Checks and Balances: Evidence from Media Criticism in China

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Abstract

In this paper, I study how political competition among provincial officials affects media criticism in China. I collect news reports on local mouthpiece outlets that criticize the provincial governments from 2004 to 2017. By exploiting the randomness of the pairing of the provincial governor and secretary, I prove that higher competition induces more media criticism. I construct a model to illustrate how competition can be generated by promotion pressure.

1 Introduction

One important role of media is to serve as a watchdog of the society, against any malpractices of the government. It is common to see commercial newspapers, say *the New York Times* and *the Wall Street Journal*, publish articles criticizing the government or officials. Speaking of the reason, it is profitable for commercial newspapers to formulate content to cater to readers' needs, and readers do demand for a revelation of misconduct or malfeasance. However, the same logic doesn't apply to a regime where media is less independent from the government. Does non-democratic political regime have negative reports about government? If so, what drives the intensity of negative coverage?

The answer is partially revealed in the literature. Some papers have provided theoretical analysis and empirical evidence on freedom of media being allowed under dictatorship because the ruler wants to proctor the subordinates (Egorov et al., 2009, Lorentzen, 2014). Chen and Hong (2021) suggests that within-faction competition can drive mutual attack on media in the context of China (Chen and Hong, 2021). This paper adds to this literature by introducing a new mechanism: competition between provincial leaders due to promotion pressure increases media criticism.

In this paper, I construct a novel dataset containing media reports that criticize or at least point out existing local issues. With this dataset, I document that Chinese media, even the most government-dependent newspapers, can at least point out problems or room for improvement

of local governments. Moreover, I find that the frequency of these reports can be driven by the competition between the top two provincial officials: the party secretary and the governor. The competition between two provincial officials rises from the conflicts of taking credit for their joint performance. To illustrate this intuition, I build a principal-agent model with adverse selection, where two agents send economic and media signals to the principal to get promoted. When the performance from agents are intertwined and individual efforts are not observed, media serves as a complement signal. I then provide empirical evidence by exploiting a quasi-experiment on assignment of secretary-governor dyads.

Each Chinese provincial government is led by two top provincial officials, namely, the party secretary and the governor. Despite the fact that the party secretary is of one higher political rank than the governor, they cooperate in various aspects of local governance. Their roles in local development are such that the secretary is the "designer of the blueprint" and governor is the executor. Apart from the cooperation, party secretaries possess the entire control of the content published on provincial-government-led media (or mouthpieces).

The empirical strategy exploits the semi-random pairing of the party secretary and the governor. This setting provides two sources of variation to identify the impact of competition on media criticism. First, the pairing is semi-random such that the difference in their tenure years of secretary and governor is exogenous. The timing when a secretary and a governor is paired majorly depends on the movement of predecessors. Any movement decision is made by the Politburo Standing Committee based on predecessors' traits and performance, which are largely independent of the incumbent pairs' traits and performance. Second, statistical and anecdotal evidence suggests that for the provincial leaders, the third and the fourth years along their tenure track at their positions are the period when they are most likely to be examined for promotion. Whether the secretary and the governor enter their promotion period is also exogenous to their traits.

To illustrate how competition rises due to promotion pressure, I build a principal-agent model where principal represents the Politburo Standing Committee that makes personnel decisions and two agents represent the two top bureaucrats. Intuitively, since the principal values the agents' ability to enhance economic growth, both bureaucrats, in order to get promoted, exert efforts to improve growth. However, because they cooperate on boosting growth, their individual efforts as signals of their own types are not observed. Rather, their joint performance is observed by the principal. As a result of this fuzzy signal, some secretaries are incentivized to send media signal to increase his promotion probability.

The first plausibly exogenous variation assigns dyads into two groups. The treatment groups consists of pairs where both bureaucrats are inaugurated almost simulataneously. Pairs of this kind need to send signals for their promotion examination, and due to the large overlap of their tenure year, their performance is highly intertwined. Compared with the other dyads in the control group, in which either at least one of them need not to signal for promotion examination, or their efforts to improve economy are not substantially intertwined, dyads in the treatment

group is more (if not only) subject to the competition of "taking credit of performance".

My empirical analysis yields three sets of results. First, I find that competition between the secretary and the governor can lead to more media criticism on mouthpieces. Specifically, compared with a secretary of a dyad in the control group, during the secretary's promotion examination period, a secretary in a treated dyad report significantly more media criticism. This media reaction is mainly driven by the extra criticism on policies for improving economy, as opposed to policies on public affairs. Also, competition leads to higher media praise for local performance. Additionally, some evidence suggests that competition can induce higher individual media exposure of secretary and lower individual media exposure of governor. Second, the dyads in the treatment group produce higher GDP growth rate than the control group dyads. Third, media criticism in general helps the promotion of secretaries, and the assistance will be the largest when the economic performance is mediocre.

This paper contributes to two strands of literature. First, I add to the literature by documenting the existence of intra-criticism in non-democratic political regime (Egorov et al., 2009, Chen and Hong, 2021). Second, while plenty of work has focused on the effect of demand side on media content (Gentzkow and Shapiro, 2010, Qin et al., 2018), I focus on the supply side.

The remainder of the paper is organized as follows. I will introduce the background of study in Section 2. Section 3 describes the data used. Section 4 establishes a conceptual framework and the following sections 5 to 7 test model implications. Section 8 confirms the robustness of the main result. Section 9 concludes.

2 Background

2.1 Media

Various forms of media are present in China. In this study we focus on newspaper only. As the mostly controlled mouthpiece media, its reactions serve as the best to probe the incentives of bureaucrats.

In contrast, there are also commercial newspapers. Rigorously speaking, both commercial newspapers and mouthpieces are such that at least a part of their profit is from sales revenue or advertisement. They are also subject to control of the party. They differ in the following senses: first, there is one and only one mouthpiece newspaper under each province/prefecture administration (featured by having "ribao"(daily) in the head), whereas multiple commercial presses can exist under one administrative level. Second, mouthpiece is considered to be "the voice from the authority" and will be distributed within the bureaucratic system in the local government. Third, mouthpiece is directly under the control of the provincial party secretary. Secretary may read through what is reported in the mouthpiece and censor what he/she deems inappropriate, if any.

2.2 Provincial Bureacratic System

In China, there is only one ruling party, the communist party. Every local administrative region (including provinces) has a ruling committee, whose members are all affiliated to the party. The top two officials of a committee, namely the party secretary (rank 1st) and governor (rank 2nd), are beyond the rest in terms of bureacratic rank and decision-making power over most important issues within the region together. For example, the 2007, the party secretary of Shanghai mulnicipality (the same rank as a province) was Xi Jinping and the governor back then was Han Zheng. They are now the Chairman/General Secretary and the first Vice Premier of PRC now.

There is a division of responsibilities between the them. In principle, the secretry has complete control of personelle and propanganda, and is deeply involved in economic growth. Meanwhile, the governor takes more responsibility of execution of economic plans and public projects. If I draw an analogy between provincial bureaucratic system and firm's management, secretary is analogous to the chairman, who creates the blueprint of development, and governor is analogous to CEO, who executes the plan. While the power of pesonelle and propanganda is completely in the hand of the secretary, how much dejure power secretary has on making economic decision varies from case to case. In a speech by President Xi Jinping in 2016 which emphasize unity between secretary and governor (Jinping, n.d.), one can infer that the cooperation between the secretary and governor is not always harmonious; sometimes the secretary can be too aggressive and decisive, and sometimes can become a figurehead with less de facto power.

Nevertheless, the balance of power is still decisively tilted towards the secretary, which can be easily reflected by the career path. A governor climbs the ladder to become a secretary, and the secretary can be promoted to be the central politburo or be lifted half a rank, from provincial to sub-national. Most commonly, secretary is believed to have the dominant power on government affairs, and governor is believed to obey the secretary whenever this is a conflict.

2.3 Promotion

Even though it is not completely clear what incentive officials have in China, most scholars consider promotion as the part of their utility function. Many factors can influence their promotion opportunity and intensity of desire to ladder, especially their age, education, and connection (Li and Zhou, 2005). I explore another variable, i.e., tenure year, to capture the intensity of promotion incentive. This is based on the following stylized fact: secretary and governors are most likely to be promoted in the third or fourth year during the tenure on the position. This fact is confirmed by both anecdotal evidence (京华时报记者, 2012) and also data (See Figure 1).

The reasons why we utilize this variable to capture change of intensity are threefold. First, whether one enters the third or fourth year is an exogenous variation. Second, unlike age,
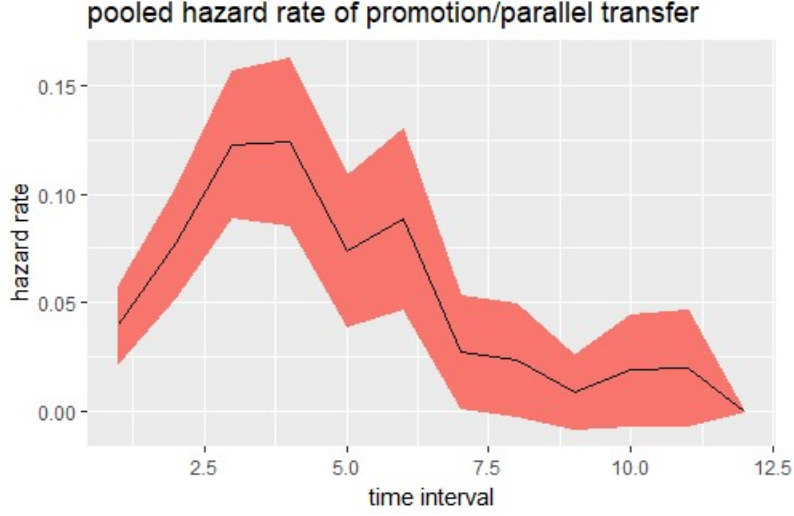
Figure 1: Harzard Rate of Promotion and Promising Parallel Transfer

Note: This graph shows the estimated harzard of promotion. The definition of promotion follows Li and Zhou, 2005. Additionally, I also consider with promotion the parallel transfers before the age of 62 for secretaries and 59 for governors as a "promising" promotion.

tenure year doesn't capture experience. Third, unlike connection and alternative membership of CPC, this variable is more independent from ability. Moreover, this variation across pairs of secretary and governor is more random than other variables mentioned above, since a tenure difference being assigned to a pair is partially due to when the predecessors were desposed. Even though we mainly use tenure variation as explanatory variable, we also include the variables for robustness check.

3 Data and Measurements

Sampling Negative News

The media data is obtained from the CNKI database. The major dataset is collected by manually reading the news and select. Other datasets are generated by applying machine learning taking the manually as training sample, which allows replication and cross-database validation.

The major dataset is collected in the following process. First I applied the a set of keywords (Chinese expressions of "still", "why", "is waiting for", "latent danger exists") to search in CNKI newspaper database. The searching range covers 28 provincial administrative regions from 2004 to 2017. I excluded Beijing because it's newspaper presses are considered to be national, not local. I also excluded Tibet and Shandong because of the lack of coverage of CNKI database. I excluded Taiwan, Hong Kong and Macau because of their different political regime.

Second, based on the 5001 negative news articles, I generate a province-year panel dataset,

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using variables that capture the extensive and intensive margin of negative reportings. I use the frequency and the fraction of critical reports as the baseline measures for extensive margin. Meanwhile, the fraction of text mentioning local problems (in contrast to mentioning the nation or other provinces) serves as the baseline measure for intensive margin. Other variables, including the number of articles published on the front page, average pages of the articles published, total and average length. See Table 1 for summary statistics of them.

	mean	sd
Anual Count	12.76	11.02
Anual fraction	3.50	2.99
Front Page	4.13	5.25
Average page	5.72	2.54
Total Length	20803.18	18557.06
Average Length	1600.61	695.09
Inward Criticism	8.59	4.70
Observations	349	

Table 1: Summary Statistics: Measures for Media Criticism

Official Biographical Variables and Performance

I collected officials' biographical data based on Xianxiang XU's public dataset on provincial leaders and ChinaVitea (www.chinavitea.com). I obtained the provincial public expenditures and GDP growth rates from National Bureau of Statistics. In this dataset, I have variables that capture basic information, such as education, birth place, age, gender, ethnicity and so on. I also constructed variables to capture their connections with the politburo standing committee, i.e., top leaders in China. Following Shih et al., 2012, connection is defined by whether the persons share the same birthplace, were collegues before resuming the positions, or the same college.

4   Conceptual Framework

To illustrate the intuition, I build a principal-agent model with adverse selection, assuming discrete types and efforts for parsimony and without a loss of generality. There are two agents, corresponding to the party secretary and the governor. The principal is the Politburo Standing Committee that makes personnel decision of all secretaries and governors. Agents are assigned with types in the first stage by nature, and the types can be observed by both agents but not the principal. Both agents can be one of two types in enhancing local economy: high (H^e) and low (L^e). Additionally, secretary can be either high(H^m) and low(L^m) in sending media signal. I assume the economic type and the media type are positively correlated (Assumption 1).

Principal wants to select the high-type agent(s) in enhancing economic performance to promote based on her observed economic and media performance. I assume the principal has

commitment power. Both the secretary and the governor hope to get promoted. Two agents pay efforts as signals to the principal. There are two dimensions where efforts can be paid: economy (e_s and e_g) and media (m). Secretary can send both signals ($e_s, m \in 0, 1$), but governor can only send the economic signal ($e_g \in 0, 1$). The two efforts are both costly[1], but for each signal, high-type bureaucrats have a lower marginal cost than low-type bureaucrats.

Working in pairs, economic performance is a result of the joint efforts made by both agents. Mathmatically, instead of observing e_s and e_g respectively, the principal only observes $e = e_s + e_g$. Without the media signal, three observable economic performance levels ($e = 0$, 1, or 2) cannot distinguish four combinations of economic types ($H_s^e H_g^e$, $H_s^e L_g^e$, $L_s^e H_g^e$, $L_s^e L_g^e$). Even in the most separated equilibrium, when mediocre economic performance is observed, the principal only knows that one and only one of them is H, but she cannot tell which agent is H. Now since the media type and the economic type is positively correlated, in this case, the secretary of HH_m may send the media signal to increase the posterior belief of him being a H.

The unique equilibrium is described in Proposition 1 under some assumptions. The proof can be found in the Appendix. Since the economic signals are the directly signals economic type, agents will send it whenever they can, suggesting that there is no ambiguity when none performance ($e = 2$) or good performance ($e = 0$) is observed. Otherwise when mediocre performance is observed, then principal knows that one of them is H and the other is L, not knowing which exactly is the H. Such economic performance corresponds to four cases: ($H^e H^m$, L^e), ($H^e L^m$, L^e), ($L^e H^m$, H^e), ($L^e L^m$, H^e). Among the four cases, secretaries of H^m will send media signals to increase the chance of being promote due to the positive correlation between media type and economic type. Under Assumption[...], their media signal will not be mimiked by the low types.

Proposition 1 *Under the Assumptions 1 to 3:*

	Sec $H^e H^m$	*Sec $H^e L^m$*	*Sec $L^e H^m$*	*Sec $L^e L^m$*
Gov H^e	$(1, 0), 1$	$(1, 0), 1$	$(0, 1), 1$	$(0, 0), 1$
Gov L^e	$(1, 1), 0$	$(1, 0), 0$	$(0, 0), 0$	$(0, 0), 0$

, where for $(a, b), c$, a and b represents for economic signals sent by the secretary agent and the governor agent respectively, and c represents for media signal.

Principal promotes both agents given $e = 2$ and promote neither given $e = 0$. When observing $e = 1$, principal will adopt a mixed strategy by promoting one of the agents according to her

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[1]While some people may think publishing on media is a cheap talk, I hereby provide three reasons to justify why media signals come with a cost. First, reporting more negative reports might stimulate anger of the public, especially for those reports related to bad attitudes and even possible corruption of local officials. Since the news in my dataset are mostly mild, unless the exposure is too much, I suspect these reports can induce any severe wrath. Second, usually negative news on mouthpiece comes directly with a solution very soon. [...] shows that the national mouthpiece, People's Daily, predicts policies to be implemented in around half a year. Therefore, it is reasonable to conjecture that publishing a negative news on the mouthpiece means the problem mentioned must be solved soon, which generate a potential cost. Finally, the negative news might directly points to any drawbacks or even mistakes of colleagues, which is deemed to some extent as a taboo. Publishing a negative report could sacrifice some affinity with colleagues.

posterior belief.

Principal would interpret the signals in the following way. When the principal observes $e = 2$, she is certain that both secretary and governor are high-type in economic improvement. $(1, 1)$ can only come from $(HH_m)L$ or $(LH_m)H$. $(1, 0)$ can only come from $(HL_m)L$ or $(LL_m)H$. Finally $(0, 1)$ and $(0, 0)$ can only come from $(LH_m)L$ or $(LL_m)L$.

This unique equilibrium gives several testable implications on the comparison between pairs where both agents need to send signals for promotion and pairs where only one or none agent needs to signal for promotion. While the model describes how unobservable individual efforts give rise to the media reaction, alternatively, if only one agent needs to send the signal for promotion, then the observed economic performance will be attributed to this agent without ambiguity, and in such cases media signal is not necessary to increase the chance of promotion. It follows that media criticism is expected to be higher for pairs where both agents need to signal their types for promotion than other pairs (Corollary 1). It also naturally follows that the economic performance is higher for the former case than the latter (Corollary 2). Finally, within pairs where both need to signal for promotion, media signal is observed when economic performance is mediocre which helps secretaries' promotion (Corollary 3).

Corollary 1 *When secretary and governor have their promotion period overlapped, more media criticism will be observed.*

Corollary 2 *Pairs that resume office simultaneouly tend to have higher economic performance.*

Corollary 3 *The higher economic performance is, the more likely both agents will be promoted. Media criticism will be observed when mediocre economic performance is observed.*

5 Conflicts due to Promotion Pressure

5.1 Baseline Result

The empirical strategy is motivated by a quasi-experiment performed on secretary-governor dyads. A secretary-governor dyad is assigned to a treatment group if the secretary and the governor are inaugurated in the same year or within two sequential years. The control group consists of pairs that belong to either of the following three senarios. First, both experience examinations for promotion, but the examinations are not overlapped. Second, only one of them experience an examination. Third, none of them experiences an examination.

The treated dyads are faced with higher within-pair competition for three reasons. First, both bureaucrats in the treatment group are incentivized to signal for promotion. In the control group, the type of one of the agent has been largely already revealed and there is little incentive to work as hard as a "new broom" who just resumes office. Second, pairs in the treatment group have their economic efforts highly intertwined. Dyads in the control group have their tenure

year staggered enough to disentangle their individual contribution. Third, secretaries in the treated dyads are expected to receive promotion inspection (the 3rd or 4th year) together with their partners, which further advances the necessity to send media signal.

In the treatment group where dyads resume offices almost simultaneouly, the treatment occurs when the secretary is under promotion examination. Noncompliant dyads can be either of the two cases. Firstly, since the sample data covers to 2017, those secretaries who receive promotion examination later than 2017 will not be compliant in the data. While this attrition is considered random enough, the other case is more troublesome: a pair resumes office almost simultaneouly but one of them get moved before secretary's promotion examination period. Since the estimate of interest is the treatment-on-treated rather than the intend-to-treat, I drop these noncompliant objects.

The pairing of secretary-governor dyads, especially the timing of pairing, substantially depends on the availability of job opennings, which further depends on the movement of pairs' predecessors based on their types and performance. As a result, the assignment of the control and treatment group is possibly random to pairs types. This can be further confirmed by the balanced table of personal traits: all except for one observable personal traits exhibit insignificant difference between control group and treatment group. Shown in Table 2 and Table 3, the control group and the treatment group are roughly balanced except that the treatment group tends to have more secretaries with local experience. This is because conventionally a party secretary openning is more often filled by a promotion of the local governor. Generally, there is a reason to believe that the assignment of treatment is random enough and independent to most observed and unobserved variables that matters for promotion decision.

Following the conceptual framework, I estimate the following econometric specification:

$$Criticism_{it} = \beta_1 AssignTreat_{it} + \beta_2 SecExam_{it} + \beta_3 AssignTreat_i \times SecExam_{it} + \gamma Z_i + \alpha_t + u_{it} \quad (1)$$

, where i is dyad and t is year. $AssignTreat_i$ is an indicator of whether dyad i is in the treatment group. $SecExam_{it}$ is a dummy that takes one when the secretary in dyad i is under promotion examination in year t. The set of control variables Z_i contains all observable personal traits, listed in Table 2 and Table 3.

Expecting to be examined together with the governor doesn't significantly affect media criticism, suggested by the insignificance of the coefficient for β_1. Intuitively, the secretary will not react in advance until the examination takes place. This can be explained by the timeliness of media reports. When the secretary is under promotion examination, the number of critical reports is slightly lower, suggested by the negative and insignificant coefficient of β_2. This result emphasizes the importance of competition between the secretary and governor in driving media criticism. Consistent with the model implications, secretaries not faced with the competition with their governors need not to increase the media criticism.

| | (1) | | (2) | | (3) | |
| | Control | | Treatment | | Difference | |
	mean	sd	mean	sd	b	t
Has local Experience	0.21	0.41	0.51	0.50	-0.30***	(-3.56)
Age In Position	57.37	3.94	57.58	3.92	-0.21	(-0.30)
Experience(NProv)	3.29	1.28	3.45	1.41	-0.16	(-0.67)
Education	3.57	0.77	3.78	0.76	-0.21	(-1.53)
Sex	0.97	0.16	1.00	0.00	-0.03	(-1.42)
Engineer Background	0.32	0.47	0.36	0.49	-0.04	(-0.51)
Economics Background	0.43	0.50	0.49	0.50	-0.06	(-0.72)
Central Committee Member	0.35	0.48	0.40	0.49	-0.05	(-0.62)
Sec Connected	0.77	0.42	0.65	0.48	0.12	(1.47)
Sec Corrupt	0.11	0.31	0.15	0.36	-0.04	(-0.65)
Managed Propaganda	0.32	0.47	0.25	0.44	0.07	(0.81)
Sec Connected with Gov	0.13	0.34	0.09	0.29	0.04	(0.76)
Observations	75		55		130	

Table 2: Balance Table: Secretary

| | (1) | | (2) | | (3) | |
| | Control | | Treatment | | Difference | |
	mean	sd	mean	sd	b	t
Has local Experience	0.77	0.42	0.65	0.48	0.12	(1.47)
Age In Position	56.31	3.48	56.31	3.41	-0.00	(-0.00)
Experience(NProv)	2.39	1.11	2.62	1.25	-0.23	(-1.09)
Education	3.87	0.76	3.73	0.73	0.14	(1.06)
Sex	0.96	0.20	0.98	0.13	-0.02	(-0.75)
Engineer Background	0.29	0.46	0.35	0.48	-0.05	(-0.62)
Economics Background	0.45	0.50	0.53	0.50	-0.07	(-0.83)
Central Committee Member	0.76	0.43	0.64	0.49	0.12	(1.50)
Gov Connected	0.53	0.50	0.51	0.50	0.02	(0.27)
Gov Corrupt	0.08	0.27	0.05	0.23	0.03	(0.58)
Managed Propaganda	0.27	0.53	0.24	0.43	0.03	(0.36)
Observations	75		55		130	

Table 3: Balance Table: Governor

The coefficient of interest - β_3 - is positive significant across different specifications. Compared with those examined secretaries that don't go through promotion examination with their partners, examined secretaries in pairs that face this competition will increase the media criticism. Suggested by Column (1) of Table 4, on average, the between-dyad competition induces the examined secretary to increase the number of critical articles by around 1/4 of the average number of critical articles. The positive significance of β_3 remains after adding the unbalanced personal traits (Column 2) or all personal traits (Column 3). It also preserves if a poisson regression specification is estimated (Column 6).

An alternative explanation is that the secretary increases media criticism only when the governor is under promotion examination. I estimate Equation 2. Compared with Equation 1, I add $GovExam_{it}$ and its cross term with $AssignTreat_i$. Suppose the alternative explanation is true, then β_4 and/or β_5 should be positive and should take over the significance of β_3. Suggested by Column (4) of Table 4, β_3 remains positive significant while β_4 and β_5 are negative and

	(1) Count	(2) Count	(3) Count	(4) Count	(5) Count	(6) Count
main						
Assign Treatment	-2.000	-1.369	-0.967	-0.821		-0.122
	(1.385)	(1.386)	(1.818)	(1.811)		(0.116)
Sec Exam	-0.562	-0.373	-0.798	-0.934	-0.365	-0.104
	(1.282)	(1.244)	(1.450)	(1.610)	(1.471)	(0.112)
Assign Treatment=1 × Sec Exam=1	3.138*	3.001*	3.605**	4.861*	3.842**	0.244**
	(1.567)	(1.517)	(1.701)	(2.370)	(1.778)	(0.118)
Gov Exam				-0.288		
				(1.175)		
Assign Treatment=1 × Gov Exam=1				-1.354		
				(2.038)		
controls		Unbalanced	All	All		All
cluster	Province	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair	Year&Prov
N obs	349	349	349	349	349	349
F stat	9.690	23.74	.	.	3.826	
adj. R2	0.140	0.154	0.181	0.179	0.222	

Standard errors in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 4: Baseline Regression Results

Note: Dependent variable is the number of critical reports. Standard errors are clustered at province level and are shown in the brackets beneath the estimates. In column (2), only unbalanced personal traits are controled, column (3) to (4) have all variables controlled. In column (5), I control for dyad fixed effects.

insignificant, implying that this explanation may not be plausible.

$$Criticism_{it} = \beta_1 AssignTreat_{it} + \beta_2 SecExam_{it} + \beta_3 AssignTreat_i \times SecExam_{it}$$
$$+ \beta_4 GovExam_{it} + \beta_5 AssignTreat_i \times GovExam_{it} + \gamma Z_i + \alpha_t + u_{it} \qquad (2)$$

Finally, to address the concern of omitted variable bias, I estimate the effect of promotion pressure using a difference-in-difference design. Suggested by the negative estimate of β_2, when the secretaries are not in competition, they decrease (slightly) media criticism when they are under promotion examination than their other tenure years. Compared with these examined secretaries, those examined secretaries faced with competition (treatment group) on average increase media criticism significantly, suggested by the positive significant estimate for β_3.

The pattern remains using other dependent variables for media criticism, despite the loss of significance. Table 5 shows the results using the frequency, fraction, average length, total length and fraction of text about local affairs. Most variables show that the critical reports are more intensive, more prominent, and more locally targeted during years when the dyad is both under promotion examination than other years, even though some results are not significant. For the specfication with pair-fixed effects, please see Table ?? in the Appendix.

5.2 Why Between Secretary and Governor?

To further provide evidence on conflicts between secretary and governor, I explore how much the mouthpiece covers secretary's and/or governor's name. A secretary or a governor's name is mentioned mostly due to their public appearance or a citation of their speech. Their

	(1)	(2)	(3)	(4)	(5)	(6)
	Count	Fraction	Front Page	Average Page	Total Length	Inward Criticism
Assign Treatment	-0.821	0.0154	0.334	-0.264	-0.0176	-1.036
	(1.811)	(0.373)	(0.836)	(0.362)	(0.0767)	(0.636)
Sec Exam	-0.934	-0.283	0.260	-0.429	-0.113	-0.121
	(1.610)	(0.342)	(0.616)	(0.445)	(0.0816)	(0.847)
Assign Treatment=1 × Sec Exam=1	4.861*	1.132**	-0.379	1.502**	0.227**	1.019
	(2.370)	(0.497)	(1.316)	(0.696)	(0.109)	(0.881)
controls	All	All	All	All	All	All
cluster	Province	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Prov
N obs						
adj. R2	0.179	0.424	0.103	0.0686	0.143	0.173

Standard errors in parentheses

$^{*}\ p < .10,\ ^{**}\ p < .05,\ ^{***}\ p < .01$

Table 5: Baseline Regression Results for Multiple Dependent Variables

Note: Column (1) to (6) show the estimation results of Equation 2, using the number of critical articles, fraction of critical articles, number of critical articles on the first page, average pages where the critical articles show up, total length of critical articles and the fraction of text that is inward-targeted. Standard errors are clustered at provincial level and shown in the brackets. All personal traits are controlled.

names are very rarely mentioned in a critical news. Among the 5002 pieces of negative news in my sample, there is only one piece that mentions the secretary's name. In general, the frequency of mentioning one's name represents how much he/she is exposed in a non-negative way, if not positive.

I measure the independent exposure of the secretary as the fraction of articles that cover *only* the secretary over total number of articles that cover him. I measure the independent exposure of the governor in a similar way. I estimate Equation 3 using the independent exposure of the secretary and the governor as the dependent variables and Table 6 shows the results. β_3 captures how competition distort the secretary's media strategy when he (and only he) is under promotion examination, and β_4 further captures how his behavior is further distorted when governor's promotion examination overlaps with his promotion examination.

$$
\begin{aligned}
MentionSecOnly_{it} = \ & \beta_1 AssignTreat_{it} + \beta_2 SecExam_{it} + \beta_3 AssignTreat_i \times SecExam_{it} \\
& + \beta_4 BothExam_{it} + \gamma Z_i + \alpha_t + u_{it} \quad (3)
\end{aligned}
$$

The result using the difference-in-difference (Column 3) design illustrates that the individual exposure of the secretary increases when the secretary is under examination. When the secretary is faced with competition, the individual exposure will decrease if only secretary is under examination, but this decrease will be offset if the promotion examinations of the dyad overlap. Intuitively, the secretary's independent exposure of himself is necessary when he is under examination. However, it becomes less plausible when they are in close cooperation, leading to a decrease of sole exposure when only the secretary is under examination. However, when both the secretary and the governor are under examination, disentangling performance becomes much more necessary, which further increase the individual exposure.

For dyads who resume office almost simulataneously, the independent exposure of the governor is significantly less (Column 4 and 5). When both secretary and governor are under promotion examination, the individual exposure of governor further decreases, suggested by the significant negative coefficient β_4 of Column (5). However, this result becomes insignificant under the DiD specification.

	Exposure of Secretary			Exposure of Governor		
	(1) Mention Sec Only	(2) Mention Sec Only	(3) Mention Sec Only	(4) Mention Gov Only	(5) Mention Gov Only	(6) Mention Gov Only
Assign Treatment	-0.0303	-0.0302		-0.0418*	-0.0422*	
	(0.0228)	(0.0228)		(0.0207)	(0.0210)	
Sec Exam	-0.000485	-0.000355	0.0299*	0.00823	0.00641	-0.0134
	(0.0174)	(0.0177)	(0.0153)	(0.0188)	(0.0190)	(0.0181)
Assign Treatment=1 × Sec Exam=1	0.0221	0.0190	-0.0459**	0.0178	0.0604	0.0500
	(0.0196)	(0.0292)	(0.0206)	(0.0277)	(0.0406)	(0.0352)
Both Exam		0.00364	0.0390**		-0.0507**	-0.0258
		(0.0199)	(0.0171)		(0.0238)	(0.0255)
controls	All	All		All	All	
cluster	Province	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Pair	Year&Prov	Year&Prov	Year&Pair
N obs	349	349	349	349	349	349
F stat	.	.	51.28	.	.	36.31
adj. R2	0.150	0.147	0.210	0.352	0.356	0.222

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 6: Secretary vs Governor: Mention Name
Note: Column (1) to (3) show the estimation results for Equation 3 using the fraction of articles that mention secretaries' names that mention secretaries' names only. Similarly, Column (4) to (6) show the estimation results for Equation 3 using the fraction of articles that mention secretaries' names that mention secretaries' names only. All columns except for Column (3) and (6) controlled all personal traits. Additionally, I control for indicators for inauguration years and retirement years. Standard errors are clustered at provincial level and shown in brackets.

5.3 Categories of news

Since the intertwined performance that accounts for promotion during the sample period is mostly the provincial economic growth, one expects that the increased media criticism is more about economic growth than other topics. In this section, I categorize news into two mutually exclusive major topics: economic growth and public affairs. Economics-related articles criticize the existing economic policies, e.g., policies that constrain local firms' entrance or liquidity. Other articles are generally about public affairs that focus on criticizing at least one of the following issues: medical expenditure, education, agriculture, culture, environment, market regulation, social benefits, unemployment, transportation, urbanization, technological development and local government management.

Table 7 shows the results of Equation 1 using the frequency of economic news as the dependent variable. β_3 is positive and significant across different specifications, which is consistent with the finding in Table 4. Meanwhile, Table 8 shows the results of public news coverage. Despite the positive sign and large magnitude, β_3 is insignificant. All in all, the baseline results are likely largely driven mainly by media criticism about economic growth than public affairs.

	(1) Economic News	(2) Economic News	(3) Economic News	(4) Economic News	(5) Economic News
Assign Treatment	-0.827*	-0.751*	-0.688	-0.689	
	(0.407)	(0.406)	(0.574)	(0.596)	
Sec Exam	-0.402	-0.365	-0.502	-0.615	-0.680
	(0.342)	(0.345)	(0.396)	(0.451)	(0.510)
Assign Treatment=1 × Sec Exam=1	1.247***	1.225***	1.419***	1.926***	1.701***
	(0.425)	(0.415)	(0.474)	(0.627)	(0.556)
Gov Exam				-0.277	
				(0.446)	
Assign Treatment=1 × Gov Exam=1				-0.307	
				(0.630)	
controls		Unbalanced	All	All	
cluster	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair
N obs	349	349	349	349	349
F stat	6.936	11.13	.	.	6.814
adj. R2	0.0953	0.0935	0.128	0.129	0.189

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 7: Media Criticism on Economic Affairs

Note: This table shows the estimation results of Equation 1 using the number of economics-related articles as the dependent variable. Standard errors are clustered at province level and shown in the brackets.

	(1) Public News	(2) Public News	(3) Public News	(4) Public News	(5) Public News
Assign Treatment	-1.173	-0.619	-0.279	-0.132	
	(1.100)	(1.112)	(1.380)	(1.353)	
Sec Exam	-0.160	-0.00803	-0.296	-0.318	0.314
	(1.103)	(1.069)	(1.243)	(1.340)	(1.212)
Assign Treatment=1 × Sec Exam=1	1.892	1.776	2.186	2.935	2.141
	(1.324)	(1.285)	(1.428)	(1.931)	(1.451)
Gov Exam				-0.0114	
				(0.893)	
Assign Treatment=1 × Gov Exam=1				-1.047	
				(1.685)	
controls		Unbalanced	All	All	
cluster	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair
N obs	349	349	349	349	349
F stat	7.018	11.52	.	.	3.954
adj. R2	0.125	0.141	0.164	0.161	0.185

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 8: Media Criticism on Public Affairs

Note: This table shows the estimation results of Equation 1 using the number of articles about the public expenditure as the dependent variable. Standard errors are clustered at province level and shown in the brackets.

Meanwhile, suggested by Table 9, when the secretaries in the treatment group are under promotion examination, critical articles about public expenditures are placed more on back pages to effectively reduce their importance, which accounts for the increase of average page where critical articles show up suggested in Column (4) in Table 5. Meanwhile, economic critical articles are not significantly placed more in the back pages, suggested in Table 20. Notice that the number of articles about public expenditures doesn't increase, yet the average page does. This suggests that the increase of average page is not driven by a mechanical mechanism[2], but rather a reduction of significance of reports of this kind. Symmetrically, the number of

---

[2]Intuitively, when the number of articles is larger, the more likely it is to have some articles published in back pages. This natural increase of mean of a nonnegative variable due to the increase of observation is the mechanical mechanism considered here.

economic articles significantly increases and yet the average page doesn't increase, implying that relatively speaking the economic news are effectively presented more ostentatiously.

	(1) Average Page (Public News)	(2) Average Page (Public News)	(3) Average Page (Public News)	(4) Average Page (Public News)	(5) Average Page (Public News)
Assign Treatment	-0.676*	-0.762*	-0.623*	-0.721*	
	(0.348)	(0.391)	(0.356)	(0.406)	
Sec Exam	-0.683*	-0.671*	-0.780**	-1.051**	-0.729*
	(0.365)	(0.358)	(0.356)	(0.452)	(0.420)
Assign Treatment=1 × Sec Exam=1	1.190**	1.219**	1.362**	2.095***	1.463**
	(0.500)	(0.490)	(0.497)	(0.674)	(0.555)
Gov Exam				-0.660	
				(0.485)	
Assign Treatment=1 × Gov Exam=1				-0.0557	
				(0.575)	
controls		Unbalanced	All	All	
cluster	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair
N obs	321	321	321	321	321
F stat	3.979	6.335	.	.	43.68
adj. R2	0.100	0.0933	0.144	0.153	0.0710

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 9: Media Criticism on Public Affairs: Pages

Note: This table shows the estimation results of Equation 1 using the average page where critical articles about the public expenditure show up as the dependent variable. Standard errors are clustered at province level and shown in the brackets.

One special topic of public affairs is the local governance and personnel. Articles of such topic focuses on criticizing the government's inefficiency or even potential corruption, especially of city- or county-level local governments. Party secretaries, rather than provincial governors, take the totality of responsibility for issues of this kind. Table 10 shows the results of political news. Interestingly, media criticism of such will only increase when secretary is under promotion examination when they are not subject to promotion competition, suggested by the positive significant estimate of β_2. Competition will not increase media criticism of such, but rather decrease it, suggested by the negative yet insignificant β_3. The positive β_2 could be explained by the secretary exercising the watchdog function of mouthpiece media to detect local problems. However, publishing articles of this kind can also induce an extra attribution of any blame on the secretary, which is risky when the performances of secretary and governor are entangled. This can explain the negative estimate of β_3.

5.4 Media Praise

Another media signal to send is media praise. Compared with media criticism, media praise may differ on at least two dimensions. First, criticism may induce more social cost than praise, implying that the former is a more power signal to separate types than the latter. Indeed, the coverage on praise is much higher than on criticism. Second, intuitively media criticism is about "dividing the cake" (or taking more credit of the joint performance), whereas media praise is about "making the cake" (or exaggerating the joint performance) - increasing either during the promotion examination under competition can effectively enlarge the individual performance attributed. In this section, I estimate Equation 1 using the number of articles that praise local performance as the dependent variable of interest.

	(1) Political News	(2) Political News	(3) Political News	(4) Political News	(5) Political News
Assign Treatment	0.00147	0.0185	0.0976	0.145	
	(0.137)	(0.149)	(0.159)	(0.165)	
Sec Exam	0.276	0.283	0.336*	0.420**	0.375
	(0.186)	(0.189)	(0.192)	(0.185)	(0.229)
Assign Treatment=1 × Sec Exam=1	-0.0642	-0.0724	-0.103	-0.273	-0.126
	(0.268)	(0.276)	(0.290)	(0.287)	(0.311)
Gov Exam				0.218	
				(0.139)	
Assign Treatment=1 × Gov Exam=1				-0.0843	
				(0.198)	
controls		Unbalanced	All	All	
cluster	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair
N obs	349	349	349	349	349
F stat	4.166	5.762	.	.	9.928
adj. R2	0.0499	0.0406	0.0226	0.0219	0.0816

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 10: Media Criticism on Political Issues

Note: This table shows the estimation results of Equation 1 using the number of articles about the potential corruption as the dependent variable. Standard errors are clustered at province level and shown in the brackets.

Competition increases media praise when the secretary is under promotion examination. Suggested by the positive significant coefficient of β_3 in all columns in Table 11, while examined secretary tend to decrease the media praise when competition is absent, the presence of competition significantly increase the media praise.

	(1) Media Praise (Count)	(2) Media Praise (Count)	(3) Media Praise (Count)	(4) Media Praise (Count)	(5) Media Praise (Count)
Assign Treatment	-4.566	-4.344	-4.458	-3.602	
	(3.196)	(3.283)	(3.237)	(2.860)	
Sec Exam	-6.955*	-6.445	-4.663	-3.159	-6.642
	(3.991)	(3.952)	(3.791)	(3.842)	(4.037)
Assign Treatment=1 × Sec Exam=1	10.67**	10.43**	9.622**	6.570*	10.85**
	(4.161)	(4.145)	(3.926)	(3.788)	(4.123)
Gov Exam				3.914	
				(2.860)	
Assign Treatment=1 × Gov Exam=1				-1.519	
				(4.263)	
controls		Unbalanced	All	All	
cluster	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair
N obs	349	349	349	349	349
F stat	19.61	35.88	.	.	6.057
adj. R2	0.358	0.370	0.409	0.409	0.300

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 11: Media Praise

Note: This table shows the estimation results of Equation 1 using the number of articles that praises the local achievements as the dependent variable. Standard errors are clustered at province level and shown in the brackets.

6 Promotion Pressures and Economic Performance

How is this promotion conflict reflected in the real sector? In this section, I will analyze how the treatment affect GDP growth rate, which is believed the major index for economic

performance. I estimate Equation 4, where ΔGDP_{it} represents the GDP growth rate.

$$\Delta GDP_{it} = \beta_1 AssignTreat_{it} + \beta_2 BothExam_{it} + \beta_3 SecExam_i + \beta_4 GovExam_{it} + \gamma Z_i + \alpha_t + u_{it} \quad (4)$$

The model predicts a positive significant estimate for coefficient β_1. Intuitively, when the dyads are assigned in the treatment group, they exert efforts starting from their first year in preparation for their pending promotion examination suppose they are both high types, leading to an overall higher average GDP growth rate in the treatment group. Moreover, it is also possible that economic performance during promotion examination periods is more relevant than other periods. Suppose this is true, then β_3 and β_4 are expected to be positive significant. However, β_2 may not be significant when $SecExam_i$ and $GovExam_{it}$ are controlled.

β_1 is indeed positive and significant as expected. The average GDP growth rate of the treatment group is 1.39% higher than that in the control group. β_1 remains positive and significant under different model specifications. Additionally, when both bureaucrats are under promotion examination, the GDP growth rate is significantly higher than other periods, suggested by the positive significant estimate of β_2 in Column (2). However, this significance is eliminated when either $SecExam_{it}$ or $GovExam_{it}$ is included or both. Moreover, neither β_3 nor β_4 is positive significant, implying that the timeliness of economic performance, in constrast to the cumulative average performance, may not enjoy significantly extra relevance in determining promotion. This is consistent with the findings of Li and Zhou, 2005.

	(1) GDP growth	(2) GDP growth	(3) GDP growth	(4) GDP growth	(5) GDP growth
Assign Treatment	0.0139**	0.0105*	0.0107*	0.0107*	0.0110*
	(0.00578)	(0.00589)	(0.00579)	(0.00587)	(0.00572)
Both Exam		0.00917**	0.00814	0.00713	0.00452
		(0.00337)	(0.00541)	(0.00480)	(0.00793)
Sec Exam			0.00125		0.00225
			(0.00397)		(0.00442)
Gov Exam				0.00228	0.00311
				(0.00372)	(0.00413)
controls	All	All	All	All	All
cluster	Prov	Prov	Prov	Prov	Prov
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Prov
N obs	348	348	348	348	348
adj. R2	0.849	0.851	0.850	0.851	0.850

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 12: Fiscal Revenue Growth Rate

Note: This table shows the estimation of Equation 4. One outlier is dropped because of the extremely low GDP growth rate. Standard errors are clustered at provincial level and shown in brackets. All personal traits have been controlled.

7 Promotion, Media Criticism and Growth

In this section, I examine the relationship among media criticism, growth and promotion of bureaucrats. Implications about promotion can be summarized in the following table.

Bureaucrat	Intend to Treat		Control Group	
	Secretary	Governor	Secretary	Governor
Media Criticism	Helps, especially for mediocre growth	Hurts, especially for mediocre growth	Ambiguous	Ambiguous
Growth	Helps	Helps	Helps	Helps

I estimate Equation 5 to estimate the role of media criticism and growth on promotion of secretary and governor. For each pair i and bureaucrat $j = s, g$, $Promoted_{ij}$ is an indicator for whether bureaucrat j is promoted *at the end of* the partnership of pair i, not anytime after the partnership. $Growth_{ij}$ and $Criticism_{ij}$ represent the average per year economic performance and media performance in office. To construct the two variables, I regress the GDP growth rate on year- and province- fixed effects, and then calculate the per-year average using the residuals. I construct the $Criticism_{ij}$ variable in a similar way using the frequency of critical articles. $Growth_{ij}$ and $Criticism_{ij}$ are 0 when growth and media criticism are average.

$$Promoted_{ij} = \beta_0 + \beta_1 Growth_{ij} + \beta_2 Criticism_{ij} + \gamma Z_{ij} + u_{ij} \tag{5}$$

Since the promotion occurs at the end of the partnership of pair i, and $Growth_{ij}$ and $Criticism_{ij}$ are constructed with within-pair observations, the coefficients of interest, β_1 and β_2, could carry causal interpretation, should there be no omitted variable bias. Because of the possibilities of omitted variable bias, β_1 and β_2 are interpreted as correlations. I estimate Equation 5 for secretaries and governors respectively using treatment sample and control sample separately.

For those pairs who resume offices almost simultaneouly, media criticism is positively correlated with secretary's promotion. Suggested by Table 13 Column (2), using all pairs intended to treat, including those who got promoted before the examination period, higher media criticism is associated with the promotion.

Morever, to test the role of media criticism in promotion when growth is mediocre, I further modify Equation 5 by adding a cross term: $Growth_{ij}^2 \times Criticism_{ij}$. $Growth_{ij}^2$ that captures how economic performance is away from its average. Including this term changes the interpretation β_2 - it now reflects the correlation between media criticism and promotion when economic performance is around the average. Suggested by Column (3) of Table 13, the positive correlation between criticism and promotion is significantly positive when performance is around its average. As the economic growth moves away from being modest, the positive correlation between media criticism and promotion drops insignificantly. Further, for those treated pairs, higher media criticism during their promotion examination period significantly conduces secretary's promotion when economic performance is around the average, and as it moves away from the average, the effect of media criticism on promotion diminishes (Column 4).

By contrast, secretaries in the control group do not enjoy the assitance of higher media criticism. Rather, their promotion is hurt when media criticism is high. Column (5) of Table 13 shows the results using only control group pairs: higher media criticism is associated with lower promotion.

The same analysis is performed for the governors, and the results are anticipated to be reversed. However, neither media criticism nor economic performance significantly affect the promotion of goveror for those governors under competition.

	(1) Secretary Promoted	(2) Secretary Promoted	(3) Secretary Promoted	(4) Secretary Promoted	(5) Secretary Promoted
GDP Growth	1.015	-0.0653	-1.003	-0.433	4.072**
	(1.435)	(1.548)	(1.683)	(2.863)	(1.796)
Media Criticism	0.00812	0.0101*	0.0149**		-0.0178**
	(0.00494)	(0.00541)	(0.00641)		(0.00711)
Media Criticism × Squared GDP Growth (log)			-0.170		
			(0.124)		
Media Criticism During Examination				0.0453**	
				(0.0206)	
Media Criticism During Examination × Squared GDP Growth (log)				-0.931**	
				(0.431)	
controls	N	Y	Y	Y	Y
groups	Treatment	Treatment	Treatment	Treatment	Control
N obs	84	84	84	54	72
F stat	1.476	2.014	2.035	1.493	2.713
adj. R2	0.0113	0.204	0.215	0.170	0.336

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 13: Secretaries' promotion and Performance on Economic Growth and Media
Note: This table shows the estimation results for Equation 5 for party secretaries only. For each pair, the promotion result *at the end of the partnership* is taken. In total there are 16 secretaries promoted (or moved parallelly at a promising age), with 6 in the treatment group and 10 in the control group. For each pair, the average GDP growth rate is calculated as the average residuals of GDP growth rate demeaned at both year- and province- level. Similarly, media criticism is the averaged demeaned residuals of the frequency of critical articles. Standard errors are not clustered and are shown in brackets. In Column (4), the media criticism is calculated using only the criticism during secretaries' promotion examination.

Economic performance, measured by the averaged GDP growth rates, seems to be a valid predictor for promotion only for control group observations. Intuitively, when the economic signal is not fuzzy, it helps more directly the promotion of any bureaucrat. Still, it remains puzzling why it even sometimes have a negative correlation with movement results for the treatment group. Even for those under competition, economic performance as a signal is fuzzy, still it should carry some information.

Figure 2 shows the estimated correlation of promotion of secretary and governor as a function of economic performance. The horizontal axis represents percentiles of $Growth_{it}$ and the vertical axis reprensents the correlation of $Promoted_{ij=s}$ and $Promoted_{ij=g}$. An U-shape pattern is observed: the correlation becomes negative when performance is less extreme. Growth at the head or tail is more likely to get equal promotion decision for the secretary and the governor in a dyad. This is consistent with the model prediction that the conflict rises when mediocre performance is observed.

	(1)	(2)	(3)	(4)	(5)
	Governor Promoted	Governor Promoted	Governor Promoted	Governor Promoted	Governor Promoted
GDP Growth	-1.240	-1.288	-0.978	0.871	4.648**
	(1.649)	(1.745)	(1.924)	(2.876)	(1.821)
Media Criticism	0.00520	0.00630	0.00471		-0.00931
	(0.00568)	(0.00610)	(0.00733)		(0.00721)
Media Criticism × Squared GDP Growth (log)			0.0562		
			(0.142)		
Media Criticism During Examination				0.0338	
				(0.0217)	
Media Criticism During Examination × Squared GDP Growth (log)				-0.450	
				(0.341)	
controls	N	Y	Y	Y	Y
groups	Treatment	Treatment	Treatment	Treatment	Control
N obs	84	84	84	54	72
F stat	0.803	2.123	2.006	1.029	1.257
adj. R2	-0.00477	0.221	0.210	0.0119	0.0708

Standard errors in parentheses

$* \ p < .10, \ ** \ p < .05, \ *** \ p < .01$

Table 14: Governors' Promotion and Performance on Economic Growth and Media
Note: This table shows the estimation results for Equation 5 for party governors only. For each pair, the promotion result *at the end of the partnership* is taken. There are 18 governors promoted (or moved parallelly at a promising age), with 8 in the treatment group and 10 in the control group. For each pair, the average GDP growth rate is calculated as the average residuals of GDP growth rate demeaned at both year- and province- level. Similarly, media criticism is the averaged demeaned residuals of the frequency of critical articles. Standard errors are not clustered and are shown in brackets.
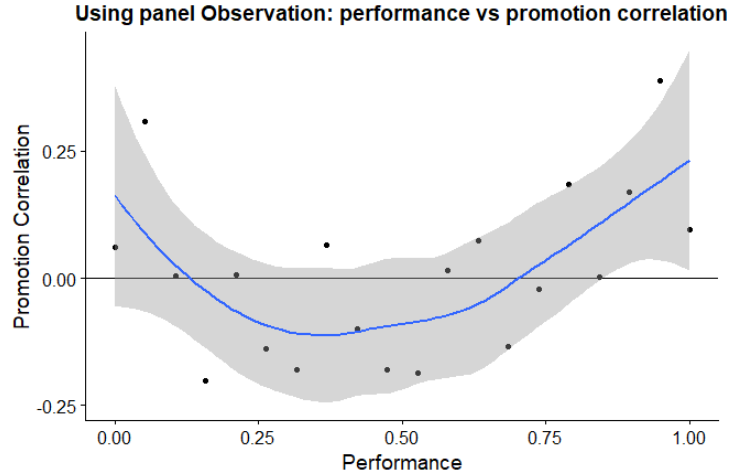

Figure 2: Correlation of Promotion of Secretary and Governor and Economic Growth

Note: This graph is plotted using the entire panel dataset of 28×14 province-year observations. Observations are comparted into 20 percentile groups according to the GDP growth rate. For each group, I plot the estimated correlation between the indicators of promotion for the secretary-governor dyad. Here I use the final promotion outcome, not the promotion outcome at the end of the tenure. A nonlinear fit is plotted with the pointwise 90% confidence interval.

8 Discussion

These results suggest another plausible mechanism that differs from the model implication. The bureaucrats under competition may be more desparate in boosting growth, and thus they tend to overlook the regulations, resulting in more negative events, which induces more negative news. To check this possibility, I repeat the baseline analysis using news from Hong Kong media.

I also analyze air polution data to see if competition induces higher social costs.

Negative news about provinces reported by Hong Kong media may very well reflect the real performance of the mentioned provinces. It is not uncommon to observe Hong Kong media report negatively about mainland China. Some media outlets in Hong Kong are very much unaffected by the government in Hong Kong, say Epoch Times. I sample the negative news published on two commercial newspapers, Hong Kong Economic Journal and Wenweipo, that is about accidents occurred in industries, such as mining and infrastuctures. It is very unlikely that the such reports strategically react to promotion pressure of any provincial leader in Mainland China.

I find little evidence that Hong Kong media reports more negatively about a province when the examined secretary is under promotion pressure. Critical coverage on either Wenhui or Xinbao exhibits the media reporting pattern found in the baseline analysis. This suggests that the effect of competition on media criticism is unlikely driven by a worse performance of dyads under competition.

	(1) Count(Xinbao)	(2) Count(Wenhui)	(3) Air Quality
Assign Treatment	0.180	0.773	1.698
	(0.501)	(0.542)	(1.919)
Sec Exam	-0.332	0.738	-1.358
	(0.585)	(0.654)	(1.614)
Assign Treatment=1 × Sec Exam=1	0.143	-1.301	1.653
	(0.552)	(0.791)	(1.785)
controls	All	All	All
cluster	Prov	Prov	Prov
fixed effects	Year&Prov	Year&Prov	Year&Prov
N obs	349	349	349
adj. R2	0.0476	0.375	0.815

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 15: Does Competition Induce Higher Social Cost?

Meanwhile, the air quality index is not significantly lower for treatment group, implying that there is not strong evidence on competition leading to higher air polution. In contrast, the air quality is even higher for periods ruled by dyads under competition. This is another piece of evidence that undermine the possibility that competition is leading to worse performance and thus higher media criticism.

In summary, I do not find strong evidence for this alternative story. One might still argue that despite these evidence, the incompliance of regulations could have been done in a more subtle way, but the lack of data doesn't allow me to check further.

9 Conclusion

In this paper, I exploit a quasi-experiment to study how competition can affect media criticism on government-led media outlets. I find that higher competition leads to higher

	(1) Air Quality	(2) Air Quality	(3) Air Quality	(4) Air Quality	(5) Air Quality
Assign Treatment	2.140	2.287	2.272	2.188	2.106
	(1.753)	(1.937)	(1.968)	(1.937)	(1.979)
Both Exam		-0.405	-0.276	0.838	1.624
		(1.356)	(1.991)	(1.908)	(2.912)
Sec Exam			-0.156		-0.679
			(1.292)		(1.417)
Gov Exam				-1.385	-1.634
				(1.544)	(1.681)
controls				All	
cluster	Prov	Prov	Prov	Prov	Prov
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Prov
prov trend					
N obs	348	348	348	348	348
F stat	.	.	.	.	.
adj. R2	0.812	0.811	0.811	0.811	0.811

Standard errors in parentheses
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 16: Does Competition Induce Higher Social Cost?

media criticism. It can be explained by a simple principal-agent model, where competition is embeded in a cooperation that leads to a fuzzy signaling problem, leaving the media signal an important complement for promotion decisions by the principal. It is empirically supported that higher media criticism will lead to higher probability for the secretary to get promoted. This study sheds light on the understanding of checks and balances in a bureaucratic system.

A   Model Setting and Solution

To impart the intuition clearly and to reach a unique equilibrium, I hereby impose several following assumptions which are justified with intuitions.

The utility function of the secretary is $U_i(e, m) = I_{prom_s} - C_i^e \times e - C_i^m \times m$, where $i \in H, L$ and $e, m \in 0, 1$. The utility function of the govneror is $U_i(e) = I_{prom_g} - C_i^e \times e$. Exante, both agents maximize the expected utility, e.g. $EU_i(e, m) = Prob(prom_s) - C_i^e \times e - C_i^m \times m$ for the secretary. The prior belief of the principal is listed in the table below:

Type	$(H^e H^m, H^e)$	$(H^e L^m, H^e)$	$(H^e H^m, L^e)$	$(H^e H^m, L^e)$
Prior	p_1	p_2	p_3	p_4
Type	$(L^e H^m, H^e)$	$(L^e L^m, H^e)$	$(L^e H^m, L^e)$	$(L^e L^m, L^e)$
Prior	p_5	p_6	p_7	p_8

Assumption 1 *With C_H^e denotes the cost of exerting economic efforts by a high-type agent and similarly with other notations, I assume that $C_H^e < C_H^m$ and $C_L^e < C_L^m$.*

Assumption 1 assumes that it is easier for the high-type agents to pay efforts than low-type agents. This assumption makes the signals useful to distinguish types.

Assumption 2

$$C_H^e + C_H^m <= min p_3, p_4, p_5, p_6$$
$$C_L^e > 1$$
$$C_L^m > 1$$

Assumption 2 states that for low-type agents, the utility of promotion cannot offset the cost of sending any signal. This ensures that the low type will not insert any efforts. In contrast, high-type agents can bear the cost of sending economic and media signals simutaneously, given that they are promoted even with the lowest probability.

Assumption 3 $Prob(H^e \mid H^m) > Prob(H^e \mid L^m)$, i.e., $\frac{p_3}{p_3+p_5} > \frac{p_4}{p_4+p_6}$ and $C_H^m <= \frac{p_3}{p_3+p_5} - \frac{p_4}{p_4+p_6}$

Assumption 3 assumes a positive correlation between the type of media and the type of economic performance. This allows the media criticism to signal one's type on economic performance, but the signal is not perfect. Moreover, I assume that the correlation is strong enough to make the media signal attractive to consider.

To solve for the most separating equilibrium, I start with considering what the belief is given each possible signal observed by the principal. When the principal observes $e = e_s + e_g = 2$, she knows that it must be either $(H^e H^m, H^e)$ or $(H^e L^m, H^e)$, in both cases two agents deserve promotion. This gives no incentive for the secretary of $(H^e H^m, H^e)$ to send any media signal. When she observes $e = e_s + e_g = 0$, she knows that it must be from either $(L^e H^m, L^e)$ or $(L^e L^m, L^e)$ because any agent with a high type in promoting economic performance is incentivized to insert economic efforts under Assumption 2.

When principal observes $e = e_s + e_g = 1$, the signal must be sent from a dyad with one high-type and one low-type on the economic aspect. Now suppose the principal observes $e = 1$ and $m = 1$, she knows it must be sent from a dyad in which the secretary is a high-type in media management - the four types are thus separated into two subgroups by secretary's type of media. In a $(H^e H^m, L^e)$ dyad, if the secretary sends a media signal, the expected utility is $\frac{p_3}{p_3+p_5} - C_H^m - C_H^e$, which is greater than the expected utility otherwise: $\frac{p_4}{p_4+p_6} - C_H^e$.

The solution must satisfy the IC conditions. Will secretaries and governors of $(H^e H^m, H^e)$ deviate to $(L^e H^m, H^e)$ or $(H^e H^m, L^e)$? These two cases are possible if the economic efforts are too costly so that the secretaries and governors are willing to sacrifice the full probability of promotion in exchange for a lower effort cost. However, by Assumption 2, the cost is too small to induce this deviation. For the same reason, the dyads with $e = 1$ will not deviate downwards to $e = 0$.

The equilibrium is summarized in Proposition 1. I hereby argue that this equilibrium is unique. That $e = 2$ implies the H^e, H^e combination is undoubtful, since a single agent can never achieve $e = 1$ by model settings. That $e = 1$ implies at least one agent is high-type in economic aspect is undoubtful too since $e = 1$ cannot be achived by the L^e, L^e combination.

Given this prior belief and the low cost of signals for high-type agents, the H^e, H^e combination will certainly distinguish themselves from the others, leaving the $e = 1$ mapped to the one-high-one-low combination. Of the same logic will this H^e, L^e combination separate from the L^e, L^e one. This reasoning will pin down the equilibrium described in Proposition 1 as the unique equilibrium.

B   Tables

	(1) Attrition		(2) Treated		(3) Difference	
	mean	sd	mean	sd	b	t
Has local Experience	0.61	0.50	0.51	0.50	0.10	(0.93)
Age In Position	59.65	4.45	57.58	3.92	2.06**	(2.15)
Experience(NProv)	3.26	1.18	3.45	1.41	-0.20	(-0.69)
Education	3.97	0.66	3.78	0.76	0.19	(1.19)
Sex	0.97	0.18	1.00	0.00	-0.03	(-1.00)
Engineer Background	0.16	0.37	0.36	0.49	-0.20**	(-2.16)
Economics Background	0.65	0.49	0.49	0.50	0.15	(1.39)
Central Committee Member	0.35	0.49	0.42	0.50	-0.06	(-0.57)
Sec Connected	0.55	0.51	0.71	0.46	-0.16	(-1.46)
Sec Corrupt	0.00	0.00	0.15	0.36	-0.15***	(-3.03)
Managed Propaganda	0.26	0.44	0.25	0.44	0.00	(0.04)
Sec Connected with Gov	0.13	0.34	0.09	0.29	0.04	(0.52)
Observations	31		55		86	

Table 17: Balance Table: Secretary

	(1) Attrition		(2) Treated		(3) Difference	
	mean	sd	mean	sd	b	t
Has local Experience	0.55	0.51	0.65	0.48	-0.11	(-0.95)
Age In Position	56.13	3.96	56.31	3.41	-0.18	(-0.21)
Experience(NProv)	2.71	1.04	2.62	1.25	0.09	(0.36)
Education	4.19	0.79	3.73	0.73	0.47***	(2.69)
Sex	0.90	0.30	0.98	0.13	-0.08	(-1.38)
Engineer Background	0.32	0.48	0.35	0.48	-0.02	(-0.21)
Economics Background	0.58	0.50	0.53	0.50	0.05	(0.47)
Central Committee Member	0.74	0.44	0.60	0.49	0.14	(1.36)
Gov Connected	0.65	0.49	0.51	0.50	0.14	(1.23)
Gov Corrupt	0.06	0.25	0.05	0.23	0.01	(0.18)
Managed Propaganda	0.19	0.40	0.24	0.43	-0.04	(-0.46)
Observations	31		55		86	

Table 18: Balance Table: Governor

	(1)	(2)	(3)	(4)	(5)	(6)
	Count	Fraction	Front Page	Average Page	Total Length	Inward Criticism
Sec Exam	-0.365	0.0594	0.171	-0.329	-0.0895	-0.0197
	(1.471)	(0.320)	(0.691)	(0.423)	(0.0782)	(1.040)
Assign Treatment=1 × Sec Exam=1	3.842**	0.897*	0.450	0.766	0.181*	1.580
	(1.778)	(0.444)	(1.030)	(0.545)	(0.104)	(1.215)
controls						
cluster	Province	Province	Province	Province	Province	Province
fixed effects	Year&Pair	Year&Pair	Year&Pair	Year&Pair	Year&Pair	Year&Pair
N obs						
F stat	3.826	7.622	1.836	7.013	3.720	4.562
adj. R2	0.222	0.302	0.0603	0.0259	0.200	0.114

Standard errors in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 19: Baseline Regression Results for Multiple Dependent Variables

Note: Column (1) to (6) show the estimation results of Equation 2, using the number of critical articles, fraction of critical articles, number of critical articles on the first page, average pages where the critical articles show up, total length of critical articles and the fraction of text that is inward-targeted. Standard errors are clustered at provincial level and shown in the brackets. All personal traits are controlled.

	(1)	(2)	(3)	(4)	(5)
	Average Page (Economic News)	Average Page (Economic News)	Average Page (Economic News)	Average Page (Economic News)	Average Page (Economic News)
Assign Treatment	0.330	0.360	0.821	0.878	
	(0.515)	(0.552)	(0.532)	(0.566)	
Sec Exam	0.171	0.191	0.220	0.143	-0.0616
	(0.533)	(0.492)	(0.580)	(0.672)	(0.762)
Assign Treatment=1 × Sec Exam=1	0.236	0.211	0.0828	0.786	-0.00984
	(0.571)	(0.543)	(0.598)	(0.711)	(0.822)
Gov Exam				-0.282	
				(0.957)	
Assign Treatment=1 × Gov Exam=1				-0.641	
				(1.326)	
controls		Unbalanced	All	All	
cluster	Province	Province	Province	Province	Province
fixed effects	Year&Prov	Year&Prov	Year&Prov	Year&Prov	Year&Pair
N obs	255	255	255	255	255
F stat	3.323	5.152	.	.	7.443
adj. R2	0.0601	0.0999	0.103	0.106	0.0959

Standard errors in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 20: Media Criticism on Economic Affairs: Pages

Note: This table shows the estimation results of Equation 1 using the average pages where critical articles about economics show up as the dependent variable. Standard errors are clustered at province level and shown in the brackets.