the police, but do not identify their police affiliation. These are technically undeclared police-affiliated posts, but for ease of discussion, I will simply call them “fake.”

### **4.3.1 Previous Work**

Studying fake accounts on social media can be difficult. One of the most difficult components of studying fake accounts is the lack of a “ground truth.” Because fake accounts by their nature want to keep their fake status hidden, it can be difficult for researchers to ascertain whether an account is fake or not. Some researchers are able to leverage an external source of ground truth. For example, King, Pan, and Roberts (2017) use emails leaked from a local propaganda office in China to identify fake accounts. Others have to rely on more tertiary evidence. Han (2015b) uses a combination of government documents, media reports, and “guerrilla ethnographic” observations of online sites to glean information about fake accounts.

From another standpoint, the search for police-affiliated accounts that do not declare their affiliation can be likened to the search for bots on social media, a task for which there is a rich literature. Ferrara et al. (2016) categorizes bot detection systems into three types of approaches: using social network information, using crowd-sourcing and human intelligence, and using machine-learning methods.

Social network approaches often rely on the notion that bot communities and real account communities are somewhat disjoint, with within-community connections being relatively dense while inter-community connections between the two communities being relatively sparse (Yu et al. 2010; Alvisi et al. 2013). For example, Abokhodair, Yoo, and McDonald (2015) find a Syrian botnet by observing recurring clusters of accounts that retweeted each other. Another approach is to use crowdsourcing and human intelligence to classify accounts as bots or not. For example, Wang et al. (2012) employ a set of experts and Mechanical Turkers to identify fake accounts on Facebook and Renren.

The final approach is to use machine learning approaches to attempt to classify fake accounts. The machine learning approaches generally use supervised algorithms, meaning that there must be a labeled training set on which the algorithm can “learn” from. Therefore, one of the greatest difficulties in using the supervised learning approach is the initial generation of the labeled training set.

In many of the studies that employ this approach, the authors first hand-label a set of users as being fake or legitimate; they then use this labeled set of users to train a machine learning algorithm (Chu et al. 2010; Ratkiewicz et al. 2011; Miller 2016). Others employ a honeypot scheme, where researchers create their own fake accounts on the relevant social media platform and keep track of what other accounts come and interact with their own fake accounts (Stringhini, Kruegel, and Vigna 2010; Lee, Eoff, and Caverlee 2011). The idea is that only other fake accounts would bother interacting with these fake accounts. In addition, some researchers use unsupervised learning techniques to assign accounts to clusters, manually examining clusters to determine whether clusters contained bot-like accounts (Yang, Yang, and Wilson 2015; Subrahmanian et al. 2016).

The other aspect of many supervised learning approaches is creating the features by which the algorithm will judge whether an account is fake or not. Researchers decide on what features they want to use to classify accounts. While there are a myriad of features that are used in these types of studies, Subrahmanian et al. (2016) helpfully categorizes them into broad sets: post

syntax, such as usage of hashtags, links, or other special features; post semantics, such as emotional sentiment expressed by the post; temporal behavior, such as the average number of posts per day; user profile features, such as whether the username appears to have been automatically generated; and network topology, such as in- and out-degree of the accounts.

### **4.3.2 Identifying Fake Accounts**

The approach employed in this chapter is the supervised machine learning approach described in Section 4.3.1. Due to the data collection strategy – described in Section 1.3.3 – and the limitations of the data collection apparatus, I am unable to use many topological features of the social network to classify accounts. For account user info, I am able to collect the number of followers an account has and how many other accounts it is following, but I am unable to see who any of these other accounts are. I am therefore unable to leverage any information about who populates the social network of these accounts.

To identify fake accounts, I and two research assistants labeled a random sample of roughly 1500 accounts as being “fake” or not. Unfortunately, there is no baseline of fake accounts that forward the police. Therefore, the procedure for identifying fake accounts was meant to be as conservative as possible to reduce the possibility of false positives. For every user to be labeled, we visited their homepage, which contain user profile information, the user’s social media posts, and what accounts follow and are followed by the user account in question.

The main factor that we used to determine whether an account was considered fake or not were the account’s posts. We checked the accounts’ most recent posts as well as posts from throughout the users’ posting history in other years. Some accounts are obviously police-affiliated in some way. For example, there are many accounts that have never posted an original post and only forward posts made by a single police account. Other accounts appear to be handled by a commercial entity. Some of these accounts also rarely post anything original and forward posts from accounts that are often selling things or posting advertisements. For these accounts,

original posts appear to mostly be very trite statements or ads for other products. One tactic employed by fake accounts is interspersing automatically generated original posts in between their forwarded posts. The most common method observed is to post horoscope information – e.g. “the horoscope for Sagittarius is [...]” – in between forwarded posts.<sup>13</sup> If the user posts personal information or pictures at any time, then the user is automatically considered “real.”<sup>14</sup>

A small number of accounts were labeled by both research assistants and were used to evaluate intercoder reliability. Unfortunately, intercoder reliability was not particularly high, with 83.3% agreement (25/30). Within the subjectively-labeled posts, roughly 29% of these accounts were labeled as being fake. In addition to these subjectively-labeled accounts, I included a set of “duplicated” accounts that were all labeled as fake accounts. These duplicated accounts are accounts that forward the same post saying the same exact things 3 or more times. These accounts are considered fake because it is fairly unlikely that an account that does this is unaffiliated with the police account it is forwarding or doing this on accident.

Using the previous studies of identifying bots on Twitter as a basis, I operationalized user accounts into a set of features that would help machine learning classifiers to differentiate between real and fake accounts. Appendix B.3 lists every feature used for the classification task. In addition to the features suggested by previous work on Twitter, I took advantage of a few features that Weibo has but Twitter does not. For example, Weibo users can level up by gaining experience points for accomplishing certain things, such as acquiring a certain number of followers, making a certain number of posts a day, and other similar measures of activity and popularity. Along the same vein, users can earn badges for accomplishing certain tasks. As will be seen in Section 4.3.3, these features were helpful in distinguishing real accounts from fake

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<sup>13</sup>I believe this tactic is employed to evade Sina’s bot detection that may rely on finding accounts that only ever forward posts.

<sup>14</sup>Some accounts appear to be real people during the earlier parts of their timelines, but their more recent behavior appears far more bot-like. One thing that happens is that accounts will get hacked by fake account administrators, who then enlist the stolen account in their army of fake accounts to use for fake forwards, comments, and likes. Even if an account exhibits this type of behavior, the presence of real personal information at any point means that the account is classified as real. This potentially means that many fake accounts are being misclassified as real.

accounts.

These labeled accounts were used as training data to train a classifier that would try to distinguish between regular and fake accounts. Appendix B.2 shows more details in how the classifiers were trained. Prior to classification, all features were scaled to have mean 0 and standard deviation 1. Table 4.2 shows the performance of these classifiers on held-out data.

**Table 4.2:** Account Classifiers

Classifier	Precision	Recall
Random Forest	0.829	0.723
XGBoost	0.857	0.729
k-Nearest Neighbor	0.958	0.714
Logistic Regression	0.966	0.820
SVM	0.988	0.143
Stacked	0.992	0.609

In this case, the stacked classifier is an XGBoost classifier takes as input the predictions made by all 5 other classifiers. Hyperparameters were determined via 150 iterations of 3-fold cross-validated random search. The classifier that has the best balance is actually logistic regression. It has relatively high precision (0.966) and the highest recall (0.82) of all the classifiers. However, since we are trying to identify fake accounts, I would argue that precision – and the reduction of false positives – is the most important metric. Therefore, the stacked classifier, which has the highest precision but a relatively low recall, was used to label the accounts. This classifier, when applied to the entire set of unlabeled accounts, predicts that around 10% of all forwards are by fake accounts.

### 4.3.3 Differences between “Fake” and “Real” Users

There are a number of features that help distinguish “fake” users – users that are affiliated with the police but do not declare their affiliation – and “real” users – those accounts that are not affiliated with the police. These features help the classifier distinguish between real and fake users. In this section, I will describe some of these features.

Fake users are generally less active than real users. One of the features that distinguishes Weibo from Twitter is the presence of “badges.” Badges are often used to incentivize users to spend more time in the app and are awarded to users for fulfilling various objectives, such as sharing certain links, installing the mobile app, “liking” a certain number of photos, playing games on the platform, and other similar activities.<sup>15</sup> Figure 4.9 shows the disparity between badges among users classified as fake and those classified as real.



**Figure 4.9:** Difference in Badges

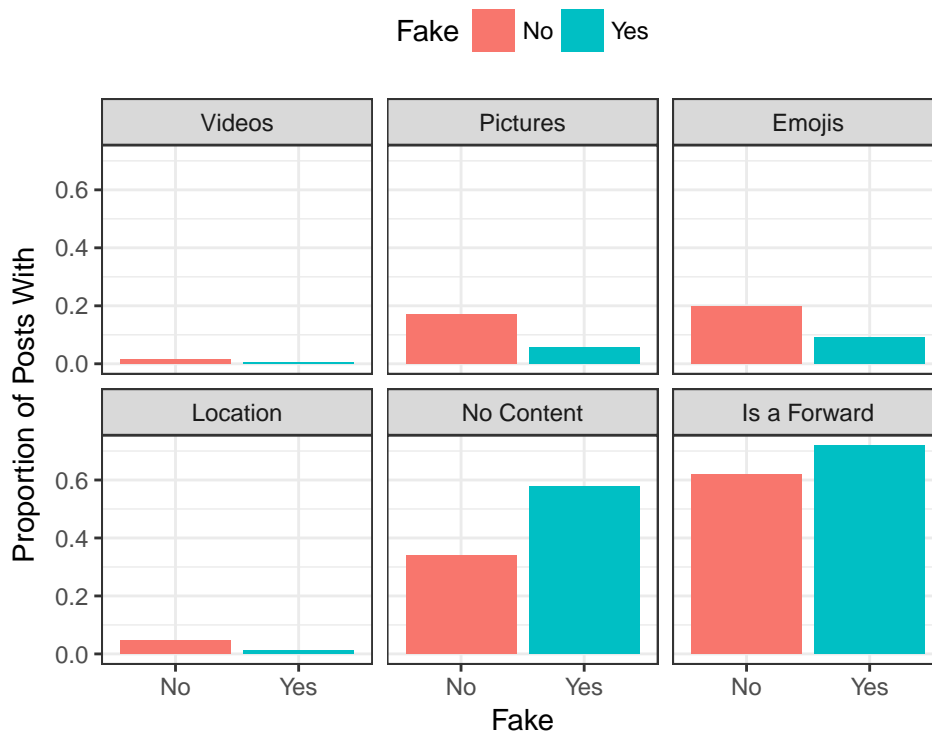
The most common badge is the “first post” badge (一舉成名), which is awarded to users for making an original post. For many fake users, this is the only badge they have, with 85% of fake users only having this single badge. Real users, on the other hand, often have more badges, having on average more than 7 badges.

Fake users also appear to put less effort into the actual content of their posts. Figure 4.10 shows the differences in post content among a variety of measures.

On average, a slightly higher proportion of posts made by fake users are forwards or

<sup>15</sup>For more information, see <http://badge.weibo.com>.



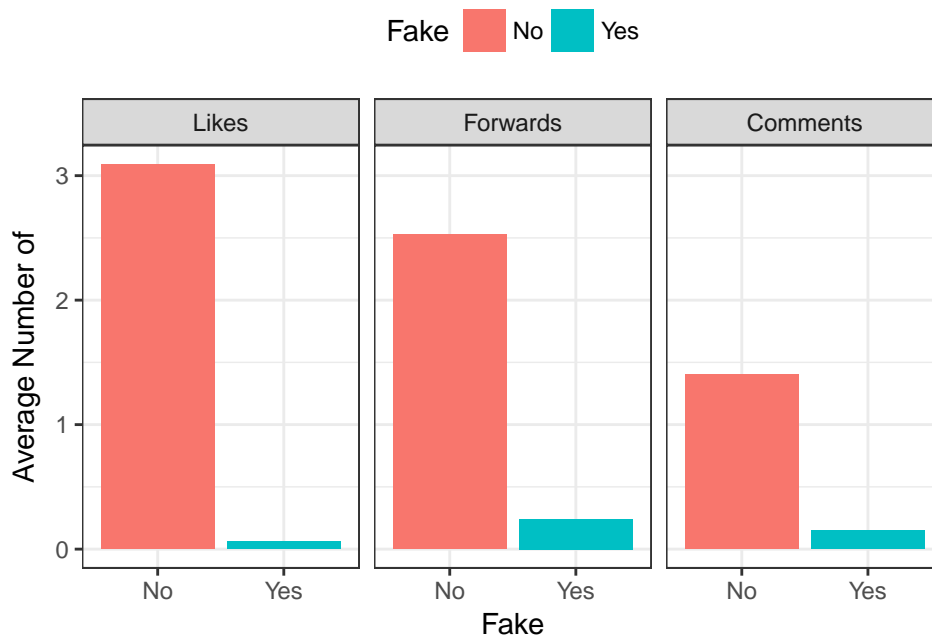


**Figure 4.10:** Difference in Post Content

comments on other posts, rather than original content, which would require slightly more effort. Fake users also have posts that are generally less likely to contain videos, pictures, emojis, and any location information, which would again require more effort to be expended in posting. In fact, nearly 60% of posts made by fake users just have no content at all, meaning that they forwarded a post without providing any additional commentary.

The lack of content in posts made by fake users is reflected in their popularity as well. Figure 4.11 demonstrates that on average, the posts made by fake users receive fewer likes, forwards, and comments than those made by their real counterparts.

Certain user attributes as seen as Figure 4.12 also illustrate the difference between fake and real users. Fake users generally have a lower ratio of followers to following. In other words, the number of accounts that follow a fake account relative to the number of accounts a fake account follows is lower than that of a real account, as expected. It is possible that fake accounts,

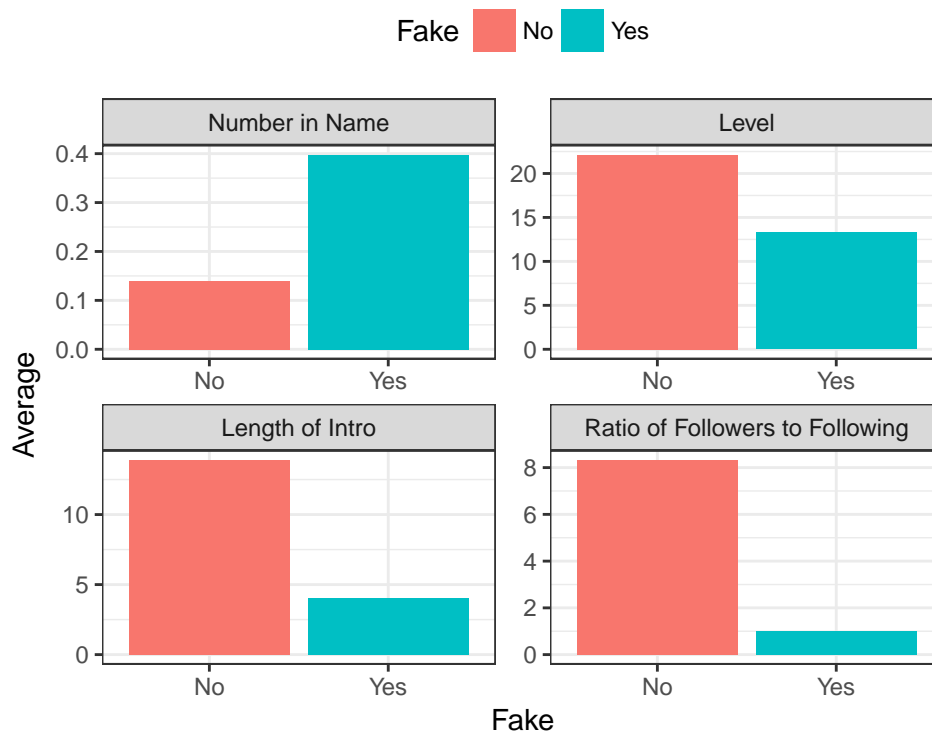


**Figure 4.11:** Difference in Post Popularity

in addition to forwarding and commenting on posts, also follow accounts to inflate follower numbers. Fake accounts also appear to put less effort into filling out their profiles.

Weibo allows users to include various bits of information about themselves, such as where they went to school, their relationship status, and an introduction about themselves. Fake users tend to have much shorter introductions. They are also more likely to include a number in their usernames. Like other services, if a user attempts to register a username that is already taken, it will suggest the same or a similar username with additional numbers. Mirroring the finding regarding the badges, fake accounts also are generally a lower level than real accounts. As with badges, users “level up” their accounts by being active on Weibo and fulfilling certain tasks, such as writing a certain number of original posts a day, attracting a certain number of followers, and so on.

Overall, the accounts identified by the classifier as being fake generally evince lower levels of “meaningful” activity. This can partially be seen in their lower levels and fewer badges. In addition, the posts they make tend not to be popular, garnering fewer forwards, likes, and



**Figure 4.12:** Difference in User Attributes

comments than their real counterparts. This is perhaps not surprising, since the posts made by fake accounts appear to have less content overall. Finally, fake accounts also appear to exert lower effort into the creation of their accounts: they are more likely to have numbers in their username and to have shorter introductions about themselves.

### 4.3.4 Topics Forwarded by Fake Accounts

The goal of this section is to determine whether fake accounts specifically targeted certain topics to forward. I use the structural topic model by Roberts, Stewart, and Tingley (2017) with 50 topics to explore this possibility. I employ two approaches.

In the first approach, I assign each post to a single topic – as determined by highest proportion topic – and find the topics that have the highest average number of undeclared forwards. Under this approach, topics associated with the highest average number of undeclared forwards

are shown below.

### **Xiangtan [Xiangtan (湘潭), road conditions (路况)]**

#Real-time road conditions# [Xiangtan real-time road conditions and evening rush-hour] There is traffic on Bridge 1 South and Bridge 3 West to east direction. The road near construction sites has regular traffic. The Jiuhua Expressway and Majiahe Beijing-Zhuhai Expressway have normal traffic, please drive in an orderly fashion. # 实时路况 # 【湘潭实时路况 & 晚高峰】一桥南、三桥西向东车流量比较大, 道路通行较为缓慢, 建设路口道路较畅通, 九华高速进出口、马家河京珠高速进出口, 车流量正常、道路畅通, 请有序通行。

### **Lifestyle [good morning (早安), lifestyle (生活)]**

#Good morning# Maybe not every day will be all that wonderful, but every day will have some wonderful things. Happy Dragon Boat Festival! # 早安 # 也许不是每一天都那么美好, 但每一天都会有一些美好的东西存在。端午节快乐!

### **Transportation [subway (地鐵)]**

#Changsha things# Here is the schedule for Line 2 of the Changsha subway. Save and forward! (via Changsha Subway) # 长沙身边事 # 长沙地铁 2 号线首末班车时间表。收藏转发! (via 长沙地铁)

Another approach is to regress topic proportions for each post on the number of undeclared forwards associated with that post. Out of the 50 topics, there are only 2 topics where the coefficient on the number of undeclared forwards is both positive and considered statistically significant with an alpha of 0.05. These are shown below.

### **Police work [save (求助), timely (及時), old people (老人)]**

An old person that just arrived at Hubei from Guiyang went out to buy things by himself and got lost. The frantic old person was able to find a policeman and ask for help. The policeman leveraged multiple contacts and was able to reunite the old person with his family. 一名刚从湖北到贵阳的老人, 独自出门买东西迷路了。焦急的老人找到路边执勤的民警求助, 民警多方联系, 终于帮助老人与家人团聚。

## Safety [prevent (防範), knowledge (知識)]

[Driving safety and prevention] 1. Make a habit out of locking your car doors after leaving. 2. Try to park in bright areas or areas managed by people when parking in underground parking garages. When you finish parking, don't get out immediately. Look around for anything weird before disembarking. 3. Don't leave anything valuable in your car, but try to put them in your trunk to avoid attracting thieves. 【外出驾车安全防范】一、开车外出务必养成锁车门的习惯。二、停车时，首先要选择路面亮灯或选择有人管理、照明良好的地下停车场停车；车停后不要立即下车，确认周围无异常时再开锁下车。三、车中不要存放贵重财物，切勿放置于车厢或后备厢内，以免“招贼”。

Overall, there does not seem to be a strong signal in what topics fake accounts target. Under the first method, a regional topic for Xiangtan is one of the top topics, as well as one on transportation. Of interest perhaps is the lifestyle topic. Police accounts tend to not forward these types of posts, but it appears to be a topic of interest for the fake accounts. Under the second method, the topics seem somewhat similar to the ones that police accounts do forward.

## 4.4 Police and Fake Account Coordination

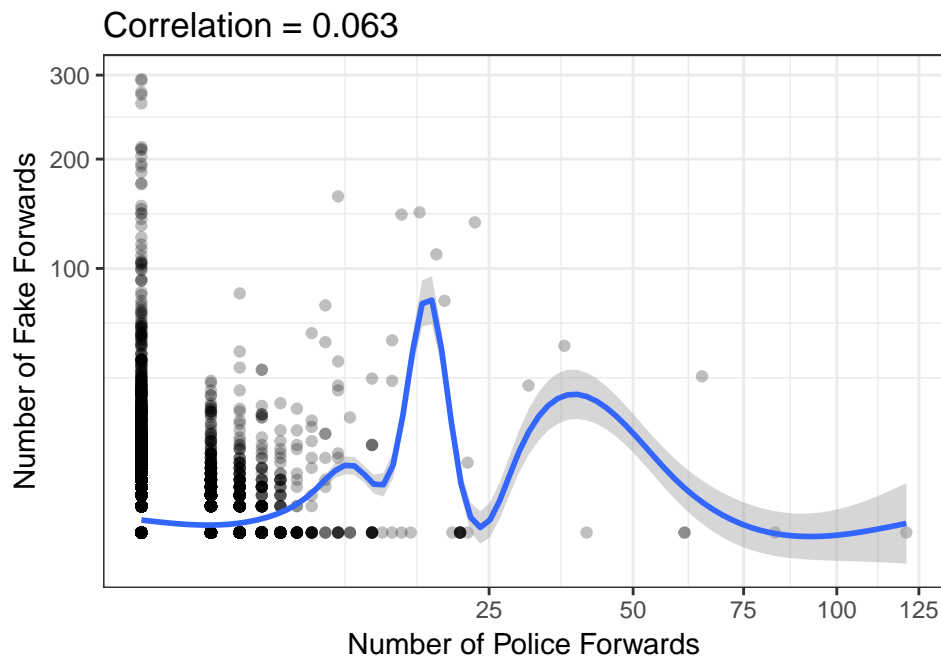
The goal of this section is to see whether there is any coordination between police and fake accounts in terms of which posts they forward. There are three general scenarios that could occur.

1. One possibility is that police accounts employ other police and fake accounts in targeting the same posts. In this scenario, the goal is to promote a certain set of posts using a mix of both police and fake accounts. If this were the case, we would expect to see a positive correlation between the number of police and fake forwards per post.
2. Another possibility is that there is a division of labor between police and fake accounts, where police accounts forward one set of tweets and fake accounts focus on another set. If

this were the case, we would expect to see a negative correlation between the number of police and fake forwards per post.

3. A final possibility is that there is simply no relationship between these two account types in what they are assigned to forward, implying that there is no distinct strategy when it comes to allocating police and fake forwards.

Figure 4.13 shows the number of fake forwards versus the number of police forwards per post at the square root scale. One can see that the correlation between the two counts is not very strong. In the region with the highest density of data, the correlation between the two appears close to zero. However, there is a large number of posts where there are many police forwards with no fake forwards and vice versa.



**Figure 4.13:** Post-Level Police vs. Fake (Square Root Scale)

Therefore, it appears that there does not seem to be coordination to have police and fake accounts forward accounts, nor does there appear to be a division of labor where fake accounts target a certain set of posts while police accounts target another set.

## 4.5 Estimating the Total Number of Police and Fake Forwards

In this section, I will perform some rudimentary calculations to provide a very rough estimate of the total number of police and fake forwards. As noted in Section 1.3.3, the police posts in my dataset were forwarded around 66 million times. Section 4.2.1 estimates that roughly 29% of all police forwards are police forwards. If we simply applied this proportion to the entire 66 million, then we would estimate that there are around 19 million forwards of police posts by other police accounts. In Section 4.3.2, I also estimated the proportion of forwards that came from fake accounts as being around 10%, meaning that around 6.6 million forwards of police posts are by fake accounts.<sup>16</sup> The estimate we have here then is that police and fake accounts together generated 25.6 million forwards – or 40% of all forwards – of Chinese prefectural police accounts from 2009 to 2016. This is potentially an underestimate, since the classifier used to label accounts did not have perfect recall and that the training set it was trained on was also conservatively labeled.

Note that this is only the first level of forwards. The forwards themselves can also be forwarded. The average number of forwards per forward and the average number of likes per forward are shown in Table 4.3.

**Table 4.3:** Forwards of Forwards

Type	Avg. Forwards	Avg. Likes
Real	0.456	0.139
Police	1.096	0.293
Fake	0.156	0.026

The average number of forwards for police forwards is the highest, perhaps unsurprising given the topic of this chapter; many of these – 40% as estimated – forwards of police forwards are likely by other police accounts or from fake purchased accounts. Fake forwards unsurprisingly

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<sup>16</sup>Remember that the classifier used to label the accounts was relatively conservative, with a recall of 0.61. The true proportion of fake forwards is likely higher. If we had used the proportion from the hand-labeled training set, we would have instead estimated that 29% of all forwards were fake, and the total number of fake forwards would then be around 19 million.

receive the least amount of further interaction. If we apply these averages to the figures estimated above, then “real” forwards – of which there were 37.4 million of – generated another 17 million forwards and 5 million likes. Fake forwards generated another 1 million forwards and 170,000 likes. Finally, police forwards generated another 20.8 million forwards and 5.6 million likes. Note that many of these forwards and likes are very likely to come from other police and fake accounts.

This is only for forwards of forwards. In theory the forwards of forwards could themselves be forwarded.<sup>17</sup>

## 4.6 Discussion

This paper has provided a brief overview of forwards – retweets in Twitter parlance – of prefectural police account posts on the social media platform Sina Weibo. A fairly large chunk of forwards of police posts are actually done by other police accounts, with forwards by police accounts constituting nearly a third of the forwards collected in this dataset. This is partially due to the perhaps unsurprisingly much more prolific nature of police accounts in terms of forwarding other police posts; police accounts make up 3% of the users in the dataset but are responsible for 30% of the forwards. In general, most of these police accounts come from lower-level police bureaus from the same province. Some forwards come from groups whose work can intersect with those of the police, including lawyers. Most forwards in this dataset add no additional content but instead are direct forwards. Quite a few just copy the content of the original forward verbatim.

Despite the fact that 70% of all posts in the dataset received at least one police forward, it appears that these forwards are not haphazardly applied. Within the broad array of topics that police accounts post about, topics that are more likely to receive more police forwards are

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<sup>17</sup>Appendix B.4 calculates the number of forwards of forwards of forwards under very strong and generous assumptions.



generally topics that are more pertinent to people's daily lives. These topics include how to avoid criminals and stories about various misfortunes befalling children. However, one of the topics most likely to receive a relatively higher number of police forwards is the topic on police leadership. These types of posts generally share pronouncements by the central-level leadership in the Ministry of Public Security and by Hu Jintao and Xi Jinping, the general secretaries of the Party during the timeframe of the study.

Combined with the finding that most police forwards come from lower-level police bureaus within the same province, the implication is that these forwards are somewhat directed in a top-down fashion, where higher-level administrative units direct public opinion offices in the lower-level police bureaus to forward certain posts. While the stories of children being hurt is somewhat macabre, these topics are presumably picked because they are the types of stories people would be interested in and pay attention to. This falls broadly in line with exhortations from the top that the government should be able to relate to the masses and that disseminated information should be actually useful to their everyday lives.<sup>18</sup> The goal is to build engagement with the community so that when the police departments wish to disseminate information, it will reach the right ears.

Fake accounts, on the other hand, seem to be applied somewhat haphazardly. It is estimated that around 10% of all forwards of police posts come from fake accounts purchased for the purpose of artificially inflating interaction numbers. There appears to be little coordination between the fake accounts and police accounts that forward police posts. A post that has more police forwards does not necessarily have more fake forwards and vice versa. As discussed in Section 2.4, accounts are incentivized to inflate their follower counts. Since there appears to be little coordination between police and fake forwards, it may imply that fake forwards are used for satisfying bureaucratic requirements, rather than amplifying specific information.

It is estimated that in total, 40% of all forwards of police posts come from either other

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<sup>18</sup>In Chinese, this is referred to as 接地氣, which literally translates as getting close to the "air" from the ground. This is broadly similar to the general concept expressed by the phrase "keeping one's ear to the ground."

police accounts or from fake accounts. This is a very high number and was beyond what I expected. The overall numbers indicate that there appears to be a high reliance on “non-real” accounts to forwards police posts. In reality, however, different accounts exhibit varying levels of reliance on fake accounts. Chapter 5 will discuss the roots of this variation.

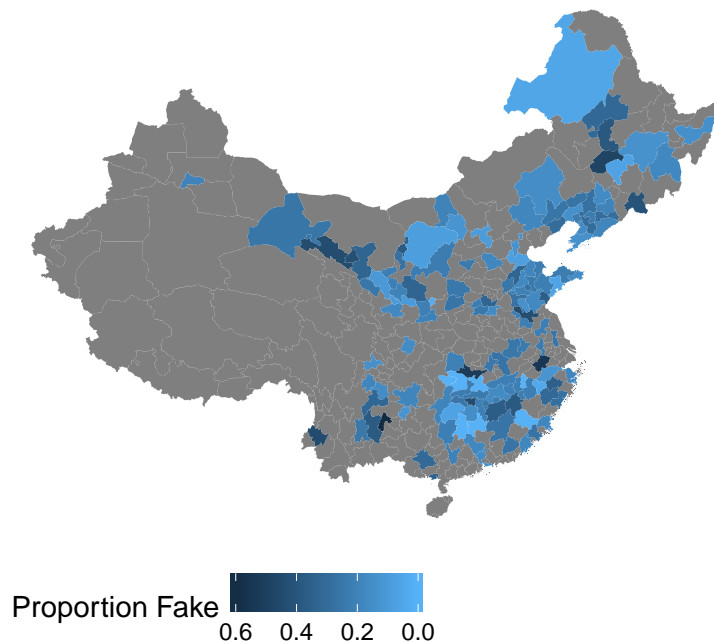
# Chapter 5

## Picking Strategies

### 5.1 Background

This chapter seeks to answer what determines the usage of fake accounts to forward posts. Figure 5.1 shows Chinese prefectures' reliance on fake forwards. Darker blue indicates that a greater proportion of forwards of posts by that prefectural police account are from fake accounts. For example, a value of 0.2 indicates that 20% of all forwards of posts made by that prefectural police account are estimated to be from fake accounts. Grayed-out prefectures are prefectures where I have no fake forward data. As can be seen, there is considerable geographic heterogeneity. Some prefectures exhibit very little reliance on fake forwards, while fake accounts account for around 60% of forwards in other prefectures. The question, then, is why certain prefectures rely so heavily on fake accounts to forward their posts. In theory, all else equal, generating engaging content should be the preferred strategy, since engendering real interest in police content would be preferable to having only fake accounts engage with the content. As was seen in Section 4.5, real forwards on average are forwarded and liked much more than fake forwards.

Those more familiar with Chinese geography may notice that the darker clusters in Figure 5.1 tend to be in poorer areas. For example, the thin long set of prefectures in the middle



**Figure 5.1:** Geographic Distribution of Fake Forwards Proportion

of the map lie in Ningxia and Gansu provinces, China’s 3rd and 5th poorest provinces by GDP, respectively. The small cluster to the south in Yunnan and Guizhou are also quite poor. The northeastern provinces are not particularly wealthy either. Indeed, at a police Weibo conference, representatives from Shanxi province – which is a poorer inland province – noted that in comparison with the richer, coastal provinces and cities, Shanxi suffered from slower progress in setting up its Weibo accounts, lack of human resources for social media account administration, insufficient hardware, and uneven development (山西省公安廳 2012). Roughly along the same vein, representatives from Henan province brag that the fact that government Weibo accounts were opened in their province – despite its less-developed economy and fewer resources and availability of technical skills – demonstrated the courage and insight of Henan’s public security bureau’s party committee [“在河南這樣一個經濟不發達、物質基礎和技術力量相對滯後的省份開通微博，顯示了省公安廳黨委的膽識，是解放思想的結果”] (河南省公安廳 2012, 64). Previous research also found a difference in website implementation between richer coastal provinces and poorer inland provinces (Zhou 2004).

In other words, it appears that poorer areas seem to have a greater reliance on fake forwards than perhaps wealthier areas do. The rest of the chapter will be devoted to evaluating this claim and proffering reasons to why this would be the case. Section 5.2 describes the challenges government social media account managers face when trying to create engaging content and why purchasing fake engagement may be more cost-effective. Section 5.3 presents the empirical evidence that poorer prefectures are more likely to rely on fake forwards. Section 5.4 offers some concluding thoughts and implications for this finding.

## **5.2 Challenges in Administrating a Social Media Account**

At first glance, the argument that poorer prefectures are more likely to spend money to purchase fake forwards appears suspect. Why would resource-constrained governments expend even more resources to pay others to interact with their social media posts when they can just put in the effort to create engaging content?

In reality, there are many obstacles to generating engaging content. Zheng (2013) provides a comprehensive overview of these obstacles, a few of which I will highlight here. For one, the staff assigned to manage government social media accounts may not have the proper expertise in “how to attract attentions [sic] and how to respond to the public in emergencies” (Zheng 2013, 374). Part of the issue, according to 吴 and 郑 (2012), is that government officials in China are generally not accustomed to actually speaking directly to people but are conversant in the formal language of government. This issue may potentially be exacerbated in departments such as the police, whose main functions are not propagandistic in nature.

Another issue is that many social media accounts are not manned by dedicated staff (Zheng 2013, 373). Instead, the government official tasked with managing the social media account must do so in addition to their regular duties. In one police bureau I interviewed, I was told that police officers were assigned to social media duties for specific days, which they must do on

top of their existing work. Zheng (2013) remarks that even if there are allocations for full-time staff, some officials are reluctant to work on social media tasks for fear of being marginalized in their departments.

This may be a problem particularly for the police, who Scoggins and O'Brien (2016) argue are an unhappy bunch. According to Scoggins and O'Brien (2016), Chinese police are already inundated with work and forced to face a variety of time, funding, and staffing constraints. For police departments that have officers man social media accounts in shifts, adding social media duties on top of already heavy workloads can be particularly burdensome. Managing a social media account extends beyond posting information; social media account administrators are also expected to reply to direct messages, interact with users who comment on their posts, and monitor public opinion in general.<sup>1</sup> Scoggins and O'Brien (2016) notes that many people who contact police about issues are often unaware of what police duties actually entail. This was confirmed in an interview I conducted with a local police bureau; social media administrators noted that they received a high volume of private messages (私信, the equivalent of direct messages or "DM"s in Twitter) daily that were completely irrelevant to police work. They were also required to reply to each and every message, though the administrators I spoke with noted this as a point of pride rather than a burden.

In theory, these issues can be ameliorated by hiring staff whose major responsibility is to manage the social media accounts and who already have experience with social media. However, Zheng (2013) found in his interviews and focus groups that many governments do not properly fund their social media efforts. If funds are allocated to for social media, they have to be drawn from other budgets. In a review of Weibo policy documents at the prefectural and county levels, Chen et al. (2016) notes that while these documents often discuss how to a social media account should be operated, they rarely discuss how these operations will be funded.

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<sup>1</sup>Many government social media accounts fall short of this lofty goal.

## 5.2.1 Funding the Police

It may seem odd that police bureaus can be underfunded. An oft-cited statistic is that China's spending on domestic security exceeds that of spending on its military.<sup>2</sup> Greitens (2017) has argued that this is a skewed way of viewing the data. According to her figures, domestic security spending has remained relatively constant percentage of total expenditure, and growth in social security spending has also exceeded growth in defense spending. Also, per capita spending on domestic security is low compared to other countries: the United States and Russia spend \$489 and \$393 per capita on domestic security, while China spends \$92 (Greitens 2017).<sup>3</sup>

Xie (2013) argues that increases in funding have actually enlarged the gap between rich and poor localities. The root of domestic funding increases lies in financial reforms began in 2003 that increased the amount of money flowing from the central government to local coffers. As Xie (2013) remarks, the “Decision of the CCP Central Committee on Strengthening and Improving the Work of Public Security (中共中央關於進一步加強和改進公安工作的決定) made the following policy decision:

In accordance with the principles of decoupling income and expenditures, guaranteeing the full amount, highlighting important points, and step-by-step implementations, a public security fund guarantee system will be established [...] Central subsidies for public security organizations in central and Western localities will be increased to guarantee that they can meet their work and case expenditures. [按照收支脱钩、全额保障、突出重点、分步实施的原则，建立公安经费保障机制。 [...] 由中央财政和地方财政分别予以保障。加大中央财政对中西部地区县级公安机关的补助力度，保障基层公安机关办公、办案的经费支出。(Chinese Communist Party 2003)

This was a departure from the “eating in separate kitchens” (分灶吃饭) principle introduced in 1980, where localities entered into revenue-sharing contracts with the center. The original intent of the reform was intended to shift fiscal burdens downwards and away from the

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<sup>2</sup>Blanchard and Ruwitch 2013.

<sup>3</sup>A large factor in this is likely the relatively low salaries that Chinese police receive.

center (Shirk 1993, 164).<sup>4</sup> The 1994 tax reform further meant that localities were responsible for their own expenditures. This is especially true for the public security bureaus, whose decentralization and system of same-level government funding had been in place since the Great Leap Forward (Tanner and Green 2007, 652). While the “eating in separate kitchens” principle incentivized and enabled the rapid rise of China’s township village enterprises and economic growth, it also incentivized local police forces to maximize the parts of revenue that did not have to be shared with the center, such as fines generated from traffic and social order management cases (Tanner and Green 2007, 667-668). Local government control over public security personnel (編織) meant that local leaders could subjugate the police, forcing their duties to include “collecting debts, beating dogs, and tying tubes” (Tanner and Green 2007, 666).<sup>5</sup> These issues were likely exacerbated in poorer areas with more frequent revenue shortfalls.

The 2003 reform was therefore enacted to alleviate these issues and remove incentives to rely on excess fees and charges by the police for revenue (Xie 2013, 85-86). However, Xie (2013) argues that poorer regions still have to spend a larger proportion of their revenue on maintaining security. While the central government has appropriated more funds for localities, the needs of localities can still outstrip transferred funds. Oftentimes, transfer funds are allocated to specific projects, while the responsibility of paying salaries – which are a major part of security costs – still lies at the local level. Therefore, poorer localities remain underfunded.

## 5.2.2 Learning to Engage Versus Buying Forwards

In this resource-constrained environment, local police departments may not have the option of training police officers to become better social media managers. There do indeed exist training classes that bring government officials up to speed in terms of dealing with social media. Table 5.1 shows a selection of available training classes. Note that is not a representative sample;

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<sup>4</sup>However, the need for political allies in supporting reform meant that deals were cut with the provinces, leading to continued low central revenue (Shirk 1993, 171).

<sup>5</sup>Tying tubes is a reference to using police to enforce birth control policies.



it is a sample of classes that have websites that indicate prices for training classes. Curriculum for these courses generally include units on the role of new media, including social media platforms such as Weibo and WeChat and how to respond to public opinion and sudden events (突發事件).

**Table 5.1:** Public Opinion Training Classes

Class	Organization	Price (RMB)
Government Big Data Theory and Implementation [政務大數據理論與實踐] (wangfang 2018)	Govmade [國脈]	8000
Mid-Level Online Public Opinion Analyst [網絡輿情分析師 (中級)] (王 and 朱 2017b)	<i>People's Daily</i> Public Opinion Data Center [人民網輿情數據中心]	7980
Online Public Opinion Analyst [網絡輿情分析師] (陈 2014)	Dazhongwang [大眾網], a news organization in Shandong	4735
Party Government Cadres Government Public Opinion Response Training [黨政幹部政務輿情回應培訓班] (王 and 朱 2017a)	<i>People's Daily</i> Public Opinion Data Center [人民網輿情數據中心]	4980

Another option to training police officers to generate engaging social media content is to purchase “fake” interactions. A research assistant browsed Taobao, a major Chinese e-commerce site, and compiled a list of vendors selling forwards and comments for Weibo, which are shown in Table 5.3. The second and third columns show the price, in RMB, to purchase one hundred forwards or comments, respectively. For example, Vendor 1 can do 100 forwards for 20 RMB or 100 comments for 200 RMB.

Compare the prices in Table 5.1 with the prices in Table 5.3. Even when comparing the most expensive “fake” option with the cheapest training option, the fake option can look quite appealing. For the same price as the cheapest training option – the “Online Public Opinion Analyst” class offered by Dazhongwang at 4735 RMB – one can obtain nearly 2400 comments from the most expensive vendor – Vendors 1 or 3. These 2400 comments will also be guaranteed to express positive sentiment. One potential consequence of inadequate social media training for

**Table 5.3:** Purchasing Interaction

Vendor	Forwards (RMB per 100)	Comments (RMB per 100)
1	20	200
2	5	50
3	10	200
4	167	167
5	2	30
6	5	50
7	15	100
8	50	50

police officers is that the content untrained officers posts may – instead of generating positive engagement – draw derision and contempt. Zheng (2013) notes that many government social media account managers are afraid to engage with netizens on social media for fear of a negative backlash and criticism. By purchasing fake positive comments, governments can avoid this risk. If one compares the cheapest fake option with the most expensive training option, then the contrast is even more stark; the price of Govmade’s course could purchase 40,000 fake forwards.<sup>6</sup> This is not meant to be a rigorous price comparison or analysis; the goal is to simply demonstrate how inexpensive fake account interactions are compared to a sample of external training regimens.

The other appeal of purchasing fake interactions is that the interaction – a comment, forward, or like – is guaranteed. It is quite possible that an official who returns from a relatively expensive training class is still unable to drum up interest and engagement with government content. A police officer might not even be motivated enough to try hard in creating engaging content; one interviewee told Scoggins and O’Brien (2016) that local police are too apathetic and unmotivated to try to boost productivity and often look for ways to shirk their duties. Even if the social media account managers themselves are motivated to create engaging content, they must get the buy-in of those around them as well. Zheng (2013) finds that in many local governments,

<sup>6</sup>Note again that Table 5.1 is not a representative sample of all the training classes available to government social media account managers. There may be cheaper classes available.

posts need to undergo a content review process and be approved by high-level leaders. This is reflected in government policies regarding Weibo accounts: the need for a vetting process was found in 97% of the policy documents that Chen et al. (2016) reviewed. For the resource-constrained police department, we can see the appeal of foregoing learning how to generate engaging content and rely on purchased forwards instead.

### 5.3 Resources and Fake Forwards

Figure 5.2 falls in line with the intuition that poorer prefectures exhibit greater reliance on fake forwards. The y-axis shows the proportion of all forwards in a prefecture that are made by fake accounts. The x-axis shows the average GDP of a prefecture from 2009-2016 on a log scale.<sup>7</sup>

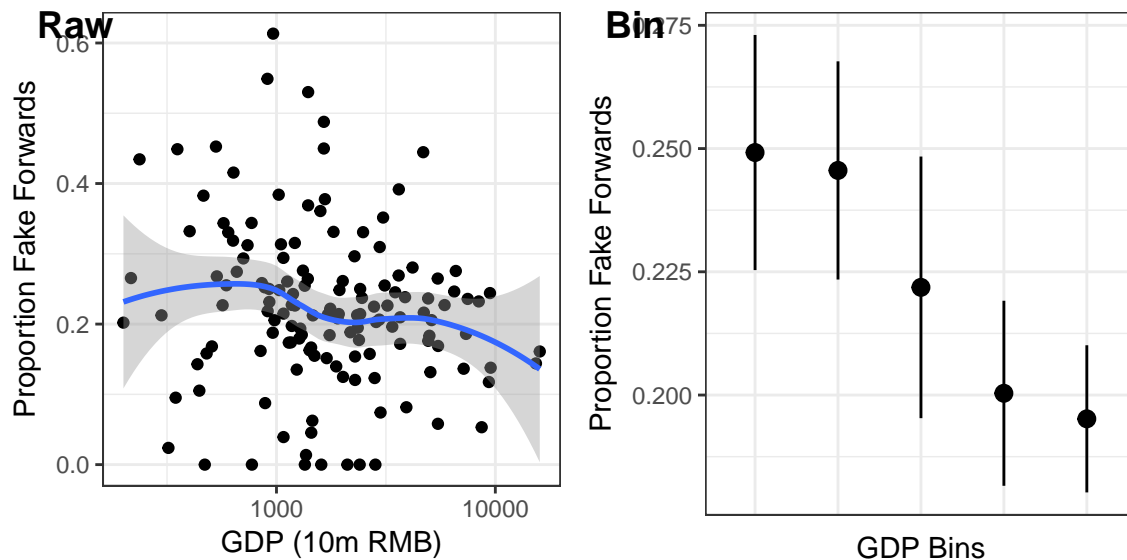


Figure 5.2: Fake Forward Proportion vs. GDP

In the raw data shown on the left-hand side of Figure 5.2, we do see that the association between GDP and the proportion of fake forwards is negative, indicating that richer prefectures

<sup>7</sup>The years 2009-2016 represents the time coverage of the Weibo data.

rely less on fake forwards, on average. This association is even more pronounced when the data is binned into quantiles, as seen on the right-hand side of Figure 5.2. The lowest quantile's average proportion of forwards that are fake is more than 5 percentage points higher than the highest quantile.

Table 5.4, which shows the results from two OLS models, lends some credence to this argument as well. The unit of analysis in the models is a single prefecture. The models regress the proportion of forwards that are fake on the logarithm of prefecture GDP – the main variable of interest – as well as the logarithm of the population in that prefecture and the total number of posts made by the prefecture's police account. Observations are weighted by the proportion of collected forwards.<sup>8</sup> The only difference between the two models is that the first model does not contain provincial dummies, while the second one does.

The coefficients on the logarithm of GDP in both models are negative and similar in magnitude. The model with provincial dummies predicts that a 10% increase in GDP is associated, on average, with a 0.2 percentage point increase in the proportion of forwards that come from fake accounts. However, note that the GDPs for the prefectures in this dataset vary widely; the average GDP of the poorest 20% of prefectures is around 5 billion RMB, while the average GDP for the richest 20% is around 70 billion RMB. Going from one of the poorest to one of the richest prefectures – a change of roughly 1400% – would then be associated with with a 5.3 percentage point increase in the proportion of forwards coming from fake accounts. This number is actually quite similar to the number that would be obtained by comparing the lowest and highest quintiles in the right-hand side of Figure 5.2.

The reader will note that the coefficient estimates on the logarithm of GDP are not statistically significant under the standard null hypothesis testing framework with an alpha of 0.05 –

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<sup>8</sup>To evaluate how many forwards of police posts are fake, I need to collect the actual forwards themselves along with the information about the users that made these forwards. As described in Section 1.3.3, this means that I'm only able to evaluate a sample of forwards. The weights then correspond to a proportion of the total number of forwards that I was able to collect. Observations where I collected a greater proportion of forwards are the observations that are assigned higher weights.

**Table 5.4:** Fake vs. GDP OLS Models

	<i>Dependent variable:</i>	
	Proportion Fake Forwards	
	(1)	(2)
log(GDP)	-0.025* (0.015)	-0.018 (0.016)
log(Number of Posts)	0.023** (0.011)	0.039*** (0.013)
log(Population)	-0.006 (0.020)	-0.018 (0.025)
Constant	0.244** (0.100)	0.263* (0.148)
Province Dummies	No	Yes
Observations	141	141
R <sup>2</sup>	0.090	0.346
Adjusted R <sup>2</sup>	0.070	0.196
Residual Std. Error	0.100 (df = 137)	0.093 (df = 114)
F Statistic	4.539*** (df = 3; 137)	2.315*** (df = 26; 114)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01  
Standard errors clustered by province

though the coefficient in the model without provincial dummies is “on the cusp” so to speak. It is possible that this study is underpowered. I have fake forward data for only 141 prefectures, which is less than half of all prefectures in China. The actual magnitude of the coefficient does not change too much, while the standard error very slightly increases. Finally, note that had I scaled GDP to have mean 0 and standard deviation 1, as opposed to taking the logarithm of GDP, the estimates on GDP would be considered statistically significant under both specifications – with and without provincial dummies. This is explored further in Appendix C.1.

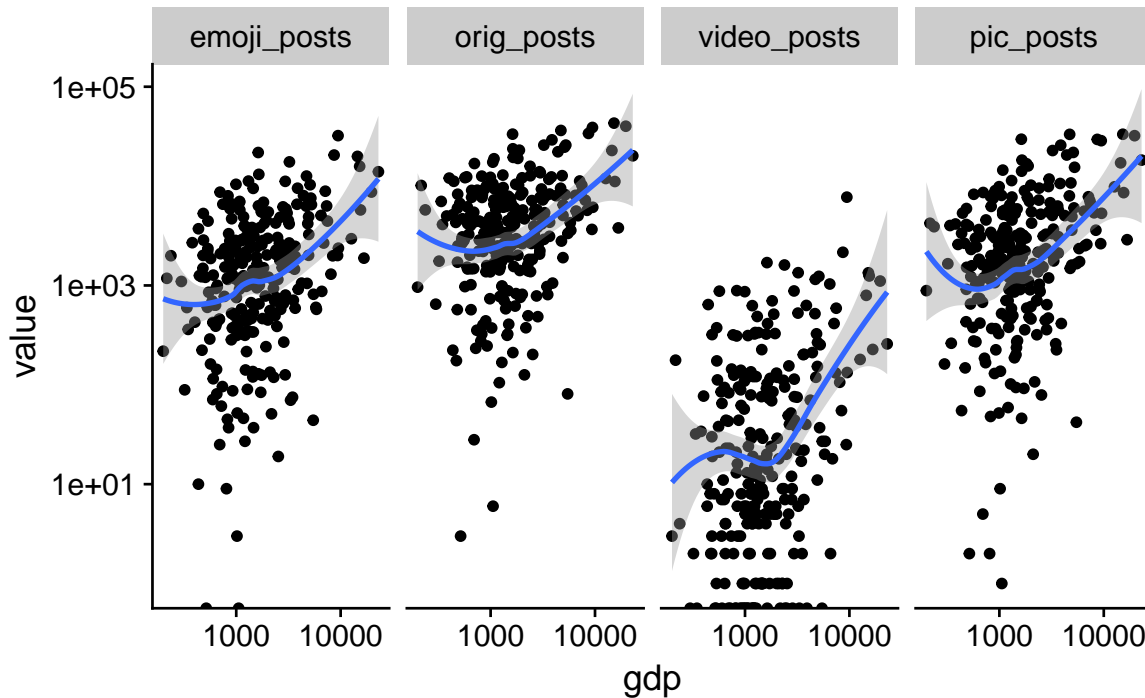
Overall, it is fair to say that poorer prefectures exhibit a greater reliance on fake forwards than their richer counterparts. I argue that the greater reliance on fake forwards stems from a failure to produce engaging content, which in turn leads to the inability to attract real people to forward accounts. In other words, these accounts that rely on fake forwards are not putting in the effort to create content. While I do not have a measure of effort, I do have measures of proxies for effort.

The easiest possible post to make is to simply forward a post that someone else already wrote. When an account administrator chooses to forward another post without adding any additional commentary, that requires both the least cognitive effort and the least actual interaction with the Sina Weibo platform – forwarding a post requires only two clicks. Therefore, accounts that put more effort into their posts should post more original content rather than just forwards. The content included in the post can reveal effort as well. For one, longer posts can be thought to require more effort to write since they, in theory, have more content. Including emojis can also signal more effort. The account administrator not only has to think about which emojis are appropriate for which contexts, they also need to insert the necessary emojis by clicking through lists of emojis or by memorizing the key code for the specific emojis. Finally, including multimedia, such as pictures and videos, should require more effort for similar reasons as the previous measures. Figures 5.3 and 5.4 show the relationship between GDP and these measures.<sup>9</sup> The  $x$ -

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<sup>9</sup>Post length is shown in a separate graph because its scale differs widely from the others.

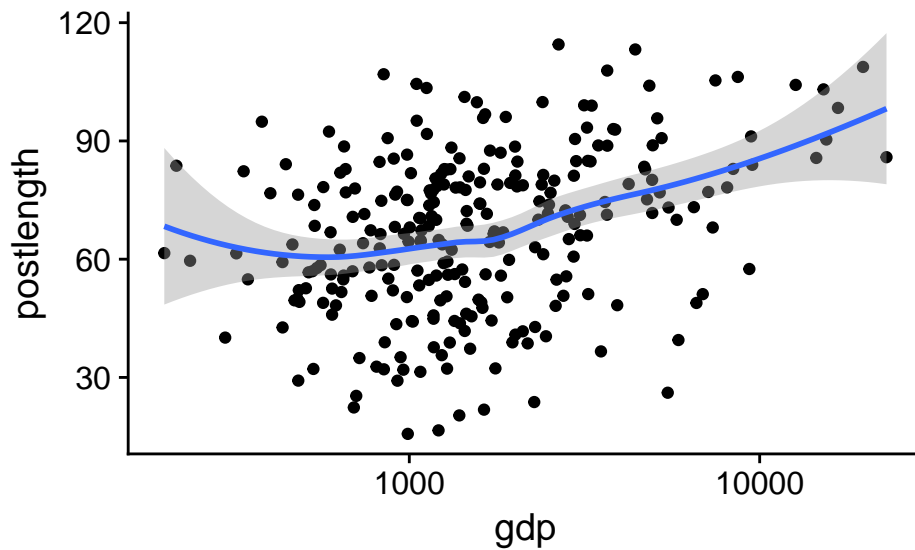
axis shows the GDP of each prefecture averaged over 2009-2016 at the log-scale. The y-axis for Figure 5.3 shows the number of posts with emojis; the number of posts that are original content and not forwards; the number of posts that include videos; and the number of posts that include pictures for each prefecture at the log scale. The y-axis for Figure 5.4 shows the average length of all posts for each prefecture. The blue lines are loess fits.



**Figure 5.3:** Proxies for Engaging Content vs. GDP

Figures 5.3 and 5.4 demonstrate that richer prefectures do indeed have more active accounts. The correlation between GDP and the measures of activity and effort is clearly positive in the aggregate.<sup>10</sup> Prefectures with higher GDPs on average have a higher number of posts with original content, posts that use emojis, and posts that include multimedia such as pictures and videos. The posts are on average also longer. This is consistent with the argument that higher GDP localities are more likely to put in effort into their social media accounts.

<sup>10</sup>Eagle-eyed readers may have noticed that Figures 5.3 and 5.4 have more observations than Figure 5.2. This is because this data does not rely on the fake forwards data, for which there is only a small sample. This data instead uses the entire set of prefectures.



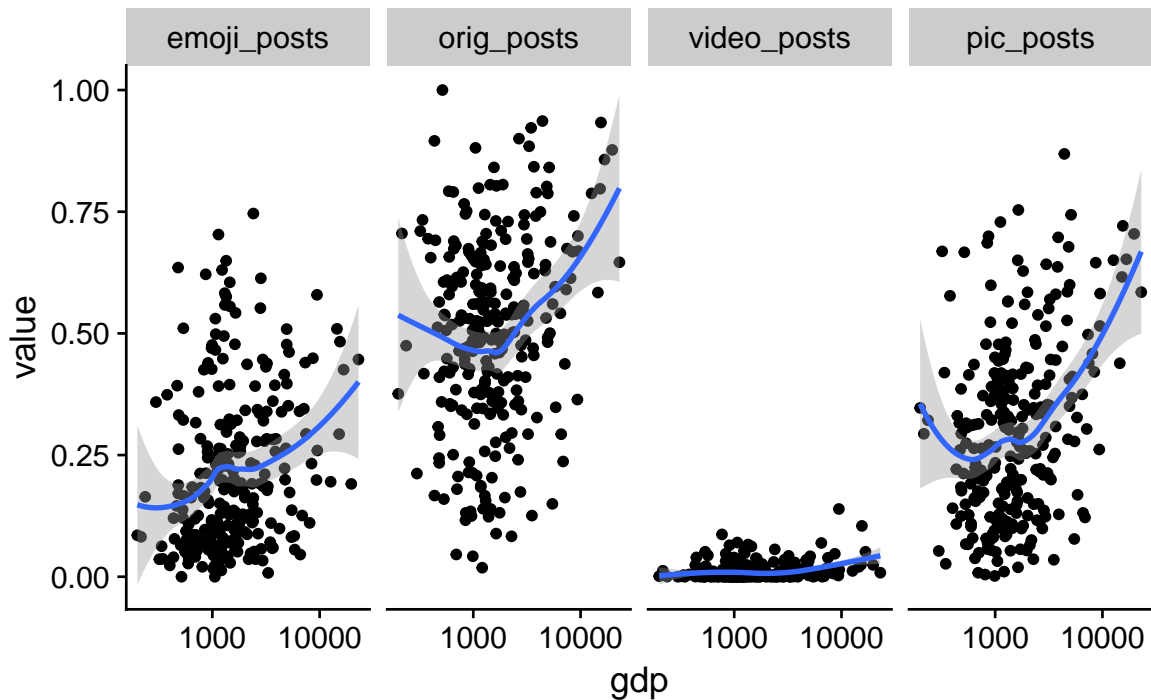
**Figure 5.4:** Post Length vs. GDP

The raw counts shown in Figure 5.3 also demonstrate that richer prefectures are just overall more active. However, Figure 5.5 shows that these richer prefectures are not only more active in general, their posting strategy differs on average from poorer prefectures. It is not just that richer prefectures are just posting more in general; they also devote a higher proportion of their posting efforts to “higher-effort” posts.

## 5.4 Discussion

Virtually all police social media accounts rely on “fake” accounts to forward their posts to some extent. On average, though, poorer prefectures are indeed more likely to rely on forwards by fake accounts than prefectures that have more resources. Part of the issue appears to be that poorer prefectures are less willing to put in the effort to create engaging content. Comparing the relationship between GDP and proxies for posting effort – number of posts with original content, number of posts that have emojis, number of posts that have videos, and number of posts that have pictures – show that poorer prefectures are generally less active than their richer counter-





**Figure 5.5:** Proxies for Engaging Content vs. GDP (Proportion)

parts. In some ways this is an expected outcome. Training a police officer in the vagaries of communicating on social media can be much more expensive than simply buying the engagement directly. Chapter 4 demonstrated that forwards by fake accounts on average received much fewer likes and forwards compared to forwards made by “real” accounts. This implies that poorer prefectures, with their greater reliance on fake accounts to forward their posts, are generating less engagement than their richer counterparts.

The implementation and execution of mass communication techniques among Chinese local governments then is highly heterogeneous. While other studies have generally focused on propaganda as a national-level phenomenon, this chapter demonstrates that how government communication is implemented and executed can vary considerably at the local level. Creating compelling social media content is perhaps not as straightforward as it seems at first glance.

A potential implication of this chapter is that the effects of fiscal reform extends to propaganda as well, as resource-poor prefectures are unable to communicate effectively with the

populations they ostensibly serve. This may be particularly problematic for the police. Chinese citizens already have a relatively dim view of the police – relative to other branches of government. The police are also an institution that require on the cooperation of the people they police in order to perform their duties. If they cannot communicate with citizens well and are unable to earn their trust, this may well have knock-on effects in other sectors. There have already been some studies done that argue for a linkage between inequality and crime rates (Hu, Hu, and Xu 2005; 谢 and 贾 2006; Shi and Wu 2010; Cheong and Wu 2015). A failure to communicate effectively can exacerbate these issues.

# Chapter 6

## Conclusion

The Internet has fundamentally changed society and the way people communicate with one another. Advances in technology have made it possible for virtually anyone to create and distribute information. Social media has enabled what may have once been marginalized voices to express themselves to populations worldwide at the click or tap of a button. As a consequence, authoritarian regimes have found themselves in what is essentially an unprecedented situation. Authoritarian regimes of the past of course had to contend with dissenting voices; however, it has never been so easy for dissenting voices to spread their message. Previously, authoritarian regimes existed in a state of the world where “few-to-many” paradigms of communication were dominant. Alternative voices could be suppressed, and the autocrat held the only megaphone.

This paradigm is no more. Citizens now hold in their pockets the cameras and megaphones that authoritarian regimes once held in its hands alone. While authoritarian governments have implemented sophisticated censorship regimes, they still now find themselves in a “many-to-many” communication model of the world, where the government no longer holds a monopoly on information. Instead, it must now compete with the voices that would have been suppressed in the not-so-distant past. In this endeavour, the regime is not necessarily completely unprepared. The authoritarian regimes of the past have shown that they are capable of tailoring their mes-

saging to the audiences and mediums in which they are communicating. While the presence of a multitude of competing voices has complicated this task somewhat, the fundamental logic of propaganda has remained the same.

I use the examples of prefectural-level police accounts to show in this dissertation how the Chinese Communist Party is adapting to this new state of the world. I showed in Chapter 3 that the government is beginning to adapt to the vagaries of social media usage. Since it must compete with the plethora of voices on social media, it has learned to mimic the styles and adopt the language of social media users. Over time, police accounts have allocated more of their posting volume to non-police topics and have increasingly applied softer styles to their posts. This strategy appears to be paying dividends for the police, as the posts that have softer styles and are not about police topics tend to get forwarded more often. Whether this effect spills over onto posts that do not have soft styles or are about police topics is unclear and requires further research.

The changes wrought by the Internet are not limited to just empowering more voices; the anonymity of the Internet enables the regime's second strategy: buying accounts to interact with its posts, artificially inflating the popularity of the post. Some accounts exert great effort to hide the fact that they are "fake" accounts, making it difficult for the outside observer to ascertain the true popularity of a post. The government can also rely on other government accounts to promote its posts. If these accounts are coordinated together in sufficient numbers, then it can potentially have these posts be displayed in a more prominent position in other users' feeds. Chapter 4 explores the nature of these accounts.

The other appeal of purchasing forwards and likes is that it is relatively cheap, as detailed in Chapter 5. Many local governments are resource-constrained and lack the funds – or perhaps even the inclination – to improve the administration of their social media accounts. Compared to the costs of hiring a social media account manager or training an existing worker, just buying interactions may be much more cost-effective in the eyes of a local government.

## 6.1 Implications

### 6.1.1 Propaganda Today, Propaganda Tomorrow

Historically, propaganda was tailored to different audiences. The masses were exposed to one type of propaganda, while the intelligentsia and Party members were exposed to another. China has shown that its able to evolve along with the times as it adapts its propaganda to a new era. The regime has taken advantage of technology to push its propaganda to the masses. It appears that propagandists are becoming more and more like modern-day ad men and marketers. This dissertation has demonstrated that the government has recognized ongoing trends in communication and incorporated them into their propaganda.

In the West, we already know social media and other tech companies leverage user data to sell ads. Advertisers are able to work with these platforms to target specific ads at specific groups of people. These distinctions are much more fine-grained than something broad like “the masses” or “the intelligentsia.” Technology and the amount of data shared with social media companies has enabled advertises to target their ads at much finer-grained categories based on information such as age, salary, geographic location, political leanings, ethnicity, type of car, hobbies, and the person’s online browsing history just to name a few.<sup>1</sup>

In other words, the future may hold the prospect of personalized propaganda. Social media companies are already categorizing people into finer-grained boxes. The difference is that in the West, tech companies will at least put in some public effort into resisting the government’s calls for its users’ data. No such firewall appears to exist in China, as tech companies are often forced to hand their data over to the government in order to continue to operate.<sup>2</sup> In theory, then, the Chinese government has access to user data across multiple platforms. While companies are disincentivized from sharing user data with each other, the government can requisition data from all sources, building up profiles of individual citizens.

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<sup>1</sup>Collins and Buchanan 2018.

<sup>2</sup>“Race to the Bottom”: *Corporate Complicity in Chinese Internet Censorship* 2006; Naughton 2018; Mai 2018.

This dissertation has shown that the government is quite adept at adapting to new technologies. I previously discussed the movement away from the “few-to-many” model of communication to the “many-to-many” model in the social media era. If the government is able to leverage all the data at its fingertips, we may witness another shift to a “many-to-one” model, where the government is able to tailor propaganda specifically to individual users. The government will still be competing with many other voices, but user data would offer it a comparative advantage that no one else would have.

### **6.1.2 Hierarchical Trust**

The basic logic behind this finding may offer some insight as well into why local governments are generally less popular than the central government. The central government has more resources than the localities and therefore has more resources to devote to propaganda. One can perhaps posit then that the central government is able to produce more effective propaganda than the localities, helping contribute to the trust disparity between the center and the localities.

This phenomenon is what Li (2016) calls “hierarchical trust” in China. Hierarchical trust refers to the phenomenon where Chinese citizens express higher trust in the central government than they do in local governments. This has been observed in numerous surveys of both rural and urban residents (Li and O’Brien 1996; Shi 2001; Li 2004; Jennings and Chen 2008; Li 2008; Steinhardt 2012; Lewis-Beck, Tang, and Martini 2014; Lü and Landry 2014; Saich 2016; Tang 2016).<sup>3</sup>

Other scholars have argued that information manipulation is behind hierarchical trust as well. It has been claimed that most media reports highlight corruption and scandals of lower-level officials while remaining silent on issues that pertain to the center (Li 2004; Kennedy 2009; Zhu, Lu, and Shi 2013). Lü (2014) argues that it is the combination of the decentralization and a biased media that explains hierarchical trust. The argument for Lü (2014) is as follows. Local

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<sup>3</sup>For more on hierarchical trust in China, please see Appendix D.1.

governments are responsible for service provision in China, and, importantly, Chinese citizens do indeed view them accountable for providing services such as education. Therefore, if a social policy is implemented poorly, the local government is blamed, even if the poor implementation is partially a function of insufficient transfers from the central government. If the social policy is implemented well, then biased media sources assign credit for the success to the central government. In other words, the combination of decentralization and media control allows the central government to apply an effective credit-claiming and blame-avoidance strategy, whereby blame for failures is assigned to local governments and credit for successes is snapped up by the central government. The center's overall better capability in producing propaganda can contribute to this explanation.

## **6.2 Future Research**

This dissertation represents only the tip of the iceberg in terms of the entire research agenda. There still remains much more to explore in terms of state adaptations to social media.

### **Experimental verification**

One potential limitation of this current study is that it relies on observational data. However, the basic findings of Chapter 3 can be verified or disproven experimentally. Respondents can be separated into groups and shown police posts that vary in terms of style and content.

### **More government accounts**

This dissertation has examined how prefectural police accounts engage with social media users in China. I argued in Chapter 1.4 that the police are a government institution that could potentially stand to benefit the most from interaction with regular users on social media. While this may be the case, a natural extension to this work is to look at other government organizations,

such as propaganda bureaus or Communist Youth Leagues. Another option is to look at other levels of government – both lower and higher – and compare the behavior of these other levels to prefectural accounts.

One can also look at how the same organization behaves on different social media platforms. For example, China’s most popular communication app is WeChat (微信); consequently, Chinese government institutions have opened accounts on WeChat as well. The mode of communication on WeChat is quite different from Weibo. While anybody can follow anybody on Weibo, users must be friends on WeChat before they can message each other. This requirement is circumvented via the usage of public accounts (公眾號), which any user can follow and whose posts are public. However, these public accounts can only post a finite number of times per day. In addition, character limits on Weibo posts are much lower than those on WeChat posts. The different nature of communication on WeChat implies – in accordance with my argument – that the nature of government propaganda should differ on these two platforms as well.<sup>4</sup>

Finally, one can compare government social media accounts in China with those in other countries, authoritarian or otherwise.

### **The effect of videos and images**

One of the advantages of social media is that text can be supplemented with both pictures and videos. In this dissertation, multimedia were dealt with simple dummies representing whether posts also contained videos or pictures. Of course, this representation is most likely overly simplistic. The content of course matters, as well as the style that multimedia is presented in. A cartoon is in theory quite different from a picture of a block of text. A short three minute video may be more appealing than a twenty minute one. In recent years, videos with *danmu* (“bullet screens”/彈幕) have become increasingly popular in China. *Danmu* are similar to regu-

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<sup>4</sup>A cursory comparison of the Beijing police bureaus’s public WeChat account with its Weibo account reveals stark differences. Its WeChat accounts primarily posts longform articles that go into much more detail than their Weibo posts do.



lar video user comments, except they shoot across the video itself at user-defined times. Video streaming sites that pioneered this feature in China, such as AcFun and Bilibili (哔哩哔哩), each have tens of millions of subscribers. This has not gone unnoticed by the Chinese authorities, who in addition to sending take-down notices to certain users, have also established a presence on these sites.<sup>5</sup> The Communist Youth League has posted multiple videos on Bilibili, including an English-language rap on pride in China. *Danmu* offer more fine-grained detail than typical video comments because they are linked to specific times. This allows the researcher to pinpoint exactly which parts of the video, and the corresponding audio, elicit which types of responses. This aspect of *danmu* can be leveraged to study what aspects of government videos trigger what type of responses.

### **Other operationalizations**

The operationalization of content in this dissertation is fairly simple, with police posts being divided into police and non-police topics. However, there are numerous other operationalizations that can be implemented. For example, the operationalization can go beyond just two dimensions. Topic models find that posts cover a wide variety of topics. Post content can also be operationalized among different dimensions as well. Propaganda oftentimes emphasizes appealing to emotions. In terms of police posts on social media, there are often posts describing police as “family men” and other posts that seek to humanize the police. Future research can examine whether these sorts of posts are appealing to social media users.

### **Soft style mechanism**

Chapter 3 demonstrated that police posts that employ a soft style received on average more forwards than police posts without a soft style. Future research can explore what the mechanism behind this phenomenon is. Does a soft style simply live up what would otherwise be

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<sup>5</sup>The site was even more popular prior to a government crackdown on it.

a fairly uninteresting post? Does the usage of emojis pique users' interests enough for them to interact with the post? Or does using a soft style demonstrate that police social media accounts are "more human" and are therefore more relatable?

### **Competition and social media activity**

In Chapter 5, I discussed poorer prefectures' greater reliance on fake forwards and decreased effort put into posting as a function of lack of funds. However, it is also possible that this phenomenon comes about as a result of decreased competition with other social media users. Poorer prefectures may just have fewer social media users in general, and therefore official accounts may just face less competition for people's attention. This concern may be slightly ameliorated by the fact that Weibo is a national platform, so government accounts are essentially competing with a national pool of social media users. However, local government accounts often post about local issues, so the sources of competition in that regard may be localized as well. It would be interesting to see how government account activity correlates with social media activity of users in the same prefecture, though this may also be highly correlated with GDP.

### **Monitoring the localities**

One of the benefits of allowing social media for the authoritarian regime is that it can enable higher levels of government to monitor both public opinion and the performance of local governments. One can view the relationship between the center and the localities as a principal-agent relationship, where the center is the principal and local governments are the agents. While the center delegates responsibilities and the execution of policies down to the localities, there exists an information asymmetry – in favor of the localities – where the center cannot monitor localities with perfect precision. Agents can exploit this information asymmetry by shirking their duties when the costs of compliance exceed the costs of shirking.

Social media ameliorates this issue because social media is relatively transparent. If the

center mandates that local governments must have more positive interactions with the people they govern, then it can click through various local government social media posts and actually see whether or not local governments are engaging with people on social media. If some accounts are just “zombie accounts” who post once and then never again, this will be very apparent. The number of followers and the number of forwards and comments can all be used to monitor how “well” a local government is doing on social media. However, fake followers and fake forwards complicate this type of monitoring. If a generally unengaging account just purchases all of its interactions, the center may be tricked into believing that a poorly-run social media account is actually quite engaging.

### **Bottom-up versus top-down**

It would be interesting to determine whether these innovations in propaganda practices are the result of bottom-up innovations or top-down mandates. This feeds into the broader literature on the role of local experimentation in policy formulation (Heilmann 2008; Florini, Lai, and Tan 2012; Heilmann, Shih, and Hofem 2013). Studies on local experimentation are often concerned with economic outcomes; future research can closely examine the relationship between local experimentation and propaganda outcomes.

### **Who pays attention to propaganda**

It is fairly likely that the people that are more receptive to government propaganda are systematically different from people that do not pay attention to propaganda. While Chapter 3 showed that police posts with different style and content received more forwards, it is still an open research question as to who these accounts forwarding the police are. Chapter 4 already established that perhaps 40% of these accounts are coming from fake accounts or other police accounts. However, this leaves 60% of accounts potentially being “real” people. Who are these people? Are they already true believers in the government? If so, then perhaps the effects of

propaganda may be muted. The implication may be that despite the state's efforts on new communication mediums, they are failing to reach new audiences. However, if these accounts belong to people that are traditionally unresponsive to state propaganda, then these social media efforts will appear to be far more successful. Being able to identify what groups respond to what types of propaganda would do much to advance the study of propaganda.

This future research would build on the work that Esarey, Stockmann, and Zhang (2017) and others have done. While Esarey, Stockmann, and Zhang (2017) utilize focus groups to differentiate support for government propaganda, a study that utilizes Weibo would allow researchers to observe receptivity to propaganda "*in vivo*." Future research can look at various characteristics of accounts that do forward or follow police accounts, such as age, location, and so on. Most importantly, researchers can observe what other accounts the police-following-account followed before and after following the police account, whether following a police account led to following other government accounts, and other interesting questions.

### **6.3 Final Thoughts**

As Section 6.2 demonstrates, this dissertation has barely scratched the surface of research on government propaganda communicated via social media; there is potentially a rich research agenda for future scholars that wish to pursue this topic. This dissertation has emphasized what other scholars had argued in the past: authoritarian regimes are not necessarily moribund, passive entities that simply allow themselves to be overtaken – or overthrown – by advancements in communication technologies. Authoritarian regimes – particularly Leninist regimes such as China under the Chinese Communist Party – are built on foundations partially molded by propaganda. Propaganda helped these regimes wrest power from status quo interests in pre-regime revolutions, and propaganda continues to help these regimes maintain their control. This dissertation has shown that authoritarian regimes are more than capable of adapting to new technologies;

technologies that were ostensibly predicted to spell doom for authoritarian regimes have become another tool in the autocrat's toolbox. Technological quirks that were viewed as citizen-friendly – such as the relative anonymity that the Internet provides – also help the regime amplify its message online.

This dissertation opened up with headlines from Western journalists implicitly ridiculing China's new propaganda efforts. However, if the argument advanced by this dissertation is correct, it is China that may have the last laugh.

# Appendix A

## Appendix for Chapter 3

### A.1 A Few Words on Media and Public Opinion

The idea that public opinion is malleable is certainly not a new one. Bernays (1928) had argued that a small group of people “who understand the mental processes and social patterns of the masses” could “pull the wires which control the public mind” and “harness old social forces and contrive new ways to bind and guide the world” (9-10). In describing the U.S., Downs (1972) discusses issue-attention cycles where the public’s interest in a certain topic rises and ebbs, depending on what the media focuses on.

What follows then is the notion that greater exposure to media leads to changes in behavior or beliefs as a product of the mechanisms listed above. For example, White, Oates, and McAllister (2005) argue that greater exposure to Russian Public Television predicted support for Putin in Russia’s March 2000 presidential election. Di Tella, Galiani, and Schargrotsky (2012) argue that government propaganda affected beliefs about a water privatization program in Argentina. For China, Chen and Shi (2001) find that greater exposure to media in China is actually associated with lower levels of trust in political institutions, while Zhu, Lu, and Shi (2013) essentially finds the opposite, arguing that greater exposure to government-controlled media can

reduce people's perceptions of corruption. In short, simply being exposed to more or less information can be enough to alter beliefs.

Other studies focus on how exactly public opinion can be controlled. McCombs and Shaw (1972) argues that the media can set the agenda and influence what the public finds important. Iyengar, Peters, and Kinder (1982) argue that priming effects – where the public is “primed” to think about certain issues – alter what the public views as important. Entman (1993) discusses frames and says that “[to] frame is to *select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation* for the item described” (52). Nelson, Clawson, and Oxley (1997) finds that different frames can alter public perception of an issue: when a Ku Klux Klan rally is presented as an expression of free speech, they are more likely to express tolerance for the Klan than those who were presented the rally as a disruption of public order.

There are other studies that go beyond just exposure to compare the effects of content on beliefs. Gerber, Karlan, and Bergan (2009) find in their analysis of their field experiment that the political slant of a newspaper was less important than just being exposed to a newspaper, though this finding has many qualifiers attached to it.<sup>1</sup> Stockmann and Gallagher (2011) examines the actual content of media reports, arguing that the positive propaganda presented by Chinese media encourages worker participation in the legal system.

## **A.2 Soft Style Words**

The list of soft words are shown in Table A.1. As the reader can see, this relatively short list is far from complete. However, this in theory biases against finding results. If a number

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<sup>1</sup>Within their conclusion, Gerber, Karlan, and Bergan (2009) discuss how the study occurred during a challenging time for the Republicans; the Democratic candidate for governor was conservative-leaning; and potential for inadequate power.

of “soft” style posts are misclassified as non-soft-style, then the estimated difference between soft and hard style posts will be less than the true difference. Since the list is quite short, and because soft word inclusion tends to co-occur with emoji usage, using soft words as a criteria for inclusion on top of emojis only result in a couple thousand more posts – out of nearly 4 million – being considered soft.

**Table A.1:** Soft-Style Words

Chinese	English
神馬	“god horse” (pinyin for 什麼/what)
浮雲	“floating clouds” (sort of means “whatever”)
元芳體	taken from a television show
蜀黍	homonym for “uncle”
童鞋	homonym for “fellow”
有爱	with love
杯具	homonym for “tragedy”
小伙伴	“cute” way of saying friends
哦	oh
喔	oh
围脖	homonym for Weibo

### A.3 Changing Style and Content by Province

Figure A.1 shows the change over time of soft style and police content posts as a proportion of total posts made by the accounts by province-level entity.<sup>2</sup> Each box shows the average of all accounts within the province. While the trends shown in Figure 3.3 do not uniformly match every single province, we do see similar trends in many of the provinces. For the most part, the proportion of soft style posts is increasing over time for most. The change in police content is less uniform, though many provinces do exhibit an overall decrease in proportion of posts that are about police content.

<sup>2</sup>This includes Beijing 北京, Shanghai 上海, Tianjin 天津, and Chongqing 重慶. Figure A.1 also shows the change over time for the central 中央 account.



## A.4 Results (Supplemental)

Table A.2 is the corresponding table for Figure 3.4 in Section 3.5

The first column of Table A.3 is the corresponding table for Figure 3.6 in Section 3.6. The second column shows the model with the same data, except instead of using account and day dummies, it uses account-day dummies. The point estimate on the soft style dummy decreases in magnitude, though it remains positive. The standard error on the coefficient nearly doubles, and the result is no longer considered statistically significant. The point estimate on the police content dummy increases in magnitude and is still negative, but it is also no longer considered statistically significant. I posit that this difference arises for two reasons:

1. There is a rather large reduction in the degrees of freedom that comes from the inclusion of more than 40,000 additional dummy variables – for a model that has 75,000 observations – relative to the model run in the first column.
2. The sampling strategy employed to bring in the zeros – a simple random sample of posts with zero forwards made by the accounts – creates many account-days where the response variable does not vary at all within account-day.

The results in the third column of Table A.3 lend some credence to these reasons. For the model run in the third column, rather than apply the same sampling strategy used for the models in the first two columns, I simply include every post that had zero forwards for the account-days already in the sample. This addresses both reasons because it increases the power of the model and it reduces the number of account-days where there is no variation in the response variable. We see that while the magnitudes of the explanatory variables of interest are lower than in the first column, they are estimated with much less noise.

Table A.4 shows the results from models run with the same framework as the models shown in Table A.3, except with likes as the response variable instead of forwards. It shows that,

**Table A.2:** Basic Results

	<i>Dependent variable:</i>		
	ln(Number of Forwards)		
	Account and Day Dummies	Account-Day Dummies	Account-Day Dummies, All Zeros
	(1)	(2)	(3)
Soft Style	0.087*** (0.015)	0.021 (0.027)	0.027*** (0.010)
Police Content	-0.055*** (0.017)	-0.064 (0.042)	-0.049*** (0.017)
Is a Forward	0.018 (0.022)	0.026 (0.052)	0.023 (0.017)
Includes Video	0.334*** (0.079)	0.318 (0.201)	0.309*** (0.084)
Includes Picture	0.108*** (0.024)	0.113** (0.046)	0.092*** (0.019)
Includes Link	-0.012 (0.017)	-0.026 (0.044)	-0.031** (0.012)
Uses Hashtags	-0.087*** (0.014)	-0.037* (0.020)	-0.037*** (0.010)
Uses Mentions	-0.039* (0.023)	0.001 (0.030)	-0.015 (0.017)
Includes Topic	-0.022 (0.017)	-0.020 (0.031)	-0.014 (0.016)
Made during 'Hot' Time	0.034** (0.014)	0.019 (0.037)	0.007 (0.014)
Post Length	10.840*** (1.952)	7.521 (4.951)	10.003*** (2.398)
Post Length Sq.	3.334** (1.697)	1.025 (3.184)	1.250 (2.109)
Soft:Police Interaction	-0.022 (0.014)	-0.016 (0.030)	0.002 (0.013)
Observations	75,021	75,021	145,967
R <sup>2</sup>	0.350	0.849	0.641
Adjusted R <sup>2</sup>	0.326	0.527	0.507
Residual Std. Error	0.587 (df = 72364)	0.491 (df = 23881)	0.406 (df = 106228)

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

on average, boring posts that come after a fun post have slightly more likes than boring posts that come before a fun post.

**Table A.3: Spillover Results**

	ln(Forwards)	
	Single (1)	Multiple (2)
Post After Fun Post	0.005 (0.015)	-0.041** (0.016)
Is a Forward	-0.232*** (0.043)	-0.265*** (0.047)
Includes Video	0.368*** (0.089)	0.388*** (0.090)
Includes Picture	0.246*** (0.034)	0.241*** (0.037)
Includes Link	-0.017 (0.020)	-0.008 (0.020)
Uses Hashtags	-0.036 (0.033)	-0.022 (0.031)
Uses Mentions	-0.071** (0.033)	-0.048* (0.025)
Includes Topic	0.119*** (0.032)	0.125*** (0.034)
Made during 'Hot' Time	0.026 (0.026)	-0.010 (0.035)
Post Length	10.379*** (2.411)	17.869*** (4.173)
Post Length Sq.	10.207*** (1.710)	18.011*** (3.621)
Observations	83,652	248,383
R <sup>2</sup>	0.749	0.776
Adjusted R <sup>2</sup>	0.696	0.732
Residual Std. Error	0.720 (df = 69110)	0.749 (df = 207834)

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

**Table A.4:** Spillover Results: Likes

	ln(Likes)	
	Single (1)	Multiple (2)
Post After Fun Post	0.051*** (0.008)	0.023*** (0.007)
Is a Forward	-0.148*** (0.027)	-0.149*** (0.028)
Includes Video	0.198*** (0.049)	0.217*** (0.045)
Includes Picture	0.099*** (0.017)	0.101*** (0.013)
Includes Link	0.006 (0.011)	0.006 (0.010)
Uses Hashtags	-0.030** (0.013)	-0.027** (0.013)
Uses Mentions	0.022* (0.013)	0.030** (0.012)
Includes Topic	-0.051*** (0.015)	-0.055*** (0.014)
Made during 'Hot' Time	0.041*** (0.011)	0.048*** (0.008)
Post Length	3.454** (1.447)	5.620*** (1.965)
Post Length Sq.	3.055** (1.508)	6.602*** (1.701)
Observations	83,652	248,383
R <sup>2</sup>	0.760	0.795
Adjusted R <sup>2</sup>	0.710	0.756
Residual Std. Error	0.467 (df = 69110)	0.496 (df = 207834)

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

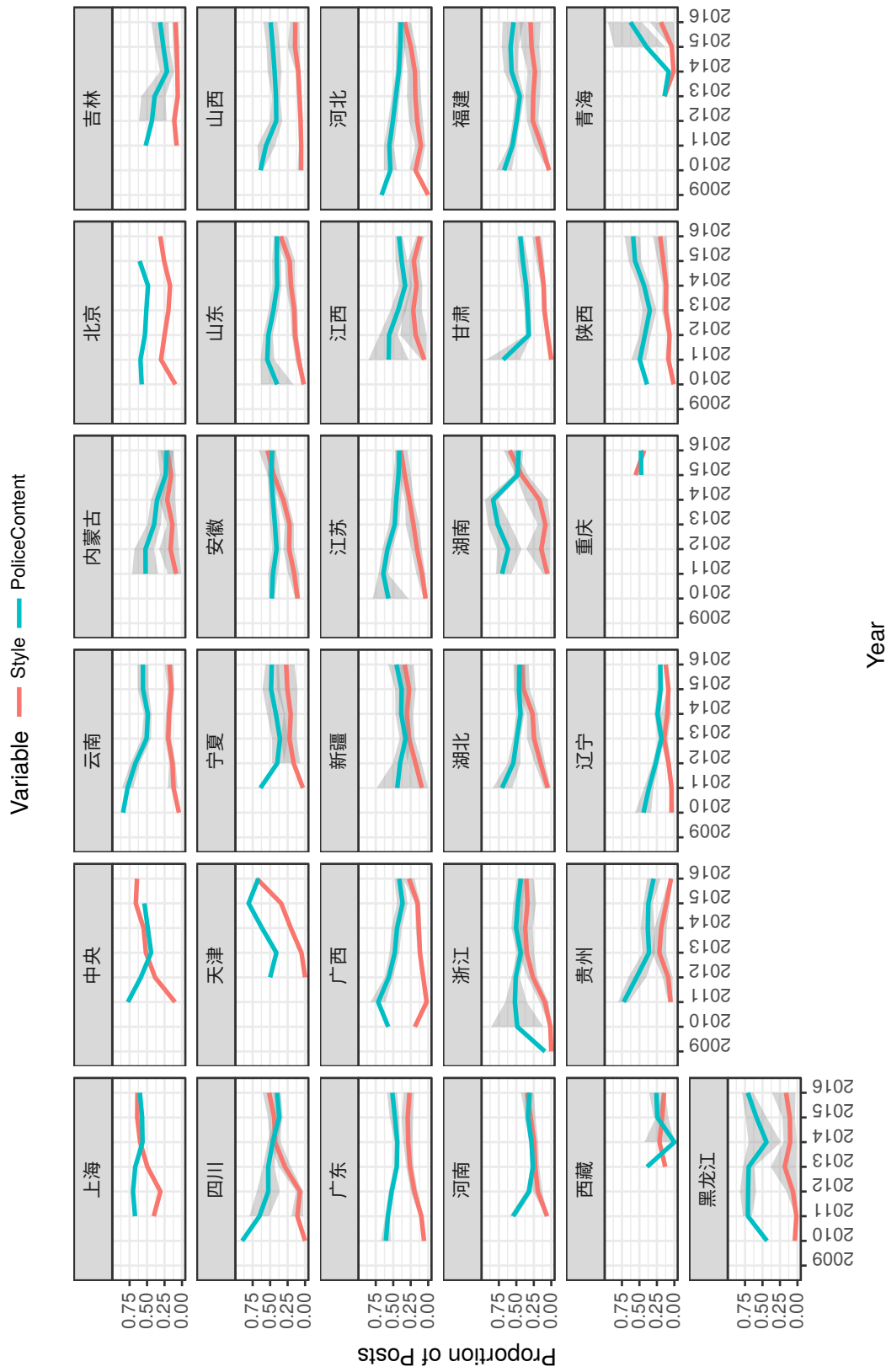


Figure A.1: Changing Style and Content by Province

# Appendix B

## Appendix for Chapter 4

### B.1 A Note on Topic Models

All parts of the dissertation that employ the structural topic model by Roberts, Stewart, and Tingley (2017) have the following in common. In all instances, the number of topics was chosen by the software package. The software uses a method introduced by Mimno and Lee (2014). With this method, the word co-occurrence matrix is first projected onto lower dimensional space using  $t$ -SNE (Maaten and Hinton 2008). Afterwards, the anchor word algorithm from Arora et al. (2013) is applied. Anchor words are words that are assumed to only occur within the context of a single topic. Thus, they can be used to differentiate between topics. These anchor words form the vertices of the convex hull of the projected word co-occurrence data. The number of vertices therefore corresponds to the number of topics. More details can be found in Mimno and Lee (2014). All topic models were also initiated via the spectral method. The spectral method from Arora et al. (2013) assumes separability i.e. that the situation with anchor words described previously exists. This assumption allows the usage of non-negative matrix factorization to estimate topic distributions. After initialization via this spectral method, the structural topic model allows the discovered anchor words to have probability mass in more than one topic, thus relax-

ing the separability assumption. More details can be found in Arora et al. (2013) and Roberts, Stewart, and Tingley (2016).

## **B.2 Training Classifiers**

Sections 4.3.2 and 3.3 use a variety of machine learning tools to classify fake accounts and police content posts, respectively. This section will go into more detail in how these algorithms were trained. The hyperparameters for all classifiers were tuned via 200 iterations of 3-fold cross-validated random search. The hyperparameters for each classifier are listed below. Each bullet point is a hyperparameter, and the values it could take on are shown if allowed to vary.

### **B.2.1 k-Nearest Neighbors**

- Each point contributes equally to prediction or points weighted by the inverse of their distance
- Minkowski distance metric
- Number of neighbors to use for classification: random integer between 1 and 200

### **B.2.2 Logistic Regression**

- C (penalty parameter of the error term): uniform between -10 and 10 at log scale
- L1 or L2 penalty
- Values of response variable used to automatically adjust weights inversely proportional to class frequencies in the input data



### **B.2.3 Random Forest**

- Bootstrap samples used when building trees
- Minimum number of samples required to be at a leaf node: random integer between 1 and 100
- Minimum number of samples required to split internal node: random integer between 2 and 10
- Maximum number of features is equivalent to the square root of the total number of features
- Nodes expanded until all leaves are pure

### **B.2.4 SVM**

- C (penalty parameter of the error term): uniform between -10 and 10 at log scale
- Values of response variable used to automatically adjust weights inversely proportional to class frequencies in the input data
- Degree of the polynomial kernel function (if polynomial kernel is chosen): either 2 or 3
- Kernel: only linear in Section 3.3; can be radial basis function, polynomial, or sigmoid in Section 4.3.2

### **B.2.5 XGBoost**

- Balancing of positive and negative weights: uniform between 0 and 1
- L2 regularization on weights
- Learning rate: uniform between 0.0001 and 0.4

- Maximum tree depth for base learners: random integer between 2 and 20
- Minimum loss reduction required to make a further partition on a leaf node of the tree: uniform between 0 and 5
- Minimum sum of instance weight (hessian) needed in a child: random integer between 1 and 5
- Number of boosted trees to fit: random integer between 50 and 3000
- Subsample ratio of columns when constructing each tree: uniform between 0 and 1
- Subsample ratio of the training instance: uniform between 0 and 1

### **B.3 Features Used for Classifying Fake Accounts**

This section simply lists the features used to classify fake accounts in Section 4.3.2. The following are features that can be found from the account’s user page.

- Separate dummies for whether the account listed the following information: real names, unique URL (個性域名), vocational school, middle school, high school, college, blog, company, blood type,<sup>1</sup> e-mail, relationship status, QQ username<sup>2</sup>
- Whether an account only has the “一舉成名” badge
- Number of badges
- Whether the account is in the Weibo “daren” (達人) club
- Whether the account contains numbers in its username

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<sup>1</sup>Some Chinese believe that your personality is linked to your blood type

<sup>2</sup>A Chinese messaging app.

- The number of characters in the account's username
- The level of the account
- The number of character in the account's self-introduction/description
- The ratio of the number of followers to the number of other accounts the account follows
- Whether the account bought VIP status or not
- Whether the account is verified or not
- Age of the account
- The average number of posts per day by the account (the total number of posts as listed in the account information page / age of account)

In addition to collecting a sample of user information, I also collected roughly 15 posts from each account as well. Most of the time, these are the posts that Weibo considers "hot" (popular). Some times these posts are just the most recent posts. I used these posts to generate the following features:

- The proportion of posts that contains videos
- The proportion of posts that contains pictures
- The proportion of posts that uses hashtags
- The proportion of posts that uses emojis
- The proportion of posts that includes the account's location
- The proportion of posts that includes a link to another page
- The proportion of posts that use mentions

- The proportion of posts that have no content
- The proportion of posts that are forwards of another post
- The proportion of posts that are forwards of a deleted post
- The proportion of posts that are forwards of a police post
- Diversity of accounts that are forwarded (number of unique forwarded accounts / number of posts that are forwards). Will fall in range (0, 1]. Will be 1 if every forward is from a different account.
- The average number of likes per post
- The average number of forwards per post
- The average number of comments per post
- The average number of characters per post
- The average number of posts per day (the total number of posts collected / total number of unique days in collected posts)

## B.4 Calculating Chains of Forwards

Section 4.5 estimated the number of forwards of police posts that were made by real, police, and fake accounts. The estimates are shown again in Table B.1 for convenience.

**Table B.1:** Distribution of Forwards by Account Type

Type	Estimated Number of Forwards (millions)	Avg. Forwards
Real	37.4	0.456
Police	19	1.096
Fake	6.6	0.156

The calculations in Section 4.5 assume that forwards of forwards themselves are not forwarded. For ease of calculation, this section will estimate how many forwards are generated in total if there were an infinite chain of forwards. Because the average number of forwards per forward for each of the forward types – except for police forwards – is less than 1, then a chain of forwards constitutes a converging geometric series, assuming that the average number of forwards of forwards is the same at each level.

$$\sum_{k=0}^{\infty} f r^k = \frac{f}{1-r}$$

Where  $f$  is the initial number of forwards for a certain type (real, police, or fake) and  $r$  is the average number of forwards of forwards for that type. Plugging in our numbers for real and fake forwards, we find that the 37.4 million real forwards generate an additional 31 million forwards, while the 6.6 million fake forwards generate an additional 1.2 million forwards.

We can also do this calculation for police forwards if we again assume that 43% of police forwards are from other police or fake accounts. That means that instead of treating a police forward as generating 1.096 forwards, we assume a police forward generates 60% of 1.096 real forwards, which 0.658. If we go about calculating it this way, then the 19 million police forwards generated an additional 56 million “real” forwards.

These numbers are obtained under generous assumptions: it is fairly unlikely that forwards will be forwarded along in an infinite chain. It is also unclear how many forwards of, say, fake forwards will actually be real themselves.

# Appendix C

## Appendix for Chapter 5

### C.1 Comparing Scaled GDP vs. Log GDP

Table C.1 shows the results of the same models as in Table 5.4 if GDP were scaled to have mean 0 and standard deviation 1 rather than logarithm-ed. For some readers, the main difference between the models with the logarithm of GDP and the models with scaled GDP is that the estimate on the coefficient for the scaled GDP models are statistically significant, with or without provincial dummies.

These models predict that a one standard deviation increase in GDP – an increase of roughly 26 billion RMB – is associated with a 2 to 3 percentage point decrease in the proportion of forwards from fake accounts. Going from one of the poorest prefectures, with a GDP of around 5 billion RMB, to one of the richest, with a GDP of around 70 billion RMB, would be an increase of about 2.7 standard deviations and would be associated with 5.4 percentage point increase in the forwards coming from fake accounts. Unsurprisingly, this is roughly the same conclusion that would be drawn from Table 5.4 and Figure 5.2.

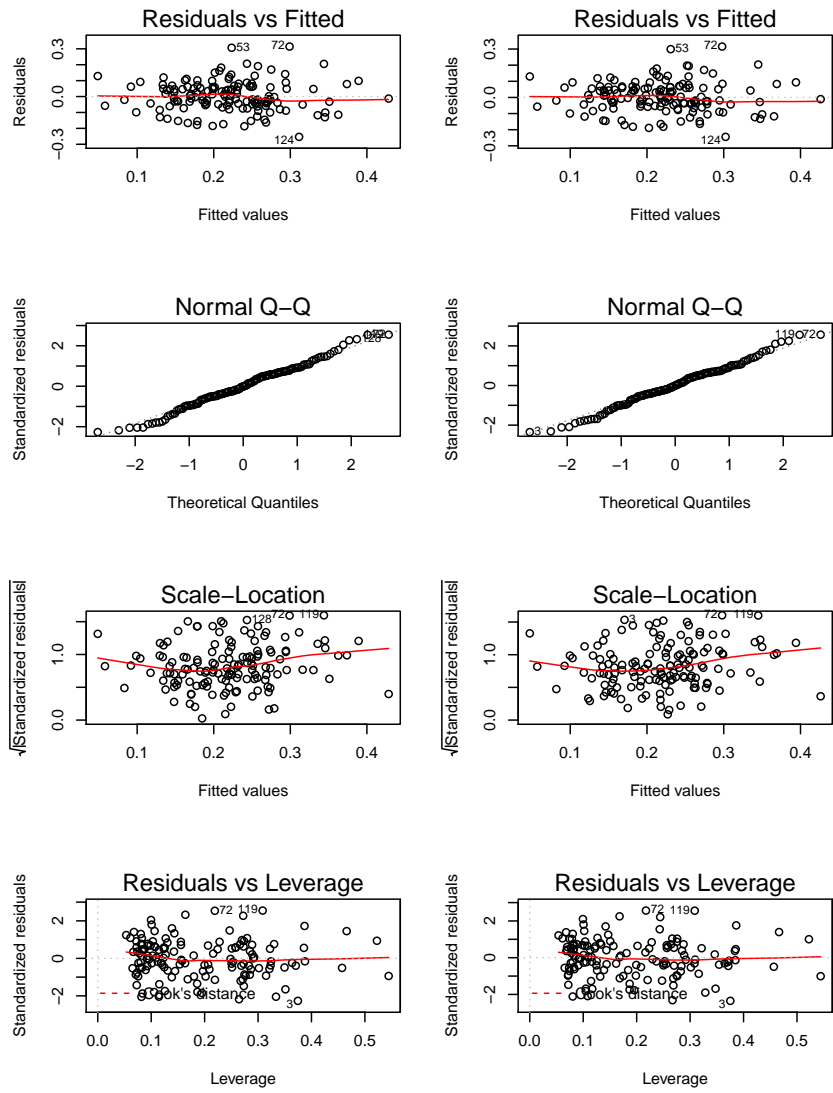
Figure C.1 shows the diagnostic plots for the model with provincial dummies using the logarithm of GDP and the model with provincial dummies using the scaled GDP. The diagnostics

**Table C.1:** Fake vs. [Scaled] GDP OLS Models

<i>Dependent variable:</i>		
Proportion Fake Forwards		
	(1)	(2)
scaled(GDP)	−0.024*** (0.008)	−0.022** (0.009)
log(Number of Posts)	0.025** (0.011)	0.041*** (0.013)
log(Population)	−0.013 (0.015)	−0.020 (0.021)
Constant	0.076 (0.120)	0.120 (0.162)
Province Dummies	No	Yes
Observations	141	141
R <sup>2</sup>	0.100	0.357
Adjusted R <sup>2</sup>	0.080	0.210
Residual Std. Error	0.099 (df = 137)	0.092 (df = 114)
F Statistic	5.053*** (df = 3; 137)	2.433*** (df = 26; 114)

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01  
Standard errors clustered by province

for the logarithm model is on the left, while the diagnostics for the scaled model is on the right. The two sets of plots are virtually identical.



**Figure C.1:** Diagnostic Plots for Log and Scale Models



## C.2 Other Estimators

Table C.2 shows the same general regressions as in Table 5.4 in Section 5.3 but with different estimators. The first two columns shows the results using beta regression with a logit link, where the response variable is the proportion of forwards that are considered fake – the same as in Table 5.4; the two columns after that show the results using a quasi-Poisson model; and the last two columns show the results from a negative binomial model. The quasi-Poisson and negative binomials use the total number of fake forwards as the response variable, but also include the logarithm of the total number of forwards as the offset. Because beta regression requires the response variable to be inside the interval  $(0, 1)$  noninclusive, the seven prefectures that had no fake forwards were removed from the dataset. For the beta regression, all the variables shown in Table C.2 are included as covariates in the estimating the dispersion.

We can see that the coefficient on  $\log(\text{GDP})$  for all estimators is negative. Under the standard null hypothesis testing framework, the results on  $\log(\text{GDP})$  are statistically significant for all estimators, with or without province dummies.

Figure C.2 shows the difference in fits between beta regression and OLS. The fits are quite similar. The slope resulting from the beta regression fit is slightly more negative.

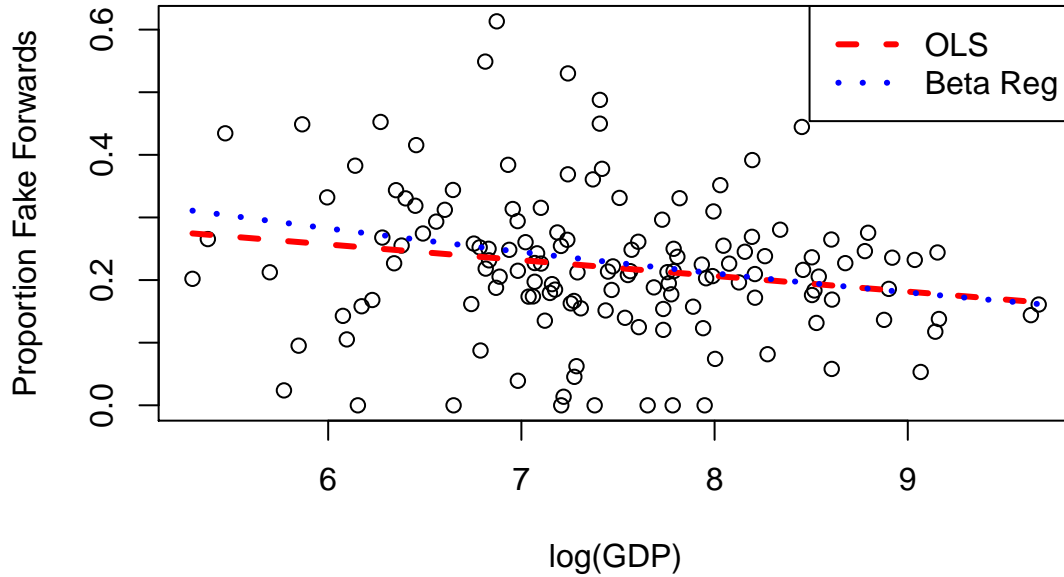
We can also model the relationship between GDP and the proportion of forwards that are fake in a hierarchical model with partial pooling. These models were estimated using OLS and beta regression.

**Table C.2:** Fake vs. GDP Models (Other Specifications)

	<i>Dependent variable:</i>					
	Prop. Fake Forwards		Total No. Fake Forwards			
	<i>beta</i>		<i>glm: quasipoisson</i>		<i>negative binomial</i>	
			<i>link = log</i>			
	(1)	(2)	(3)	(4)	(5)	(6)
log(GDP)	-0.194*** (0.066)	-0.241*** (0.024)	-0.161*** (0.046)	-0.192*** (0.063)	-0.127** (0.055)	-0.106** (0.053)
log(Number of Posts)	0.060 (0.049)	0.194*** (0.052)	0.113** (0.053)	0.051 (0.056)	0.056 (0.044)	0.134** (0.062)
log(Population)	0.045 (0.097)	0.075*** (0.015)	-0.076 (0.064)	-0.058 (0.094)	-0.021 (0.068)	-0.091 (0.078)
Constant	-0.576 (0.553)	-1.157*** (0.219)	-0.745** (0.327)	0.140 (0.487)	-0.905** (0.390)	-0.880 (0.539)
Province Dummies	No	Yes	No	Yes	No	Yes
Observations	134	134	141	141	141	141
R <sup>2</sup>	0.043	0.164				
Log Likelihood	103.666	138.423			-611.313	-595.749
Akaike Inf. Crit.					1,230.626	1,245.499

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01  
Standard errors clustered by province



**Figure C.2:** Beta vs. OLS Fit

The OLS model used the following priors:

$$\beta_0 \sim N(0, 1.16)$$

$$\beta \sim \mathbf{N} \left( \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 0.32 & . & . \\ . & 0.4 & . \\ . & . & 0.24 \end{bmatrix} \right)$$

$$\sigma \sim \text{exponential}(1)$$

$$\Omega \sim \text{LKJ}(1)$$

where  $\beta_0$  is the intercept;  $\beta$  are the predictors (corresponding to  $\log(\text{gdp})$ ,  $\log(\text{pop})$ , and  $\log(\text{posts})$ );  $\sigma$  is the error standard deviation; and  $\Omega$  is the correlation matrix holding the correlations between varying intercepts and slopes.

The following are the priors for the beta regression:

$$\beta_0 \sim N(0, 10)$$

$$\beta \sim \mathbf{N} \left( \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 2.74 & . & . \\ . & 3.41 & . \\ . & . & 2.19 \end{bmatrix} \right)$$

$$\Omega \sim \text{LKJ}(1)$$

These priors are weakly informative priors that have been scaled to fit the data.<sup>1</sup>

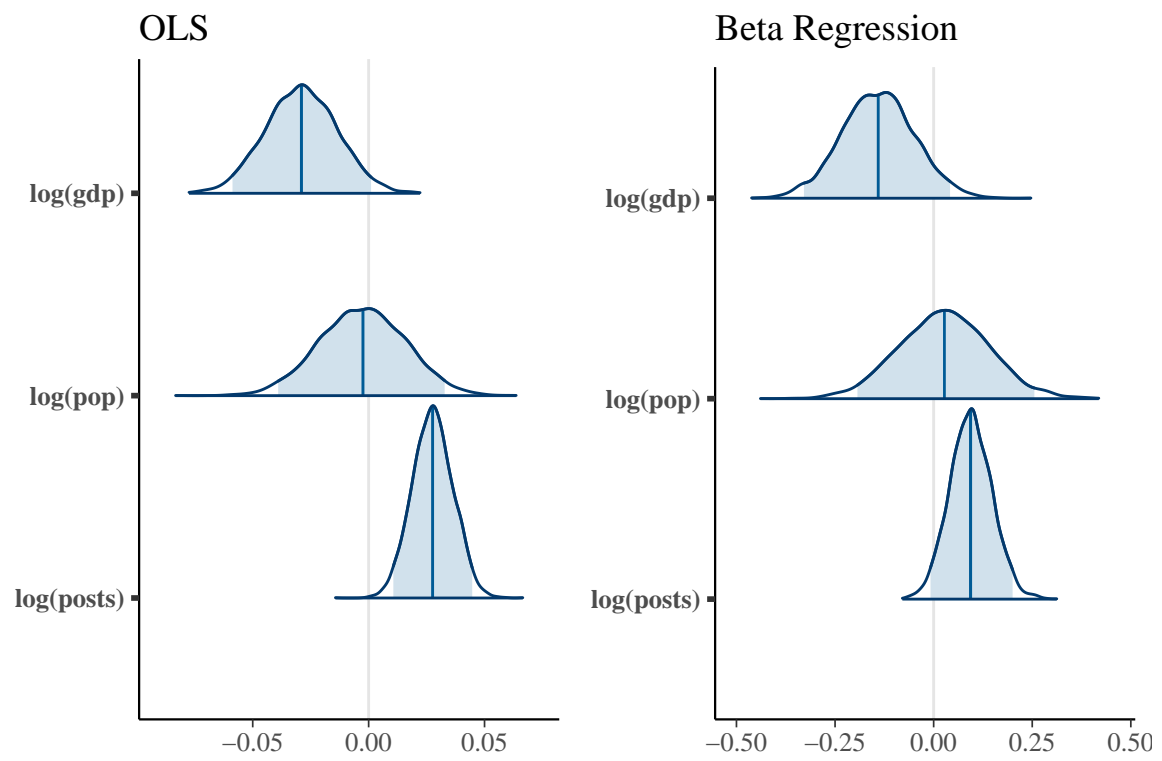
Figure C.3 shows the posterior distributions of the coefficients from Bayesian hierarchical pooling models where the intercept and slope on log(gdp) were allowed to vary across province. Regressors were centered to mean 0 prior to fitting the model. The shaded area represents a 95% credible interval, while the vertical line represents the median of the posterior.

Under the OLS model, we can be fairly certain that the coefficient on log(GDP) is negative. There's about a 97% chance that the coefficient is indeed negative, as represented by the proportion of the posterior that lies to the left of 0. We are less certain for the beta regression model.

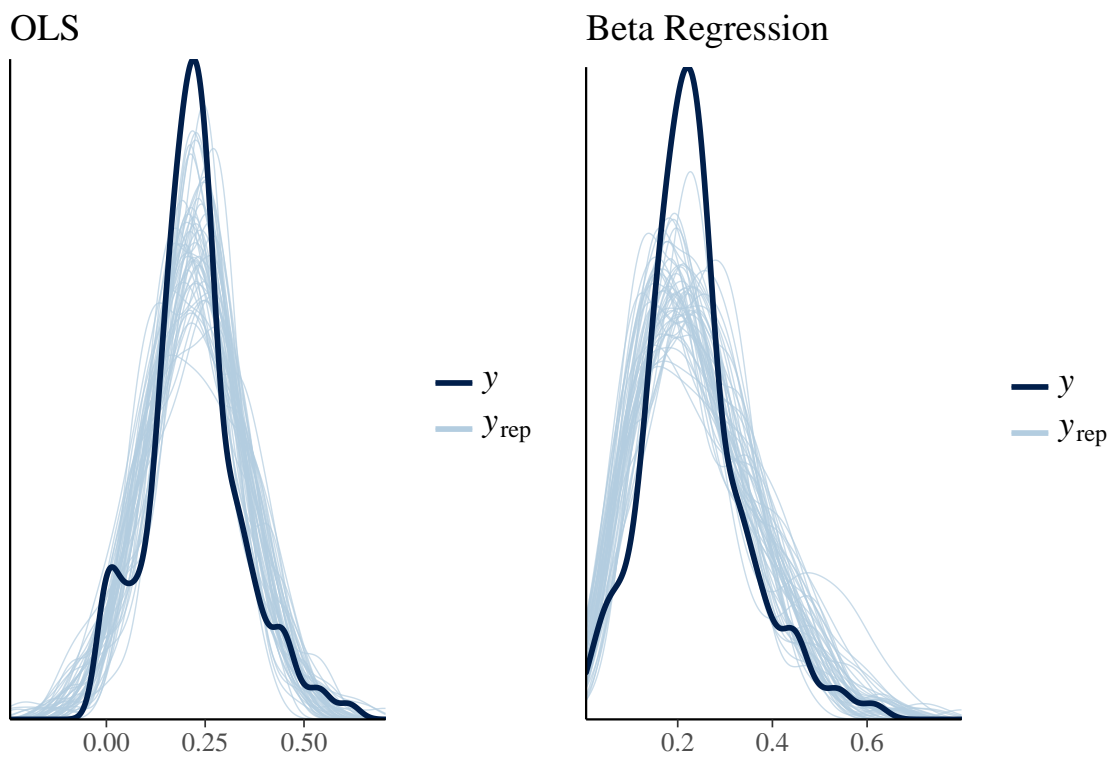
Figure C.4 shows the true density of observed outcomes (the darker line  $y$ ) compared to kernel density estimates of the replications of the outcome variable from the posterior predictive distribution (the lighter lines  $y_{rep}$ ). It appears that the OLS model fits the data better, since it is slightly better able to predict more values around the peak at 0.25.

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<sup>1</sup>For the merits of using weakly informative priors over flat priors, see Gelman et al. (2008).



**Figure C.3:** Partial Pooling: OLS and Beta



**Figure C.4:** Posterior Predictive Check: OLS and Beta

# Appendix D

## Appendix for Conclusion

### D.1 Hierarchical Trust in China

The existence of hierarchical trust is somewhat puzzling, given that many of the grievances Chinese citizens have against the government can ultimately be laid at the feet of central government policies or behaviors. Following Li (2013), under CCP leadership in the post-reform era, corruption (Lu 2000; Wederman 2004; Guo 2008), income inequality (Rozelle 1994; Xie and Wu 2008; Zhou, Han, and Harrell 2008), and the number of judicial irregularities (Lu and Gunnison 2003; Gong 2004; O'Brien and Li 2004) have all grown. In the past, reform of state-owned enterprises led to the layoffs of millions of workers (Cai 2002) and weakened pensions (Hurst and O'Brien 2002). Moreover, the central government mandates that local governments achieve certain tasks without necessarily providing the requisite funding (Saich 2008; Fan 2015). The tax-for-fee reform and central efforts to reduce the peasant burden have resulted in a fiscal crisis for many of China's rural townships, leading some local governments to resort to tactics such as land seizures to make up the budget shortfall (Oi and Zhao 2007). In urban areas, the need for funding has incentivized local governments to levy various unsanctioned fees and levies and resort to selling land as well (Saich 2008). In other words, central incentives have generated

perverse outcomes. Why then, do surveys consistently find that there is greater trust in central governments than in local governments?

Numerous explanations have been proposed in the literature.

### **D.1.1 Cultural Values**

One is that Chinese people are somehow culturally predisposed to be more trusting in the authoritative “emperor” and less trusting of local authorities (Pye 1992; Shi 2001).

### **D.1.2 Measurement Error**

Another explanation is that these results essentially arise from measurement error. There are two potential sources of measurement error: preference falsification and inadequate question design. Preference falsification occurs when an individual expresses preferences in public that differ from the true preferences he holds in private (Kuran 1991). This is potentially a problem in situations where expressing “deviant” preferences can lead to some form of retribution; this issue may be particularly acute in authoritarian regimes. For example, Kalinin (2016) argues that there exists preference falsification in Russian presidential elections; Jiang and Yang (2016) argue that after a purge, residents in Shanghai were much more likely to exhibit preference falsification on sensitive questions. However, on the specific question of hierarchical trust, some scholars argue that there is no evidence of preference falsification in the surveys they analyze. Shi (2001) finds little correlation between questions on political fear and political trust. Steinhardt (2012) shows that non-response rates on questions of political trust and institutional confidence in China are at the same general level as those in Taiwan and Hong Kong. Using a list experiment, Tang (2016) finds little evidence of political desirability effect in questions on political trust.

The other potential source of measurement error is in question design. Much of Li Lian-jiang’s work focuses on the idea of what questions on political trust are actually capturing in



surveys conducted in China. For example Li (2004) and Li (2013) argue that there are multiple dimensions to political trust, such as the government's fairness, responsiveness, and effectiveness; citizens who may have trust in the center's intentions may not necessarily have trust in the center's ability to carry out its intentions. They may also only trust a few of the central leaders, rather than the entire central government. Broad questions on trust may not capture this multidimensional nature of trust. Li (2008) and Li (2013) point out that surveys are snapshots in time and that respondents' views of the center may change as they interact with the center via petitioning or with local governments via being repressed. Li (2016) argues that trust is also multidimensional along issues: trust in the center in developing the economy can be qualitatively separate from trust in the center in developing democracy. Pushing this point, he examines responses to questions about satisfaction with political democracy in China and argues that it is in reality a latent measure of trust in the center. He then finds that those respondents who exhibit hierarchical trust also have less satisfaction with democracy, relative to those who trust the central and local governments equally, which indicates to him that there is in reality less trust in the center than the explicit questions lead researchers to believe.

The issue of disaggregating questions of trust is very interesting and is certainly worthy of further study. However, questions on trust in local governments are also aggregated in the same way that questions on trust in the center are. Why the "aggregated" trust in the center is greater than in local governments can be explored along other lines as well.

### **D.1.3 Decentralization**

Chinese citizens may also have greater trust in the central government due to structural reasons. Decentralization in China means that local government are granted a degree of autonomy in determining policies (Montinola, Qian, and Weingast 1995; Cao, Qian, and Weingast 1999; O'Brien and Li 1999; Oi 1999; Cai and Treisman 2006; Wright 2007; Li, Liu, and O'Brien 2012). China is governed by a system of vertical and horizontal linkages known as *tiao/kuai* (條

塊), where local bureaucracies ostensibly serve two masters: the bureaucracy in the level of government above it and the local government it is a part of. For example, the county public security bureau takes orders from the county government and the prefectural public security bureau.<sup>1</sup> The center is able to exert its control over local governments indirectly via job advancement incentives and directly via these *kuai* relations described above. If the *tiao/kuai* directives are in conflict, the local bureaucracy will often listen to whoever provides its funding. Due to the fiscal decentralization mentioned above, funding is often provided by the local governments. This means that lower-priority goals that certain ministries of the central government have may be sacrificed if they conflict with local goals. For example, Ortolano (2010) describes how environmental goals suffer as local Environmental Protection Bureaus cater to the desires of local government officials who wish to promote economic growth at all costs. Tanner and Green (2007) writes how the decentralization of policing has stymied professionalization of police forces, as local public security bureaus increasingly rely on non-professional law enforcement; inhibited intelligence-sharing; led to the improper usage of police forces for unpopular tasks such as enforcing birth control regulations, beating residents, and collecting grain from farmers; and led to the enacting of predatory fines and the creation of illegal businesses, such as brothels and karaoke bars, to make up budget deficits. While the central government may be ultimately responsible for the incentive system that drives local government behavior, many citizens perceive local government malfeasance as products of local government decisions.

As part of this autonomy, local governments are given autonomy in dealing with protestors and maintaining stability (Cai 2008a). This local government autonomy can allow citizens to distinguish between central and local when thinking of the government. Local governments are incentivized by the central government to prevent the escalation of local incidents. As described in Cai (2008b), local governments generally have the option of either offering concessions or resorting to repression when choosing how to deal with protest. Concessions can end resistance

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<sup>1</sup>The prefecture is the level of government above the county.

and boost government legitimacy, but they result in economic or political costs and may signal weakness. Repression can also end resistance but leads to a loss of legitimacy and other risks involved in repression. These other risks can be reduced via the usage of selective repression of specific individuals (Cai 2008a). When the local government elects to use repression, the central government is able to distance itself away from the local government's unpopular actions due to the decentralization described above (Cai 2008b). In the minds of the citizen observers, local governments are separate entities from the central government, so when the local government chooses to repress, it is the local government that receives the blame.

However, this by itself may not be enough. Not everyone in every locality in China is being repressed or experiencing corruption all the time. One survey conducted in 2002 found that only 20% of respondents had any personal experience with corruption (Zhu, Lu, and Shi 2013). A list experiment conducted in 2013 found that roughly 26% of respondents either witnessed or participated in corruption (Tang 2016). While these numbers are high in absolute terms, they are far from the majority. The information regarding this decentralization and local government performance must be spread somehow. This is where varying propaganda quality comes in.

## **D.2 Experiment to Evaluate Soft Style and Content Effectiveness**

**Goal** Use a small [online] experiment to evaluate whether “soft style” and “soft content” in police posts actually lead to greater uptake of information.

**Target population** Chinese university students (or Chinese students in American universities if Chinese university students prove unfeasible). This is a convenience sample, but it's also a population of interest due to the CCP's need to reach young people, especially in the realm of social media.

**Measurement** Show subjects a series of posts made by the police that vary by content and style (and “hardness” and “softness” ). Then there are three measurements.

- Cooperation with the police

Respondents will be asked a total of 5 questions designed to measure their willingness to cooperate with the police.

- Quizzing subjects

Ask the subjects questions regarding the posts after they have finished reading them to see how much information they retained and their feelings towards the police as an institution. The draw of this way is that while the observational data is about whether a post gets forwarded (retweeted) or not, this seems a bit difficult to emulate in an artificial lab environment. Information retention is used as a proxy for whether a user would forward or not.

- Asking them if they would share

After reading each post, each respondent is asked whether they would share the post with friends or not.

- Shared moral beliefs

There is a single question asking respondents whether they believe police share the same moral values as them or not. This question will be asked at the very end to minimize poisoning the respondents by triggering self-censorship.

## **D.2.1 Operationalization**

**Style** The control group will be shown a series of “boring” police posts, while the treatment group would be shown posts that have the same content but have softer styles i.e. use slang, emojis, etc.

**Content** The control group will be shown a series of posts that all relate to “boring” police topics like what the national leadership said and various updates about work the local police force has done. The treatment group will have some percentage of these posts replaced by posts that do not relate to police work e.g. posts about the weather, popular culture, etc.

**Design** A 2x2 factorial design

	Hard Style	Soft Style
Police Content	Only police posts with no emojis or slang	Only police posts with emojis and slang
Non-Police Content	Mix of police and non-police posts with no emojis or slang	Mix of police and non-police posts with emojis and slang

### D.2.2 Baseline / Pre-Treatment Survey

年齡 [Age]

種族 [Race]

1. 漢族 [Han Chinese]
2. 非漢族 [Not Han Chinese]

性別 [Gender]

1. 男性 [Male]
2. 女性 [Female]

您的专业是什么? [What’s your major?]

1. 文科 [social sciences / humanities]
2. 理科 [sciences / engineering]

您的户口是农业户口还是非农业户口? [Do you have a rural or non-rural household registration?]

1. 农业户口 [Rural]
2. 非农业户口 [Non-rural]
3. 没户口 [None]

您家目前的经济情况怎样? [How is your family's current financial situation?]

1. 非常好 [Very good]
2. 比较好 [Good]
3. 不好不坏 [OK]
4. 不太好 [Not very good]
5. 非常不好 [Very bad]

总体上来说, 您觉得现在居住的这个地方治安状况如何? [Overall, how do you feel about public safety where you currently live?]

1. 非常安全 [Very safe]
2. 安全 [Safe]
3. 不安全 [Not safe]
4. 非常不安全 [Very unsafe]

您经常使用微博吗? [Do you use Weibo often?]

1. 几乎每天都用 [Nearly every day]
2. 每周至少一次 [At least once a week]

3. 每月至少一次 [At least once a month]
4. 一年几次 [A couple of times a year]
5. 很少用 [Rarely]
6. 从没用过 [Never used before]

### **D.2.3 Posts to Use**

**C1** 公安分局根据上级公安机关的部署，开展了“吸毒集中查处专项行动”，取得显著成效，共侦破刑事案件 15 宗，抓获涉毒犯罪嫌疑人 15 名，查处涉毒违法人员 122 人，送强制戒毒 29 人 [In accordance with higher-level public security organs, the public security bureau has launched the “Special Operation for Investigating Drug Abuse” and has met remarkable success. 15 cases were broken, 15 criminals involved with drugs were arrested, discovered 122 people who violated drug laws, and sent 29 people to detox programs.]

**C2** 新的入罪行为： 带头“医闹”； 校车超速、超载； 国家考试中替考作弊； 虐待老病残幼； 在网络或者其他媒体上发假消息； 在法庭上打骂法官； 暴力袭击依法执行职务的警察； 私藏恐怖主义图书。 [New crimes: 1. Causing disturbances in hospitals or other medical facilities 2. Speeding or overloading beyond capacity in a school bus 3. Taking national exams for someone else 4. Abusing the old, sick, handicapped, or children 5. Spreading fake news on the internet or other forms of media 6. Attacking or insulting judges in court 7. Assaulting police that are carrying out the law 8. Secret possession of terrorist literature]

**C3** 警方已累计向群众发放防盗扣 3000 余个，全市入室盗窃类案件发案数明显下降。 [The police have already distributed more than 3000 anti-theft devices. The entire city has experienced a clear decline in the number of burglaries.]

**C4** 有很多人消费投诉都打了 110 报警，既浪费警务资源，又耽误解决问题的时间。消费投诉举报请拨打 12315 热线。[Many people who want to lodge a consumer complaint call the police at 110, wasting police resources and delaying the actual solving of their problems. Consumer complaints should be reported by calling the 12315 hotline.]

**C5** 不报案，可能是：1、忘了报案；2、持报案无用的态度；3、慑于威胁不敢报案；4、不会报案、不知找谁报案。报案使警方能及时掌握案情，采取措施。还能根据报案统计，部署治安防范和打击重点。不报案，直接影响受害人维护自身利益，也不利于社会治安的维护。[Potential reasons people have for not reporting cases to the authorities: 1. Forgot to report 2. Believe reporting is pointless 3. Afraid of blowback from reporting 4. Do not know how to report or who to report to. Reporting cases allows the police to get timely details about a case and work it. Statistics gleaned from cases can also help the relevant bureaus implement preventative measures and find the things that require emphasizing. Failing to report a case directly affects victims and has negative consequences for public safety protection]

**C6** 朋友圈中传播着这样一条消息：“走高速的注意了，高速口开始查车上的灭火器、三角架。如果没有，将扣 6 分，罚 200 元。扩散啊！请自备！”根本没有这回事。但交警部门同时提醒，从行车安全考虑，车主应自觉给车辆配备灭火器和三角警告牌。[There has been a piece of information spreading saying, “You need to pay attention to this on the freeway. They’ve started checking for fire extinguishers and emergency warning triangles at freeway exits. If it’s found that you don’t have one, you will be docked 6 points and fined 200 RMB. Spread this information! Be prepared!” This is completely false. However, the traffic police note that from the standpoint of vehicle safety, one should have fire extinguishers and emergency warning triangles in their cars.]

**C7** 郭声琨强调，要深入学习贯彻习近平总书记和孟建柱同志等中央领导同志关于公安改革的重要指示精神，始终坚持问题导向、民意引领，积极稳妥推进公安改



革，真正使广大人民群众和基层公安民警感受到公安改革带来的实惠和效果。[Guo Shengkun emphasizes, we must thoroughly study and implement General Secretary Xi Jinping's, Comrade Meng Jianzhu's, and other central leaders important instructions and guiding spirit on public security reform. We must be problem-oriented and guided by the people, actively and steadily pushing ahead on public security reform so that the people and lower-level police can experience the benefits of public security reform]

**C8** 查处违法停车的目的是为了让市民不要乱停车，罚款是手段，绝对不是目的。通过“温馨提示”这样先提醒、不罚款的方式，最终还是希望能引起车主注意，意识到自己的违法行为，主动遵守交通法规，从而杜绝违法停车。[The purpose of finding illegally parked cars is to make sure that citizens don't just park haphazardly. Fines are just the method, not the goal. Using “warm suggestions” as a reminder without levying fines is still a way to get drivers to pay attention and be conscious of their own illegal behavior so that they voluntarily put a stop to their illegal parking.]

**C9** 公安部为支持建设具有全球影响力的科技创新中心，推出了涉及外国人签证、入境出境、停留居留、永久居留等方面的一系列出入境政策措施，为科创中心建设提供最便捷的出入境环境、最优良的外籍人才居留待遇、最高效的出入境服务。[In support of building a technology innovation center with global impact, the Ministry of Public Security is implementing a set of new policies that touch on visas, entry/exit, temporary residence, and permanent residence for foreigners.]

**C10** 交警推出“排阵式交通控制”的新技术，经一个多月的试用测试，基本化解了高峰期多车缓行的状况。排阵式交通控制能最大限度提高路口通行能力，减少延误，理论值最大能提高路口通行能力3倍。[The traffic police have introduced a new “straightening traffic control” technology. After a trial of more than a month, it has basically resolved the issue of slow traffic during rush hours. The technology can maximize traffic flow and reduce delays.]

In theory, the technology can increase traffic flow by 300 percent.]

**I1** 良好的饮食习惯，有助于造就一个良好的体魄！亲们，多吃水果、多吃菜，多运动来多劳动！[A good diet leads to a good body! My friends, eat more fruit and vegetables and exercise more!]

**I2** 晚安的中文拼音 wan an, 拆开就是：我爱你，爱你！告诉每一个爱你的人。[Goodnight in Hanyu pinyin is wan an. Taking it apart, it means I love you, love you! Tell everyone who loves you.]

**I3** 和阳光的人在一起，心里就不会晦暗；和快乐的人在一起，嘴角就常带微笑；和进取的人在一起，行动就不会落后；和大气的人在一起，处事就不小气；和睿智的人在一起，遇事就不迷茫；和聪明的人在一起，做事就变机敏。借人之智，完善自己。学最好的别人，做最好的自己，亲们，早安！[If you are together: with a sunny person, then your heart will not be dark; with a happy person, you will smile often; with an aggressive person, you will not fall behind; with a generous person, you will not handle things in a stingy manner; with a far-sighted person, you will not get lost; with a smart person, you will handle tasks with more agility. Use other people's wisdom to perfect yourself. Learn from the best people, be the best person you can be. My friends, good morning!]

**I4** 从心理学来讲，会做饭的男人能了解和主动满足家人的需要，一定拥有一个温馨和谐的家庭。此外常做家务活，要用到眼、嘴、脑、手，可以延缓大脑衰老，避免患老年痴呆症。[Psychology tells us that a man who knows how to cook will know to voluntarily satisfy the needs of his family without prompting, and he will definitely have a warm and harmonious family. In addition, doing chores around the house requires the use of the eyes, mouth, brain, and hands; this can delay the aging of the brain and prevent Alzheimer's.]

**I5** 10个习惯催人老 □ 喝水少。□ 心眼小：心有怨恨导致压力增加。□ 揉眼睛：损坏眼周胶原蛋白，引起毛细血管破裂，进而产生皱纹。□ 不休假：定期休假给自己喘息的机会。□ 吃甜食：糖分会加速身体各部位老化。□ 吃垃圾食品。□ 吸烟。□ 酗酒。□ 减肥时才运动。□ 熬夜。[These 10 things will make you get old faster: 1. Not drinking enough water 2. Being narrow-minded, if your heart is filled with hate and anger, you will be under more pressure 3. Rubbing your eyes, this will damage the collagen around your eyes, breaking your capillaries and producing wrinkles 4. Not taking breaks, regularly taking breaks will give you room to breathe 5. Eating sweets, sugar causes the various parts of your body to age faster 6. Eating junk food 7. Smoking 8. Excessive drinking 9. Only exercising when you’ re dieting 10. Staying up late.]

The above (C1-10 and I1-5) are all posts originally made by police accounts on Weibo. Some have been very slightly altered to remove hashtags, brackets (usually used to summarize a topic), dates, and specific place names. The below posts are modified versions of C1-C10 to make them “softer.”

**T1 对毒品说不!** 🚫 公安部门开展了“吸毒集中查处专项行动”，取得显著成效，共侦破刑事案件 15 宗，抓获涉毒犯罪嫌疑人 15 名，查处涉毒违法人员 122 人，送强制戒毒 29 人。

**T2 大家来看看新规吧** 🚫 !!! **蜀黍提醒有**新的入罪行为：□ 带头“医闹”；□ 校车超速、超载；□ 国家考试中替考作弊；□ 虐待老病残幼；□ 在网络或者其他媒体上发假消息；□ 在法庭上打骂法官；□ 暴力袭击依法执行职务的警察；□ 私藏恐怖主义图书。

**T3 警方已累计向群众发放防盗扣 3000 余个，全市入室盗窃类案件发案数明显下降** 🚫  
。家中的防盗措施不能放松哦!

**T4 费投诉要找谁?** 有很多人消费投诉都打了 110 报警, 既浪费警务资源, 又耽误解决问题的时间... 🤔 **记得**消费投诉举报要拨打 12315 热线**哦!** 👍

**T5** 不报案, 可能是: 1、忘了报案; 2、持报案无用的态度; 3、慑于威胁不敢报案; 4、不会报案、不知找谁报案🤔 ... 报案使警方能及时掌握案情, 采取措施。还能根据报案统计, 部署治安防范和打击重点。**蜀黍提醒**, 不报案, 直接影响受害人, 也不利于社会治安的维护**哦!**

**T6** 朋友圈中传播着这样一条消息: “走高速的注意了, 高速口开始查车上的灭火器、三角架。如果没有, 将扣 6 分, 罚 200 元。扩散啊! 请自备!” 根本没有这回事**啊!** 😡 但交警**蜀黍**同时提醒, 从行车安全考虑, 车主应自觉给车辆配备灭火器和三角警告牌。❤️ ❤️

**T7** 郭声琨强调, 要深入学习贯彻习近平总书记和孟建柱同志等中央领导同志关于公安改革的重要指示精神, 始终坚持问题导向、民意引领, 积极稳妥推进公安改革, 真正使广大人民群众和基层公安民警感受到公安改革带来的实惠和效果。👍

**T8** 查处违法停车的目的是为了让市民不要乱停车, 罚款是手段, 绝对不是目的**哦**。通过“温馨提示”这样先提醒、不罚款的方式, 最终还是希望能引起车主注意, 意识到自己的违法行为, 主动遵守交通法规, 从而杜绝违法停车。😺

**T9** 公安部为支持建设具有全球影响力的科技创新中心, 推出了涉及外国人签证、入境出境、停留居留、永久居留等方面的一系列出入境政策措施, 为科创中心建设提供最便捷的出入境环境、最优良的外籍人才居留待遇、最高效的出入境服务。👏

**T10** 交警推出“排阵式交通控制”的新技术, 经一个多月的试用测试, 基本化解了高峰期多车缓行的状况 🤔 ! 排阵式交通控制能最大限度提高路口通行能力, 减少延误, 理论值最大能提高路口通行能力 3 倍!!

T1-T10 are just C1-C10, but “softened.” Additional phrases (in bold) and emojis are all phrases and emojis I’ve seen in other police posts with similar topics. Single additional words added at the end of the sentence do not change the meaning.

#### **D.2.4 Theory Behind Questions**

According to Nagin and Telep (2017), the standard (but contested) causal pathway between citizen perception of police and outcomes is as follows. Citizens evaluate police based on whether they receive “procedurally just treatment” by agents of the criminal justice system (e.g. the police). Procedural justice arises from “process-based” assessments of police behavior. Process-based assessments are a product of citizen approval of the how the police made a decision. It is constructed from evaluation of the police on two dimensions: *quality of treatment* and quality of decision making. Quality of decision making alludes to people’s perceptions that police reached their decisions through a fair and objective process that relied on facts, law, and reason rather than personal opinion. Quality of treatment refers to whether people believed the police treat them (the citizens) with the proper respect, dignity, and courtesy (Gau 2011) . At least in the way the standard framework is formulated, we assume that here is the part of the causal pathway where soft content and style of police social media posts enter. Presumably, by moving to softer styles/content, not only are the police trying to drum up interest in their posts, they are also demonstrating that they care about how people perceive them, potentially improving the perception of the quality of treatment they receive at the hands of the police.

When citizens perceive that they have been treated fairly, it grants the police legitimacy. Under a framework proposed by Tankebe (2013) , procedural justice is part of a *shared set of values and beliefs* that “institutionalize the rightful source of power and define the qualities appropriate to the exercise of that power.” Along with procedural justice, distributive justice —perceptions that outcomes are fair —and police efficacy form the shared set of values. Together with *lawfulness* (whether power was acquired in lines with societal rules), these determine whether

the police are viewed as legitimate or not.

According to some of the literature, police legitimacy is the amalgamation of two concepts: *trust in police* and *obligation to obey*.<sup>2</sup> When citizen feelings along these two dimensions are high, it leads to normative compliance, where citizens have internalized a perceived obligation that the law is just and that they should comply with it. This concept is again broken up into two sub-concepts: *cooperation* and *compliance*.

## D.2.5 Questions to Ask

### Knowledge Questions

根据上文，请问下列哪一项是新的入罪行为？ [Which of the following are one of the new crimes mentioned in one of the posts you just read?]

根据上文，警察开始在高速口查车上有无配备灭火器‘三角架，如果没自备，会有罚单，是否正确？ [According to one of the posts you just read, police are now inspecting cars at freeway exits for emergency warning triangles and fire extinguishers. Drivers without these items will be fined. True or false?]

1. 是 [True]
2. 否 [False]

根据上文，消费投诉举报要拨打 110，是否正确？ [According to one of the posts you just read, you should call 110 for consumer complaints. True or false?]

1. 是 [True]
2. 否 [False]

根据上文，哪个原因是大部分的人不报案的原因之一？ [According to one of the posts you just read, what is one reason people avoid making reports?]

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<sup>2</sup>Other authors view obligation to obey as not a part of legitimacy, but as a response to legitimacy.

1. 报案不方便 [It is inconvenient]
2. 报案费太高 [Costs too much money]
3. 持报案无用的态度 [Reporting is pointless]
4. 要在场目击犯罪才能报案 [You need to be an eyewitness to make a report]

根据上文，要深入学习贯彻习近平总书记及哪位中央领导同志，关于公安改革的重要指示精神？ [According to one of the posts you just read, whose —in addition to Xi Jinping —guiding spirit on public security reform should be followed?]

1. 李克强 [Li Keqiang]
2. 郭声琨 [Guo Shengkun]
3. 孟建柱 [Meng Jianzhu]
4. 王岐山 [Wang Qishan]

### **Cooperation with Police**

If you witnessed a crime in your neighborhood, who would you notify first?

1. Close family member
2. Someone in the resident committee
3. Police
4. A friend who works for the government

If you witnessed suspicious activity in your neighborhood, who would you notify first?

1. Close family member

2. Someone in the resident committee
3. Police
4. A friend who works for the government

If you had information about a suspected criminal, who would you notify first?

1. Close family member
2. Someone in the resident committee
3. Police
4. A friend who works for the government

If you witnessed a traffic accident in your neighborhood, who would you notify first?

1. Close family member
2. Someone in the resident committee
3. Police
4. A friend who works for the government

Suppose one of the people below asks you for help. Would you help them? Check all that apply

1. Close family member
2. Someone in the resident committee
3. Police
4. A friend who works for the government



## D.2.6 Power Analysis

**Byron and Baldrige (2007)** Experiment where a group is sent a “regular” email and another is sent emails with emoticons. Recipients of email asked to rate the likability of the email sender. Finds effect size of +0.6 on scale of 1-7 for emoticon emails (about a 10 percentage point increase of total scale).

**Mickes et al. (2013)** Experiment where subjects read sentences from a book and sentences from Facebook posts. Afterwards, they were shown sets of sentences and asked if those sentences appeared in the sentences that they just saw. A 9 percentage point increase of total scale in memory for Facebook posts.

**Maguire, Lowrey, and Johnson (2017)** Experiment where subjects were split into three groups. Each group was showed a video of a traffic stop that differ on procedural justice. One group received a positive video (very nice and fair policeman), one a neutral video, and one a negative one. Smallest effect size was 0.174 on a scale of 1-5 (about 4 percentage points).

The smallest effect size listed above is 0.174 (on a scale of 1-5, so we will use that to be conservative. What’s left then is to provide an estimate for the standard deviation of number of questions correctly answered / trust thermometer. To recap, there are 4 things being measured here. They are (1) a set of knowledge questions (range 0-5 questions answered correctly); (2) a set of cooperation with the police questions (range 0-5 questions answered with “police” as the answer); (3) whether they would share a given police post (range 0-10 posts possible to share); and (4) whether the police share moral values with the respondent (range 1-5). If we wanted to be the most conservative, we would pair the 0.174 effect size with the range of 0-10 for whether users would share a given post or not.

**Assume uniform** If we assume that the distribution is discrete uniform going from 0 to 10, then the standard deviation is around 3.16, leading to an effect size of around 0.06 standard deviations and a target sample size of 902 people per group for a total of 3608 people. If we were only looking at the knowledge questions, in expectation, the lower bound of the uniform distribution on the number of questions correctly answered (in the multiple-choice scenario) is higher than 0, since on average a person would get 1.75 questions correct just by randomly guessing.

If the difference in means were instead 0.4 (4% of 10), then the effect size would instead be 0.13 standard deviations with a target sample size of 172 people per group for a total of 688 people.

**Most conservative** Suppose each group in the treatment arms is highly polarized, where half the group gets 0 questions right or has no trust in the police and the other half get every question right or completely trusts the police, and that there are 902 people in each group. In this case, the standard deviation is around 5, leading to an effect size of around 0.03 standard deviations and a target sample size of 2254 people per group for a total of 9016 people.

If the difference in means were instead 0.4 (4% of 10), then the effect size would instead be 0.08 standard deviations with a target sample size of 430 people per group for a total of 1720 people.

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