

# The Determinants of Media Bias in China

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December 28, 2012

## **Abstract**

We measure and investigate the determinants of political control of newspapers in China. We first determine what type of content characterizes politically controlled newspapers. We then analyze the effect of a reform to close down all county papers in 2003. The reduced competition significantly affected the political controls of the remaining papers.

**Keywords:**

**JEL Classification:**

# 1 Introduction

Traditionally, Chinese newspapers were regarded as the mouthpiece of the Communist Party of China (CPC hereafter) and strictly followed the Party line in their editorial decisions. However, economic growth in China has spurred consumers' demand for media service and producers' demand for advertising channels. The Chinese newspaper sector features an unusual combination of political control and commercial motive. On the one hand, China is regarded as one of the countries with lowest degree of press freedom. On the other hand, the Chinese newspaper market is today the world's largest, with a daily circulation of around 100 million<sup>1</sup>; the Chinese advertising market is the third largest worldwide after the US and Japan and expected to surpass Japan in 2013. In contrast to the West, the circulation of newspapers in China is growing fast, with a 13% increase in 2009-2010. In 2009, the audience contact rate of newspapers in China is 64%, only below that of TV (91%) and far above that of the Internet (38%).

This paper aims to measure and investigate the determinants of political control of newspapers in China. The first question we ask is what type of content is characteristic of more controlled papers? More controlled papers presumably carry more propaganda and are under stricter censoring rules. But what is the type of content that is being pushed in propaganda and censored? Understanding this is crucial for understanding the implications of government control for accountability and government effectiveness. For example, the political goal of regime stability is often seen as promoting positive news and suppressing negative news, such as corruption. On the other hand, fighting corruption at lower levels is crucial for efficient policy implementation. Whether regime stability or efficient government concerns dominate are key to understanding accountability effects.

To analyze these questions we gather information on all Chinese newspapers 1981 to 2011. We merge this with data of the content of 110 Chinese general interest newspapers 1998 to 2011. We find that the political accountability motive dominates for lower level officials; more politically controlled papers carry more corruption stories. On the other hand, the regime stability motive dominates for higher levels of government.

We then construct an index of political control of individual Chinese newspapers. This index is based on content that is characteristic for newspapers that we know are more tightly controlled, and at the same time characteristic of newspapers with low advertising revenues. The correlation between our index and the predicted advertising ranking of a newspaper is 0.7, the correlation of our index with an indicator for a tightly controlled newspaper is 0.9. The correlation of our index with the shared censored micro blog posts at the provincial level is 0.8.

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<sup>1</sup>Source: World Association of Newspapers.

The second goal of this paper is to understand the determinants of political media control. We first analyze this theoretically using a linear city model. A particular feature of the Chinese newspaper market is that only Party Committees can obtain a license for general interest newspapers. In the model, Party Committees compete in the newspaper market. They care about profits and exposure to politically sensitive material. They trade off political control against profits when deciding the news profile of their papers. As the size of the advertising market grows, newspaper content becomes less politically controlled and more so for party committees who have weaker preferences for political control. The effect of competition is ambiguous. Exit of highly politically controlled newspapers (Dailies) increases political control among Dailies and decreases political control among weakly controlled papers (Evenings).

Empirically, we find weak evidence that regions with higher GDP have less politically controlled newspapers. This is true in the cross section, but not across prefectures within provinces or over time. Political control is significantly lower in newspapers run by lower levels of government and for Evenings and subsidiaries. Further, we find that the effect of GDP on political control is largest for newspapers of lower levels of government, who care less about political control. Consequently, an increase in GDP is related to an increased gap in political control between central and lower levels of government.

We also investigate the effect of competition on political control. We use a reform to close down most county Daily newspapers in 2003. Of the around 330 general interest county papers (of a total of around 1000) that existed in 2002, only around 90 were still around in 2004. The others' licenses were withdrawn by central government agencies. We find that the average effect of this increased concentration was *less* political control. This effect is driven by the more commercial Evenings and subsidiary papers, while the Dailies became more politically controlled.

## 2 Background

We first give a short background, partly as aid to understanding the data section. Issues covered here will be discussed in more detail below.

Political control of the media is exercised through ownership and supervision, propaganda campaigns and news emission through Xinhua News Agency, and through pre- and post-publication monitoring. All Chinese newspapers are required to have a total or dominant state ownership. They must also be affiliated with a supervisor who is responsible for licensing, the appointment of top personnel, and the monitoring of important editorial matter. Eligible supervisors include the Party Committees at different administrative levels, CPC divisions, government departments, etc. The nature of supervisor regulates the con-

tent of a newspaper. Importantly, only a Party Committee can obtain licenses to publish general-interest newspapers. Party Committees are the highest and most powerful political decision-making bodies in China, at each level of government (central, provincial, prefecture, county). The newspaper licenses are issued by the State Administration for Press and Publication (SPPA).

The newspapers come in variants indicated by their names. The *Dailies* are "official" papers, subscribed to with public money and for consumption in offices, classrooms and factory workshops. The *Evenings*, mainly introduced after the economic reforms in the 1980s, are thought to carry more soft news, to be more entertainment oriented and less strictly controlled than the Dailies. Evenings typically rely on street vendors for most of their circulation. The Metro papers are essentially competing Evenings, started later. An innovation in the 1990s was the creation of *Subsidiaries*, or newspapers owned by parent newspapers, in turn owned by Party Committees.

[Literature review to be written.]

## 3 Data

This section explains the data collection and describes the main variables we will use. More detailed description can be found in the Appendix.

### 3.1 Newspaper Directory

We construct a detailed directory of all Chinese newspapers from 1981 to 2010. The directory is mainly based on four data sources: (i) the Comprehensive Chinese Newspaper Directory (2003, 2006, 2010), published by SAPP – the authority that issues licenses for publishing newspapers; (ii) the Annual China Journalism Yearbooks (1982-2010), published by the Chinese Academy of Social Science; (iii) the China Newspaper Industry Yearbooks (2004-2010), published by a Beijing-based research institute; and (iv) an eight-volume collection of the front pages of major newspapers on the date of first publication.

From these data sources, we obtain information on each newspaper's location, address, start date, termination date, direct owner (head unit), supervisor (Party/government affiliation), ranking in the administrative hierarchy of the Chinese government, type of readership (general or specialized), and other information such as the names of chief-editors and business scopes. For major newspapers in certain years, we also collect information on annual circulation number, the revenue composition, annual advertising revenues, and the ranking of advertising revenues in the provincial market from publicly available reports submitted to SAPP, central and local governments, and the Association of Chinese Journalists.

Three variables are particularly important for our present analysis: the newspaper's owner, supervisor, and content scope. Starting with content, we will mainly focus on the general newspapers that provide comprehensive news regarding all fields of journalism and target a general readership. These newspapers account for the major share of newspaper circulation and readership. Within the general newspapers, we distinguish among "Daily", "Evening" and "Metro" papers according to a newspaper's name.<sup>2</sup> As we have discussed in the previous section, these three types of general newspapers reflect different degree of party/government control in terms of ownership, financial structure, and editorial autonomy.

The ownership determines who the residual claimant is and how to distribute the profits. Based on the nature of the direct owner, a newspaper can be classified into one of the following four ownership categories. First, *Party-state capital*, if a newspaper is owned by a Party Committee or a Party/government division. Second, *Media capital*, if a newspaper is a subsidiary of another newspaper or other mass media. These two categories are crucial in our analysis that focuses on general interest newspapers. The remaining two categories are *Societal capital*, and *SOE*.<sup>3</sup>

We next turn to supervisor type, which determines who appoints the top personnel of the newspapers and who are responsible for major editorial decisions. We classify the type of supervisor into five mutually exclusive categories. First, *Party Committee*, if a newspaper is directly supervised by the CPC propaganda department of the Party Committee. Second, *Parent Newspaper*, if a newspaper is a subsidiary of other newspapers and supervised by the parent newspaper. Again, these are the two categories that are relevant in our analysis. The remaining categories are *Party/government Bureau*, *Other media* and *Internal supervisor*.<sup>4</sup>

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<sup>2</sup>A newspaper is coded as "Daily" when its name contains the word "Daily (Ri Bao in Chinese) or "News (Bao)" followed by the name of a province, prefecture, or country. A small number of newspapers whose names do not contain the names of the region where the newspaper is based are still coded as "Daily" if it is explicitly stated as the Party organ of a CPC committee and is published on a daily basis. A newspaper is coded as "Evening" if its name contains the word "Evening News (Wan Bao in Chinese)". A newspaper is coded as "Metro" if its name contains the word "Metro News (Dushi Bao)", "City News (Cheng Bao)", "Express (Kuai Bao)", "Times (Shi Bao)", or "Morning Post (Chen Bao)." Some newspapers whose names contain "Business News (Shang Bao)", "Youth News (Qingnian Bao)," are also coded as "Metro" if their content scope is reported as "general-interest" paper. These are the newspapers that are converted from special-interest newspapers but still carry their previous names.

<sup>3</sup>Third, *Societal capital*, if a newspaper is financed by a government-sponsored mass organization. Fourth, *SOE*, if a newspaper is owned by a state-owned-enterprise. Within the "media capital" category, we create a subgroup: "media capital with private share", if a newspaper is partially financed by capital from the private sector, including private companies, state-owned enterprises, and listed companies.

<sup>4</sup>The third category is, *Party/government Bureau*, if a newspaper is supervised by a specific Party/government divisions. Fourth, *Other media*, if a newspaper is a subsidiary of other media such as news agency, broadcaster, and press. Fifth, *Internal supervisor*, if a newspaper is only internally distributed within a mass organization or state-owned enterprises.

It should be noted that the owner is in most cases also the supervisor. We distinguish between these two classifications to more accurately capture the political and economic control of Chinese media, as will become clear in the analysis.

In the analysis, we will analyze three newspaper categories defined by supervisor and content type: *Party Dailies*, *Party Evenings* and *Subsidiaries*. Party Dailies and Evenings have a Party Committee as supervisor and the content categories "Daily", and "Evening or Metro", respectively. Subsidiaries are supervised by a parent newspaper.

Table 1 shows an example of our coding: Fuzhou prefecture, Fujian province, in 1998. There are two newspapers supervised by the provincial level Party Committee, one *Party Daily* and one *Subsidiary*. Note that the subsidiary has the Fujian Newspaper office as supervisor, rather than a Party Committee. The prefecture level Party Committee also has two newspapers, a *Daily* and *Evening*. Finally, the county-level Fuqing Party Committee has a *Party Daily*.

**Historical development** We first use our directory to illustrate the evolution of the newspaper market in China. After the foundation of PRC, "Party journalism" was strictly applied to all mass media.<sup>5</sup> Newspapers were official products, subscribed with public money and consumed in offices, classrooms, and factory workshops. The *Party Dailies* published by the Party Committees at different administrative levels dominated people's consumption of news.<sup>6</sup>

Figure 1 shows the number of general interest newspapers in China, from 1981 to 2011, in our directory. Figure 2 shows this broken down by the level of Party Committee that owns the newspaper. In 1981, there were 246 general interest newspapers, the vast majority (229) of which was Party Dailies. At that time, the central level and all provincial Party Committees had Party Dailies. In contrast, many prefecture and county level governments did not, which explains the subsequent rapid growth of Party Dailies at those levels (it is extremely uncommon that a Party Committee has more than one Daily).

With the economic and social reforms in 1978, the demand for non-Party journalism – informative news coverage, diversified reports, and entertainment started to grow. At the

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<sup>5</sup>A small number of commercial newspapers and radio stations were allowed to continue into the early 1950. There numbers dropped from 58 in March 1950 to 25 in August 1951 to zero in 1952.

<sup>6</sup>In the late 1950s and early 1960s, recognizing the need for newspapers as a form of popular culture and entertainment for the urban population, the CCP permitted some regional committees in central cities to launch 13 evening dailies. Also responsible for propagating Party policies and directives, these "Party Evening Papers" were more readership-oriented, with contents more diversified and closer to everyday urban life. During the Cultural Revolution, all 13 evening papers were forced to close because their orientation were viewed as incompatible with the ideology of the time. In the early 1980s, these 13 Evening papers all resumed publication.

same time, firms increasingly wanted to advertise their products through media that could reach a wide readership, and advertising became one of China's fastest-growing industries. In addition, the government gradually cut subsidies and encouraged commercial financing. This shift of funding sources required market-oriented journalism.

The newspapers that took the first step towards market-oriented journalism were the *Party Evening* papers. These were delivered in the evenings to households for private consumption. While maintaining some part of Party journalism, these evening papers published "soft" news about personal life and entertainment and provided more informative reports on economic and social activities. Although small in numbers, they soon attracted a large readership and became the top earners of advertising revenues. The Party Evenings were mainly introduced by prefecture level Party Committees, see Figure 2, in the provincial capital cities. These are the most important market for the provincial papers, and, consequently, they became a serious threat for the advertising profits of the provincial level newspapers.

In 1992, after Deng Xiaoping's Southern Tour, the open endorsement of the market economy by political leadership stimulated the boom of advertising and media industries.<sup>7</sup> During the 1990s, the most fundamental reform concerning media commercialization is the permission of establishing *Subsidiary* newspapers by existing Party newspapers. Although indirectly owned by the Party-state and still subject to the party journalism, a subsidiary newspaper did not receive any funding from governments. Many of them absorbed non-state capital – typically funding from mass organizations and state-owned-enterprises – and had a high degree of financial and managerial autonomy. In Figure 2, the first vertical line marks the year 1992 of Deng's tour. The increased trend in the number of subsidiaries after this year is clearly visible, in particular, for the provincial level Party Committees.

In the 2000s, the market trend has been towards consolidation. In 2003, most county level newspapers lost their newspaper license, with the stated purpose of reducing fragmentation in the media market. A few exemptions were made based on historical, cultural and economic factors. In Figure 2, the second vertical line marks the year 2003. The number of county-level newspapers drops from 337 in 2002 to 78 in 2004. Another trend has been towards building newspaper conglomerates, which organize a large number of newspapers under major newspaper groups.

## 3.2 News Content

We conduct content analysis of the digital texts of the Chinese newspapers that are available in WiseNews, a Hong Kong-based newspaper data provider. WiseNews provides digital

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<sup>7</sup>In 1993, advertising revenues in the whole country reached 13.4 billion Yuan, a 98% percent increase over 1992. Newspaper advertising revenues doubled from 1992 to 1993.

archives of 259 newspapers based in Mainland China from 2000 to date. Of these, 125 are general interest newspapers and we were able to identify 110 of these as Party Dailies, Party Evenings or Subsidiaries, see Table 2. Geographically, these newspapers cover 29 out of 31 provinces. In terms of government affiliation, ownership, and the type of readership, the WiseNews sample, to a large extent, represents the whole newspaper industry in Mainland China. However, WiseNews only contains newspapers located in capital cities and major prefectural areas. The newspapers in rural areas and less developed prefectures will not be represented in this sample.

Based on key word searches and article counts, we construct a series of content measures that reflect different types of journalism and bias towards the Party/government. All the measures are for each newspaper on a yearly basis.

We start by discussing what type of content we analyze in the newspapers. In order to explain our choices, we first describe the stated goals and tools of political control. Starting with the tools, the CPC Propaganda Department (PD for short hereafter) sets the propaganda policy that guides the operation of media and supervises the regulators of the media industry. Most directly the PD launches propaganda campaigns, for example, to require newspapers to intensively cover certain political and social events, ideological slogans, or role models of Party/government units and individuals. It also directly controls the Party media organs, such as the Xinhua News Agency.<sup>8</sup>

The Xinhua news agency is used to enforce propaganda objectives. For some events (defined situational) and certain reports on political leaders, media outlets are obliged to publish the Xinhua copies. Xinhua was started in 1931 as the Red China News Agency and is now the official press agency of China. Xinhua employs more than 10,000 people, and maintains 31 bureaus in China—one for each province, plus a military bureau.

There are both pre- and post-publication control mechanisms. Before publication, newspapers are expected to submit possibly sensitive material to the propaganda departments or relevant authorities for review and clearance. Ad hoc propaganda notices are frequently used to advocate or prohibit certain news coverage. After publication, well-trained and paid monitors, under the supervision of the propaganda departments, lodge daily reports and provide periodical evaluations of media programs in terms of their overall political orientation and their adherence to the CPC's propaganda lines.

We now turn to the stated goals of newspaper control. Starting from the Mao-era, the "Party principle" is the central ideology underpinning the CPC's domination over the media in China. Despite the institutional changes in China and various reforms in the Chinese media industry, the "Party principle" remains a fundamental CPC policy. Under this principle, newspapers play a dual role in the Chinese political system: the "Party line"

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<sup>8</sup>For a detailed description of the structure of the CPC propaganda departments, see Brady (2008).

that defines newspapers as the party's mouthpiece and the "Mass line" that assigns an intelligence mission to mass media for political leaders' decision making. We discuss these more below.

We now turn to our content measures. We measure the total number of articles in the following way. By each newspaper and year, we search for any digit 0-9 or " 日 " or " 不 ". The last two Chinese characters mean "of" and "no, not". We find 48 million articles in total.

**The Party Line – Leaders, Xinhua and Epoch** The Party Line is described in the classic Maoism, "The role and power of newspapers consists in their ability to bring the Party program, the Party line, the Party's general and specific policies, its tasks and methods of work to the people in the quickest and most extensive way." (from Zhao, 1998, p25) Along this Party line, news content of the Party media is highly positive, didactic, and openly value-oriented. Newspapers routinely cover policy directives from national and provincial leaders, visits of Party and government leaders to subordinate government divisions, mass organizations, and workplaces, the study of government policies and the works of the paramount leader, achievements of individual factories, counties or persons etc. As mentioned, the Xinhua news agency is a key tool to produce news stories and enforce these propaganda objectives.

Our first three content measures relate to the role of the newspapers acting according to the "Party Line". The first is the number of articles that mentions the names of 1,978 top political leaders at the central, provincial and prefectural level in China. At the central level, the name list includes all members in the Political Bureau of the CPC Central Committee and the affiliated Commissions, heads of all ministries in the Chinese Central State Council. We search in total for 108 central level politicians. The search contains their name and function, e.g. "Hu Jintao and (president or Secretary member or state leader or central committee)". We search from the beginning of the year when they are promoted to this level of office to the end of the year when they leave office. (We search one year before their promotion to this level of office to the year they leave office. We also search for the names of CPC secretaries and governors/mayors at the provincial (785 names) and prefectural (1085 names) Party Commission and Administration.

We find 3 million articles covering these leaders; 1.3 million central, 1 million provincial and 700,000 at prefecture level. The variable we will use in the analysis is total number of articles mentioning political leaders at any level, divided by the total number of articles by this paper in WiseNews and multiplied by 100. We call this variable *LeaderMentions*. This variable has a mean of 5 percent and a standard deviation of 11 percent.

Our second measure is the number of articles that cite the Xinhua News agency. We

search for articles including Xinhua News Agency " 新华社 ". We find 4.8 million articles in total. We define the variable *Xinhua* to be the percent of all articles that mention Xinhua News Agency. By newspaper and year, on average 6 percent of the articles cite Xinhua News Agency, with a standard deviation of 12 percent.

Our third measure captures the relative coverage of the events listed as the most significant events each year by two extreme media outlets, Epoch Times and Xinhua News. The former is an overseas-based Chinese newspaper that is sponsored by anti-CPC organizations and is banned from circulation in China. It is often regarded as the opposing voice of the Chinese government. The Epoch Times news are often negative, e.g. "China's largest residential fire happened in Shanghai", "Google announced its withdrawal from the Chinese market", "The truth of HIV in China revealed by Professor Gao Yaojie in speech in Washington on Dec. 1", "The scandal of defense attorney Li Zhuang during local CCP boss Bo Xilai's campaign against organized crime in Chongqing City". The top stories listed by the Xinhua News Agency are typically positive, e.g. "The Shanghai Expo was a big success", "Mainland and Taiwan sign landmark economic pact", "China publishes national education plan for next decade". A full list of the events, the key words and time periods that we use to identify the newspaper articles will be provided in the online Appendix 1.

In total, we searched 154 different news stories for the period 2001 to 2010. Of these, 46 were Epoch Times top stories and 108 were Xinhua top stories. For each event, we search for news stories containing key words from the stories in a window around the event. In total, we found around 600,000 articles covering the Epoch Times top stories and 1.6 million articles covering the Xinhua top stories. Xinhua News Agency started this annual top 10 Chinese events nomination since 2001 while The Epoch Times followed since 2002. In some years, Xinhua News group two events into one, for example "Earthquake, mudslide hit China's northwest regions Yushu earthquake and Zhouqu mudslide". In this way, Xinhua top 10 stories in 10 years give out more than 100 stories. The Epoch Times defines "Chinese" as a wider concept, including Taiwan, Hong Kong, and the Chinese communities in South East Asia, United States, Canada, Australia, and so on. Therefore, we exclude the top events from The Epoch Times that are not related with mainland China. The Epoch Times also cite some events that were actually created (if not made up) by The Epoch Times as top events, for example "Nine criticism on CCP came into being, calling for the serious reflection on the CCP in China.", "lawsuits towards Jiang Zeming and his following officers of CCP were initiated all over the world since 2002 Oct, including U.S, Spain, Belgium, Germany etc., ". Such events are not covered in mainland China newspapers, and we exclude them. This leaves us with 46 events out of the 90 The Epoch Times events from 2002 to 2010.

Our index is calculated as the percent of articles covering the annual top 10 events listed by the Epoch Times of articles covering any top story listed by the Xinhua News or the

Epoch Times. The mean is 23 percent and a standard deviation is 15 percent.

**The Mass Line – Corruption, disasters and accidents** The mass line is a political and organizational method developed by the CPC during the Chinese revolution. In the words of Liu Shaoqi, the chief theoretician of the CPC mass line, "You[the Party media workers] travel to all locations. The people depend on you to voice their demands, difficulties, experiences and even to describe mistakes on our work. You turn them into news, features and reports to Party Committees at various levels, and to the Central Committee. In this way, you make a connection between the Party and the masses." The mass line view recognizes the role of the media as intelligence mission to assist political leaders in their decision making. The media carry out the tasks of reporting people's opinions and concerns and informing leaders of the performance of the cadres who are working directly with the people. (Zhao 1998) This approach is developed to mitigate the problem of inadequate and unreliable communication within the state bureaucracy and among self-interest government officials. In more recent years, one important practice of the mass line is the so-called "supervision by public opinion (Yulun Jiandu)," which permits the media to report on corruption and wrongdoings of Party officials and government agencies.<sup>9</sup>

Whether the Chinese press can act as an effective watch dog is disputed. Some argue that as an institution that is relatively autonomous from other parts of the state bureaucracy and now with a commercial logic rooted outside the government bureaucracy itself, the reformed and commercialized news media are playing an increasingly important surveillance role. By bringing certain issues to the public arena, media-originated exposures sometimes help to shape the terms of public discourse and lead to the formation of specific reform policies (Gordon, 1999). On the other hand, criticisms tend to be aimed solely at low-ranked officials and bureaucracies who fail to carry out Party directive adequately, for poor working style, and for failing to live up to the Party standards. (Nathan, Chinese Democracy) Further, information that may trigger collective social actions, create political division, or threaten the leadership of CPC is strictly censored. (Gan 1994)

Searching for articles including the word corruption yields both stories about actual corruption cases and stories of leading officials talking about anti-corruption activities. We are primarily concerned with the first type of stories. We experimented with different search strings to find one that accurately identifies stories of the first kind. The string we use is

(腐败 or 贪污 or 受贿 or 金钱) and (双规 or 调查 or 审查 or 检察机关)  
and (免去 or 罢免 or 查处 or 惩处 or 撤消 or 撤除)

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<sup>9</sup>During a long period after the foundation of the People's Republic of China, the criticism of Party officials and government agencies was collected into a special bulletin called "Internal References," which was only distributed among Party cadres whose position was above a certain level.

We find around 50,000 newspaper articles covering corruption cases. These articles almost exclusively involve lower level officials, typically taking a bribe. For example, “An officer from a poor county in Shanxi province has collected bribe over 20 million Yuan” or “The vice deputy director of Shunyi Municipal Bureau of Land and Resources was sentenced to prison because of taking bribe”. We use the share of the number of articles covering corruption cases among the total number of articles.

To identify any cases involving top political leaders, we searched for the corruption string and each of the 1978 top political leaders’ names. We then investigated all cases where a newspaper had more than three such stories about a particular politician in a year. We could identify 13 cases of prominent political leaders being caught in corruption scandals. The most covered case was the corruption scandal involving Chen Liangyu, with a total of 637 news stories in 2006 and 2007. This scandal brought down one of China’s senior leaders, and has its origins in large-scale graft in the local party apparatus. It is also seen as reflecting a political decision by President Hu Jintao to reign in party officials known as the Shanghai faction, loosely grouped around former president Jiang Zemin and his protégés from Shanghai. The second most covered case was that of Liu Zhihua, the former vice-mayor of Beijing. He was fired in 2006, and received a suspended death sentence for taking bribes. This generated 276 news stories. The newspapers’ role in these scandals is unclear. Most likely, they are writing about leaders who are already politically dead, or at least under attack from within the CPC. In sum, there are quite a few news stories about corruption. However, the corruption coverage could be characterized by "swatting flies and dead tigers".

Our next measure involves coverage of accidents and disasters. Accidents and disasters are negative news that often reflects badly on the political leadership. For example, in July 2011, two high-speed trains collided in Wenzhou, Zhejiang province, killing 40 people. The first government response was to quickly conclude rescue operations and order the burial of the derailed cars. Facing strong criticism in Chinese media, the government issued directives to restrict media coverage, which was met with limited compliance. The Ministry of Railways announced that three high ranking railway officials were fired immediately after the crash under charges of corruption.<sup>10</sup> Similar stories can be found in e.g. critical coverage of floods caused by poorly managed drainage systems.

We have data on the occurrence of disasters in China from the EM-DAT database by the Center for Research on the Epidemiology of Disasters in Brussels. The data contains information on the type of disaster, the date and location, and the number killed and affected. We study disasters striking China 1998-2010 killing more than 30 people. There are 238

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<sup>10</sup>See Branigan, Tania (2011-07-25). "Chinese anger over alleged cover-up of high-speed rail crash". London: Guardian Media Group. <http://www.guardian.co.uk/world/2011/jul/25/chinese-rail-crash-cover-up-claims>

such disasters. A full list of the 238 disasters, the keywords and time periods that we use to identify the newspaper articles will be provided in the online Appendix 2. We could identify newspaper coverage of 224 of these.<sup>11</sup> We find a total of 140,783 stories covering these disasters, or 628 stories per disaster.

Because they directly involve human error, accidents are perhaps both more sensitive and more relevant from a monitoring perspective. Of the 224 disasters, 129 are accidents covered in 32,193 articles. The remaining 95 are natural disasters. The accidents contain 81 industrial accidents (of which 55 are coal mine accidents), 29 transport accidents and 19 are miscellaneous accidents. We will investigate both the total coverage of disasters and the coverage of accidents.

**The Bottom Line – Crime, entertainment, sports** We finally wish to have a category for soft material, typical of tabloids. This type of material is another perceived dividing line between the more and less strictly controlled papers. The new, aggressive newspapers tend to carry this type of material. Because of this, they have been attacked by Party officials in campaigns against "Spiritual Pollution".<sup>12</sup> To understand the effect of commercialization on political accountability, it is important whether commercialization in China has led to more investigative stories of corruption, to more sensationalism, or both.

We search for sport stories with a string consisting of the most popular sports.<sup>13</sup> This yields around 2.4 million articles, or an average share of 4.6 percent by newspaper and year. To identify entertainment material, we use a string including key words such as movie, television, musical, concert, record, etc.<sup>14</sup> We find 5.7 million stories covering entertainment,

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<sup>11</sup>In most cases, the geographic information was too imprecise for those we could not find. In two cases, the number of articles exceeded 100,000, which is the limit on the reported articles in WiseNews. We dropped these.

<sup>12</sup>See e.g. Zhao (1998), p. 131.

<sup>13</sup>We use the string

"体育比赛 or 运动会 or 足球 or 篮球 or 乒乓球 or 羽毛球 or ((游泳 or 蛙泳 or 蝶泳 or 仰泳 or 自由泳) and 比赛) or 排球 or (田径 and 比赛) or 长跑 or 短跑 or 冬泳 or 保龄球 or 网球 or 台球 or 桌球"

which translates to "Athletic contest or games or soccer or basketball or Ping-Pong or badminton or ((swimming or breaststroke or butterfly stroke or backstroke or crawl) and competition) or volleyball or (track and field and competition) or long-distance race or dash or wintertime swimming or bowling or tennis or Ping-Pong or pool".

<sup>14</sup>The string is

"电影 or 电视 or 话剧 or 戏剧 or 戏曲 or 主演 or 演员 or 歌手 or 歌星 or 影星 or 音乐剧 or 演唱会 or 演奏会 or ((流行 or 主流 or 摇滚 or 民俗 or 民族) and 音乐) or 唱片 or 演唱会 or 歌迷会 or 影迷会"

which translates to "Movie or television or modern drama or play or drama or acts the leading role in or actor or singer or singer or movie star or musical or concert or concert or ((the popular or mainstream or

or an average share of 11 percent. Finally, we search for crime stories covering serious violent crimes (murder, rape, robbery) or organized crime.<sup>15</sup> We identify 175,963 such stories. The average share of articles covering crime is less than 0.3 percent by newspaper and year.

## 4 Measurement of political control

**What content characterizes politically controlled papers?** Our first goal is to find what type of news content is characteristic of more tightly controlled newspapers. Our strong prior is that the Party Dailies are more tightly controlled. We first describe what type of news content is characteristic of Party Dailies compared to Party Evenings and Subsidiaries in the same market (prefecture) and year. Our second strategy is to regress content on advertising ranking. The idea is that there is a conflict between profit maximization and political control, so that tighter political control has a price in terms of less advertising revenue. We thus analyze what type of news content predicts high advertising revenues.

To compare Party Dailies, with Party Evenings and Subsidiaries, we first look at the raw data. Table 3 shows content by newspaper type. The last column contains the average number of articles that we found in each newspapers and year. Party Evenings and Subsidiaries have around 30 percent more articles than Party Dailies. We next look at the content characterizing the "Party Line" function of the newspapers. Party Dailies mention top political leaders in 22 percent of their articles. This is vastly more than Party Evenings (8 percent) or Subsidiaries (5 percent). Party Dailies also cite Xinhua News in 34 percent of their articles, again substantially more than Party Evenings (25 percent) or Subsidiaries (18 percent). This means that a shift in demand from Party Dailies to Evenings and Subsidiaries will have a massive impact on people's exposure to political leaders and Xinhua News stories. The third column shows that also the selection of news stories is systematically different between the two categories. Party Dailies tend to cover less of the top stories listed by the regime critical Epoch Times, as a share of all top stories covered.

The next three categories relate to the "Mass Line" role of newspapers. Here our priors

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rock and roll or folk customs or nationality) and music) or phonograph record or concert or fan club or movie fan meeting".

<sup>15</sup>We use the search string

"歹徒 or 行凶 or 凶犯 or 罪犯 or 杀人 or 强奸 or 抢劫 or 黑社会"

which translates to "Scoundrel or commits murder or murderer or criminal or murder or to rape or to rob or organized crime". The search is limited to search among article title, because we need to differentiate the crime stories from the officer's talk on anti-crime campaigns. Articles telling such stories tend to use such salient words in title, while articles for the officer's talk can contain such words in content but very less likely to use them in the title.

are less strong. On one hand, these stories might be suppressed because they are negative and reflect badly on the CPC. On the other hand, they might be encouraged because of the intelligence mission of the newspapers to report the misconduct on lower level party cadres and government bureaucrats. We find that Party Dailies report more on corruption and disasters than the less tightly politically controlled Party Evenings and Subsidiaries.

The final three categories capture the bottom line categories. Evenings and Subsidiaries cover more sports and entertainment than do Party Dailies. In particular, they cover crime more than twice as frequently as Party Dailies.

These differences could partly reflect that our sample of Dailies, Evenings and Subsidiaries are drawn from different places. It could, for example, be that Dailies in our sample are predominantly from places with more corruption and this is why we find more corruption coverage in these. To address this concern, Table 4 regresses the content categories on the type of newspaper, and including prefecture-by-year fixed effects. Essentially, we are comparing the content of Party Dailies, Evenings and Subsidiaries within the same prefecture and year, and consequently with the same available news material. The differences in content are similar to those in raw means reported in Table 3. Notably, corruption and disaster coverage is lower in the less politically controlled Evenings and Subsidiaries.

**What content characterizes newspapers with high advertising revenues?** We will now investigate what type of content characterizes newspapers with high advertising revenues. For around half of the newspaper-year observations, we have data on the advertising ranking of the newspapers. We use this to analyze what type of content characterizes newspapers with high advertising ranking. Using an ordered probit, we regress the advertising ranking on our content categories and prefecture-by-year fixed effects.

The result is shown in Table 5. The first column shows the results of nine regressions with only one content category included, and prefecture-by-year fixed effects. The general picture is that the content categories that we found to be characteristic of strictly controlled newspapers are also characteristic of newspapers with low advertising revenues. This holds also when we control for the type of newspaper. Leader Mentions, Xinhua cites, corruption, disaster and accident coverage are negatively correlated with advertising revenues. Epoch Times stories, sports, crime and entertainment coverage are positively correlated with a good advertising ranking. Column shows the result from one regression including all content categories. Because of multicollinearity and few observations, these relationships are rarely statistically significant.

**Index of political control** To simplify our analysis, we are interested in constructing an index of political control. To this end, we now perform a principal component analysis

of our content categories. To take out news availability that may vary by prefecture and year, we analyze the residuals from a regression of content categories on prefecture by year fixed effects. The result is shown in Table 6. The first component explains 40 percent of the variation in news coverage. The factor loadings look very similar to what we earlier found to be positively (negatively) correlated with political control (good advertising ranking). Leader mentions has the strongest positive factor loading, followed by Xinhua News citations and corruption stories. Entertainment, crime and coverage of Epoch Times top stories have the strongest negative factor loadings. Figure 2 plots the factor loadings of the PCA first component against t-statistics from regressions of advertising ranking on each of the content categories individually and prefecture-by-year fixed effects (Table 5, column 1) and the equivalent t-statistics using the Party Daily dummy as dependent variable. We further

It seems that the first dimension of differentiation in the Chinese newspaper market (captured by the first principal component) measures the trade-off between political control and advertising revenue. To further make this case, from columns 2 and 5 of Table 5, we compute the expected advertising ranking and probability that a newspaper is a Party Daily. Figure 3, plot these against the first dimension from the principal component analysis. The first principal component is clearly negatively related to good advertising ranking (raw correlation -0.73) and positively correlated with probability of being a Party Daily (correlation 0.92). The correlation between the expected advertising ranking and the probability of being a Party Daily is -0.64. In a regression including prefecture by year fixed effects, the first principal component is negatively correlated with advertising ranking (t-stat well above ten, Table 5 column 3) and positively correlated with the probability that a newspaper is a Party Daily (again very high t-stat, Table 5 column 6). It is not the case that the advertising ranking is correlated with the principal component only through type of newspaper. Column 4 controls for the type of newspaper, and the principal component is still significant and the size of the coefficient is not much affected.

We will use the first principal component as our index of political control. The picture is very similar if one instead uses the predicted probability that a newspaper is a Party Daily, or the newspaper’s predicted advertising ranking, based on the coefficients estimated in Table 5. The first principal component is a mix of these that is more strongly correlated with both than either with the other.

To further validate that our index capture political control, we compare it with the share of censored posts on Sina Weibo. Sina Weibo is China’s by far largest micro blog, with over 300 million registered users. Bamman, O’Connor and Smith (2012) estimate the share censored posts by Chinese province. The upper left graph in Figure 4 plots the average political control index against the share deleted posts. The average political control is affected by sampling of newspaper in different provinces, e.g. by type and administrative level. The upper right graph shows average political control for Party Dailies only. The

lower graph shows average political control, where newspaper type and level of government has been partialled out.

The average political control index in of newspapers in a province has a raw correlation of 0.64 with the share censored posts. Comparing only the political control of Party Dailies, the correlation with the share censored posts increases to 0.72. Taking out the residual from newspaper type and level of government, the correlation rises to 0.81. The two outliers (in both dimensions) are Ningxia and Qinghai. In these provinces, the share of deleted posts is around 50 percent, and the average index of political control for Party Dailies is around 0.6. If these two provinces are removed, the raw correlation is still 0.55.

Table 7, contains a table of the newspapers that have the highest and lowest average political control in our sample. The most controlled papers are Party Dailies at central and provincial level. The least controlled are subsidiaries and one party evening at the provincial and prefecture level.

Finally, Figure 5 plots the distribution of political control index, by newspaper type. Party Dailies are most controlled, followed by Party Evenings and Subsidiaries.

Why do Ningxia and Qinghai control their newspapers more than other provinces? They are inland provinces far from the main engines of growth. Still, they are not particularly poor, although they are below the mean in terms of per capita GDP. These provinces are small and perhaps media competition for this reason is weaker. To discuss what factors might matter and how, we now set up a simple model of political media control.

## 5 Determinants of political control: Model

### 5.1 Motivating example

As an example of the type of competition we are trying to capture, consider the Chengdu prefecture. It is a pretty representative example of the evolution of the newspaper market in urban areas. Chengdu, the capital city of Sichuan province, is a central city in Southwest China. With a population of 14 million and the GDP of RMB 390 billion (about 62 billion in US dollars) in 2008, the Chengdu district is constantly ranked as No. 13 among all Chinese cities during the 2000s.

In the early 1980s, the dominating newspaper in Chengdu was the Sichuan Daily, run by the provincial level Party Committee. Its only competition was a county level Party Daily. In 1983, the prefecture-level Party Committee started the Chengdu Evening., which quickly became the leader of the local press market. In 1995, the Sichuan Daily launched a commercial subsidiary, the West China City News. Before the start of this subsidiary,

the Chengdu Evening News had advertising revenues 3.4 times that of the Sichuan Daily.<sup>16</sup> Within four years, the West China City News earned advertising revenues of RMB130 million, while the advertising revenue of its parent paper, the Sichuan Daily fell from RMB40 million to 20 million. However, the Chengdu Evening News experienced an even greater fall as its advertising revenue plunged from a peak of RMB 160 million to RMB80-90 million. In response, the Chengdu Party Committee — the owner of Chengdu Evening, launched a new Daily newspaper in 2001, Chengdu Daily, to replace the Evening as the Party newspaper. The "liberalized" Chengdu Evening became a subsidiary of Chengdu Daily and enjoyed the same autonomy as the West China City News. The Chengdu Evening revived. In 2003, competition was reduced as the county-level Party Daily "Dujiang Weirs Newspaper" was closed down.

## 5.2 Model

We now develop a simple model to discuss how Party Committees adjust the level of political control of their newspapers to trade off economic and political goals. A newspaper  $n$  can locate on the line at  $x_n \in [0, 1]$ , where higher  $x_n$  means less political control. There is a continuum of consumers with ideological blisspoints,  $x_i$ , distributed uniformly on  $x_i \in [0, 1]$ . Consumer's utility from newspaper  $n$  with ideological profile  $n$  is

$$u(x_i, x_n) = \frac{1}{2} - |x_i - x_n|.$$

We abstract from price competition and set the price of the newspaper to zero. In practice, subscription prices were set by national regulation for each category (Daily, Evening, Subsidiary) until 2005. Even after this, price dispersion is small and subscription fees are a small share of total revenue, which mainly comes from advertising. Consumers only buy one newspaper. They buy the newspaper that gives them highest utility and do not buy newspapers that give negative utility.

The newspapers earn a profit that is  $\bar{R}$  times their demand in the market. The Party Committee who owns the paper cares about this profit and about consumer exposure to political content. The Party Committee's ideological blisspoint is  $x = 0$ . Their utility from ideology is  $-\alpha$  times the average consumed ideology. A newspapers at  $x_n = 0$  is thus most preferred from a political influence perspectives while a newspaper at  $x_n = \frac{1}{2}$  maximize consumer demand.

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<sup>16</sup>The numbers in this example are from Huang (2001).

**Party Committee Monopoly** The most common market structure in China is that on Party Committee owns all newspapers in a prefecture. We start by analyzing this case. Suppose that the Party Committee chooses to have only one Party Daily, located at  $x_n = d$ . Demand is then

$$X(d) = \frac{1}{2} + d,$$

and the utility of the Party Committee is,

$$U(d) = \underbrace{X(d)\bar{R}}_{\text{revenue}} - \alpha \underbrace{X(d)d}_{\text{political exposure}}.$$

The provincial Party Committee will select  $d$  to maximize utility. This is a simple quadratic problem with solution

$$d^* = \begin{cases} 0 & \text{if } \frac{\bar{R}}{\alpha} \leq \frac{1}{2} \\ \frac{\bar{R}}{2\alpha} - \frac{1}{4} & \text{if } \frac{1}{2} < \frac{\bar{R}}{\alpha} < \frac{3}{4} \\ \frac{1}{2} & \text{if } \frac{\bar{R}}{\alpha} \geq \frac{3}{4} \end{cases} \quad (1)$$

The Daily will be less ideological the larger is the market  $\bar{R}$  and the less the Party Committee cares about political control,  $\alpha$ .

Now consider the case where the Party Committee owns both a Party Daily and an Evening with positions  $d$  and  $e$ . In this case, the demand for the Daily will be

$$X_d = \frac{d+e}{2},$$

and those reading it will be exposed to ideological content  $d$ . The demand for the Evening is

$$X_e = e + \frac{1}{2} - \frac{d+e}{2},$$

and those reading it will be exposed to ideological content  $e$ . The Party Committees utility from the newspaper profiles  $(d, e)$  is

$$U(d, e) = \bar{R} \left( e + \frac{1}{2} \right) - \alpha (X_d d + X_e e).$$

In this case, it will set  $d = 0$ , since  $\frac{\partial U}{\partial d} = -\alpha_p d < 0$ . The existence of an Evening will increase political control of the Daily. The reason is that a more commercialized Daily will only steal readers from the Evening and hence not generate more profits.

Given  $d = 0$ , the Party Committee will set  $e$  to maximize

$$U(d, e) = \bar{R} \left( \frac{1}{2} + e \right) - \frac{\alpha}{2} (1 + e) e.$$

This has solution

$$e^* = \begin{cases} 0 & \text{if } \frac{\bar{R}}{\alpha} \leq \frac{1}{2} \\ \frac{\bar{R}}{\alpha} - \frac{1}{2} & \text{if } \frac{1}{2} < \frac{\bar{R}}{\alpha} < 1 \\ \frac{1}{2} & \text{if } \frac{\bar{R}}{\alpha} \geq 1 \end{cases} \quad (2)$$

If  $\frac{\bar{R}}{\alpha} < \frac{1}{2}$ , there will only be a Daily paper, since there is no point of having two perfect substitutes.

Comparing  $d$  and  $e$  from equations (1) and (2), it is clear that an Evening paper in the two-paper case will be more commercialized than a Daily in the one-paper case, given the same  $\frac{\bar{R}}{\alpha}$ . To see why, consider a decrease in commercialization under both cases; see Figure 6. The effect on total Party Committee profits is the same in both cases, but the effect on ideological exposure is different. As the monopoly Party Daily becomes less commercialized, this influences all readers. However, as the Party Evening becomes less commercialized, this only influences the readers of the Evening, and some readers are even stolen from the Party Daily causing these to be exposed to more commercial content. As the ideological benefits from making the Evening more politically controlled are lower, it will be less controlled.

Consequently, a Daily and Evening will be specialized, or differentiated, around the position a single Daily would occupy at the market conditions. As an Evening paper enters, it will become more commercialized than the Daily was just before entry and the Daily will become more controlled.

When will the Party Committee chose to start an Evening paper? If it was costless, the monopoly Party Committee would like to start an Evening if  $\frac{\bar{R}}{\alpha} > \frac{1}{2}$ . In this range, the Daily in the one-paper case would be located at  $d > 0$ . If the Party Committee started an Evening located at this position and moved the Daily to  $d = 0$ , it would gain the same profits and get better political exposure as some readers would stay with the Daily. If  $\frac{\bar{R}}{\alpha} < \frac{1}{2}$  then the Party Committee would not like to start an Evening paper, since  $e^* = 0$  in this case and there is no point of having two papers located at the same position.

**Party Committee Duopoly** We now consider the case with two competing Party Committees. This is the second most common market situation overall and the most common market structure in the sample of prefectures for which we have content data for at least some newspapers. We call one the Province Party Committee and the other the county

Party Committee. One committee may care more about political control than the other. We label their preferences for political control  $\alpha^p$  and  $\alpha^c$ . We will use this model to discuss the exit of the county papers, which overwhelmingly were Party Dailies. Hence we will analyze the case where a county Daily competes against a provincial Daily or a provincial Daily and Evening. In order to make this problem tractable, we will reduce the strategy space and only allow the Dailies to be located at two positions  $d = \{0, d_H\}$ .

Consider a market where  $\frac{\bar{R}}{\alpha_p} < \frac{1}{2}$ . Under monopoly, the provincial Party Committee runs a Daily located at  $d = 0$ . We now consider the game where a provincial Daily and a county Daily simultaneously decide whether to locate at 0 or  $d_H$ . In this case, there exists a unique Nash Equilibrium where both dailies locate at 0 if  $\frac{\bar{R}}{\alpha_p} < 2d_H^2$ . In this region locating at 0 is a dominant strategy. In the region  $2d_H^2 < \frac{\bar{R}}{\alpha_p} < d_H$ , there exists two Nash equilibria:  $(0,0)$  and  $(d_H, d_H)$ . In the region  $d_H < \frac{\bar{R}}{\alpha_p} < \frac{1}{2}$ , playing  $d_H$  is a dominant strategy and the only equilibrium is  $(d_H, d_H)$ .

In comparison, under monopoly the only equilibrium is  $d = 0$ . Consequently, the existence of a competing Daily makes other Dailies less politically controlled. The reason is that competition amplifies effects on profits and diminishes effects on political exposure. This is shown in Figure 7. The upper panel shows the effect of moving from  $d = 0$  to  $d = d_H$  in the monopoly case. The monopoly Daily trades off the increased profits against the worse political exposure. The lower panel shows the trade-off in the duopoly case. Moving to  $d = d_H$  increases profits more because of market stealing from the competing Daily. On the other hand, the cost in terms of worse political exposure is lower as some of the readers stay with the competing Daily.

Consider now the case where a provincial and county Daily are both located at some point  $d$ , and the Provincial Party Committee considers where to position a Party Evening,  $e$ . The Party Evening is positioned to maximize

$$X_e R + \frac{1}{2} X_d R - \alpha_P (X_e e + X_d d),$$

where

$$\begin{aligned} X_e &= \frac{1}{2} + \frac{e-d}{2}, \\ X_d &= \frac{d+e}{2}. \end{aligned}$$

This has solution

$$\begin{aligned}
& 0 && \text{if } \frac{\bar{R}}{\alpha} \leq \frac{2}{3} \\
e^* = & \frac{3\bar{R}}{4\alpha} - \frac{1}{2} && \text{if } \frac{2}{3} < \frac{\bar{R}}{\alpha} < \frac{4}{3} \\
& \frac{1}{2} && \text{if } \frac{\bar{R}}{\alpha} \geq \frac{4}{3}.
\end{aligned} \tag{3}$$

Comparing this to the positioning of the Evening in the monopoly case, equation (2), we see that the Evening paper is more politically controlled when there is a competing county Daily than when there is not. Figure 8 shows how the trade-off changes. The upper panel shows the effect of an Evening becoming more politically controlled in the monopoly case, the lower panel the same situation in the duopoly case. The effect on political content exposure is the same in both cases. However, in terms of profits, the existence of a competing Daily lowers the Evening’s incentives to differentiate from the position of the Party Dailies. Because of market stealing from the county Daily, it is less important for the Evening paper to differentiate. For this to be an equilibrium, the Dailies should also like to stay at their positions. This implies that

$$U^J(d_H, d_H, e^*) \geq U^J(0, d_H, e^*), \quad j = P, C,$$

which holds if  $\bar{R}$  is large enough.

We have the following predictions. The level of ideological control is falling in the size of the advertising market, and more so for levels of government that care less about political control, and rising in the preference for political control. The probability of entry of an Evening is increasing in the size of the advertising market. At entry, the Daily and the Evening will differentiate around the position of the pre-existing Daily, with the Daily becoming strongly politically controlled and the Evening commercialized. Finally, a competing Daily will make other Dailies more commercialized, and Evenings less commercialized. We will now investigate a subset of these.

## 6 Determinants of political control: Empirics

We now investigate the determinants of political control. We first look at how our political control index correlates with a number of factors such as GDP, population size and internet penetration. We then study the effect of competition using the reform in 2003 to close down all county-level newspaper as exogenous variation.

The model focusses on advertising market size and competition. We will also investigate other variables, such as the degree of internet penetration, the distance to Beijing and the

level of government. The size of the advertising market is probably increasing economic development, which is positively related to income, wages, education levels, internet penetration and FDI. Internet penetration may also affect political control of media by providing an alternative information channel.

We first look at provincial cross-sectional relationships between these variables. Figure 4 plots the average political control index for each province against population, GDP per capita, real foreign direct investment and internet users per capita. From the graph, it is clear that there is a negative relationship between newspaper control and all these variables. Ningxia and Qinghai are two of the very smallest provinces. Qinghai is also poor, attracts little FDI and has few internet user. There is no time trend, political control of newspapers seems to have remained roughly constant over our sample period.

The first column of Table 8 shows how our measure of political control of newspapers correlates with a number of variables at the provincial level. The strongest negative correlation is with sheer province size, measured by population. Political control is also significantly negatively correlated with proxies for economic development, such as FDI per capital, GDP per capita and average wages. Our two measures of competition in the newspaper market, the number of newspapers and the number of Party Committees running newspapers are both negatively correlated with political control of newspapers. For comparison, Column 2 shows the same correlations for the share censored posts by province, as measured by Bamman et al. (2012) The share censored on the micro blog Sina Weibo correlate very much in the same way as our political control index, a further indication that they measure essentially the same thing. None of these correlations should be interpreted as measuring causal relationships.

We now investigate these relationships in a regression framework. Table 9 shows results from regressing the political control index of each newspaper on newspaper and prefecture characteristics. The first column includes year fixed effects. There is a clear cross-sectional relationship between political control and population size and GDP per capita. When we control for prefecture or newspaper fixed effects, the standard errors increase by a factor of five, and these relationships lose statistical significance. The same is true for the other variables, such as internet penetration that were correlated with political control at the provincial level. The robust findings are with respect to variables that vary at the newspaper: the level of government and type of newspaper. Newspapers by lower levels of governments are less strictly controlled: central level papers are most controlled, followed by province papers and finally prefecture papers. The second to last row shows a test of the Province and prefecture fixed effects being equal. Party Dailies are most controlled, followed by Evenings and Subsidiaries.

We know from Table 9 that lower-level governments impose less strict political control. The model suggests that these governments would react more to changes in GDP than the

more controlled central level newspapers. Table 10 investigates whether the response to GDP is different by different types of government. The first specification controls for year effects only. In the second column, prefecture fixed effects are added. The third column instead adds newspaper fixed effects. The results show that lower level governments react more than the center. Higher GDP thus seems to increase the difference in political control between different levels of government.

The last three columns of Table 10 investigate whether Party Evenings and Subsidiaries also react more to increased GDP than do the Party Dailies. Our model suggests that this would be the case as the Evenings would react to larger advertising profits while the Dailies would remain at the maximum political control point (for Party Committees that own both a Daily and an Evening). Here the evidence is more mixed. In the strongest specification with newspaper fixed effects, the Party Evenings and Subsidiaries react more to increasing GDP than the Party Dailies.

The positive correlation between increases in GDP and political control for the central level newspapers and the Party Dailies suggests that our model may be missing something. Some argue that there is cross-subsidization between Party Dailies and the more commercially oriented papers under the same Party Committee. This could explain why the political control of Party Dailies seem to increase (if anything) when GDP increases. Another possibility is that the value of political control,  $\alpha$  in the model, also increases with GDP. The value of holding power may be increasing in GDP and political control may be partly to ensure regime stability.

**Competition and bias** We now investigate the effect of competition on bias using a reform aimed at closing down county-level newspapers. With the stated purpose of reducing fragmentation in the media market, most county level newspapers lost their newspaper license in 2003, forcing them to close. A few exemptions were made: county-level newspapers started by the party before 1949; papers published by county-level, autonomous, ethnic minority administrations or in ethnic minority languages; papers in counties with a population of at least half a million, a GDP of 10 billion Yuan, a volume of consumer goods sales of 3 billion Yuan and over, and where the advertising revenue of the party organ was in excess of 4 million Yuan.<sup>17</sup>

The dramatic effect of this reform on the total number of general interest newspapers can be seen in Figure 1. The effect was as large in the WiseNews prefectures for which we have newspaper content data. There were close to 60 county Dailies in WiseNews prefectures in 2002, by 2004 this had dropped to less than 10. This had strong effects on market structure. Figure 10 shows the number of Party Committees involved in running newspapers

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<sup>17</sup>For a description, see Zhao (2008).

in the prefectures covered in the WiseNews sample. The reform caused a large increase in the number of monopoly and duopoly markets. So the reform caused a significant fall in competition for the newspapers in our sample. We do not have content data for any county newspapers. Consequently, what we can measure is the effect of county Dailies closing down on newspaper who remain in the market.

We first estimate the effects of this fall in competition on political control of the newspapers by regressing the political control index on the number of competing Party Dailies and Party Evenings. The number of competing Party Dailies is computed as the number of Party Dailies in the prefecture that are run by a Party Committee other than the one who runs the paper whose content data we are analyzing in this observation. The result is shown in Table 11. The first column includes newspaper and year fixed effects. The second column adds controls for GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, and the number internet users.

More competing Party Dailies is correlated with more political control across all specifications. The coefficient on the number of competing Evenings and Subsidiaries are all insignificant. There is little variation in the data and the standard errors are 4-6 times as large as those on competing Party Dailies.

Our model suggests that the effect of more competing Party Dailies would differentiate by newspaper type. Other Dailies would become less politically controlled, because the demand elasticity increases while the political exposure effects become smaller. On the other hand, Evening papers become more politically controlled, as they would have less of an incentive to differentiate themselves from the Party Dailies' position.

The last two columns of Table 11 test for these heterogeneous effects. The main effect in the first row measures the effect for Party Dailies (the omitted category). The number of competing Party Dailies is negatively correlated with the political control of Party Dailies, although this is insignificant. For Party Evenings and Subsidiaries, having more competing Dailies is associated with more political control. The last two rows show F-tests for the coefficient being different than zero for Party Evenings and Subsidiaries (main effect plus interactions).

Certainly, the number of competing Party Dailies could be endogenous to many factors that also influence the degree of political control of newspapers. For this reason, we want to use only the variation generated by the 2003 reform to identify the causal effect of competition on political control. For this reason, we create a variable, which we call "# Competing Party Dailies by Reform", which is minus the number of county-level newspapers in this prefecture in 2002, multiplied by an indicator variable for the year being 2003 or later. Defined this way, the variable becomes comparable to the OLS estimates above. This variable measures the fall in the number of newspapers a prefecture would have due to the reform if all county papers that existed in 2002 were closed down. For a prefecture with one county papers in

2002, this variable would be zero before 2003 and then minus one after 2003.

Table 12 shows the results. The first two columns show the average effect across all newspapers. This is positive and significant. The last two columns show the differential effect across newspaper types. The coefficient on Party Dailies is negative and marginally significant whereas the coefficient on Evenings and Subsidiaries is positive and significant. Again, the last two columns show an F-test for effects for Evenings and Subsidiaries.

Table 13 adds a placebo reform in 2002. The variable Placebo Reform 2002 is constructed by leading the "# Competing Party Dailies by Reform" variable one year. The Reform 2002 variable is insignificant, as are the interactions in columns three and four.

Table 14 analyses the dynamic effects of the reform. It seems that around half of the changes in political control were implemented already in 2003 and the remaining in 2004, although because of multicollinearity, many of these coefficients are insignificant.

Table 15 shows the effect of the reform by specific content category. For most categories, the signs are the expected, but the effects on individual categories are seldom significant. For the categories in Table 16a (other than Epoch stories), we expect the sign of the main effect to be negative and the interaction terms to be positive. This is true for all but three of 18 coefficients. It is not true for the content category corruption, which was weakly correlated with political control. In Table 16b, we expect the main effect to be positive and the interaction effects to be negative. This is true for all coefficients. Again, none are significant.

To sum up, we find that the average effect of the reform to close down county papers was to lower political control among the remaining papers, or equivalently, to increase commercialization. This is driven by the Evenings and Subsidiaries. The remaining Dailies move in the opposite direction and become more politically controlled.

## 7 Conclusion

[To be written.]

## 8 Appendix

### 8.1 Equilibrium with duopoly Dailies

Suppose that the provincial Daily paper is located at  $d=0$ . If the county Party Committee also locates at  $d = 0$ , it gets half the market and utility

$$U^c(0,0) = \frac{1}{4}\bar{R}$$

If it enters at  $d = d_H$ , it gets demand

$$X = (d_H + \frac{1}{2} - \frac{1}{2}d_H) = \frac{1}{2}(1 + d_H)$$

and utility

$$U^c(d_H, 0) = \frac{1}{2}(1 + d_H)\bar{R} - \alpha^c \frac{1}{2}(1 + d_H)d_H$$

It prefers to locate at  $d_H$  if

$$U^c(d_H, 0) > U^c(0, 0),$$

which is true if and only if  $d_H < \frac{\bar{R}}{\alpha_p}$ .

Suppose instead that the provincial daily is located at  $d_H$ . The county Daily can locate at  $d_H$  and get utility

$$U^c(d_H, d_H) = \frac{d_H + \frac{1}{2}\bar{R}}{2} - \alpha_c \left(d_H + \frac{1}{2}\right) d_H.$$

If it instead locates at  $d_L = 0$ , it gets utility

$$U^c(0, d_H) = \frac{d_H\bar{R}}{2} - \alpha_c \left(d_H + \frac{1}{2} - \frac{d_H}{2}\right) d_H.$$

It will chose  $d_H$  if

$$U^c(d_H, d_H) > U^c(0, d_H)$$

which holds if

$$2d_H^2 < \frac{\bar{R}}{\alpha_p}.$$

This condition is automatically fulfilled if  $d_H < \frac{\bar{R}}{\alpha_p}$  and  $\frac{\bar{R}}{\alpha_p} < \frac{1}{2}$ . The analysis is analogous for the provincial Party Committee choice. Consequently, there exists a unique Nash Equilibrium where both dailies locate at 0 if  $\frac{\bar{R}}{\alpha_p} < 2d_H^2$ . In this region locating at 0 is a dominant strategy. In the region  $2d_H^2 < \frac{\bar{R}}{\alpha_p} < d_H$ , there exists two Nash equilibria:  $(0,0)$  and  $(d_H, d_H)$ . In the region  $d_H < \frac{\bar{R}}{\alpha_p} < \frac{1}{2}$ , the only equilibrium is  $(d_H, d_H)$ .

Table 1. Newspaper types in Fujian-Fuzhou 1998

Type	Level	Category	Newspaper	Supervisor
<b>Party Daily</b>	Province	Daily	Fujian Daily	CPC Fujian Provincial party committee
<b>Subsidiary</b>	Province	Metro	Channel metropolis newspaper	Fujian Newspaper office
<b>Party Daily</b>	Capital city	Daily	Fuzhou Daily	CPC Fuzhou Municipal party committee
<b>Party Evening</b>	Capital city	Evening	Fuzhou Evening News	CPC Fuzhou Municipal party committee
<b>Party Daily</b>	County	Daily	Fuqing Times	CPC Fuqing Municipal party committee

Table 2. General interest newspapers in WiseNews

	daily	evening	metro	Total
parent newspaper	<b>2</b>	<b>16</b>	<b>40</b>	58
party	<b>37</b>	<b>12</b>	<b>3</b>	52
Total	39	28	43	110

Table 3. Content categories by newspaper type

	I	II	III	IV
	Party Line			
	Leader Mentions	Xinhua Cites	Epoch Stories	Number Articles
Party Daily	21.83	34.32	20.31	16,695
Party Evening	8.4	25.08	23.33	21,655
Subsidiary	4.8	17.99	26.63	23,936
	Mass Line			
	Corruption	Disasters	Accidents	
Party Daily	0.20	0.62	0.15	
Party Evening	0.15	0.44	0.15	
Subsidiary	0.14	0.42	0.11	
	Bottom Line			
	Sports	Entertainment	Crime	
Party Daily	5.74	10.70	0.31	
Party Evening	7.12	13.08	0.70	
Subsidiary	6.96	13.80	0.65	

Table 4. Content by newspaper type, prefecture by year fixed effects

VARIABLES	Leader mentions	Xinhua cites	Epoch Stories	Corruption	Disasters	Accidents
Party Evening	-13.593*** (2.269)	-12.786*** (3.167)	4.462*** (0.676)	-0.076*** (0.014)	-0.154*** (0.051)	-0.010 (0.014)
Subsidiary	-18.591*** (1.593)	-15.000*** (1.762)	5.949*** (0.527)	-0.067*** (0.011)	-0.236*** (0.044)	-0.015 (0.014)
Observations	718	718	718	718	718	718
R-squared	0.724	0.798	0.915	0.627	0.743	0.592

Standard errors clustered by newspaper: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 4, cont. Content by newspaper type, prefecture by year fixed effects

VARIABLES	Sports	Entertain- ment	Crime
Party Evening	1.652*** (0.527)	3.199*** (0.559)	0.274*** (0.096)
Subsidiary	1.203*** (0.335)	2.857*** (0.453)	0.358*** (0.053)
Observations	718	718	718
R-squared	0.715	0.826	0.685

Table 5. Advertising ranking and Party Daily

PCA 1 <sup>st</sup> dim	Advertising Ranking			Party Daily		
			7.242*** (0.618)	5.712*** (0.975)		3.327*** (0.187)
Leader mentions	0.067*** (0.006)	0.026* (0.014)			0.019*** (0.004)	
Xinhua cites	0.054*** (0.007)	0.008 (0.018)			0.011*** (0.003)	
Epoch Stories	-0.058*** (0.010)	0.016 (0.013)			-0.011*** (0.003)	
Corruption	7.734*** (1.005)	3.156* (1.786)			0.584 (0.374)	
Disasters	2.713*** (0.366)	0.770* (0.448)			-0.170*** (0.058)	
Accidents	3.726*** (1.089)	2.394* (1.222)			0.335*** (0.105)	
Sports	-0.193*** (0.032)	-0.055 (0.064)			-0.024* (0.013)	
Entertainment	-0.197*** (0.024)	-0.079 (0.052)			-0.014 (0.009)	
Crime	-1.917*** (0.218)	-0.970* (0.505)			-0.247** (0.120)	
Party Daily				0.381* (0.218)		
Party Evening				-0.425** (0.211)		
Observations		521	521	521	718	718
R-squared					0.774	0.727

The dependent variable in the first four columns is minus the advertising ranking of each newspaper. The dependent variable in the last two columns is and indicator for the newspaper being a Party Daily. All specification include prefecture by year fixed effects. Standard errors, clustered by newspaper in parenthesis. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6. Principal components analysis

Component	Eigenvalue	Proportion	Variable	Comp1
Comp1	3.60	0.40	Leader Mentions	0.46
Comp2	1.33	0.15	Xinhua cites	0.39
Comp3	1.07	0.12	Epoch Stories	-0.31
Comp4	0.93	0.10	Corruption	0.33
Comp5	0.62	0.07	Disasters	0.29
Comp6	0.51	0.06	Accident	0.06
Comp7	0.43	0.05	Sports	-0.27
Comp8	0.30	0.03	Entertainment	-0.37
Comp9	0.20	0.02	Crime	-0.37

Table 7. Most and least controlled newspapers

Political control	Newspaper name	Newspaper type	Level	Province	Prefecture
0.68	QINGHAIDAILY	Party Daily	province	Qinghai	Xining
0.64	NINGXIADAILY	Party Daily	province	Ningxia	Yinchuan
0.59	GANSUDAILY	Party Daily	province	Gansu	Lanzhou
0.59	ANHUIDAILY	Party Daily	province	Anhui	Hefei
0.56	PEOPLE'SDAILY	Party Daily	central	Beijing	Beijing
0.54	YUNNANDAILY	Party Daily	province	Yunnan	Kunming
0.54	SICHUANDAILY	Party Daily	province	Sichuan	Chengdu
0.54	SHANXIDAILY	Party Daily	province	Shanxi	Taiyuan
0.54	JIANGXIDAILY	Party Daily	province	Jiangxi	Nanchang
0.53	GUANGXIDAILY	Party Daily	province	Guangxi	Nanning
0.21	CHUTIANMETROPOLISDAILY	Subsidiary	province	Hubei	Wuhan
0.21	DUSHISHIBAO	Party Evening	prefecture	Yunnan	Kunming
0.21	SHENZHENEVENINGNEWS	Subsidiary	prefecture	Guangdong	Shenzhen
0.19	WUHANEVENINGNEWS	Subsidiary	prefecture	Hubei	Wuhan
0.17	WUHANMORNINGPOST	Subsidiary	prefecture	Hubei	Wuhan
0.16	LIAOSHENEVENINGNEWS	Subsidiary	province	Liaoning	Shenyang
0.16	INFORMATIONTIMES	Subsidiary	prefecture	Guangdong	Guangzhou
0.15	BEIJINGEVENINGNEWS	Subsidiary	province	Beijing	Beijing
0.13	THEFIRST	Subsidiary	province	Beijing	Beijing
0.03	BEIJINGDAILYMESSENGER	Subsidiary	province	Beijing	Beijing

Table 8. Provincial cross-sectional correlations

	Political control index	Share censored Weibo posts
Population (log)	-0.7031	-0.7078
Real FDI (log)	-0.5287	-0.6154
Longitude	-0.4661	-0.5833
GDP per capita (log)	-0.4654	-0.4426
Average wage (log)	-0.4072	-0.2382
Number of newspapers	-0.4072	-0.2382
Government exp. per capita (log)	-0.3983	-0.2688
Internet users per capita (log)	-0.3696	-0.4926
Number of Party Committees running newspapers	-0.3696	-0.4926
Number employed per capita (log)	-0.1022	-0.129
Latitude	0.0163	0.1267
University students per capita (log)	0.0335	-0.2632
Distance to Beijing	0.053	0.0242
Industrial share	0.0661	0.0323

Table 9. Dependent variable: Political Control Index

GDP per capita (log)	-0.026*** (0.008)	-0.023 (0.049)	-0.016 (0.051)
Population (log)	-0.031** (0.013)	0.008 (0.051)	-0.014 (0.049)
# general interest papers	-0.003* (0.002)	0.001 (0.002)	0.002 (0.002)
Province	-0.111*** (0.016)	-0.101*** (0.010)	
Prefecture	-0.148*** (0.023)	-0.158*** (0.019)	-0.067*** (0.011)
Party Evening	-0.152*** (0.016)	-0.157*** (0.017)	0.037 (0.033)
Subsidiary	-0.195*** (0.013)	-0.201*** (0.014)	
Observations	714	714	714
R-squared	0.699	0.744	0.849
Fixed Effects	Year	Prefecture and Year	Newspaper and Year
Province=Prefecture	0.01	0.00	
Evening=Subsidiary	0.01	0.01	

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 10. Dependent variable: Political Control Index

	I	II	III	IV	V	VI
GDP (log)	0.061*** (0.013)	0.043 (0.050)	0.060 (0.050)	-0.026** (0.012)	-0.024 (0.044)	0.069 (0.053)
Prefecture * GDP	-0.095*** (0.015)	-0.099*** (0.014)	-0.111*** (0.018)			
Province * GDP	-0.080*** (0.008)	-0.075*** (0.016)	-0.088*** (0.020)			
Party Evening * GDP				-0.020 (0.013)	-0.014 (0.013)	-0.097*** (0.021)
Subsidiary * GDP				0.009 (0.014)	0.010 (0.014)	-0.093*** (0.018)
Population (log)	-0.009 (0.015)	0.030 (0.040)	0.007 (0.028)	-0.004 (0.014)	0.021 (0.043)	-0.014 (0.027)
# general interest papers year	-0.004* (0.002)	-0.001 (0.003)	0.000 (0.003)	-0.004** (0.002)	0.001 (0.002)	-0.001 (0.003)
Province	1.329*** (0.148)	1.249*** (0.282)		-0.115*** (0.023)	-0.109*** (0.017)	
Prefecture	1.542*** (0.244)	1.579*** (0.256)	0.335 (0.341)	-0.159*** (0.029)	-0.171*** (0.025)	-0.098*** (0.011)
Party Evening	-0.161*** (0.017)	-0.167*** (0.014)	0.027 (0.036)	0.173 (0.223)	0.073 (0.212)	0.084 (0.353)
Subsidiary	-0.195*** (0.013)	-0.201*** (0.013)		-0.353 (0.234)	-0.374 (0.227)	
Observations	714	714	714	714	714	714
R-squared	0.703	0.750	0.853	0.704	0.747	0.870
Fixed Effects	Year	Prefecture and Year	Newspaper and Year	Year	Prefecture and Year	Newspaper and Year

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 11. Dependent variable: Newspaper Political Control

	I	II	III	IV
# Competing Party Dailies	0.007*** (0.002)	0.006** (0.002)	-0.008* (0.004)	-0.009* (0.005)
Party Evening * # Competing Party Dailies			0.018** (0.007)	0.018** (0.007)
Subsidiary * # Competing Party Dailies			0.017*** (0.004)	0.017*** (0.004)
# Competing Evenings and Subsidiaries	0.007 (0.010)	0.007 (0.011)	0.009 (0.007)	0.010 (0.008)
Party Evening * # Competing Evenings and Subsidiaries			-0.019 (0.027)	-0.020 (0.029)
Subsidiary * # Competing Evenings and Subsidiaries			-0.009 (0.019)	-0.013 (0.018)
Observations	652	652	652	652
R-squared	0.870	0.873	0.875	0.878
Controls	No	Yes	No	Yes
Fixed Effects	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year
Party Evening			0.06	0.10
Subsidiary			0.01	0.01

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for Newspaper type and administrative level. Controls include GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, number internet users.

Table 12. Dependent variable: Newspaper Political Control

	I	II	III	IV
# Competing Party Dailies by Reform	0.006*** (0.002)	0.005** (0.003)	-0.008* (0.004)	-0.010* (0.005)
Party Evening * (# Competing Party Dailies by Reform)			0.020*** (0.005)	0.020*** (0.005)
Subsidiary * (# Competing Party Dailies by Reform)			0.021*** (0.005)	0.021*** (0.005)
Observations	652	652	652	652
R-squared	0.869	0.871	0.874	0.877
Controls	No	Yes	No	Yes
Fixed Effects	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year
Party Evening			0.00	0.01
Subsidiary			0.00	0.00

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for Newspaper type and administrative level. Controls include GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, number internet users.

Table 13. Dependent variable: Newspaper Political Control

	I	II	III	IV
# Competing Party Dailies by Reform	0.005*** (0.002)	0.005** (0.002)	-0.008 (0.006)	-0.009 (0.006)
Party Evening * (#Competing Party Dailies by Reform)			0.018** (0.008)	0.018** (0.008)
Subsidiary * (# Competing Party Dailies by Reform)			0.018** (0.007)	0.019** (0.007)
Placebo Reform 2002	0.002 (0.004)	0.000 (0.004)	-0.000 (0.006)	-0.001 (0.006)
Party Evening * placebo reform			0.003 (0.007)	0.003 (0.007)
Subsidiary * placebo reform			0.004 (0.007)	0.003 (0.007)
Observations	652	652	652	652
R-squared	0.869	0.871	0.874	0.877
Controls	No	Yes	No	Yes
Fixed Effects	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year
Party Evening 2002			0.59	0.66
Subsidiary 2002			0.32	0.57
Party Evening			0.02	0.02
Subsidiary			0.00	0.00

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for Newspaper type and administrative level. Controls include GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, number internet users.

Table 14. Dependent variable: Newspaper Political Control

Reform 2002	0.002 (0.003)	0.000 (0.004)	-0.000 (0.006)	-0.001 (0.006)
Party Evening * reform 2002			0.002 (0.008)	0.003 (0.007)
Subsidiary * reform 2002			0.003 (0.007)	0.003 (0.007)
Reform	0.006** (0.003)	0.003* (0.002)	-0.003 (0.004)	-0.006 (0.004)
Party Evening * reform			0.010** (0.004)	0.010** (0.004)
Subsidiary * reform			0.013** (0.005)	0.013** (0.006)
Reform 2004	0.001 (0.004)	0.003 (0.002)	-0.004 (0.007)	-0.003 (0.005)
Party Evening * reform 2004			0.009 (0.008)	0.009 (0.008)
Other * reform 2004			0.007 (0.006)	0.007 (0.006)
Observations	718	652	718	652
R-squared	0.852	0.872	0.857	0.878
Controls	No	Yes	No	Yes
Fixed Effects	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year
Party Evening			0.05	0.18
Subsidiary			0.01	0.01
Party Evening 2002			0.77	0.66
Subsidiary 2002			0.40	0.62
Party Evening 2004			0.05	0.18
Subsidiary 2004			0.43	0.07

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for Newspaper type and administrative level. Controls include GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, number internet users.

Table 15a. Reform and type of content

VARIABLES	Leader Mentions	Xinhua Cites	Epoch Stories	Corruption	Disasters	Accidents
Reform	-1.180*** (0.380)	-0.509 (0.796)	0.490 (0.642)	0.013 (0.009)	-0.043** (0.018)	-0.009 (0.020)
Party Evening * reform	1.378*** (0.414)	1.864 (1.132)	-0.808 (0.535)	-0.008 (0.009)	0.068*** (0.020)	0.021 (0.018)
Subsidiary * reform	1.676*** (0.438)	1.166* (0.631)	-1.325** (0.521)	-0.008 (0.008)	0.080** (0.031)	0.022 (0.016)
Observations	652	652	652	652	652	652
R-squared	0.846	0.844	0.883	0.617	0.602	0.396
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year	Newspaper and Year
Party Evening	0.45	0.05	0.49	0.37	0.16	0.41
Subsidiary	0.06	0.12	0.02	0.21	0.10	0.20

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Controls include GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, number internet users.

Table 15b. Reform and type of content

VARIABLES	Sports	Entertainment	Crime
Reform	0.077 (0.109)	0.243 (0.153)	0.025 (0.023)
Party Evening * reform	-0.007 (0.198)	-0.454** (0.183)	-0.034 (0.025)
Subsidiary * reform	-0.037 (0.131)	-0.403** (0.186)	-0.029 (0.021)
Observations	652	652	652
R-squared	0.756	0.880	0.770
Controls	Yes	Yes	Yes
Fixed Effects	Newspaper and Year	Newspaper and Year	Newspaper and Year
Party Evening	0.64	0.27	0.64
Subsidiary	0.66	0.08	0.71

Standard errors clustered by prefecture in parenthesis: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Controls include GDP, population, wage, industrial share of GDP, real FDI, number university students, number employees, total government expenditures, number internet users.

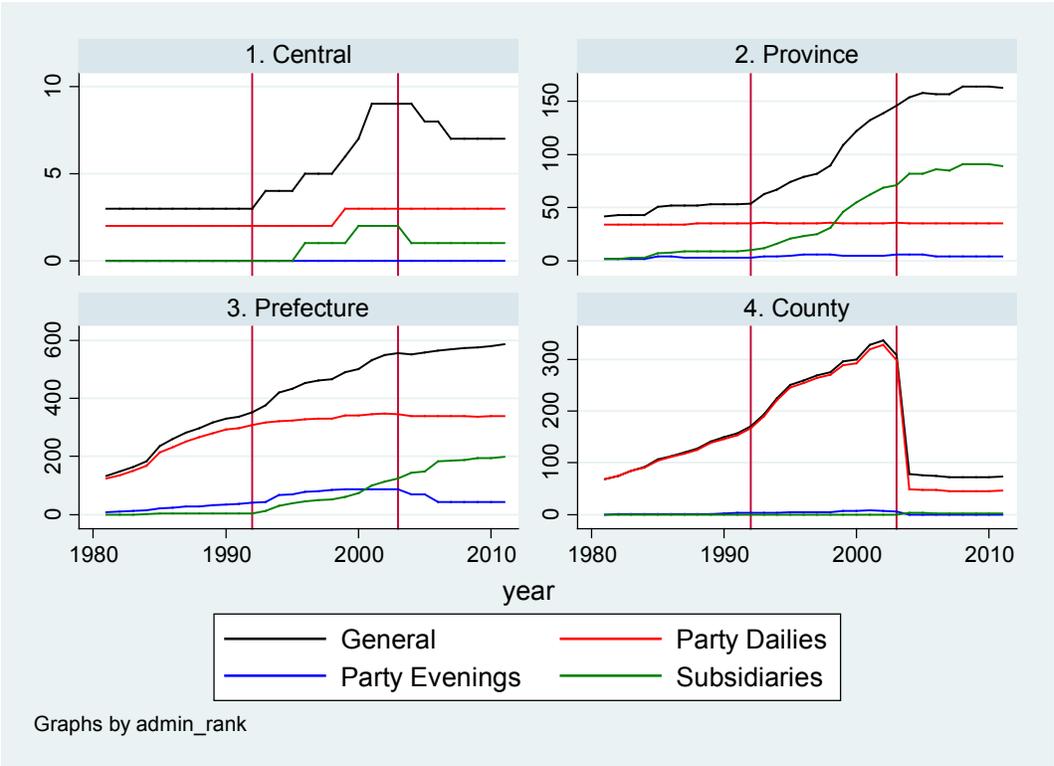
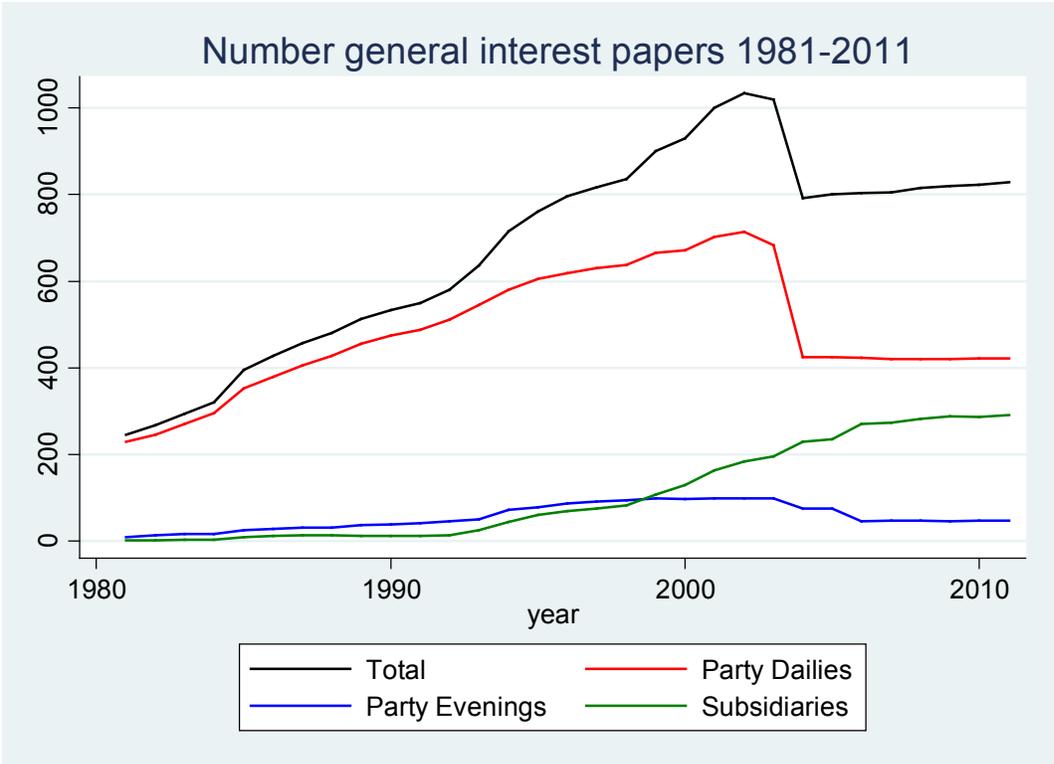


Figure1: Number of general interest newspapers, by level and type

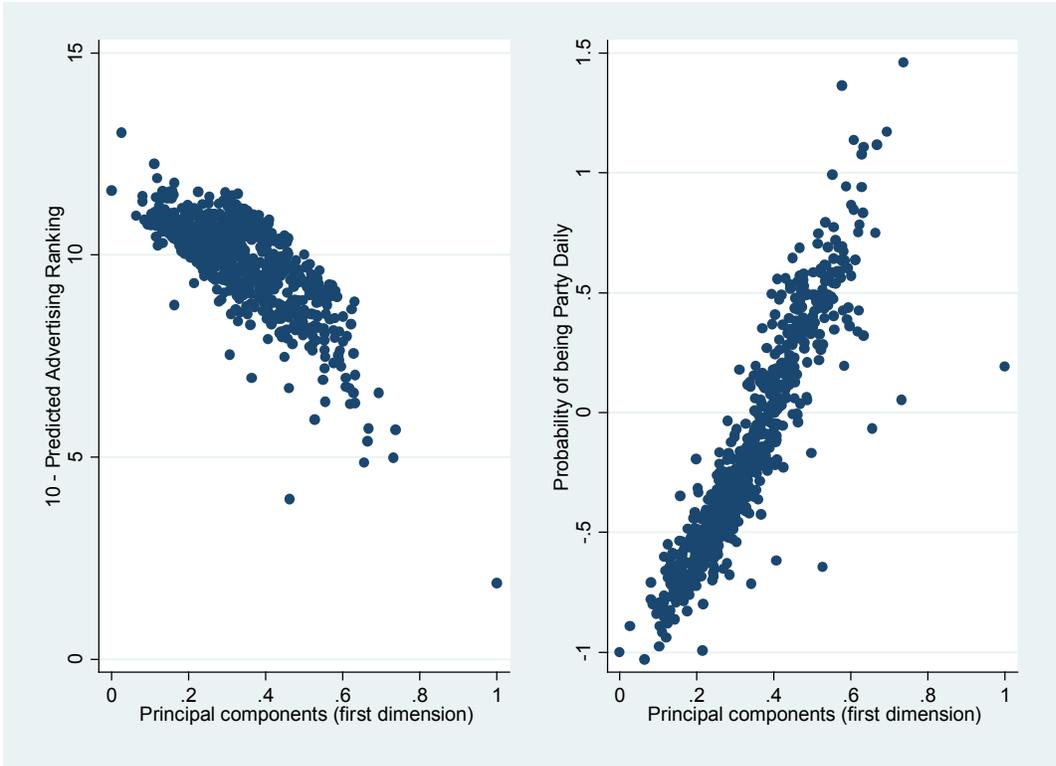


Figure 3. PCA 1<sup>st</sup> component and advertising ranking – political control

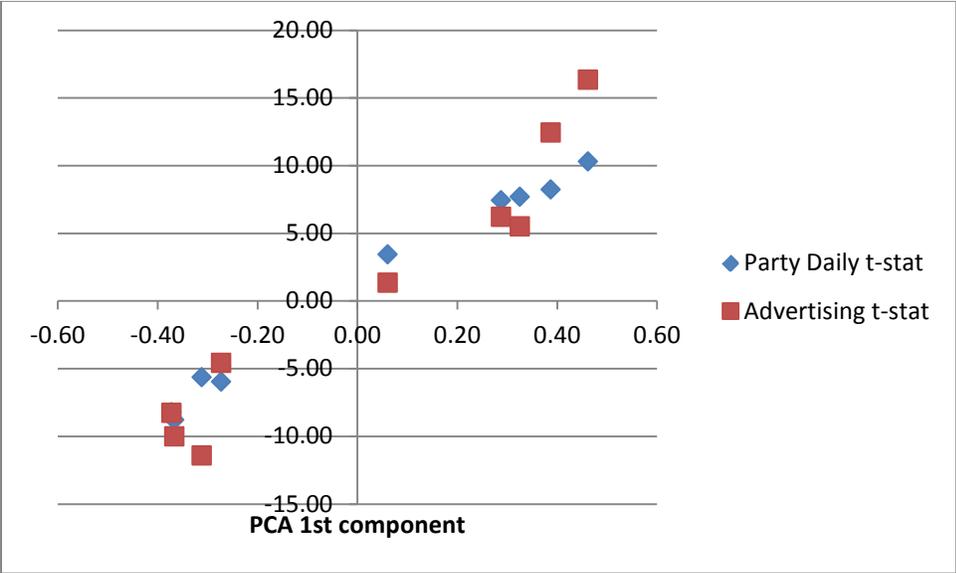


Figure 2. PCA 1<sup>st</sup> component and t-stats

# Newspaper Political Control Index and Weibo Censoring

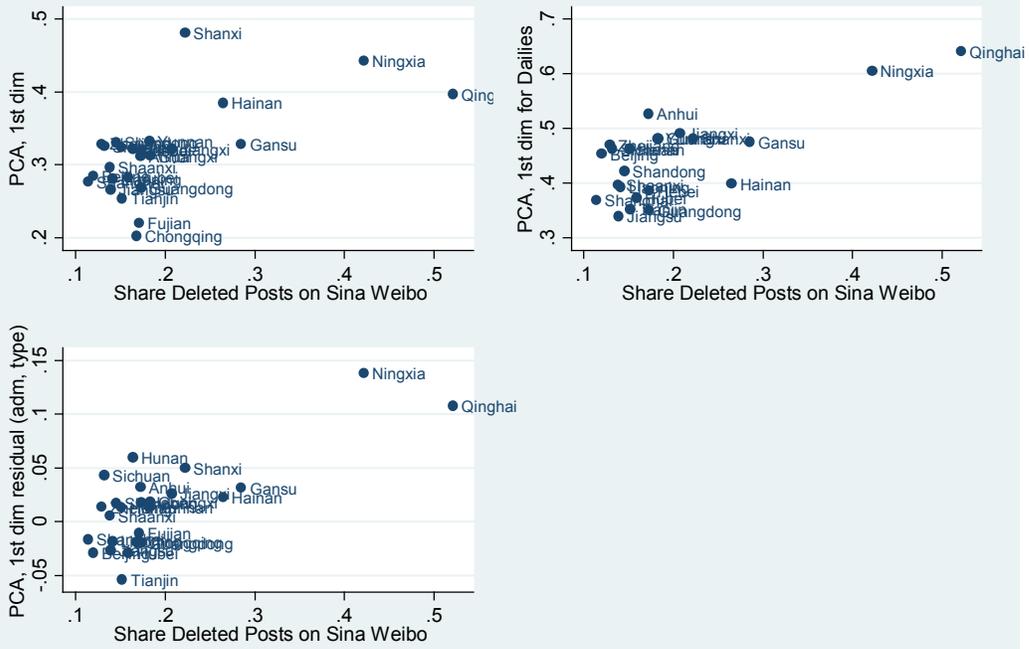


Figure 4. PCA first component and censoring of Weibo microblogs

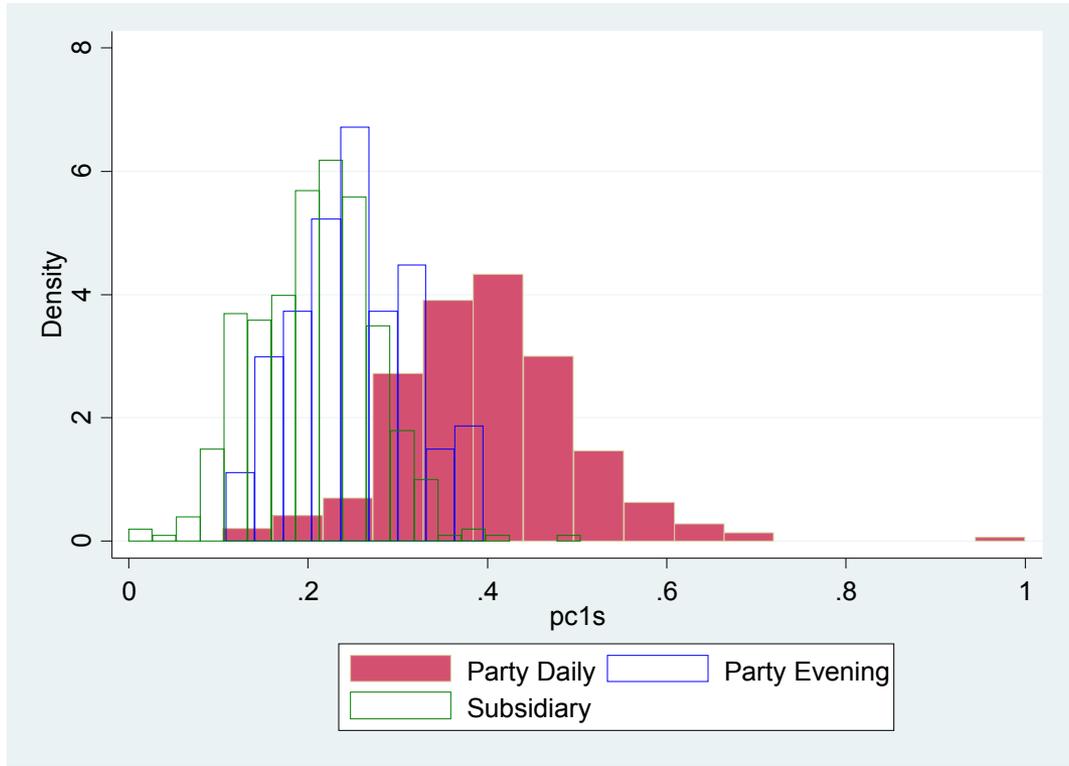


Figure 5. Political Control Index and Newspaper Type

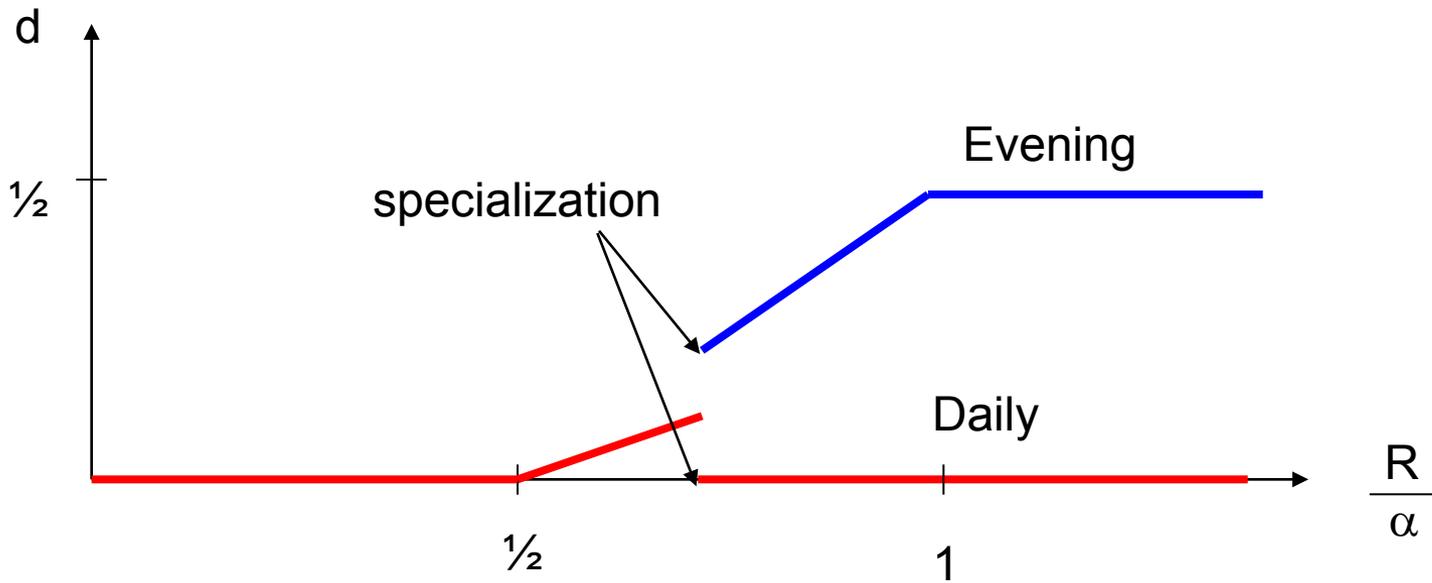
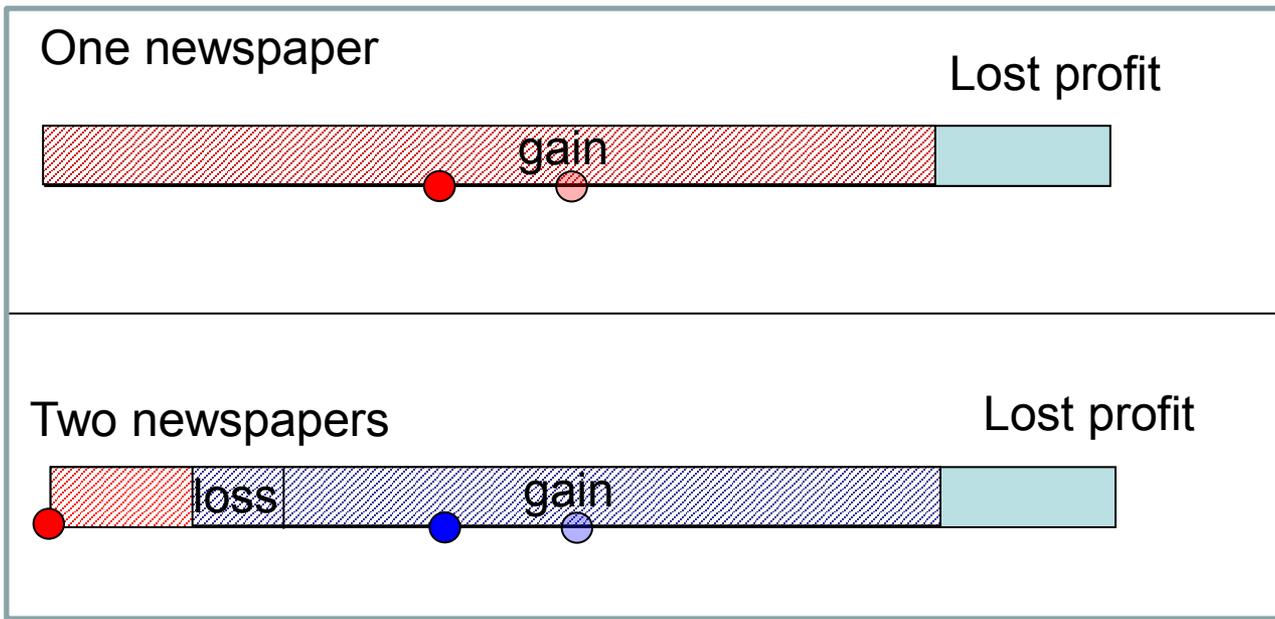


Figure 6. Monopoly Party Committee

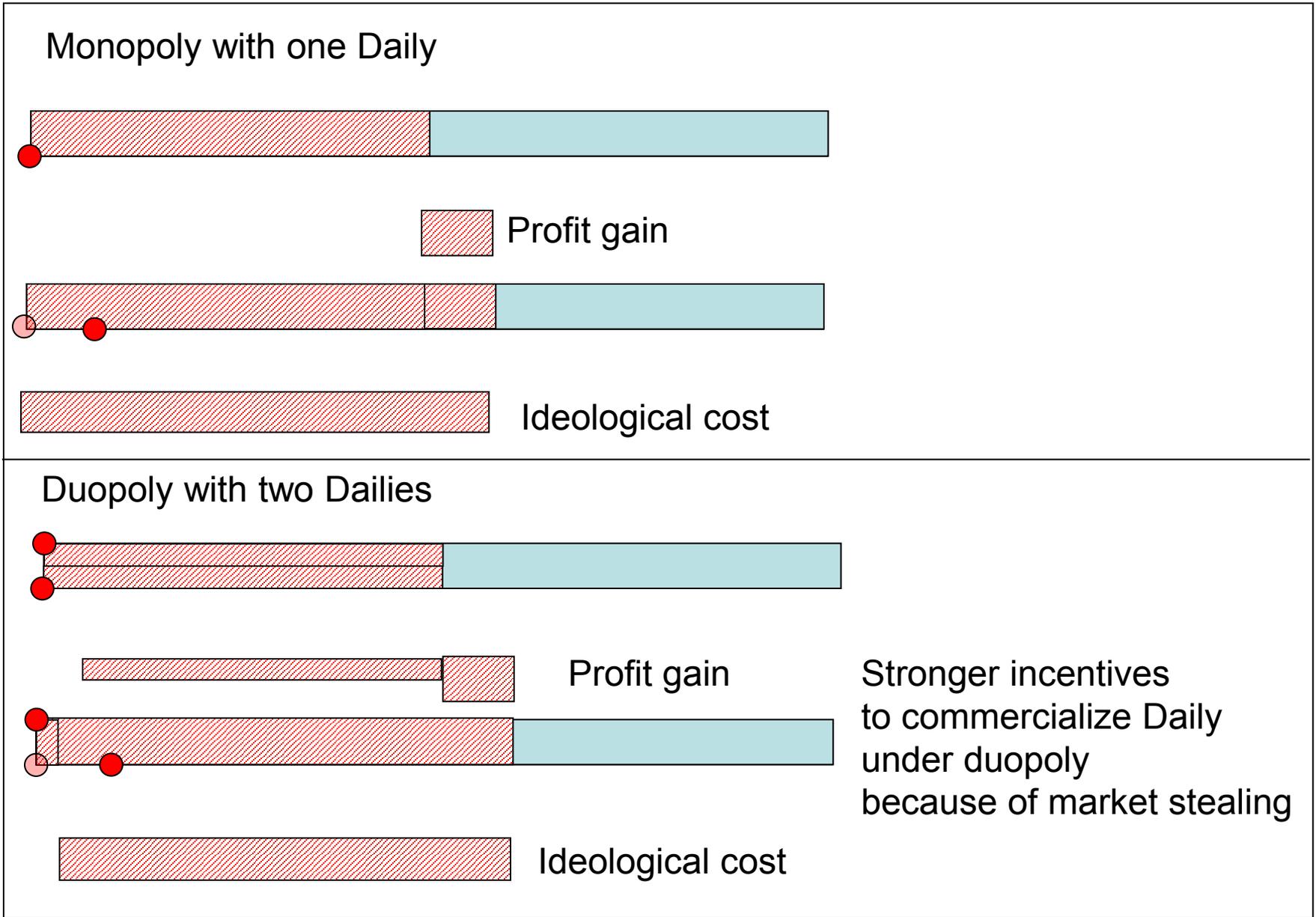
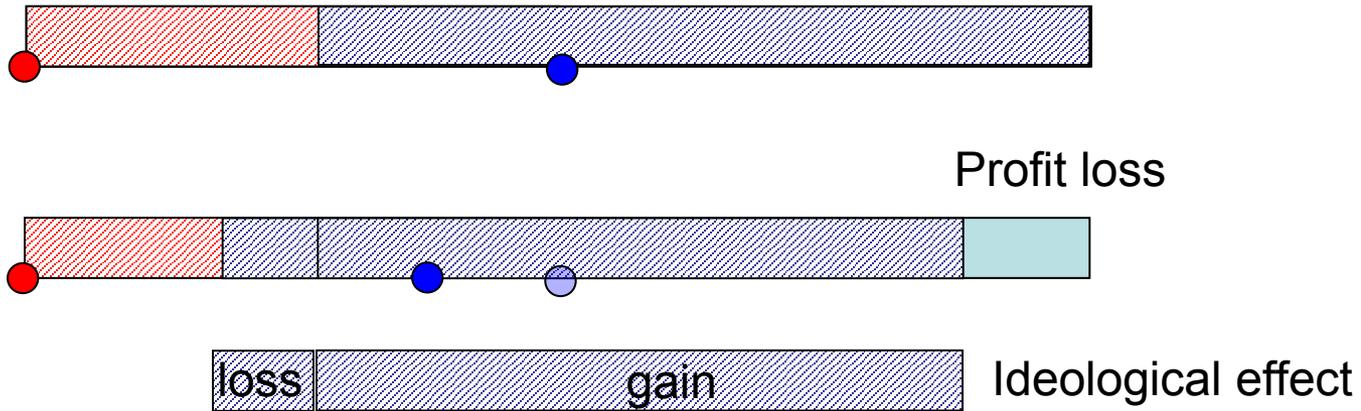


Figure 7. Market structure and incentives to commercialize Daily

### Monopoly with Daily and Evening



### Duopoly with Daily competing against Daily and Evening

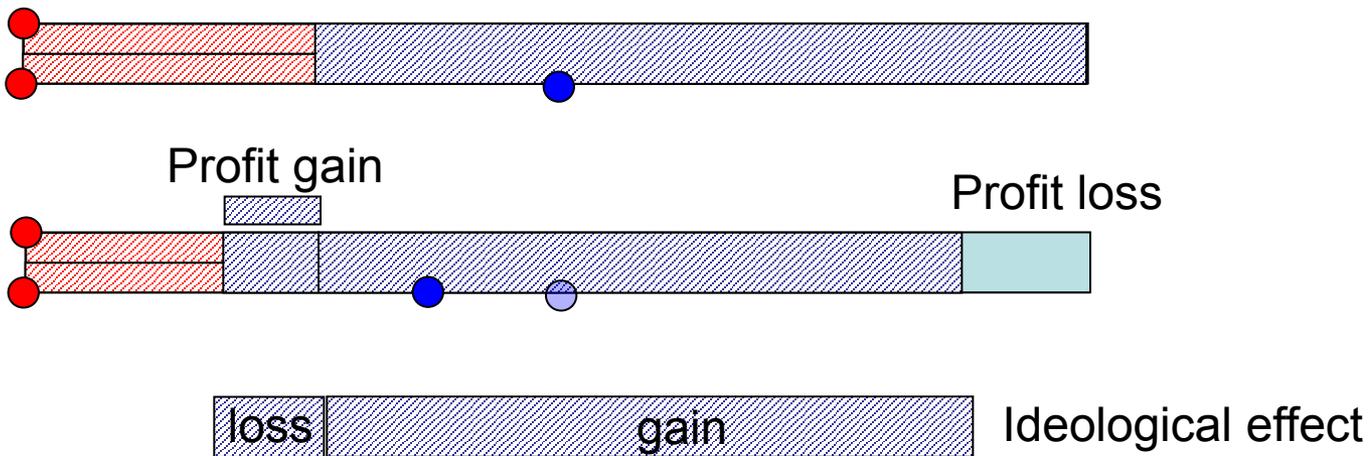


Figure 8. Market structure and incentives to commercialize Evening

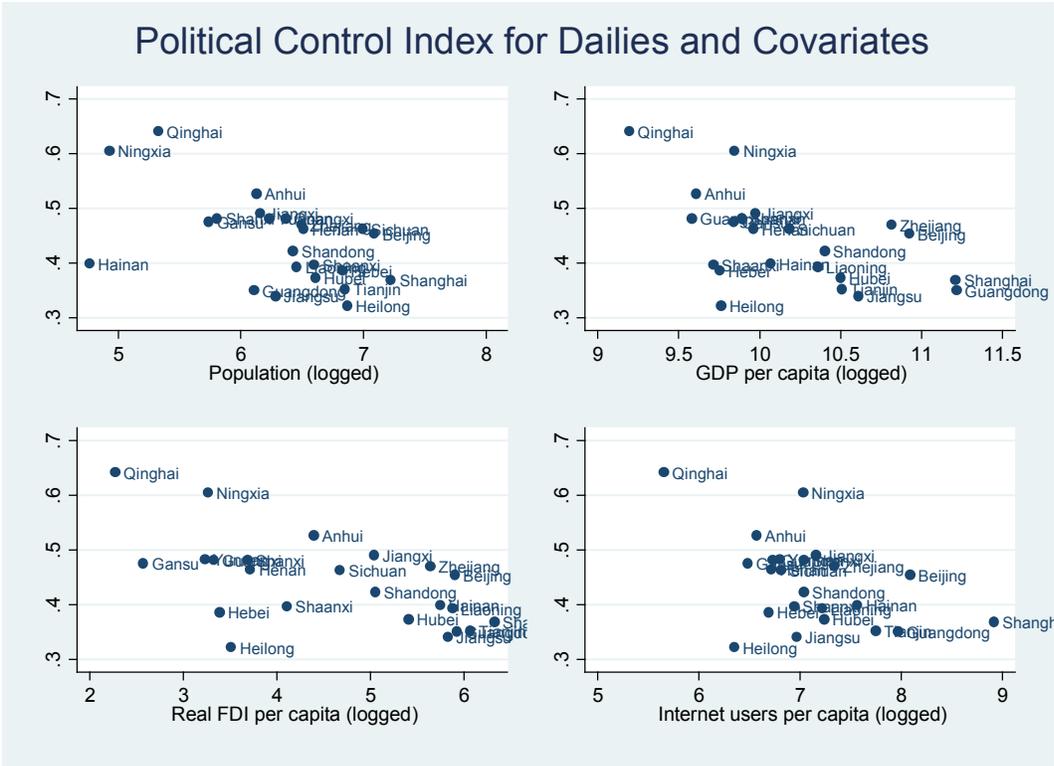


Figure 9. Political Control Index and Covariates

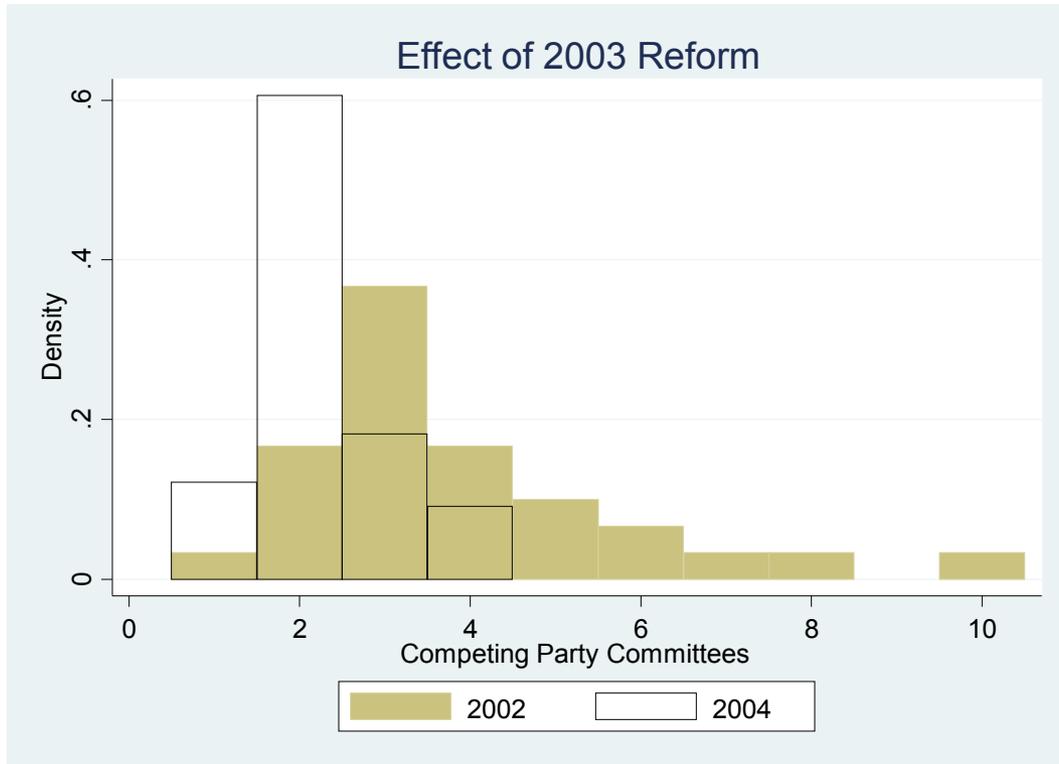


Figure 10. Effect of 2003 reform on competition