Picking the "Right" Drama

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Abstract

Since 2014, the Chinese government has tightened regulations on television dramas aired on TV channels to promote party and socialist values. This study investigates the impact of these policies on the ideological content of mainland Chinese TV dramas. Using data from 2006 to 2020 and machine learning techniques, we measure ideology through two dimensions: commercial and political scores, with higher scores indicating greater desirability by the audience or the government. Findings reveal that post-2014 regulations increased political scores and decreased commercial scores of TV dramas on traditional channels, compared to online dramas. TV and online dramas act as substitutes; stricter TV regulations decrease both commercial and political scores for TV dramas but have minimal impact on online dramas. The commercial and political dimensions of a drama are complementary, with a decrease in commercial scores not increasing (and often decreasing) political scores. Thus, tighter TV regulations since 2014 have not successfully promoted political ideology without affecting commercial appeal, as audiences turn to online platforms for preferred content. The study also find that aggregated commercial ideology aired on channels have dropped dramatically since 2014, while satellite channels, which have the largest market, have reduced their commercial scores less than other channels. Analysis shows that the post-2014 policies increased political ideology exposure for TV channel audiences by 4% but decreased commercial exposure by 4%. However, audiences are watching TV channel dramas less often, decreasing their ideology intake from TV dramas by 18% and 16% in the commercial and political dimension, respectively.

1 Introduction

Mass media play an important role in shaping individual's preferences, political attitudes and behaviors; and the impact largely depends on what mass media outlets convey or persuade.

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There is always a tradeoff between readers/viewers and governments in China (Qin et al., 2018). For media outlets that generate revenue from both audiences and governments, higher audience-related revenue can make media capture more challenging[1](Prat and Stromberg, 2013). Television, which occupies a significant portion of leisure time for most people, is associated with substantial profits, making it very costly for governments to control (Wilbur, 2015). Consequently, much of the economic literature focuses on the entertainment and commercial aspects of television (Durante et al., 2019; Bursztyn and Cantoni, 2015; Jensen and Oster, 2009; etc.), with some exemptions. For example, studies by Della Vigna and Kaplan (2007) and Durante and Knight (2012) explore biased news on television. This paper examines the commercial and political ideologies of television dramas in China, which represent the most commercially significant content on Chinese television.

In 2016, 1.28 billion mainland Chinese (or 97.8% of the population) spent 152 minutes per day watching television (National Radio and Television Administration (NRTA thereafter), 2016), and this popularity makes the Chinese government reluctant to release their control. Furthermore, the TV advertising revenues were 15.639 billion US dollars while the total TV and video revenues were 17.689 billion US dollars in China in 2016 (PwC, 2016). The associated profits are so high that consumer-oriented programs become the decisive key for the industry to thrive. The Chinese TV drama industry has to please both governments and audiences. Understanding Chinese television is important for researchers to understand the influential role of media in China.

La Ferrara et al. (2012) suggest that, beyond the act of watching television, the specific content viewed significantly affects individuals' behaviors and attitudes. Dahl and Della Vigna (2009) also show that violent crime decreases on days with larger theater audiences for violent movies, as violent movie attendance leads to a substitution away from more volatile activities. In China, TV dramas occupy the largest share of audience viewing time, accounting for 30% (National Radio and Television Administration, 2016). On the supply side, 1,180 series comprising 46,520 episodes of television drama were produced in 2017. The ideologies conveyed by these dramas are undoubtedly significant and influence their audiences. However, to the best of our knowledge, no economic literature has addressed the ideology of all Chinese TV dramas. This paper aims to fill that gap by measuring the ideology of mainland Chinese dramas along two compatible dimensions: commercial and political. This measure will serve as a cornerstone for economists studying Chinese TV dramas.

The Chinese government has long recognized the potential influence of television dramas. To air a drama on a TV channel, producers must first register with the NRTA to begin shooting and then apply for a broadcasting license from the NRTA to deal with domestic Chinese TV

[1]Media capture arises when the government actively intervenes in the media industry (Prat, 2015).

channels. This system has been in place since 2006. With the recent prosperity of the television industry, the Chinese central government has increasingly recognized the importance of TV dramas, imposing a series of directives starting in 2014 to regulate the exposure of Chinese audiences to various ideologies and promote communist and socialist values. Unlike pre-2014 guidelines, which served as soft recommendations, the post-2014 regulations explicitly dictate the airtime, amount, and broadcast periods of certain types of dramas. However, these regulations, registration, and licensing systems do not apply to dramas aired online, providing a control group for examining the government's intervention in TV channel dramas. We analyze how these provisions affect the ideology of dramas aired on TV channels and online. At the macro level, TV channels may adjust their broadcast strategies, changing the number and types of dramas aired to alter the aggregated ideological exposure of audiences. Meanwhile, audiences can choose what to watch, potentially reducing their exposure to the ideologies presented in TV channel dramas. We refer to the ideology intensity that an audience is exposed to as "ideology exposure" and the ideology adopted by the audience as "ideology intake."

Specifically, for the commercial dimension, we use ratings from Douban, a Chinese online database similar to IMDb or Rotten Tomatoes, as the training set. We employ machine learning to predict the commercial grade based on the storyline, categories, and premiere years of dramas. For the political dimension, we again use machine learning. Each year, the NRTA reviews TV dramas, promoting some as excellent and criticizing or censoring others. We code promoted dramas as 1 and criticized or censored dramas as 0, then predict the political score based on their storylines, categories, and years. Applying the regression parameters obtained from the training set to the drama data in playlists, the registration pool, and the licensing system, we obtain a commercial and political score for each drama.

By combining these two dimensions, we capture a comprehensive picture of the ideology of Chinese dramas. We then run regressions to analyze the political and commercial scores and their ratios, considering factors such as whether the drama aired on TV channels or online, ownership, and government regulations. We have three key findings when analyzing at the drama level: (1) Before 2014, the ideological content of dramas aired on TV channels and online was quite similar. However, post-2014, the political score of dramas aired on TV channels significantly increased, while their commercial score decreased, compared to online dramas. (2) The political and commercial scores of TV channel and online dramas act as substitutes. For regulations demoting certain commercial ideologies, TV dramas' commercial scores decrease while political scores decrease or remain unchanged, but online dramas' commercial scores do not experience the same decrease. Interestingly, when promoting political ideologies, both scores decrease for TV dramas, but the commercial scores of online dramas increase while

political scores remain unchanged, suggesting that higher-quality dramas are moving online. (3) Political and commercial scores are complements. When commercial scores drop, political scores either decrease or remain unchanged.

The above analysis is conducted at the micro-drama level. However, the total number of different types of dramas broadcasted on TV channels and online may also change. At the policy execution side, we check the ideology aired by TV channels and find that the aggregated commercial ideology aired by TV channels dropped significantly by 8% after the tightened regulations, while satellite channels experienced a smaller decrease of 7.5%. The political ideology aired by TV channels, in general, did not increase, but satellite channels saw a slight rise of 1% after 2014..

Then we turn to the objective side, examining ideology exposure and intake by audiences. We find that for a typical Chinese audience, their exposure to political ideology from dramas aired on TV channels increased by around 4% after 2014, while their exposure to commercial ideology from dramas aired on TV channels decreased by around 4%. It appears that the government achieved its goal. However, audiences have the choice to watch or not watch dramas on TV channels. We weight the ideology exposure by viewership measured by the reach rate, which is called ideology intake. We find that both commercial and political ideology intake dropped significantly by 18% and 16%, respectively. The magnitude of the decrease correlates with the GDP level of the prefecture where the audience resides. The tightening regulations do not seem to have succeeded.

The paper is organized as follows: Section 2 presents the background knowledge of Chinese dramas; Section 3 describes the data used in the analysis; Section 4 introduces how the ideology measures are constructed and describes the dynamics of ideology changes over the decade; Section 5 analyzes the impact of tightening regulations on the dramas; Section 6 examines how Chinese TV channels choose ideology intensity to air before and after 2014, and then investigates the ideology exposure and ideology intake for a typical Chinese audience; Section 7 concludes.

2 Background

Chinese TV dramas first emerged in 1958, initially serving as direct propaganda tools. With the rapid economic growth, these dramas have become increasingly entertaining, attracting substantial advertising revenue for TV channels. Since the economic reforms of the early 1980s, advertising revenue has steadily increased, becoming the primary financial support for Chinese television networks (Ma, 2014). By 2002, TV dramas accounted for 90% of television advertising revenue (China Television Drama Report, 2002-2003). In China, all mass media are required to support the government and assist in political propaganda, including TV dramas, which must incorporate political elements. The Chinese government has systematically supervised drama production since 2004.

The National Radio and Television Administration (NRTA) mandates a two-step process for a Chinese TV drama to be aired on a TV channel. (See Fig. 1 for the detailed process.) The first step involves registering with the NRTA. The current registration system, established in 2006, generally grants automatic approval in most cases. The second step requires the producer to apply for a license from the NRTA after the drama is completed. This requirement, announced in 2004, was the primary point of government control before 2014. A license could usually be obtained if the drama did not promote anti-government views or attempts to challenge the regime. Once licensed, producers could negotiate with TV channels to air the drama. Without a deal, producers might either leave their investment unpaid or seek to air the drama online. If no license is obtained, producers can cancel their initial registration and pursue online distribution. Before 2014, aside from the registration and licensing system, government intervention in content was more implicit, providing guidelines rather than directives on the values to be promoted.

In the early 2000s, the Chinese TV drama market became highly competitive and consumer-driven. By 2012, China produced over 17,000 drama episodes, surpassing the 5,000 episodes produced in the USA (Sina News, 2013). Television revenue peaked at 138.7 billion Chinese yuan in 2013 but was overtaken by internet revenue in 2014. This profitability attracted significant investment, raising concerns about potential ideological dilution.

Starting in 2014, the NRTA implemented stricter regulations, annually announcing policies regarding the airtime, quantity, and broadcast periods of certain drama types on various TV channels. Due to space constraints, only major policy changes are highlighted here, with a complete list of directives in Appendix Table A1. Policies are categorized into those that demote highly entertaining dramas and those promoting government-approved values. For instance, historical idol dramas were limited to 15% of total drama airtime on satellite channels annually, with no two airing consecutively, as mandated by the NRTA in 2014 (Sina, 2013)

[2]. As this directive took effect in 2014, it remained active until 2017. Similarly, fantasy dramas (including immortal fantasy, magical fantasy, and immortal heroes) were restricted to 50% of total episodes in 2016, and palace intrigue dramas faced limitations in 2019 and 2020. Promoting policies included requirements for patriotism and anti-fascism dramas to air on satellite channels during specific periods, such as September to October in 2014, July to September in 2015, and September to October during prime time in 2016. Additionally, red revolution dramas were mandated to air in July during prime time on all channels in 2017, among other policies, to promote communist and socialist values.

In contrast, online dramas (internet dramas) face fewer restrictions compared to those aired on TV channels. Before 2020, internet dramas did not require an NRTA permit, though a registration number from a legitimate online platform was necessary. Provided there was no overt legal violation (e.g., excessive violence), internet dramas were not subject to significant censorship. Thus, internet dramas serve as an effective comparison group for analyzing the policy impact on TV dramas.

3 Data and variables

To examine the influence of government policy on the ideological choices of dramas aired on TV channels or online platforms, as well as the preferences of TV channels and drama audiences, we compiled a list of dramas broadcast and viewed by audiences since 2006, when the TV drama administration system was first introduced.

3.1 Administrative data

For our analysis of Chinese TV dramas, we collected comprehensive information on dramas registered with the NRTA, those that obtained licenses for TV broadcast, and those actually aired on TV channels and online platforms.

The list of dramas registered with the NRTA can be found on the Digital Government Affair Platform of TV Drama of the NRTA[3]. The information includes the drama's name, administrative region, genre, producer, number of episodes, shooting schedule, production period, storyline, permit, etc. An example of a registration record is shown in Appendix Fig. A1. From 2006 to 2020, a total of 13,611 Chinese TV dramas registered with the NRTA for production.

[2]This directive was announced by the NRTA in June 2013 (Sina, 2013). Given that 2013 was already halfway through and some time was needed for the policy to be implemented, we consider 2014 as the first year it took effect.

[3]http://dwz.date/cnJb

The list of licensed dramas is available on the NRTA's official website and the Digital Government Affair Platform of TV Drama [4]. The data include the drama name, producer, issuing government office, number of episodes, license number, and issue date. A sample license record is shown in Appendix Fig. A2. Between 2004 and 2020, 7,046 Chinese TV dramas received licenses for TV broadcast, indicating that less than half of produced dramas obtained a license.

Since 2004, a license has been required for the first-time TV broadcasting of a Chinese drama. Therefore, dramas broadcast on new TV channels since 2004 needed a license, even if previously aired elsewhere. Many licenses issued in 2004 and 2005 were for such returning dramas. Any drama produced and premiered on TV channels since 2006 must be recorded in the license data, which we use to identify dramas first premiered from 2006 onward.

3.2 Airing and reach rate data

We obtained airing data for all dramas broadcast on mainland Chinese TV channels from 2006 to 2020 from CSM Media Research, the sole provider of viewership ratings and broadcast data for all mainland Chinese TV channels.

For each drama, we retained viewership data from its premiere year, including the start date, airing period, drama name, channels, channel types, reach rate for each drama on each channel, total airtime, and audience source etc.

Since a license is required for initial TV broadcast, we matched airing data with license data to identify dramas that premiered on TV channels between 2006 and 2020. We also compared this data with a drama playlist from 2009 to 2020 provided by Wikipedia to create an updated drama playlist. We then searched these dramas on Douban to retrieve their showtime information. By cross-referencing premiere time and other drama-level information from the three sources, we constructed a complete playlist of dramas that premiered in mainland China from 2006 to 2020: 5,296 dramas on TV channels and 1,798 dramas online.

3.3 Data for measuring the ideology

Douban[5], launched on March 6, 2005, is a Chinese online database and social networking service that allows registered users to create records and leave comments on movies, dramas, books, music, and more. It functions similarly to IMDb or Rotten Tomatoes. When a television drama is released, a record is typically created with details such as content, producers, actors, and other relevant information. This record can be edited by other registered

[4]The latest years' announcements can be found on the official website of the NRTA at http://dwz.date/cptK . For earlier years, please visit their digital government affair platform http://dwz.date/cptZ .

[5]douban.com

users who contribute comments, evaluations, and discussions. Most television dramas have corresponding records on Douban.

We searched dramas from the playlist and license records on Douban, achieving records for 6,392 out of 7,094 playlist dramas and 6,058 out of 7,046 licensed dramas. A typical Douban record is shown in Appendix Fig. A3. Each Douban record includes the drama name, alternate names, production year, premiere time, genres, region, episodes, grades, evaluation count, star ratings, storyline, directors, creators, cast, reviews, comments, etc. Registered users can rate each drama on a scale from 0 to 10. The overall grade, which is the average of these ratings, is used as the commercial score to assess the drama's popularity among audiences. Since not all dramas have grades or even a Douban record, we use machine learning to predict a Douban "grade" for each drama, as detailed in Section 4.

To assess government preference, we compiled lists of dramas praised and criticized by the government. In China, three national awards are directly or indirectly organized by the government: the Annual Excellent Chinese TV Drama Series (2009-2019), the China TV Drama Flying Apsaras Award (biennial, 2005-2018), and the China TV Golden Eagle Award (biennial, 2006-2018). We collected award-winning dramas, obtaining 411 in total, with some receiving multiple awards.

To compile a list of dramas disfavored by the government, two research assistants and two authors independently conducted searches for dramas that were criticized or censored by government authorities. We focused on dramas that were officially criticized in print, government meetings, newspapers, or official news websites. Our list includes only those dramas that were demoted by the government for inappropriate content, excluding those criticized or censored due to airtime restrictions, scandals involving actors or actresses, costumes, etc. This approach is necessary because our text analysis, used to predict the commercial and political scores for each drama, relies primarily on the content of the drama. As such, we cannot assess governmental disfavor based on other characteristics. In total, we identified 72 dramas for this list.

3.4 Producer data

Dramas registered with or licensed by the NRTA must report producer information. We collected producer data and searched them on Tianyancha[6], a website with detailed information on mainland Chinese companies. We found records for 4,568 out of 4,585 producers on Tianyancha. A typical company webpage is shown in Appendix Fig. A4.

For each producer/company, we obtained location, start date, registered capital, size, ownership, owners, top managers, real controllers, top 10 shareholders, and other operational

[6]Tianyancha.com

information etc..

4 Measures of the ideology

4.1 Commercial scores

Douban grades represent aggregated evaluations from audiences and serve as a key indicator of a drama's commercial success. While other platforms like Sina Weibo allow for audience interaction, Douban is the most prevalent and popular platform for evaluating dramas and movies. Over 90% of dramas that have aired or released preview information have received a record on Douban. Although not perfect, Douban grades are the best commercial scores available. However, some aired dramas lack Douban records or grades, and some dramas registered with the NRTA that have obtained licenses do not have Douban entries. To address this, we employ a systematic machine learning method to predict commercial scores for all dramas with available content summaries.

We begin by training the model using the storyline or content summary, drama genre categories, and the premiere or registered/licensed years to predict the commercial score for each drama with these details. By integrating genre information from registration and Douban data alongside the storyline, we classify dramas into 12 distinct categories: 1) ancient, 2) recent period (spanning 200 to 50 years ago), 3) contemporary (post-1949), 4) PRC military, red revolution, and anti-Japan war, 5) legends or biographies, 6) martial arts and chivalry, 7) myth, science fiction, or fantasy, 8) suspense, crime, or legal cases, 9) children or teens, 10) rural life, 11) metropolitan life, and 12) other types.

Using Python scripts, we process storylines by removing specific patterns like book titles, brackets, and URLs. We employ the jieba library for Chinese text segmentation and part-of-speech tagging, retaining 17 relevant parts of speech such as adjectives, nouns, and verbs. We then perform TextRank analysis to extract word frequencies, calculating weights as the inverse of word frequency. A weighted least squares (WLS) regression model is estimated to predict Douban grades, using genre, year, and extracted words as inputs. The model is trained on dramas with complete Douban grades and standardized to a [0,1] range for easier comparison with political scores.

We utilize Python scripts to process the storylines. First, we remove specific patterns, including Chinese book titles, brackets, parentheses, hashtags, quotation marks, English letters, and URLs. Next, we use the jieba library for Chinese text segmentation and part-of-speech tagging. We then filter the segmented words, retaining only those with relevant parts of speech for analysis, such as adjectives, nouns, and verbs.[7] Next, we use the jieba.analyse module to

[7]In total, we retain 17 parts of speech, including Adj, Noun, Verb, AdjN, Idm, Abb, GeoN (place

perform TextRank analysis on the text corpus, extracting the frequency of words retained in the previous step. For each part of speech, we extract the top 10% of words based on their overall frequency in the corpus. Words are then stratified according to their cumulative distribution function and extended probabilities to identify significant features. We calculate weights based on the inverse frequency of words. Finally, we estimate a weighted least squares (WLS) regression model.

$$\gamma_c = f(Genre, Year, ExtactedWords; weights)$$

where γ_c represents the Douban grade. We train the model using all dramas with complete Douban grades along with the other three factors mentioned earlier. The premiere year is incorporated as a vector of fixed effects, while drama categories are included as fixed effects in the regression. Additionally, the selected 1,719 segments/words are included as dummy variables. Once the regression model is estimated, we retain the parameters for each regressor and use them to predict grades for dramas where all necessary regressors are available. Since Douban grades range from 0 to 10, and the linear model can sometimes produce predictions outside this range, we standardize the predicted scores to a [0,1] scale for easier comparison with political scores[8][9].

For licensed dramas, we adjust the model by using the licensing year for fixed effects. For registration data, where many dramas have not aired, we use the storyline from registration data and registration years for predictions. This process yields estimated commercial scores for three sets of data: premiered dramas, licensed dramas, and dramas registered with the NRTA.

4.2 Political scores

We employ the same methodology outlined in Section 4.1 to predict political scores.

The key difference is that political scores are defined by the likelihood of a drama being appraised by the government. For the training set, we compile dramas that have been either awarded or criticized by the government, assigning a score of 1 to the former and 0 to the latter. This binary variable serves as the dependent variable in the training model, with a value of 1 indicating government praise. The predicted score thus represents the probability of

name), OrgN (organization name), PropN (proper noun), PlaceW, VerbN, DescW, AdvAdj, IdmExpr, PersN, TransPersN, and FirstN. We exclude parts of speech like other noun-modifiers, conjunctions, exclamations, localizers, morphemes, prefixes, suffixes, numbers, onomatopoeias, prepositions, classifiers, particles, and non-morphemes such as punctuation marks.

[8]The standardizing model is $standardized_score = \frac{predicted_grade - Min}{Max - Min}$.

[9]The WLS regression outcome will be provided upon inquiry.

a drama receiving government praise, which constitutes the political score used in this study.

In the training model, the storyline or content summary is replaced with those from 411 awarded dramas and 72 criticized dramas. Year dummies correspond to the years when the dramas were awarded or criticized, while premiere, licensed, and registration years are used for predicting political scores across the three sets of dramas. The predicted scores are standardized to a [0,1] range[10].

4.3 Summary of the ideology scores

We begin by outlining the types of content that are popular among audiences (indicated by high commercial scores) and those favored by the government (indicated by high political scores).

Figures 2 and 3 illustrate the top words that predict high commercial and political scores, respectively, with word size proportional to their frequency. In Figure 2, the words with the highest frequencies, in descending order, are "never thought," "ordinary," "Jianghu" [11], "brother" [12], "youth," "USA," "deeply in love," "love story," etc. These words reflect Chinese audiences' romantic preferences and inquisitive mindsets, effectively capturing what makes content popular among them. The word cloud provides intuitive support for our commercial scores.

In Figure 3, the words with the highest frequencies, in descending order, are "Kuomintang (KMT)"[13], "CCP," "the two persons," "China," "Japan," "by one's side," "unexpected," "never thought" . These words align with the Chinese government's preference for highlighting their achievements during the civil war against the KMT and the anti-Japan wars. The inclusion of words like "unexpected" and "never thought" suggests that the government prefers dramas that not only convey the right messages but also engage audiences with novel plots. This figure reinforces the validity of our political scores.

Tables 1a and 1b summarize the statistics of commercial and political scores for dramas that have been broadcast and those that have received licenses. For broadcast dramas, both the means and standard deviations of commercial and political scores have been declining annually. Similarly, the means for licensed dramas are decreasing year by year, though their standard deviations are increasing. These decreasing means reflect the ideological shifts under government policies over the decades. The varying pattern in standard deviations indicates that while the range of ideologies in available dramas is broadening, the preferences for broad-

[10]The results of the WLS regression are available upon request.

[11]It is a term often used to describe the martial arts world or society of wandering heroes in Chinese culture.

[12]"Brother" sometimes refers to a male lover in Chinese culture.

[13]The party governed mainland China before 1949, which moved to Taiwan after the Chinese Communist Party took control.

cast content are becoming more consistent over time.

For each year, we plot the ideological scatter of each drama in a two-dimensional space, with the x-axis representing commercial scores and the y-axis representing political scores. Figures 4 and 5 display data for two years before and after 2014 for both broadcast and licensed dramas. For ease of comparison, we include a 45-degree reference line and two vertical lines. The initial observation from these diagrams is that the ideological scatter is generally centered around the 45-degree line, and as commercial and political scores decrease, the distribution shifts downward along this line. This suggests that most dramas maintain a balance between commercial and political ideologies, with changes in one dimension typically mirrored in the other. Notably, after 2014, the entire ideology distribution shifts towards the lower-left quadrant.

To further examine how drama ideologies have evolved, we plot the median commercial and political scores for each year for dramas broadcast on TV channels and those that received licenses in Figure 6. The x-axis shows commercial scores, while the y-axis shows political scores. For both drama sets, median commercial and political scores have significantly declined over the years. Moreover, in most years, dramas broadcast on TV channels have higher median political scores than those that received licenses, indicating an additional layer of selection when TV channels choose which dramas to air.

5 The impact of tightened regulations on the ideology of dramas

As the tightened regulations primarily target dramas broadcast on TV channels, dramas aired online can serve as a useful control group to assess the policy's impact. However, it's important to consider that there may be indirect effects on online dramas, as some content not suitable for TV may choose to air online instead. By analyzing the ideological shifts in dramas before and after the implementation of these regulations, we can gain insights into how different types of dramas are affected.

Figure 7 illustrates a trend graph showing the median ideologies of dramas broadcast on TV channels and online from 2006 to 2020. The circled line represents the median ideology of dramas aired on TV channels, while the triangular line represents those aired online. The two upper lines depict the median levels of political scores, and the two lower lines show the median levels of commercial scores. The year 2014 marks the introduction of tightened regulations. Prior to 2014, both TV and online dramas exhibited nearly identical median levels of political and commercial scores. However, from 2014 onwards, a divergence emerges: dramas broadcast on TV channels display noticeably higher median political scores and lower commercial scores

compared to those aired online.

In the following subsections, we first present the overall regression models using the post-2014 period as the treatment. We then refine these models to better identify the effects of demotion and promotion policies.

5.1 Overall impact of the policy interventions since 2014

In this subsection, we examine the effects of tightened regulations on the political and commercial ideologies of dramas. The data is structured at the drama level, and the regression model is specified as follows:

$$Ideology_i = \alpha + \beta_1 Post_t + \beta_2 Internet_i + \beta_3 Post_t \times Internet_i + u_{it} \quad (1)$$

where i refers to drama i and t refers to year t. $ideology_i$ represents either the political score or the commercial score for drama i. $Internet_i$ is a dummy variable indicating that the drama was aired online. $Post_t$ is a dummy variable indicating the years since 2014. In predicting the ideology for each drama, we include broadcasting year dummies and the drama's categories, so these are not included in the regression.

We are also interested in whether government ownership influences ideological outcomes. Among our sample, there are approximately 90 listed companies, and we examine if their behavior differs in terms of ideology choices. The following equation is used for this analysis:

$$\begin{aligned} Ideology_i &= \alpha + \beta_1 Post_t + \beta_2 Govt_i + \beta_3 Post_t \times Govt_i \\ &\quad + \beta_4 listed_i + \beta_5 Post_t \times listed_i + capital_reg_i + u_{it} \quad (2) \end{aligned}$$

where $Govt_i$ is a dummy variable indicating the drama is produced by a government-owned firm, while $listed_i$ indicates the drama is produced by a listed company. $capital_reg_i$ refers to the amount of capital at registration in RMB.

The results are presented in Table 2. Columns (1) to (3) show the regression outcomes of equation (1). After 2014, both political and commercial scores declined by 5.4% and 4%, respectively, across all dramas. However, online dramas tended to have 0.8% higher commercial scores but experienced an additional 5.2% decrease in political scores. It appears that the government did not achieve its objective of increasing political scores while decreasing commercial scores. To examine whether the political score improved relative to the commercial score, we calculated a ratio of the political score to the commercial score and used this as the dependent variable in the regression model. Column (3) indicates that this ratio decreased by 2% after 2014 for all dramas, suggesting that the political score fell even relative to the commercial score. For online dramas, the political score decreased even more significantly

compared to the commercial score after 2014, by 14.6%.

Columns (4) to (6) in Table 2 echo the post-2014 ideological trends observed in columns (1) to (3). Dramas produced by government-owned companies did not exhibit higher political scores but did show slightly higher commercial scores compared to others. However, after 2014, this slight advantage in commercial scores disappeared. Dramas produced by listed companies did not exhibit systematic differences in behavior compared to others.

5.2 Impact of specific demotion and promotion policies

Since 2014, the government has annually introduced policies aimed at demoting certain highly entertaining dramas and promoting more politically-oriented ones. Given the specificity of these policies, indexing the targeted drama types by year provides a useful identification strategy. In this subsection, we analyze the specific demotion and promotion policies to trace their exact impact on the targeted drama types. The typical regression model is as follows:

$$\begin{aligned} Ideology_i &= \alpha + \beta_1 dramaTp_i + \beta_2 dramaTp_yr_{it} + \beta_3 dramaTp_yr_{it} \times Internet_i \\ &\quad + Internet_i + u_{it} \quad (3) \end{aligned}$$

where $dramaTp_i$ denotes a certain type of drama, and $dramaTp_yr_{it}$ refers to this drama type being domoted or promoted in year t. We consider three types of dramas demoted by the government and two types promoted in certain years.

In June 2013, the government instructed satellite channels to limit historical idol dramas to no more than 15% of total airtime per year, with no consecutive airings allowed. This directive became effective in 2014 and remained in place until 2017. We utilized keywords to search drama content and identify historical idol dramas (his_idol_i), and this was further interacted with year dummies for 2014 to 2017(his_idol_1417). This interaction term captures the regulation's impact on demoted historical idol dramas. Additionally, we interacted this term with a dummy indicator for online airing to examine differential impacts on online dramas. The results, shown in Table 3, columns (1)-(3), indicate that the commercial score for TV-aired dramas decreased by 3.2% during the policy years of 2014 to 2017, while online dramas experienced a smaller 2.1% decrease. Political scores for TV-aired dramas were unaffected, but online dramas saw a 4% increase in their political scores.

In 2016, the government mandated that all TV channels limit the airtime of fantasy dramas—including those involving immortal fantasy, magical fantasy, and immortal heroes—to less than 50% of total airtime. We used keywords to identify these fantasy dramas and interacted this with the year 2016, creating the variable ($fantasy_16$) to evaluate the impact of this demotion policy. Additionally, we interacted this term with an internet drama dummy to assess the differential impact on online-aired dramas ($int_fantasy_16$). The results, re-

ported in Table 3, columns (3)-(6), show that the commercial score for TV-aired fantasy dramas decreased by approximately 4.3% in 2016. However, online-aired fantasy dramas did not experience a comparable drop in commercial scores during the same period (4.3% - 4.2%). The political score for TV-broadcast fantasy dramas also saw a 3.8% decrease, though this was only marginally statistically significant (at the 10% level), and online dramas were not differently affected.

In 2019 and 2020, palace intrigue dramas faced regulations concerning their total airtime and broadcasting time slots. We identified these dramas using specific keywords and interacted them with the years 2019 and 2020 to assess the impact of this demotion policy, *palace*_1920. Additionally, we combined this interaction term with an online drama dummy to evaluate the differential impact. The results, shown in Table 3, columns (7) to (10), indicate a notable 6.9% decrease in commercial scores for these dramas broadcast on TV channels. Conversely, online dramas of the same type experienced a decrease that was 5.4 percentage points less than their TV counterparts. The political score for TV-aired dramas also recorded a 13.5% decrease, although this was barely statistically significant at the 10% level, and online dramas did not exhibit a significantly different impact.

The implementation of these demotion policies led to a decrease in the commercial scores of dramas broadcast on TV channels, while their political scores either decreased or remained unchanged. In contrast, such policies had a much smaller impact on the commercial scores of online dramas and exhibited zero to slight positive effects on their political scores. While the policies successfully reduced the commercial appeal of TV-broadcast dramas, they also inadvertently lowered the political scores of these dramas.

In addition to demoting certain types of dramas that embody commercial ideologies disfavored by the government, there was a concerted effort to promote specific political values. In 2014, the government mandated that satellite channels broadcast dramas with themes of patriotism and anti-fascism from September to October. In 2015, each TV channel was required to air one to two anti-fascism dramas during the summer holidays (July to September). In 2016, all TV channels were instructed to broadcast at least one drama with themes of patriotism or anti-fascism from September to October, while satellite channels were required to air at least one "Red Revolution" drama during prime time in October.[14] In 2017, all TV channels were required to broadcast at least one “Red Revolution” or military-themed drama during prime time in July. In 2020, anti-fascism and anti-Japan dramas were once again mandated for broadcast. In summary, dramas with themes of patriotism and anti-fascism were

[14]The "Red Revolution" in China refers to the Chinese Communist Revolution, which resulted in the overthrow of the Nationalist government, led by the Nationalist Party of China (Kuomintang), and the establishment of the People’s Republic of China in 1949. This period was marked by a prolonged civil war and significant social and political transformations.

mandatory for broadcast from 2014 to 2016 and again in 2020, defined as $anti_fas1416_20$. Dramas with "Red-Revolution" or military themes were promoted in 2016 and 2017, indexed as $rev_mil1617$.

The outcomes of the promotion policies are detailed in Table 4. Surprisingly, during the policy implementation periods, the political scores for patriotism and anti-fascism dramas decreased by 5.9%, while those for red revolution and military dramas dropped by 2.8%. Additionally, their commercial scores declined by 3.4% and 3.1%, respectively.

While the negative impact of these promotion policies on commercial scores is not unexpected, it is surprising that the policies led to a decrease, rather than an increase, in the political scores of dramas with themes of patriotism, anti-fascism, red revolution, or military. For online dramas with patriotism and anti-fascism themes during the same policy periods, their commercial scores did not decline in response to these policies. However, neither online patriotism and anti-fascism dramas nor red revolution and military-themed dramas showed any significant change in political scores.

In summary, TV and online broadcast dramas act as substitutes: when policies decreased the commercial scores of TV-aired dramas, the online-aired dramas of the same type did not experience the same decline. It is likely that some high-commercial-score dramas shifted to online platforms due to the policies.

From the dramas' perspective, political and commercial scores appear to be complementary: when commercial scores decrease, political scores either decrease or remain unchanged. Thus, it is challenging for the government to increase a drama's political score without also allowing its commercial score to rise.

6 Impact of tightened regulations on audience ideology exposure and intake

In Section 5, we discuss the impact of policies at the drama level. However, the total number of dramas across different types and platforms may also be affected, influencing the overall ideology exposure of audiences. Figure 8 illustrates the trend in the total number of dramas aired on TV channels and online. It is evident that the total number of dramas broadcast on TV channels has decreased annually since 2014, while the number aired online has increased each year since 2014. This shift in the total number of dramas aired on TV channels means that the aggregate-level ideology exposure might differ from what is observed at the individual drama level. Additionally, TV channels may adjust their broadcasting strategies by varying the number and types of dramas aired to alter audience ideology exposure. However, audiences have the option to avoid dramas they do not prefer, potentially distancing themselves from

government-promoted ideologies.

In this section, we first investigate how TV channels respond to tightened regulations and select the level of ideological content to broadcast. We then assess the impact of these choices on the ideology exposure of an average citizen. Nonetheless, citizens can opt to not watch dramas that do not align with their preferences, thereby reducing their ideological intake from TV channels. We will explore this aspect through viewership analysis.

6.1 How TV channels choose ideology intensity to broadcast

In mainland China, most TV channels are directly owned by the government. When selecting the number of different types of dramas to broadcast, these channels face a trade-off between meeting government requirements or expectations and catering to audience preferences. The government favors dramas with high political scores, whereas audiences tend to prefer those with high commercial appeal.

There are three types of TV channels in mainland China, each serving different audience scopes. Satellite channels broadcast nationally, with each province having one satellite channel and the central government operating around 10 TV channels that broadcast dramas. Provincial channels primarily serve their respective provinces, though some, like those from Shanghai, are popular enough to reach neighboring provinces. Prefectural channels mainly broadcast within their own prefectures. Due to their importance, the government pays more attention to satellite channels. This raises the question of whether satellite channels are more likely to align with government expectations by broadcasting content with higher political intensity.

We measure the ideology intensity chosen by each TV channel by calculating the product of the political (or commercial) score of each drama and its total airing time (in minutes) for all dramas broadcast in a given year, divided by the total airing time of all these dramas for that year. The formulas are specified as follows:

$$\text{Commercial intensity: } Com_chan_{jt} = \frac{\sum_{ij}^{t} Com_{ijt} * ttmins_{ijt}}{\sum_{ijt} ttmins_{ijt}} \quad (4)$$

$$\text{Political intensity: } Pol_chan_{jt} = \frac{\sum_{ij}^{t} Pol_{ijt} * ttmins_{ijt}}{\sum_{ijt} ttmins_{ijt}} \quad (5)$$

Here, Com_chan_{jt} and Pol_chan_{jt} refer to the intensity of commercial and political ideology chosen by the channel j in year t. $Com_{ijt}$and Pol_{ijt} are the commercial and political scores of drama i broadcast by channel j in year t . Note that we only include the year of the drama's premiere. $ttmins_{ijt}$ is the total number of minutes that the drama i is broadcast on channel j in year t. Using this intensity measure, we estimate the following regression models

to investigate how TV channels choose their ideology intensity.

$$\begin{aligned} Com_chan_{jt}/Pol_chan_{jt} &= \alpha + \beta_1 Satellite_Channels_j + \beta_2 Provincial_Channels_j \\ &\quad + \beta_3 Post_t + \Gamma X_{jt} + \delta_t + u_{jt} \quad (6) \end{aligned}$$

$$\begin{aligned} Com_chan_{jt}/Pol_chan_{jt} &= \alpha + \beta_1 Satellite_Channels_i \times Post_t + \beta_2 Post_t \\ &\quad + \Gamma X_{jt} + \delta_t + \sigma_j + u_{jt} \quad (7) \end{aligned}$$

In these models, $Satellite_Channels_j$ is a dummy variable denoting satellite channel j, and $Provincial_Channels_j$ indicates provincial channel j. X_{jt} is a vector of control variables for the channel j in year t, including GDP, population, internet penetration, GDP share of industrial sector, GDP share of agriculture, GDP share of tertiary sector, number of cinemas, real FDI, average wage, number of employees, all in logarithmic form. δ_t represents year fixed effects, σ_j represents channel fixed effects, and $u_{jt}$is the error term.

The results are presented in Table 5. Columns (1) and (3) do not account for channel fixed effects, while columns (2) and (4) include them. Examining the ideology intensity chosen by TV channels after 2014, we find that commercial intensity decreased by 7.6% to 8.1%, whereas political intensity remained unchanged. We then explore the behaviors of different channels, noting that satellite and provincial channels are generally subject to stricter control than prefectural channels. Interestingly, satellite channels exhibited a 0.6% lower political intensity overall, without an increase in commercial intensity. However, since the implementation of tightened regulations in 2014, satellite channels have experienced a 0.5% smaller decrease in commercial intensity compared to other channels, while their political intensity is 1% higher. Despite this, satellite channels behave more competitively than other channels, yet they also align more closely with government requirements, displaying higher political intensity. Given that satellite channels reach the largest audience market and have the potential for substantial profit, it is natural for them to engage in more commercial activities, while also accommodating increased political objectives when the tighter regulations were introduced.

6.2 Impact on ideology exposure and intake

For a typical citizen, access is generally available to all satellite channels, the provincial and prefectural channels corresponding to their residence, and some popular provincial channels from other regions. From viewership data, we know exactly which channels a citizen in a specific prefecture can access, as well as the viewership for each drama broadcast on these channels in various prefectures. We define ideology exposure from satellite, provincial, and prefectural channels as follows:

$$\text{Satellite channels: } Ide_nat_t = \frac{\sum_i^t Ide_{it} * ttmins_{it}}{\sum_i^t ttmins_{it}} \quad (8)$$

Here, Ide_nat_t referes to the aggregate ideology from dramas premiered on satellite channels that a citizen is exposed to in year t, whether commercial or political. Ide_{it} is the ideology of drama i premiered on sattelite channels in yera t, and $ttmins_{it}$ is the total airtime of drama i (in minute). The numerator is the weighted sum of the ideologies of all dramas aired on satellite channels in year t, and the denominator is the total airtime of all these dramas.

$$\text{Provincial channels: } Ide_prof_{p_o t} = \frac{\sum_{iP_o}^t Ide_{iP_o t} * ttmins_{iP_o t}}{\sum_t^{ip_o} ttmins_{iP_o t}} \quad (9)$$

where $Ide_prof_{p_o t}$ is the aggregate ideology from dramas premiered on provincial channels that a citizen in year t is exposed to. $Ide_{ip_o t}$ is the ideology of drama i premiered in province p_o's channels P_o in year t and $ttmins_{iP_o t}$ refers to the total minutes this drama aired. The numerator is the weighted sum of the ideologies of all dramas premiered on the provincial channels that the citizen has access to in year t, and the denominator is the total airtime of all dramas premiered on province p_o's channels in year t . It is possible that a citizen could have access to more than one provincials' chanels.

$$\text{Prefectural channels: } Ide_pref_{pt} = \frac{\sum_{ip}^t Ide_{ipt} * ttmins_{ipt}}{\sum_t^{ip} ttmins_{ipt}} \quad (10)$$

Ide_pref_{pt} refers to the aggregate ideology from dramas premiered on prefectural channels that a citizen is exposed to in year t, whether commercial or politial. Ide_{ipt} is the ideology of drama i premiered in prefecture p 's channels that the citizen has access to in year t, and $ttmins_{ipt}$is the total airtime of the drama. The numerator is the weighted sum of the ideologies of all dramas premiered on the prefectural channels that the citizen has access to in year t . The denominator is the total airtime of all dramas premiered on the prefecture p's channels in year t.

The overall ideology exposure for a citizen in year t is the sum of the weighted ideology from all accessible dramas:

$$Ide_exp_{pt} = Ide_pref_{pt} + Ide_prof_{p_o t} + Ide_nat_t$$

We then examine how ideology exposure has changed since 2014 and how it varies with different regional economic and social characteristics. The regression model is specified as

follows:

$$Ide_exp_{pt} = \alpha + \beta_1 Post_t + (\beta_3 Post_t \times lnGDP) + \Gamma X_{pt} + \sigma_p + \delta_t + u_{pt} \quad (11)$$

where X_{pt} is a vector of control variables for prefecture p in year t. The results are reported in Table 6. Since the implementation of tightened regulations in 2014, audience exposure to political ideology increased by approximately 4%, while exposure to commercial ideology decreased by about 4%. From a macro perspective, this indicates that the government achieved its objectives. In regions with higher GDP levels, exposure to both commercial and political ideologies from TV dramas is reduced. This may be because, in wealthier regions, audiences tend to switch from TV channels to online dramas or other forms of entertainment, thereby reducing their ideology exposure from TV broadcasts.

As observed in Section 5, the commercial scores of online dramas have been largely unaffected by the tightened regulations since 2014, making them a viable alternative for audiences. Consequently, when TV dramas fail to meet audience needs due to decreased commercial scores and increased political scores, audiences may turn to online dramas or other entertainment options. We capture this shift through the viewership data of TV dramas. By multiplying the ideology of each drama by its reach rate from specific channels and recipient prefectures (as outlined in equations 8 to 10), we obtain the reach rate-weighted ideology exposure, which represents the ideology accepted by the audience. We refer to this as ideology intake, and the corresponding formulas are as follows:

$$\text{From satellite channels: } IdeIn_nat_t = \frac{\sum_i^t rgt_{it} * Ide_{it} * ttmins_{it}}{\sum_i^t ttmins_{it}} \quad (12)$$

$$\text{From provincial channels: } IdeIn_prof_{p_o t} = \frac{\sum_{iPo}^t rgt_{it} * Ide_{ip_o t} * ttmins_{ip_o t}}{\sum_t^{ip} ttmins_{ip_o t}} \quad (13)$$

$$\text{From prefectural channels: } IdeIn_pref_{pt} = \frac{\sum_{ip}^t rgt_{it} * Ide_{ipt} * ttmins_{ipt}}{\sum_t^{ip} ttmins_{ipt}} \quad (14)$$

Total ideology intake:

$$IdeIn_exp_{pt} = IdeIn_pref_{pt} + IdeIn_prof_{p_o t} + IdeIn_nat_t$$

where rgt_{it} is the reach rate[15]. We then rerun the regressions from table 6, replacing the dependent variable with the ideology intake defined above, $IdeIn_exp_{pt}$. The results are presented in Table 7. Columns (1) and (3) indicate that both commercial and political ideology

[15]Reach rate is defined by the formula. $rgt_{it} = \frac{No.\ of\ households(audiences)\ watching_{it}}{Total\ TV\ households(audiences)_t} \times 100\%$

intake have significantly decreased by 18% and 16%, respectively, since 2014. Columns (2) and (4) incorporate the interaction between the policy effective year dummy ($Post_t$) and GDP. The coefficients of the interaction terms in both regressions are statistically significant and negative, while the coefficient of $Post_t$ is no longer statistically significant. These results suggest that GDP level is the primary factor driving down ideology intake, as the magnitude of the decrease is proportional to GDP levels. The findings further confirm that audiences with better economic conditions are more likely to switch their viewership from TV dramas to online dramas or other entertainment substitutes, thereby reducing their ideology intake from TV channels.

In sum, although mainland Chinese audiences have been exposed to 4% more political ideology and 4% less commercial ideology since 2014 due to tightened regulations, they have chosen to watch fewer dramas broadcast on TV channels, thereby reducing their intake of both political and commercial ideologies by 18% and 16%, respectively. From this perspective, the government policies have not been successful.

7 Conclusion

By employing machine learning techniques to construct commercial and political scores for Chinese TV dramas, we have been able to discern notable shifts in content following the implementation of stricter government regulations in 2014. Our findings indicate that after 2014, there has been a marked increase in the political content of TV dramas aired on traditional channels, accompanied by a decrease in their commercial appeal. Conversely, online dramas, which are not subject to the same regulatory constraints, did not experience any reduction in commercial quality, suggesting a migration of higher-quality content to online platforms.

Moreover, our macro-level analysis reveals that despite the Chinese government's success in increasing political ideology exposure through TV dramas, audience consumption of both political and commercial ideologies has substantially decreased. This trend is especially pronounced in regions with higher GDP levels, suggesting that viewers may be turning away from regulated TV content in favor of alternative media. These findings highlight the complex relationship between government regulation, media content, and audience behavior. They suggest that while regulatory efforts can influence the ideological nature of television content, they may also lead audiences to seek less regulated media sources. This study offers a comprehensive framework for understanding the ideological dynamics of Chinese TV dramas and provides valuable insights for future research on media influence in China.

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Tables and Figures:

Fig.1 A drama from producer to audience

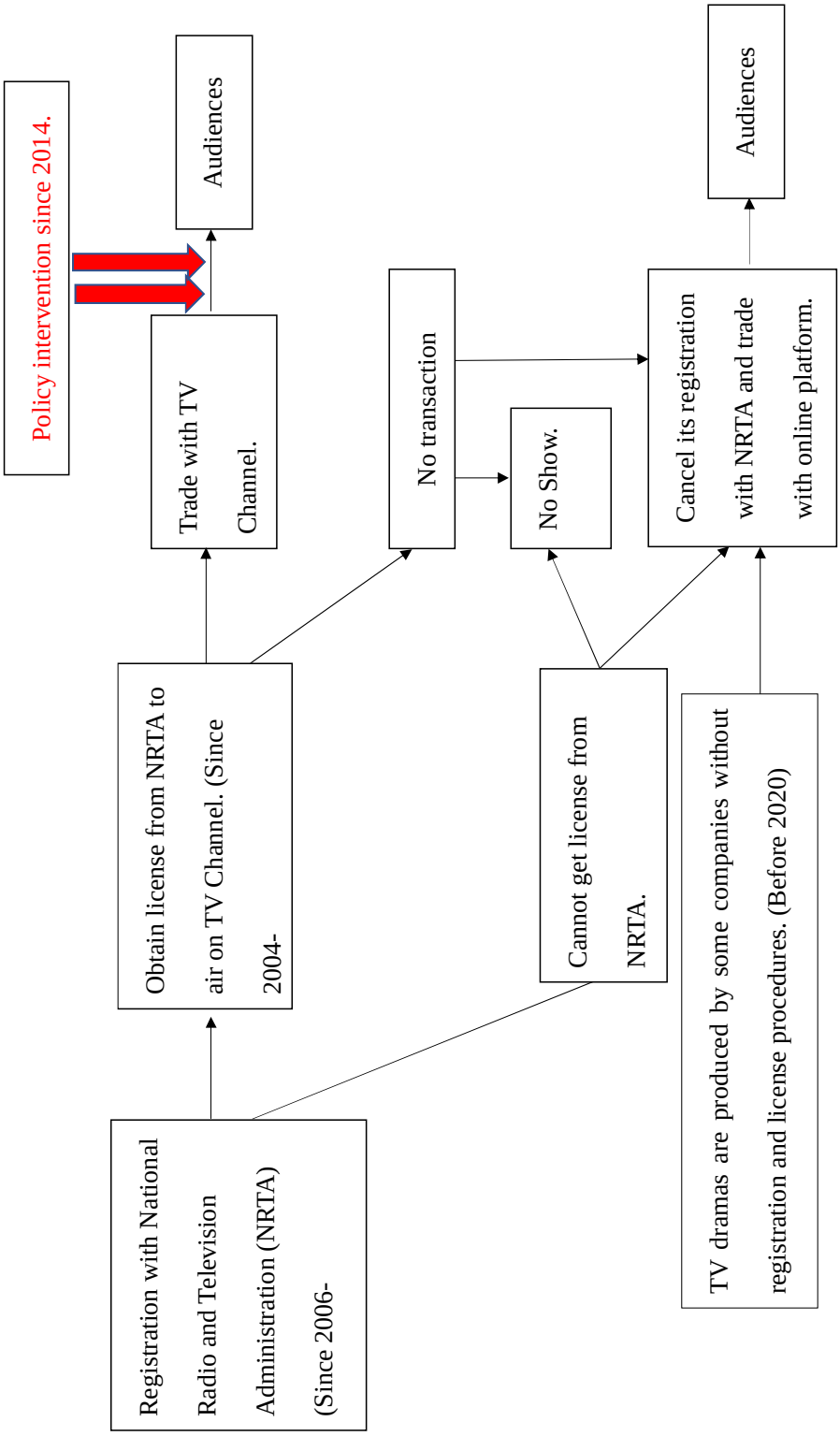


Fig.2 High frequency words that predict high commercial scores



Note: Top words predict high commercial score: “never thought”, “ordinary”, “Jianghu” (a term often used to describe the martial arts world or society of wandering heroes in Chinese culture), “brother”, “youth”, “USA”, “deeply in love”, “love story”

Fig.3 High frequency words that predict high political scores



Note: Top words predicts high political score: “Kuomintang (KMT)”, “CCP”, “the two persons”, “China”, “Japan”, “By one’s side”, “unexpected”, “never thought”

Fig.4 Ideology distribution of dramas aired over years

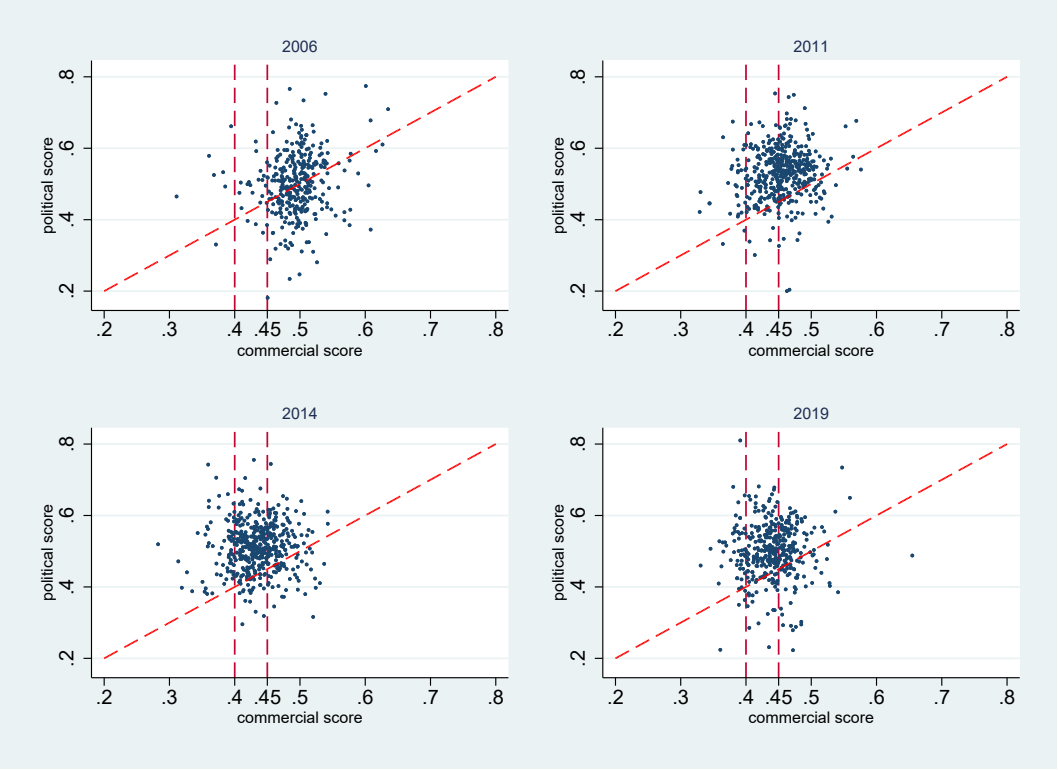


Fig.5 Ideology distribution of dramas licensed over years

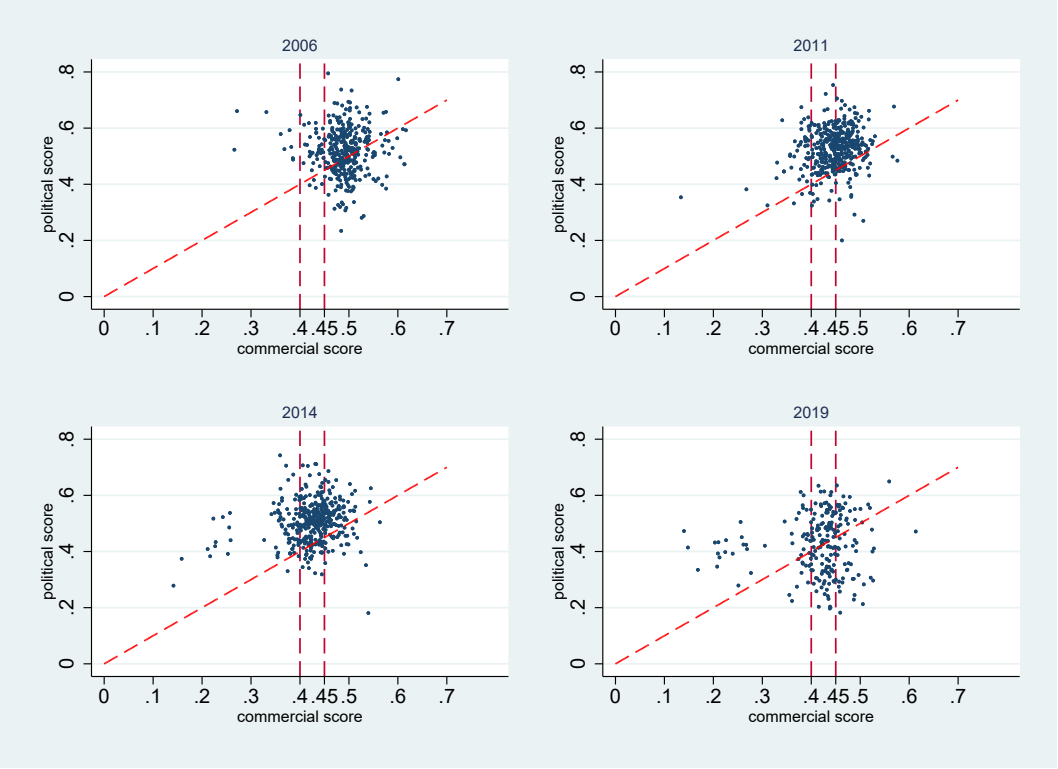


Fig.6 Median ideologies of dramas aired Vs. licensed over years

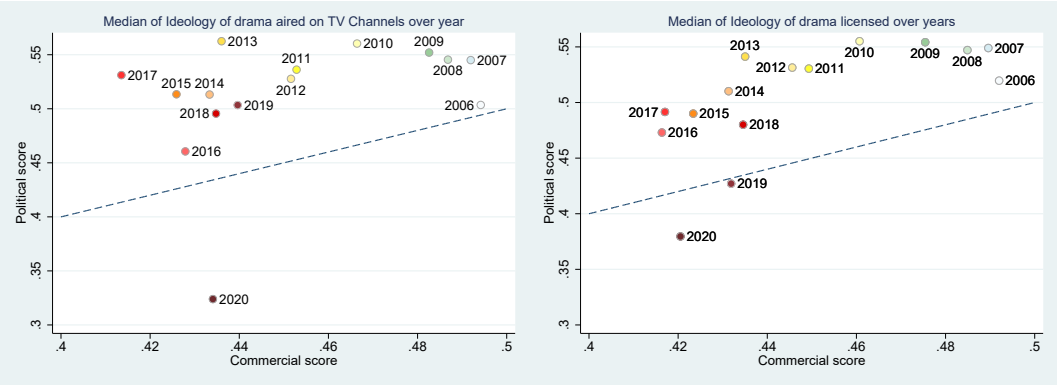


Fig.7 The median ideologies of dramas aired on TV Channels vs. online over years

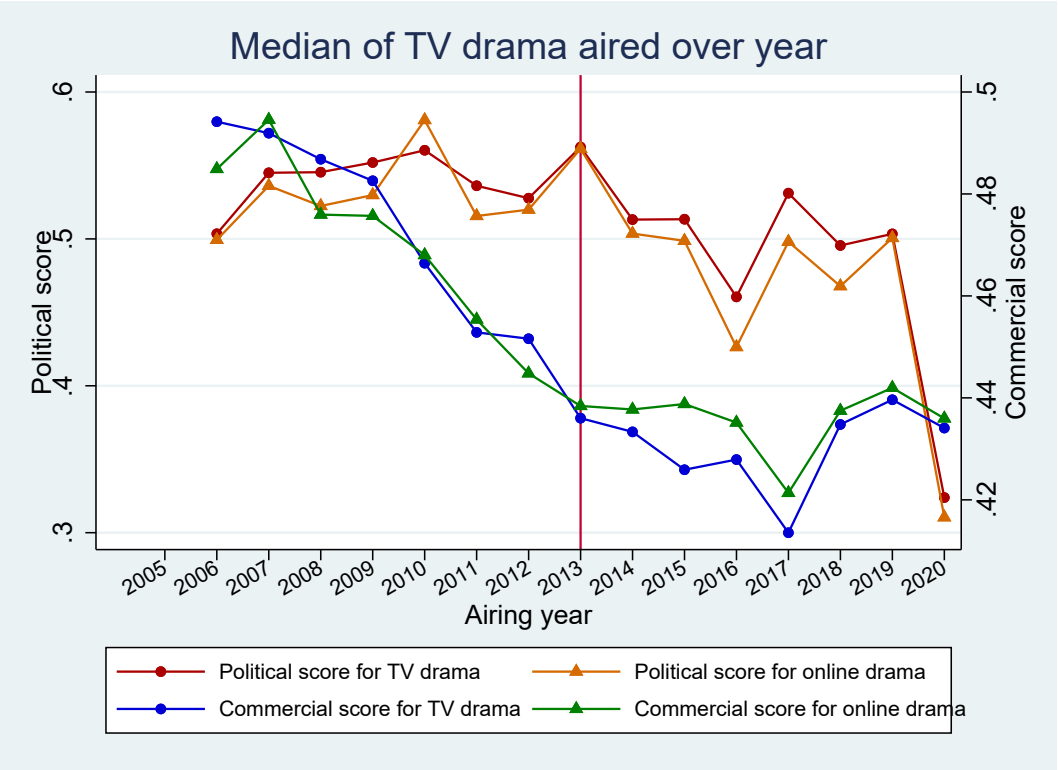


Fig.8 The number of dramas across years

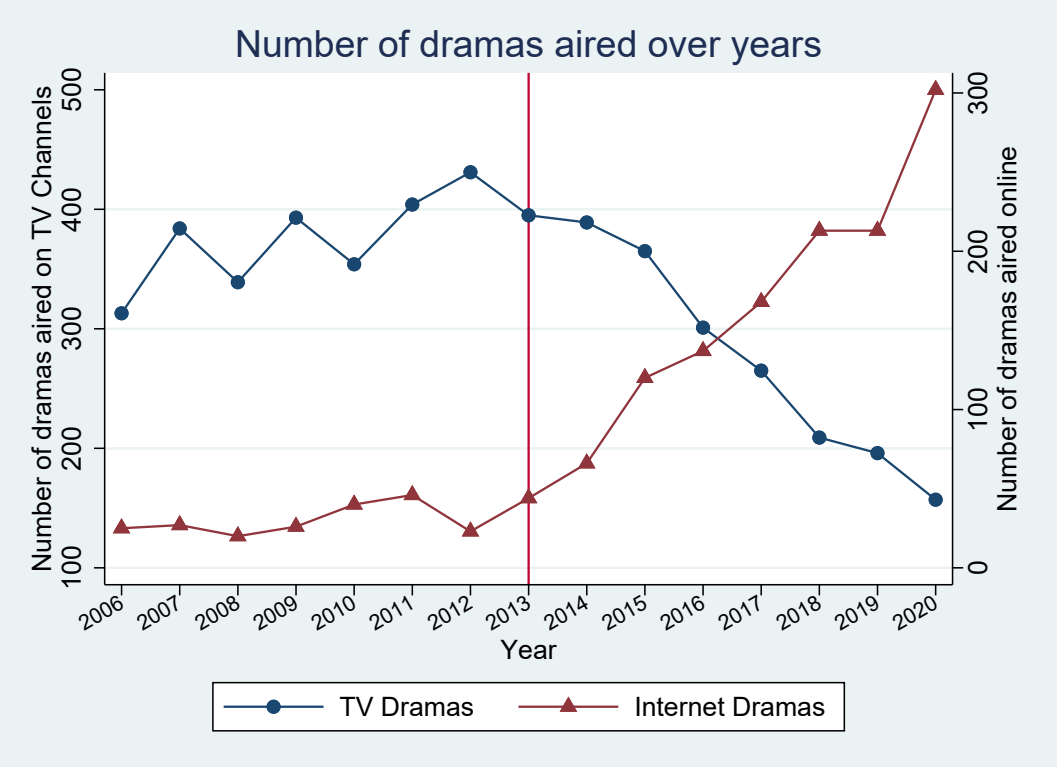


Table 1a Summary of ideologies of dramas broadcasted

		Commercial Score				Political Score			
Year	N	mean	sd	min	max	mean	sd	min	max
2006	338	0.4937	0.0392	0.311	0.635	0.4989	0.0883	0.1813	0.7742
2007	411	0.4947	0.0481	0.2714	1	0.5469	0.0907	0.2494	1
2008	359	0.4877	0.0389	0.266	0.7144	0.5469	0.0895	0.1567	0.8754
2009	419	0.4798	0.0393	0.3483	0.6159	0.5507	0.0745	0.3129	0.8152
2010	394	0.4676	0.0359	0.3559	0.608	0.5668	0.0726	0.3522	0.8052
2011	450	0.4533	0.0363	0.3291	0.5761	0.5296	0.0729	0.2001	0.7534
2012	454	0.4481	0.039	0.3261	0.576	0.5227	0.07	0.2993	0.7057
2013	439	0.4365	0.0367	0.2803	0.5483	0.5591	0.07	0.3129	0.7355
2014	455	0.4351	0.0376	0.2826	0.5426	0.5109	0.0699	0.2954	0.7557
2015	485	0.4298	0.0363	0.2902	0.5633	0.5102	0.0659	0.3025	0.7121
2016	438	0.4284	0.0384	0.3071	0.5649	0.448	0.0717	0.1639	0.6608
2017	433	0.4164	0.0399	0.2672	0.5529	0.5133	0.0709	0.2784	0.748
2018	422	0.4353	0.0398	0.3009	0.5838	0.4854	0.0702	0.2404	0.682
2019	409	0.4407	0.0358	0.3305	0.6548	0.4997	0.0787	0.2228	0.8102
2020	459	0.4354	0.0327	0.2885	0.5378	0.3165	0.0696	0.1127	0.5914

Table 1b Summary of ideology of licensed dramas

		Commercial Score				Political Score			
year	N	mean	sd	min	max	mean	sd	min	max
2006	376	0.4922	0.0507	0.266	1	0.5175	0.082	0.2342	0.7949
2007	421	0.4901	0.0432	0.2339	0.6679	0.5485	0.0959	0.1567	1
2008	409	0.4843	0.0409	0.3043	0.6205	0.5456	0.0835	0.2886	0.8736
2009	346	0.4759	0.0421	0.3483	0.7144	0.5588	0.0711	0.3454	0.8152
2010	394	0.4598	0.0381	0.2416	0.635	0.5566	0.0807	0.204	0.7953
2011	432	0.4468	0.0421	0.1337	0.576	0.5245	0.0731	0.2001	0.7534
2012	468	0.441	0.0468	0	0.6134	0.5241	0.0816	0.131	0.7557
2013	403	0.4357	0.0421	0.2181	0.6134	0.5352	0.0793	0.2316	0.728
2014	400	0.4259	0.0525	0.1416	0.5633	0.5056	0.0747	0.1808	0.7426
2015	376	0.4184	0.0563	0.1669	0.6134	0.4821	0.0863	0	0.6894
2016	327	0.4115	0.064	0.1481	0.6398	0.4755	0.0885	0.1639	0.8102
2017	295	0.4163	0.0607	0.1936	0.6548	0.4805	0.0935	0.2236	0.6686
2018	303	0.4224	0.0655	0.1778	0.5533	0.4637	0.1034	0.1127	0.7343
2019	227	0.4189	0.0698	0.14	0.6134	0.4248	0.1061	0.1823	0.6496
2020	177	0.4109	0.066	0.1687	0.5258	0.3673	0.0918	0.0885	0.6458

Table 2. Ideology of dramas before and after 2014

VARIABLES	(1) Political	(2) Commercial	(3) Ratio	(4) Political	(5) Commercial	(6) Ratio
Post	-0.0542***	-0.0396***	-0.0209***	-0.0559***	-0.0368***	-0.0318***
	(0.00256)	(0.00121)	(0.00664)	(0.00335)	(0.00160)	(0.00861)
Internet	0.00859	-0.00382	0.0287**			
	(0.00532)	(0.00305)	(0.0136)			
PostXInternet	-0.0528***	0.00873***	-0.146***			
	(0.00640)	(0.00334)	(0.0163)			
Govt				0.00478	0.00889***	-0.0130
				(0.00349)	(0.00182)	(0.00848)
PostXGovt				0.000364	-0.00728**	0.0217
				(0.00645)	(0.00302)	(0.0166)
listed				-0.00476	-0.00700*	0.00617
				(0.00589)	(0.00364)	(0.0153)
PostXlisted				0.0100	0.00465	0.0143
				(0.00965)	(0.00475)	(0.0253)
capital_reg				-4.38e-09	2.34e-09	-1.72e-08
				(6.17e-09)	(2.68e-09)	(1.47e-08)
Observations	6,392	6,392	6,392	4,277	4,277	4,277
R-squared	0.166	0.170	0.054	0.093	0.180	0.004
Dramas	All aired	All aired	All aired	TVchannel	TVchannel	TVchannel

Table 3 Impact of demotion policies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Political	Commercial	ratio	Political	Commercial	ratio	Political	Commercial	ratio
internet_drama	-0.0571***	-0.0137***	-0.0983***	-0.0545***	-0.0131***	-0.0936***	-0.0588***	-0.0142***	-0.1009***
	(0.0031)	(0.0012)	(0.0073)	(0.0032)	(0.0013)	(0.0074)	(0.0030)	(0.0012)	(0.0071)
his_idol	-0.0507***	-0.0050**	-0.1064***						
	(0.0065)	(0.0025)	(0.0148)						
his_idol_1417	0.0020	-0.0317***	0.0846***						
	(0.0110)	(0.0043)	(0.0273)						
int_his_1417	0.0403***	0.0208***	0.0441						
	(0.0120)	(0.0061)	(0.0320)						
fantasy				-0.0330***	-0.0087***	-0.0556***			
				(0.0053)	(0.0021)	(0.0123)			
fantasy_16				-0.0377*	-0.0435***	0.0180			
				(0.0223)	(0.0081)	(0.0510)			
int_fantasy_16				0.0238	0.0423***	-0.0502			
				(0.0250)	(0.0105)	(0.0569)			
palace							-0.0598***	-0.0020	-0.1329***
							(0.0132)	(0.0061)	(0.0266)
palace_1920							-0.1349*	-0.0689***	-0.1833
							(0.0689)	(0.0150)	(0.1489)
int_palace_1920							0.0062	0.0538***	-0.0845
							(0.0711)	(0.0180)	(0.1597)
Observations	6,392	6,392	6,392	6,392	6,392	6,392	6,392	6,392	6,392
R-squared	0.0810	0.0241	0.0444	0.0753	0.0217	0.0388	0.0773	0.0183	0.0429

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4 Impact of promotion policies

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Political	Commercial	ratio	Political	Commercial	ratio
internet_drama	-0.0584***	-0.0157***	-0.0962***	-0.0559***	-0.0165***	-0.0887***
	(0.0031)	(0.0012)	(0.0072)	(0.0031)	(0.0013)	(0.0073)
anti_fascism	0.0301***	-0.0034	0.0765***			
	(0.0049)	(0.0024)	(0.0122)			
anti_fas1416_20	-0.0585***	-0.0336***	-0.0409*			
	(0.0084)	(0.0041)	(0.0228)			
int_anti_fas1416_20	0.0539	0.0319**	0.0374			
	(0.0371)	(0.0126)	(0.0915)			
rev_mil				0.0205***	-0.0054***	0.0579***
				(0.0030)	(0.0015)	(0.0073)
rev_mil1617				-0.0275***	-0.0305***	0.0239
				(0.0065)	(0.0033)	(0.0180)
int_rev_mil1617				0.0631	0.0126	0.1203
				(0.0453)	(0.0248)	(0.1111)
Observations	6,392	6,392	6,392	6,392	6,392	6,392
R-squared	0.0753	0.0332	0.0416	0.0745	0.0350	0.0470

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5 Ideology intensity aired by TV channels

	(1)	(2)	(3)	(4)
VARIABLES	Commercial	Commercial	Political	Political
Satellite_Channels	0.00100		-0.00623***	
	(0.00127)		(0.00202)	
Provincial_Channels	-0.00186*		-0.000931	
	(0.000964)		(0.00184)	
Post	-0.0764***	-0.0809***	0.0256	0.0184
	(0.0113)	(0.0118)	(0.0220)	(0.0226)
Post X Satellite_Channels		0.00509***		0.0104**
		(0.00192)		(0.00462)
Lninternet	0.000515	0.000314	0.00357**	0.00331**
	(0.000698)	(0.000752)	(0.00162)	(0.00159)
LnGDP	0.00711	0.00666	0.00922	0.0114
	(0.00465)	(0.00473)	(0.00999)	(0.0103)
Ln_Ind_share	-0.0211**	-0.0139	-0.0538**	-0.0409*
	(0.0104)	(0.0112)	(0.0212)	(0.0225)
Observations	4,505	4,477	4,505	4,477
R-squared	0.616	0.675	0.361	0.443
prefecture FE	Yes	Yes	Yes	Yes
Channel FE	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes

Standard errors clustered at Channel level. *** p<0.01, ** p<0.05, * p<0.1
Note: population, GDP share of agriculture, GDP share of tertiary sector, # cinema, real FDI, average wage, # employee, in logarithm are controlled for, but none of them matters.

Table 6 Ideology Exposure across prefectures and years

	(1)	(2)	(3)	(4)
VARIABLES	Commercial	Commercial	Political	Political
post	-0.0429***	-0.0369***	0.0340***	0.0418***
	(0.00105)	(0.00267)	(0.00142)	(0.00295)
Post X LnGDP		-0.000308**		-0.000404***
		(0.000117)		(0.000143)
LnGDP	-0.000868	-0.000906	0.00241***	0.00236***
	(0.000630)	(0.000629)	(0.000735)	(0.000716)
Lninternet	0.000252**	0.000213*	0.000502***	0.000451***
	(0.000126)	(0.000120)	(0.000149)	(0.000140)
Ln_tert_share	-0.00400***	-0.00381***	-0.00143	-0.00117
	(0.00123)	(0.00118)	(0.00190)	(0.00169)
Ln_ind_share	-0.00485***	-0.00464***	-0.00428**	-0.00401***
	(0.00103)	(0.000948)	(0.00168)	(0.00148)
ln_employees	-0.000576	-0.000570	0.000942***	0.000949**
	(0.000406)	(0.000376)	(0.000336)	(0.000358)
Observations	797	797	797	797
R-squared	0.999	0.999	0.997	0.997
prefecture FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Standard errors clustered at prefecture level. *** p<0.01, ** p<0.05, * p<0.1

Note: GDP share of agriculture, # cinema, real FDI, average wage, population, in logarithm are controlled for, but none of them matters.

Table 7 Ideology exposure weighted by reach rate

VARIABLES	(1) Commercial	(2) Commercial	(3) Political	(4) Political
post	-0.186**	0.121	-0.163*	0.190
	(0.0837)	(0.178)	(0.0929)	(0.200)
Post X LnGDP		-0.0160**		-0.0183**
		(0.00789)		(0.00902)
LnGDP	0.00636	0.00439	0.0101	0.00783
	(0.0482)	(0.0490)	(0.0541)	(0.0551)
Lninternet	-0.00552	-0.00789	-0.00560	-0.00833
	(0.00797)	(0.00772)	(0.00897)	(0.00867)
Lnpopulation	0.153***	0.167***	0.175***	0.190***
	(0.0400)	(0.0409)	(0.0445)	(0.0456)
Ln_tert_share	-0.191*	-0.196*	-0.189*	-0.195*
	(0.101)	(0.102)	(0.112)	(0.113)
Ln_ind_share	-0.152*	-0.158*	-0.169*	-0.175*
	(0.0833)	(0.0857)	(0.0916)	(0.0942)
Observations	848	848	848	848
R-squared	0.849	0.851	0.837	0.840
prefecture FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Standard errors clustered at Channel level. *** p<0.01, ** p<0.05, * p<0.1

Note: GDP share of agriculture, # cinema, real FDI, average wage, # employee, in logarithm are controlled for, but none of them matters.

Appendix

Fig A1. Example for the registration data - one drama registered in September 2011.

电视剧拍摄制作备案公示表

报备机构：中国爱华影视中心　　2011 年9 月　　许可证号：（广媒）字第064号

剧名	题材	体裁			集数	拍摄日期	制作周期
		一般	喜剧	戏曲			
小城风流	当代都市	√			20	2011.11	6 个月
内容提要：县文化馆承担着宣传党的方针政策、普及文化工作的任务，是国家最基层的文化单位，工作人员老杜、孙美丽等除了要完成自身的专业工作外，时常要配合政府的中心任务，做些他们不熟悉的工作，比如计划生育、拆迁、文物保护、联合国卫生日、世界艾滋病日、健身日等等。面对诸多矛盾和问题，有尴尬和无奈，但也有执着、热心和理想主义，他们为丰富群众文化生活，为繁荣城市文化事业而兢兢业业地努力工作。							
省级管理部门备案意见	同意备案，报请总局电视剧司公示。				相关部门意见		
备注							

Fig.A2 Example for the license data record, first several licenses issued for quarter 1, 2020

附件

2020年1-3月全国《国产电视剧发行许可证》目录

序号	发证机关	申报机构	剧名	集数	许可证号	发证日期
1	总局	中国电视剧制作中心有限责任公司	奋进的旋律	35	（广剧）剧审字（2020）第001号	2020/01/13
2	总局	北京电视艺术中心有限公司	不说再见	47	（广剧）剧审字（2020）第002号	2020/01/17
3	总局	公安部金盾影视文化中心	谋局	24	（广剧）剧审字（2020）第003号	2020/01/17
4	总局	河北电影电视剧制作中心	光荣警务	34	（广剧）剧审字（2020）第004号	2020/01/22
5	总局	中国电影股份有限公司	黑色灯塔	30	（广剧）剧审字（2020）第005号	2020/02/29

Fig. A3 Example for Douban data



Fig. A4 Example for the producer data from Tianyancha



Fig.A5 Ideology distribution of dramas registered over years

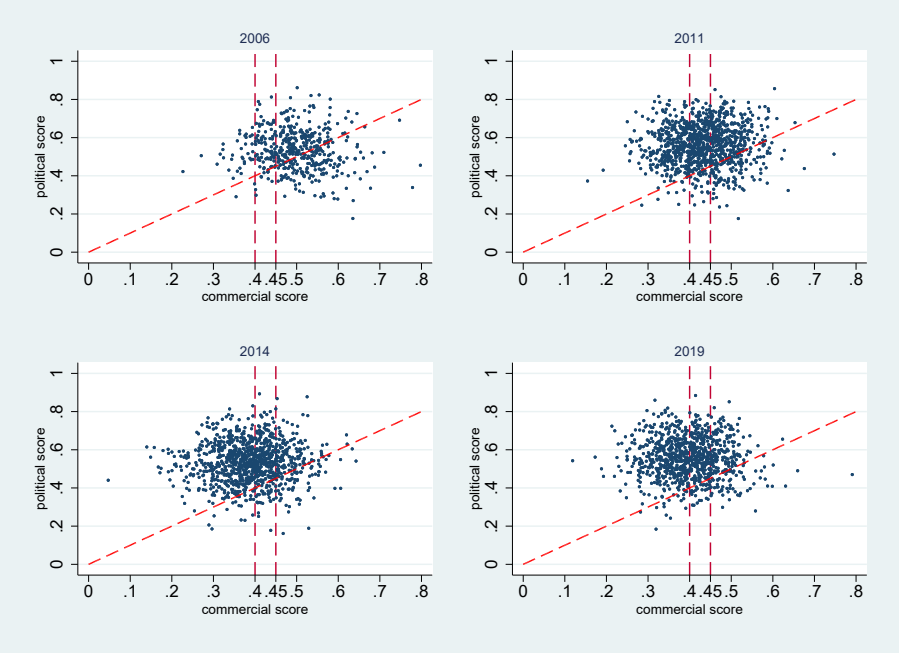


Table A1 Directives issued since 2014

Year	Promote	Demote
2014	Sep-Oct: Satellite channels must broadcast dramas with themes of patriotism and anti-fascism.	Airtime of historical idol dramas ≤ 15% on satellite channels, and no two aired consecutively.
2015	July-Sep: Each channel needs to broadcast 1-2 anti-fascism dramas.	Airtime of historical idol dramas ≤ 15% on satellite channels, and no two aired consecutively.
2016	Sep-Oct: Channels must broadcast patriotism and anti-fascism dramas. In Oct, satellite channels must broadcast red revolution dramas during prime time.	Historical idol dramas cannot exceed 15% of airtime on satellite channels and cannot be aired consecutively. Total airtime for fantasy dramas (including immortal fantasy, magical fantasy, and immortal heroes) cannot exceed 50%.
2017	In July, channels have to broadcast red revolution or military-themed dramas during prime time.	Historical idol dramas cannot exceed 15% of airtime on satellite channels and cannot be aired consecutively. In Aug, satellite channels cannot broadcast overly entertaining dramas during prime time.
2018	Recommended dramas with themes to commemorate the reform and opening-up.	
2019		Limit palace intrigue dramas. Aug-Oct: Cannot broadcast overly entertaining historical idol dramas.
2020	Should broadcast Anti-fascism and anti-Japan drama; broadcast the theme of poverty alleviation	Limit palace intrigue dramas.

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