# How Chinese Officials Use the Internet to Construct their Public Image: Supplementary Online Appendix

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#### Abstract

The Chinese regime has launched a number of online government transparency initiatives to increase the volume of publicly available information about the activities of lower level governments. By analyzing online content produced by local government officials to fulfill these transparency requirements—a random sample of 1.92 million county-level government web pages-this paper shows how websites are commandeered by local-level officials to construct their public image. The majority of content on government websites emphasizes either the competence or benevolence of county executives, depending on where leaders are in the political tenure cycle. Early tenure county executives project images of benevolence by emphasizing their attentiveness and concern toward citizens. Late tenure executives project images of competence by highlighting their achievements. These findings shift the nature of debates concerning the role of the Internet in authoritarian regimes from a focus on regime-society interactions to an examination of dynamics among regime insiders. By focusing on communication and the flow of information between upper-level leaders and lowerlevel regime agents, this paper reveals how the Internet becomes a vehicle of selfpromotion for local politicians.

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### **1** Online Government Transparency in China

Since 1999, the central regime has promulgated three sets of regulations that require local levels of government to make information publicly available on the Internet. A goal of these initiatives is to improve scrutiny of local agents: the central regime gains information about the performance of local agents when agents make their activities public and when Internet users can validate this information. Central and local governments have allocated human and organizational resources to these online government projects; however, local officials retain a great deal of autonomy with respect to how they implement these regulations, including control over determining the exact content of the information that is disseminated, as well as the extent to which the general public can provide public scrutiny over local activities.

Three government transparency initiatives: The Chinese government began its transparency initiatives in early 1999 with the launch of the Government Online Project 政府上网工程 (GOP). GOP was a joint project involving over 40 government agencies, as well as the National People's Congress, the Chinese People's Political Consultative Conference, and China Telecom, created to encourage government bureaus to make their documents, archives, and databases available online to businesses and the general public.

Three year later, in 2002, the State Council, China's highest administrative authority, issued Decree No. 17, "Guiding Suggestions on Constructing China's E-Government" 《关于我国电子政务建设指导意见》 (GSCCE). The regulation states: "To satisfy society's cry for administrative information, we should design an information resource directory system and construct basic information databases for population, corporation units, natural resources, and macroeconomic indicators, etc."<sup>1</sup> The GSCCE encourages government agencies at all levels to "accelerate the pace of making administrative information known to the public" and requires every level of government to create its own web site and promote transparent governance (政务公开).

Finally, in April 2007, the State Council promulgated the "Open Government Infor-

<sup>&</sup>lt;sup>1</sup>For text of original document, see http://www.jincao.com/fa/08/law08.s08.htm (Accessed March 20, 2016).

mation" Ordinance 《中华人民共和国政府信息公开条例》 (OGI). OGI delineates specific types of information that local governments must make public. These include plans, activities, and outcomes from a variety of areas, including administrative documents, economic development plans, statistical reports, financial budgets and accounts, administrative fees and licensing, procurement projects, in addition to information on construction, land appropriation, housing demolition, use of charitable funds, policies and outcomes related to poverty alleviation, education, health care, social security, employment, emergency plans, and environmental protection, as well as food, drug, and product safety. In addition to publicizing activities of the repressive apparatus, such as public security and incarceration, OGI mandated transparency across nearly all other arenas of local government responsibility.

**Central Regime Objectives:** A common objective of all three information openness initiatives is improving oversight of lower-level regime agents. One of the aims of the GOP was to reduce local corruption by using the Internet to increase dissemination of information (Chen et al., 2006; Ma, Chung and Thorson, 2005). The GSCCE emphasized the need for government transparency, and in describing the GSCCE, Seifert and Chung (2009) note that "transparency is important to the leaders only when it strengthens the state's capacity to maintain its monopoly on power. To that end, the central government wants local governments to post more information online." Article 1 of OGI states that the regulations are intended to "enhance transparency of the work of government" and "promote administration in accordance with the law."<sup>2</sup>

Online transparency initiatives help monitor local agents of the regime by requiring these agents to make their activities public while transparency initiatives allow the public to validate their claims. Comments made by Chinese leaders also highlight the monitoring function of these initiatives. In 2002, then premier Zhu Rongji stated that as a result of initiatives including GSCCE, the "government's supervisory work will be more meticulous and efficient" (People's Daily, 2002). In a speech to business and government leaders, the

<sup>&</sup>lt;sup>2</sup>For original text and English translation, see http://l.usa.gov/lR9I08s (Accessed January 7, 2016).

executive vice minister of the State Council leading group for inter-ministry coordination on issues of information and communication technology, Qu Weizhi, described how information initiatives help "raise the level of a hardworking and honest government and to strengthen the macro control" (Seifert and Chung, 2009). Zhang Qiong, vice minister of the State Council's Office of Legislative Affairs described OGI as promoting the public's "right to supervise" in order to "help curb corruption at its source, largely reducing its occurrence" (Horsley, 2007, 2).

**Implementation Incentives and Autonomy:** With each successive transparency initiative, the government increased the level of specificity and strength of enforcement contained in its regulations. The GOP did not set timelines for compliance or specify consequences for noncompliance; it also gave officials locally implementing the incentives complete discretion over what information was to be made public. The GSCCE that followed was a stronger piece of regulation, mandating the creation of government websites; the GSCCE was also more specific than the GOP regarding what information had to be made public. The final initiative, OGI, contained the greatest degree of specificity concerning information sharing, delineating a wide array of categories of information that must be made publicly available, and also provided stronger enforcement mechanisms. The OGI regulations set a deadline for implementation (roughly a year after the policy was announced), mandated the creation of a new department "responsible for the daily work of open government information," and specified consequences for failure to implement its policies. According to OGI policies, localities are required to make annual reports of their work on information openness to upper levels, and upper levels are tasked with monitoring implementation. Further, failure to fulfill information obligations, failure to update information in a timely manner, and the exchange of information for fees or payment may result in administrative as well as criminal penalties.

However, financial resources were not allocated by the central government to support implementation of any of these transparency initiatives. As is often the case with unfunded central mandates (Shue and Wong, 2007), local governments are expected to reallocate funds from their budgets to implement the new regulations. Since such policies often create competing priorities at the level of local governments, when regulations like the GOP are suggestive, only a few localities may implement programs to use as a point of differentiation; most, however, don't tend to reallocate funds for implementation.

As the regulations were strengthened and more clearly defined, incentives for compliance among officials were also increased and implementation became widespread. However, officials charged with implementing the policies were given a great deal of latitude in terms of *how* to implement them. In other words, while virtually all government agencies at the county level and above now have websites in compliance with GSCCE, and all local governments now share a wide array of information as mandated by OGI regulations, whether implementation fulfills the spirit of the regulations, which were designed to improve objective information and monitoring of local agent performance, remains in question. Further, since corruption and other forms of rent seeking not sanctioned by central authorities are thought to be pervasive among lower-level officials in China (Lü, 2000), fully transparent reporting of activities many not be desirable for many lower-level officials.

Lead responsibility for the implementation of OGI regulations is assigned to the general offices of local governments at the county level and above. Interviews with countylevel administrators and examination of leaked internal government documents<sup>3</sup> show that the general office of the government executive (政府办公室) leads implementation of OGI, as stipulated by the regulations. County-level administrators who have been interviewed state that the county executive is ultimately responsible for ensuring the smooth implementation of information openness measures. As a result, between the two top leaders of each county—the county party secretary and the county executive-the county executive holds the primary responsibility for determining the direction and content of county government websites. The county party secretary can no doubt exert influence over the content of local websites, but in most localities, the county party secretary is not responsible for setting the agenda or providing regular oversight of local website content, and may have fewer incentives for intervening in what is published (see Section **??** for details). When new county executives take office, the content of websites is reviewed and often

<sup>&</sup>lt;sup>3</sup>See https://xiaolan.me/50-cent-party-jxgzzg.html.

refreshed. In some cases, an entirely new website is created for the new administration.

At the county level, the new department tasked with carrying out OGI requirements is often called the Information Management Office.<sup>4</sup> This office manages day to day maintenance of government websites, including upkeep of servers, management of the codebase, and web pages updates.<sup>5</sup> In some counties, the information office is part of the online propaganda office of the local propaganda department.

Although OGI specifies categories of information that must be made public, it does not provide templates or guidelines outlining how these information requirements should be met. For example, counties must make economic development plans public, but OGI does not specify whether those economic development plans must contain quantitative targets. As a result, a general description of a locality's economic development trajectory would satisfy the requirement. Likewise, OGI requires that financial budgets and accounts be made public, but does not specify the level of detail that this data should contain; a highlevel, financial report with a few, aggregated numbers would satisfy this requirement. As a consequence, local regime agents, including county executives, have a great deal of autonomy in terms of how they implement OGI.

In summary, as the strength and specificity of the transparency regulations developed, incentives for local officials to implement them increased, as did actual implementation. However, local officials have a great deal of leeway with respect to fulfilling the transparency requirements, and, where local malfeasance is present, local officials have incentives not to provide full access to information about their activities.

**Demand for Government Information:** The monitoring function of information openness programs depends not only on the willingness of local officials to make information public, it also depends on the ability of the general public to dispute the information that is provided by local officials in a way that is visible to upper level superiors.

<sup>&</sup>lt;sup>4</sup>Information Management Office is in Chinese 信息管理办公室. Other names for this office include the Online Information Management Office (网络信息管理办公室) and the E-Government Management Office (电子政务管理办公室).

<sup>&</sup>lt;sup>5</sup>OGI does not require that information be made available exclusively via government websites, only that local governments "make it convenient for citizens, legal persons and other organizations to obtain government information."

Public demand for information from government websites is strong. In 2009, 43% of Internet users reported visiting government web sites at least once a month, while 26% reported using the sites occasionally (CNNIC, 2010). The majority of government websites provide online forums for the general public to ask questions as well as provide feedback and suggestions. Approximately 80% of county level government websites contain a public forum where Internet users can post questions and comments (Chen, Pan and Xu, 2016); in addition, a large number of the most heavily trafficked social media sites in China are government run (King, Pan and Roberts, 2014).

Despite this, the ability of Internet users to dispute information provided by local officials is limited. In their review of over 2,000 Chinese county-government web forums, Chen, Pan and Xu (2016) found that less than 5% of forums allow content to be posted instantaneously. Instead, when citizens submit their posts, the content is manually reviewed, likely by someone in the Information Management Office, before it appears online. (King, Pan and Roberts, 2014) show that certain types of content, for example those discussing collective action, never make it past the review process and are never publicly posted. In addition, the large volume of information posted on these forums increases the difficulty of monitoring the public's response to information. As a result, when information provided by localities is disputed by local residents, this contestation may not be visible to upper level superiors.

### 2 Sampled Counties

East China: Pinggu (Beijing), Hedong (Tianjin), Mengcun (Hebei), Bazhou (Hebei), Huailai (Hebei), Zhen'an (Liaoning), Taizihe (Liaoning), Gongchangling (Liaoning), Huimin (Shandong), Mudan (Shandong), Tancheng (Shandong), Laixi (Shandong), Qingzhou (Shandong), Penglai (Shandong), Nanchang (Jiangsu), Pei (Jiangsu), Yunlong (Jiangsu), Tongshan (Jiangsu), Runzhou (Jiangsu), Jianggan (Zhejiang), Xiaoshan (Zhejiang), Jiashan (Zhejiang), Huangyan (Zhejiang), Dongtou (Zhejiang), Huangpu (Shanghai), Putuo (Shanghai), Taijiang (Fujian), Yongding (Fujian), Jianyang (Fujian), Sanyuan (Fujian), Xiangqiao (Guangdong), Huicheng (Guangdong), Puning (Guangdong), Xuwen (Guangdong), **Central China:** Bin (Heilongjiang), Wuchang (Heilongjiang), Jiaoqu (Heilongjiang), Didao (Heilongjiang), Kedong (Heilongjiang), Youhao (Heilongjiang), Jiayin (Heilongjiang), Badaojiang (Jilin) Chengqu (Shanxi), Xiaodian (Shanxi), Hequ (Shanxi), Laocheng (Henan), Xichuan (Henan), Qingfeng (Henan), Shan (Henan), Luoshan (Henan), Erqi (Henan), Yingjiang (Anhui), Wuwei (Anhui), Yingshang (Anhui), Taihe (Anhui), Si (Anhui), Jianshi (Hubei), Hannan (Hubei), Xian'an (Hubei), Yunmeng (Hubei), Yuanling (Hunan), Tianyuan (Hunan), Gan (Jiangxi), Dayu (Jiangxi), Wanli (Jiangxi),

West China: Arxan (Inner Mongolia), Dalad (Inner Mongolia), Haibowan (Inner Mongolia), Uqturpan (Xinjiang), Aral (Xinjiang), Manas (Xinjiang), Jeminay (Xinjiang), Shawan (Xinjiang), Taxkorgan (Xinjiang), Akqi (Xinjiang), Lintan (Gansu), Yongchang (Gansu), Yuzhong (Gansu), Wudu (Gansu), Xixia (Ningxia), Mei (Shaanxi), Weicheng (Shaanxi), Qushui (Tibet) Qianjiang (Chongqing), Zhongjiang (Sichuan), Dege (Sichuan), Mabian (Sichuan), Naxi (Sichuan), Gulin (Sichuan), Longchang (Sichuan), Pingle (Guangxi), Dahua (Guangxi), Zhijin (Guizhou), Weining (Guizhou), Rongjiang (Guizhou), Honghuagang (Guizhou), Luchun (Yunnan), Zhanyi (Yunnan), Weixin (Yunnan)

### **3** LDA Topic Model

To determine whether local website meet OGI content requirements, web pages are preprocessed and analyzed using a Latent Dirichlet Allocation (LDA) topic model (Blei, Ng and Jordan, 2003).<sup>6</sup> For preprocessing, all non-Chinese characters and alphanumeric characters were removed from the raw web content,<sup>78</sup>

LDA topic modeling is a method of unsupervised machine learning used to identify topics in text corpora. Using an unsupervised machine learning method in this context reveals topics without imposing prior assumptions concerning whether or not the content

<sup>&</sup>lt;sup>6</sup>Replication data is available online, see Pan (2017).

<sup>&</sup>lt;sup>7</sup>Content in languages such as Tibetan and Uyghur was removed, and the Chinese text was segmented using a conditional random field model (Chang, Galley and Manning, 2008; Tseng et al., 2005).

<sup>&</sup>lt;sup>8</sup>Chinese words can be composed of single or multiple characters, but there are no whitespaces to delineate the boundaries between words. As a result, word segmentation is often the first step in Chinese language processing. Preprocessing tasks for English such as stemming and lowercasing are not applicable for Chinese text.

of these web pages adheres to OGI requirements. An LDA topic model is appropriate for determining the content of county web pages because the model assumes that each document is drawn from a distribution over topics, and topics are common to the corpus. In the case of government web pages, individual pages (the documents) may comprise a mixture of topics, but government web pages on the whole (the corpus) should share the same set of topics.

Following the notation from Blei, Ng and Jordan (2003), there are K topics, where each topic is assumed to have been drawn from a Dirichlet,  $\beta_k \sim \text{Dirichlet}(\eta)$  that defines a distribution over the vocabulary. Given the topics, each document d is drawn from a distribution over topics,  $\theta_d \sim \text{Dirichlet}(\alpha)$ . For each word i in document d, a topic index  $z_{di} \in 1, ..., K$  is drawn from topic weights  $z_{di} \sim \theta_d$  and the observed word  $w_{id}$  is drawn from selected topics  $w_{di} \sim \beta_{z_{di}}$ . The latent structure of the corpus is analyzed by examining the posterior distribution of the topics, topic proportions, and topic assignments conditioned on the documents:

$$p(\mathbf{z}, \boldsymbol{\theta}, \boldsymbol{\beta} | \mathbf{w}, \alpha, \eta) \tag{1}$$

This posterior cannot be computed directly, and I use Variational Bayes optimization for LDA to approximate it and in turn analyze the county government web pages (Hoffman, Bach and Blei, 2010). The number of topics in the LDA topic model is determined by the researcher. Four topic models with 25 topics, 50 topics, 75 topics, and 100 topics models were fitted to the web content. The model with 50 topics yielded the most intuitive results and forms the focus of subsequent analysis (Chang et al., 2009).

Based on the most prominent words associated with each topic in the LDA model, a topic label is assigned by human coders. It was possible to assign topic labels to 39 of the 50 topics, while a coherent topic was not easily discernible for the remaining 11 based on examination of the most prominent words. Figure 1 shows the most prominent 50 words, translated to English and sized by frequency, for six labeled topics.

### Figure 1: Words from labeled topics

(a) Economic development

Strength Ecology Increase Support Open up Upgrade Strategy Superior Resources Brand Base Emphasis Technology Country Omote Market Enterprise Service Base Increase Planning Ability New Travel Economy Technology Development Change Perfect Talent Industry Build Advance Level System Community Services Industry ImplementEnvironment Policy Product Citure Further Characteristic Science (d) Emergency response

Requested Community Epidemic Measure Departments Is responsible Geology Relief Report Organization Contingent Mistake Report Organisation Guarantee Contro Site Staff Sudden Guarantee Contro Barthquake Prevent Incident Case Rescue Emergency terials Public Work Advance Prevention Prevention Disposal Disaster Accident Disposal Disaster Accident Unit Occurrence Information Agen Situation Flood Control Locations Disaster area Headquarters Relevant Prevention and control Rescue Management

#### (b) Health and social security



(c) Land rights and housing

Document Leading bureau Engineering Collective State-owned Handle Resources Right Yuan Fee Resources Right Yuan Forest Land Build Forestry Demolition Management Contract Forest Forest Project Unit Land Grant Registe Contract Land Develop Standard Dossier Houses Use reat DOSSICT HOUSES Forest HOUSINg Land Approve Collection Use rights Charge Country Property Room Country Property Protection Compensate Inexpensive According to the law

(e) Government approval process (f) Public procurement and tenders

According to the law Certificate Administrative organ<sub>Basi</sub> Enterprise Change Photocop Enterprise Change Photocopy Work unit Be accepted Party Date of Submit Set up Approv Contract Handle Proof Management Human Item Human Item Make File Law Approval Register Condition Table Condition Approval Less Administration Name License Administration Procedure Applicant Legal Law Applicant Legal Situation Legal person Examine Pation record Reconsideration

Government affairs Qualifications Engineer Comment Amount Announcement Service Bidders Release Show Project Belong Proposal Price Mark Sell Remove Retate Sand Bid Tender Correct Vorket District District Dynamic Mode Center River File Purchase Supplier Statistics Information Public Public Statistics Location Surplus Statement

#### **Predictive Inference: Controls** 4

Variables are included in our regression analysis to address alternative explanations in five main areas: a) resource availability and environmental factors at the county-level, b) preferences of peers, c) preferences of superiors and environmental factors at the prefecturelevel, d) ability and other county executive characteristics, and e) county executive incentives. Below is a detailed description of the variables in each area.

a) Resource availability includes the availability of human and financial resources for information management within a county. I measure human resource availability in two ways. First, I use the proportion of the county population over the age of 15 who are illiterate based on the 2010 census (*Illiterate*). Literacy is a basic requirement to working in information management, and counties with high rates of illiteracy are likely to face greater challenges in filling job openings. Second, I use the number of individuals employed in "information transmission, wholesale and retail" for each county from the 2010 census (Info Workers).<sup>9</sup> I include this second proxy to

<sup>&</sup>lt;sup>9</sup>China's Census data provides the number of individuals employed in sector groupings; those employed in information transmission are grouped with those in wholesale and retail.

more closely approximate the availability of information management personnel. I also measure the availability of financial resources for information management in two ways. First, I use the size of the government website, based on the number of working internal pages and external links (Website Size). Information on government IT or information management personnel and spending are not available at the county level, except in very rare instances. The size of the county website is an appropriate proxy for information management resources at the county level because large websites require a larger number of people to create content, develop website functionality, and provide site maintenance.<sup>10</sup> In addition, I use the estimated proportion of county fiscal expenditures focused on "culture, sports, and media" (Info *Exp*) as a proxy for financial resource availability. Spending by the government on "culture, sports, and media" is closely related to CCP efforts to shape the production and dissemination of information, and represents the amount of financial resources devoted to information programs, of which government websites are one facet.<sup>11</sup> However, the details of this expenditure data is not available at the county or prefecture levels. To estimate these expenditures, I multiply the 2009 provincial level expenditures on "culture, sports, and media" by the ratio of the county's 2009 GDP to the province's 2009 GDP.<sup>12</sup> Finally, economic development, measured by 2009 per capita GDP (GDPPC),<sup>13</sup> is used as a proxy for county-level environmental factors influencing online information. Economic development correlates with Internet availability and fluency (CNNIC, 2010), and in turn helps capture demand for government information from individuals and firms. Internet penetration is lower in geographies with lower levels of economic development in China; in less developed localities, individuals and firms are much less likely to look to the Internet for

<sup>&</sup>lt;sup>10</sup>At the time of data collection in 2011, none of the county government websites were generated dynamically (e.g., using Javascript), so size remains a proxy of human resources. The size of the county website is also unrelated to mayor tenure; there is a small and statistically insignificant difference in the size of websites between early and late tenure county executives.

<sup>&</sup>lt;sup>11</sup>Guoqi and Xu (2009) and Hazan (1982) describe the relationship between sports and propaganda in Chinese and Soviet contexts, respectively.

<sup>&</sup>lt;sup>12</sup>Provincial level expenditure and GDP data from from China's Ministry of Finance. Expenditures refer to actual expenditures in 2009.

<sup>&</sup>lt;sup>13</sup>County statistical data were obtained from the *Chinese County 2009 Yearbook*, as well as the China Statistical Information Web (www.tjcn.org).

government information and more likely to obtain information through traditional channels, such as in-person visits to government bureaus.

- b) To account for the confounding effect of peer preferences on online content, county party secretary tenure is included. Although county executives have more direct control over website content than county parties secretaries, and executives have greater incentives to intervene in website content (as discussed at the beginning of this section), it is possible for party secretaries to exert influence on web content. Two dummy variables (*PS Beg Tenure* and *PS End Tenure*) are based on the county party secretary's proximity to leaving office, calculated in the same way as tenure for county executives.
- c) Upper-level level superiors may also influence the content of subordinate county government websites. To account for the preferences of superiors, the tenure of the party secretary of the prefecture in charge of the county in question is included as a control variable. *Superior Beg Tenure* and *Superior End Tenure* are both based on the proximity of the prefecture party secretary to leaving office, calculate in the same manner as the county executive and party secretary tenure variables. In addition to the political tenure of the prefecture party secretary, the education level of the prefecture party secretary (*Superior Edu*) and the prefecture GDP per capita (*Prefecture GDPPC*) are also included in the analysis. Both variables represent ways in which prefecture-level incentives and conditions may influence the environment in which county website data is generated. The randomly sampled counties included in our regression analysis come from 62 different prefectures.
- d) There is a broad debate around the role of ability versus incentives in shaping political behavior in China (Li and Zhou, 2005). In the context of government websites, a county executive's ability could also influence what content is shared online. I measure ability using the county executive's level of education (*Edu*).<sup>14</sup> I also include

<sup>&</sup>lt;sup>14</sup>For all measures of education level, 1 refers to education below high school, 2 refers to completion of high school education, 3 refers to completion of technical or vocational college, 4 to completion of a bachelor's degree, and 5 to completion of an advanced degree.

the county executive's gender (Male) and age (Age).

e) I measure the political incentive of county executives through tenure; however, in one regression specification, I also include information on county executive career path. Specifically, the *Promotion* variable takes on the value of 1 if county executives were promoted to county party secretary or high-level prefecture government positions two years (by 2013) after the website content was collected. Note that *Promotion* is " post-treatment" since it is measured after the collection of website content, and it is censored data since some executives who were not promoted in the two years after data collection may advance in subsequent years.

### **5** Predictive Inference: Full Regression Results

Table 1 shows full regression results of six different specifications of regression estimates where the dependent variable is the proportion of web pages focused on *competence*. Column (1) only includes county executive tenure as independent variables in the regression; column (2) adds county resources and environmental factors; column (3) adds incentives of county party secretaries; column (4) adds the incentives of prefecture party secretary and other prefecture-level characteristics that may influence the data generation process; column (5) adds the county executive's ability, age, and gender, and column (6) includes the post-treatment variable of whether the county executive was promoted. The unit of analysis is the county, and the number of observations is 71 counties in column (1), 70 observations in columns (2) and (3), 68 observations for column (4), and finally 48 observations for columns (5) and (6).<sup>15</sup>

Across all specifications in Table 1, political tenure of the county executive—specifically, being in the last year of office—is predictive of web content focused on claims of competence. This result is statistically significant.<sup>16</sup> When a county executive is in the last year of office, an additional 15% or so of website content is on average dedicated to claims of competence.

<sup>&</sup>lt;sup>15</sup>For just under 30% of county executives, information on educational attainment could not be found.

<sup>&</sup>lt;sup>16</sup>Table 1 shows standard errors in parentheses. When Huber-White robust standard errors are used, the substantive results remain unchanged.

	Dependent variable: Competence							
	(1)	(2)	(3)	(4)	(5)	(6)		
Beginning Tenure	0.043 (0.043)	0.050 (0.048)	0.049 (0.049)	0.062 (0.057)	-0.046 (0.069)	-0.052 (0.071)		
End Tenure	0.146*** (0.052)	0.139** (0.054)	0.135** (0.059)	0.150** (0.063)	0.160** (0.073)	0.184* (0.092)		
GDPPC		$-4.7 \times 10^{-7}$ (9.0×10 <sup>-7</sup> )	$-4.3 \times 10^{-7}$ (9.2×10 <sup>-7</sup> )	$-2.0 \times 10^{-7}$ (9.7×10 <sup>-7</sup> )	$6.8 \times 10^{-7}$ (9.7×10 <sup>-7</sup> )	$6.6 \times 10^{-7}$ (9.9×10 <sup>-7</sup>		
Illiterate		-0.004 (0.004)	-0.005 (0.004)	-0.004 (0.005)	-0.001 (0.005)	-0.001 (0.005)		
Info Workers		$-1.3 \times 10^{-4*}$ (6.6×10 <sup>-5</sup> )	$-1.3 \times 10^{-4*}$ (7.1×10 <sup>-5</sup> )	$-1.1 \times 10^{-4}$ (7.7×10 <sup>-5</sup> )	$1.4 \times 10^{-5} \\ (7.6 \times 10^{-5})$	$1.6 \times 10^{-5}$ (7.7×10 <sup>-5</sup>		
Website Size		$1.7 \times 10^{-7}$ (4.1×10 <sup>-7</sup> )	$\begin{array}{c} 1.8 \times 10^{-7} \\ (4.1 \times 10^{-7}) \end{array}$	$1.1 \times 10^{-7}$ (4.3×10 <sup>-7</sup> )	$1.6 \times 10^{-7}$ (4.9×10 <sup>-7</sup> )	$2.1 \times 10^{-7}$ (5.1×10 <sup>-7</sup>		
Info Exp		$6.0 \times 10^{-7}$ (5.2×10 <sup>-7</sup> )	$5.9 \times 10^{-7}$ (5.4×10 <sup>-7</sup> )	$5.7 \times 10^{-7}$ (5.8×10 <sup>-7</sup> )	$-4.5 \times 10^{-7}$ (6.6×10 <sup>-7</sup> )	$-4.6 \times 10^{-7}$ (6.6×10 <sup>-7</sup>		
PS Beg Tenure			0.026 (0.060)	0.032 (0.064)	0.156** (0.063)	0.151** (0.065)		
PS End Tenure			0.013 (0.049)	0.024 (0.053)	0.026 (0.057)	0.028 (0.058)		
Superiors Beg Tenure				-0.016 (0.060)	0.074 (0.078)	0.080 (0.081)		
Superiors End Tenure				0.055 (0.069)	0.112 (0.070)	0.113 (0.071)		
Superiors Edu				-0.017 (0.024)	-0.051* (0.029)	$-0.051^{*}$ (0.029)		
Prefecture GDPPC				$-6.3 \times 10^{-7}$ (1.1×10 <sup>-6</sup> )	$-7.2 \times 10^{-7}$ (1.2×10 <sup>-6</sup> )	$-7.6 \times 10^{-}$ (1.2×10 <sup>-6</sup>		
Age					-0.006 (0.006)	-0.006 (0.006)		
Male					-0.081 (0.101)	-0.084 (0.102)		
Edu					0.065** (0.029)	0.067** (0.030)		
Promotion						-0.030 (0.071)		
Constant	0.161*** (0.025)	0.195*** (0.049)	0.188*** (0.052)	0.248* (0.124)	0.431 (0.291)	0.460 (0.303)		
Observations	71	70	70	68	48	48		

Table 1: Regression Results: Competence
Table 1: Regression Results: Competence

Examining the other variables, the ability of the county executive also predicts increases in claims of competence (columns 5 and 6 of Table 1). County executives who have completed higher levels of education are more likely to make claims related to their competence.

In two out of four specifications, the political tenure of county party secretaries is predictive of claims of competence on county websites (columns 5 and 6 of Table 1). When county party secretaries are in their first year of office, county government websites are also more likely to contain content related to competence. The positive correlation between the beginning of party secretary tenure and claims of competence is consistent with the main result because most county executives are promoted to county party secretary. In other words, it is often the case that counties where the county executive has just ended his tenure are places where the individual who was county executive begins tenure as county party secretary. However, the results pertaining to county party secretaries in their first year of office rest on relatively few observations and are not robust to changes in model specification.<sup>17</sup> is predictive of website content.

The number of workers employed in the "information transmission, wholesale and retail" sector negatively predicts web content focused on claims of competence. However, in general, resources availability and other environmental factors are not predictive of county website content related to building a public image of competence.

**Projecting Benevolence:** Table 2 shows the full regression estimates where the dependent variable is the proportion of web pages focused on *benevolence* with the same six specifications as the previous set of regression results: column (1) with county executive tenure only, column (2) adding in county resources and environment, column (3) adding peer incentives, column (4) adding prefecture incentives and characteristics, column (5) adding in the county executive's ability, age, and gender, and column (6) adding in county executive promotion.

In four out of the six specifications in Table 2, columns (2) through (4) and column (6),

<sup>&</sup>lt;sup>17</sup>In most other model specifications (e.g., when website content is regressed on county party secretary tenure and county environmental variables), county party secretary tenure

	Dependent variable: Benevolence							
	(1)	(2)	(3)	(4)	(5)	(6)		
Beginning Tenure	0.071 (0.046)	0.101** (0.050)	0.099* (0.051)	0.126** (0.061)	0.154 (0.095)	0.179* (0.095)		
End Tenure	-0.003 (0.056)	0.028 (0.057)	0.035 (0.062)	0.040 (0.068)	0.029 (0.101)	-0.074 (0.123)		
GDPPC		$-4.9 \times 10^{-7}$ (9.5×10 <sup>-7</sup> )	$-5.2 \times 10^{-7}$ (9.7×10 <sup>-7</sup> )	$-5.3 \times 10^{-7}$ (1.0×10 <sup>-6</sup> )	$-1.7 \times 10^{-6}$ (1.3×10 <sup>-6</sup> )	$-1.6 \times 10^{-6}$ (1.3×10 <sup>-6</sup> )		
Illiterate		0.003 (0.004)	0.004 (0.004)	0.006 (0.005)	0.004 (0.007)	0.004 (0.006)		
Info Workers		$3.3 \times 10^{-5}$ (7.0×10 <sup>-5</sup> )	$4.2 \times 10^{-5}$ (7.5×10 <sup>-5</sup> )	$4.7 \times 10^{-5} \\ (8.2 \times 10^{-5})$	$1.6 \times 10^{-5}$ (1.0×10 <sup>-4</sup> )	$\begin{array}{c} 10.0 \times 10^{-6} \\ (1.0 \times 10^{-4}) \end{array}$		
Website Size		$3.5 \times 10^{-7}$ (4.3×10 <sup>-7</sup> )	$3.4 \times 10^{-7}$ (4.4×10 <sup>-7</sup> )	$3.8 \times 10^{-7}$ (4.6×10 <sup>-7</sup> )	$9.2 \times 10^{-7}$ (6.8×10 <sup>-7</sup> )	$7.0 \times 10^{-7}$ (6.8×10 <sup>-7</sup> )		
Info Exp		$-2.0 \times 10^{-7}$ (5.5×10 <sup>-7</sup> )	$-2.3 \times 10^{-7}$ (5.7×10 <sup>-7</sup> )	$-2.9 \times 10^{-7}$ (6.1×10 <sup>-7</sup> )	$1.6 \times 10^{-7}$ (9.0×10 <sup>-7</sup> )	$\begin{array}{c} 1.8 \times 10^{-7} \\ (8.9 \times 10^{-7}) \end{array}$		
PS Beg Tenure			0.008 (0.064)	-0.010 (0.069)	0.037 (0.087)	0.057 (0.087)		
PS End Tenure			-0.016 (0.052)	-0.025 (0.056)	0.010 (0.079)	0.004 (0.077)		
Superiors Beg Tenure				0.048 (0.064)	0.017 (0.108)	-0.011 (0.108)		
Superiors End Tenure				0.011 (0.073)	-0.019 (0.097)	-0.024 (0.095)		
Superiors Edu				0.009 (0.026)	-0.015 (0.040)	-0.012 (0.039)		
Prefecture GDPPC				$4.7 \times 10^{-7}$ (1.1×10 <sup>-6</sup> )	$1.6 \times 10^{-7}$ (1.7×10 <sup>-6</sup> )	$3.5 \times 10^{-7}$ (1.6×10 <sup>-6</sup> )		
Age					-0.002 (0.008)	0.001 (0.009)		
Male					0.120 (0.139)	0.131 (0.137)		
Edu					-0.007 (0.041)	-0.015 (0.040)		
Promotion					· /	0.135 (0.095)		
Constant	0.188*** (0.028)	0.152*** (0.052)	0.155*** (0.055)	0.085 (0.132)	0.179 (0.401)	0.051 (0.405)		
Observations	71	70	70	68	48	48		

### Table 2: Regression Results: Benevolence

political tenure of the county executive—being in the first year of office—is predictive of web content focused on projections of benevolence. This result is statistically significant at the 0.1 or 0.05 level. In the specifications where this primary explanatory variable does not cross the significance threshold (column 1 and 5), the p-value of the coefficient estimate for being in the first year of office is 0.127 and 0.114, respectively. When a county executive is in the first year of office, an additional 10% to 15% of website content is on average dedicated to claims of benevolence. No other variables are predictive of website content dedicated to benevolence.

## References

- Blei, David M., Andrew Ng and Michael Jordan. 2003. "Latent Dirichlet allocation." *JMLR* 3:993–1022.
- Chang, Jonathan, Jordan L Boyd-Graber, Sean Gerrish, Chong Wang and David M Blei. 2009. Reading tea leaves: How humans interpret topic models. In *Nips*. Vol. 31 pp. 1–9.
- Chang, Pi-Chuan, Michel Galley and Christopher D Manning. 2008. Optimizing Chinese word segmentation for machine translation performance. In *Proceedings of the third workshop on statistical machine translation*. Association for Computational Linguistics pp. 224–232.
- Chen, Jidong, Jennifer Pan and Yiqing Xu. 2016. "Sources of Authoritarian Responsiveness: A Field Experiment in China." *American Journal of Political Science* 60(2):383–400.
- Chen, YN, HM Chen, W Huang and Russell KH Ching. 2006. "E-government strategies in developed and developing countries: An implementation framework and case study." *Journal of Global Information Management* 14(1):23–46.
- CNNIC. 2010. "Statistical Report on Internet Development in China." http://www.cnnic.net.cn/.
- Guoqi, Xu and Guoqi Xu. 2009. *Olympic dreams: China and sports, 1895-2008.* Harvard University Press.
- Hazan, Barukh. 1982. Olympic sports and propaganda games: Moscow 1980. Transaction Publishers.
- Hoffman, Matthew, Francis R Bach and David M Blei. 2010. Online learning for latent dirichlet allocation. In *advances in neural information processing systems*. pp. 856–864.
- Horsley, Jamie. 2007. "China Adopts First Nationwide Open Government Information Regulations.".
- King, Gary, Jennifer Pan and Margaret E Roberts. 2014. "Reverse-engineering censorship in China: Randomized experimentation and participant observation." *Science* 345(6199):1–10.
- Li, Hongbin and Li-An Zhou. 2005. "Political turnover and economic performance: the incentive role of personnel control in China." *Journal of public economics* 89(9):1743–1762.
- Lü, Xiaobo. 2000. *Cadres and corruption: The organizational involution of the Chinese communist party*. Stanford University Press.
- Ma, Lianjie, Jongpil Chung and Stuart Thorson. 2005. "E-government in China: Bringing economic development through administrative reform." *Government Information Quaterly* 22:20–37.
- Pan, Jennifer. 2017. "Replication Data for: How Chinese Officials Use the Internet to Construct their Public Image.".

URL: http://dx.doi.org/10.7910/DVN/2HTWSU

- People's Daily. 2002. "Report of the 16th CCP Congress.".
- Seifert, Jeffrey and Jongpil Chung. 2009. "Using E-Government to Reinforce Government–Citizen Relationships: Comparing Government Reform in the United States and China." *Social Science Computer Review* 27(3):3–23.
- Shue, Vivienne and Christine Wong. 2007. Paying for Progress in China: Public Finance,

Human Welfare, and Changing Patternss of Inequality. Routledge.

Tseng, Huihsin, Pichuan Chang, Galen Andrew, Daniel Jurafsky and Christopher Manning. 2005. A Conditional Random Field Word Segmenter for Sighan Bakeoff. In *Proceedings of the Fourth SIGHAN Workshop on Chinese Language Processing*.