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Frontiers: Pirating Foes or Creative Friends? Effects of User-Generated Condensed Clips on Demand for Streaming Services

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Abstract. Short-form video-sharing platforms have seen phenomenal growth in recent years. One type of video that often goes viral on such platforms is the condensed clips derived from existing full-length video content. The traditional entertainment industry has strongly criticized this new form of user-generated derivative content owing to the potential for infringement on copyright owners' exclusive rights and de facto theft of viewers from original works. However, little is known of the actual impact of condensed clips on the demand for corresponding original works. In this study, we seek to identify such impact with the help of an exogenous boycott event in April 2021 that forced Chinese Tik-Tok to remove condensed clips more proactively. Our results indicate that their removal had reduced the demand for corresponding full-length original works on a major video streaming platform by approximately 3%. In other words, condensed clips serve as friends, rather than foes, of streaming services. Further analyses suggested that positive spillover effects resulted from the fact that condensed clips could enhance the visibility of original works, and such effects were stronger if the original work was of higher quality or had a more fascinating storyline. Our results offer rich managerial and policy insights.

1. Introduction

Short-form video-sharing platforms with abundant user-generated content (UGC), such as TikTok and You-Tube Shorts, are gaining popularity worldwide. Clips from popular films or television series, which in effect are condensed versions of the original contents, represent one particular type of short-form videos that often go viral on Chinese video-sharing platforms such as Douyin (i.e., the Chinese version of TikTok) and Kuaishou. In these several-minute-long condensed clips, amateur creators offer the central storyline, or spoil the best part, by editing or simply copying original scenes. Such user-generated derivative works have attracted a vast crowd and have gained popularity in China as well as globally.[1]

Typically, copyright owners of the original content are neither notified nor compensated. The copyright infringement issue has drawn increasing attention from industry stakeholders and government policymakers,

especially in light of the rapid growth of short-form video platforms. Among the parties involved, leading video streaming services such as Tencent Video and iQIYI, which invest heavily in copyrights and feature licensed full-length movies and television series, are particularly concerned about copyright infringement by short-form video platforms. Naturally, they may view condensed clips as substitutes for their full-length content. With such condensed clips, consumers, who are already living in an era of shrinking attention spans (Kies et al. 2018), might be even more reluctant to watch a full-length film or TV series as they habitually did in the past. Furthermore, the resolved plot uncertainty displaces physiological arousal generated by suspense and thus diminishes the enjoyment gained from watching original content (Ely et al. 2015). Reflecting these concerns, Tencent Video has filed a series of lawsuits in recent years against (Chinese) TikTok, alleging unauthorized use of copyrighted content.[2]

Apart from negative substitution effects, industry observers acknowledge that condensed clips may also serve as valuable complements to original video content. These clips can introduce viewers to films or TV series unknown to them, and thus induce them to watch the full content via streaming services. Meanwhile, the growth of short-form video platforms has made them an increasingly important channel for advertising (Yang et al. 2023). As a result, certain streaming services have started to seek collaboration with short-form video platforms. For example, iQIYI signed a copyright authorization agreement with TikTok in July 2022, granting (partial) permission to creators on TikTok to condense original works.

In any case, given the prevalence of user-generated condensed clips, it is crucial to quantify and comprehend their impacts on the demand for original works. Currently there is still controversy among industry stakeholders about whether such impacts are detrimental or beneficial, possibly due to a lack of robust empirical evidence either way. This paper sets out to fill this gap by offering solid quantitative results with mechanistic explanations about how the presence of condensed clips on short-form video platforms affects the demand for corresponding original works on streaming services.

Although the literature has examined the effect of digital piracy on original content (Danaher and Smith 2014), there is a key distinction between condensed clips and pirated copies in the extent of displacement from original content. Pirated copies closely mimic authentic products and serve as their complete substitutes when consumers search and make purchase decisions (Peitz and Waelbroeck 2006). Condensed clips, by contrast, are incomplete versions of original works (with partial displacement) often featuring the most engaging part, and thus can influence consumers' product awareness and consideration set. Accordingly, the impact of condensed clips may differ substantially from that of pirated copies.[3]

In addition, condensed clips may have a different impact also from that of trailers, despite that both of them constitute partial representation of the original content. Trailers are meticulously designed by firms to increase product demand and avoid spoiling the plot (Liu et al. 2018), whereas condensed clips intentionally include the full storyline and best part. Therefore, empirical findings on the impact of trailers are not directly applicable to condensed clips, and hence, a careful research design is required to examine the impact of condensed clips on the demand for original works.

It is empirically challenging to identify the causal effect of condensed clips due to potential endogeneity issues often associated with UGC (Godes and Mayzlin 2004, Seiler et al. 2017). To overcome this challenge, we used an exogenous boycott event involving Chinese TikTok. In April 2021, more than 500 actors and actresses, together with more than 70 major companies and organizations in the industry, protested against copyright infringement on short-form video platforms. They called for platforms like TikTok to actively detect and remove unauthorized film and television content. Note that a key feature of Chinese streaming platforms is the distinction between VIP (i.e., only available to paid subscribers) and non-VIP (i.e., free to the public) content. Although most VIP videos are actually affiliated with parties involved in the boycott event, non-VIP content is mostly from small parties or even publicly open. Thus, in response to the joint boycott, TikTok (unexpectedly to viewers) removed unauthorized condensed clips related to VIP content.

Taking advantage of this quasi-experimental design, we created a four-month panel with 917 TV series by collecting the daily number of views per series from one of the largest streaming platforms in China and from the TikTok Index that indicates the popularity of the condensed clips relevant to each TV series. We applied a difference-in-differences (DiD) model to causally quantify the effects of removing condensed clips related to VIP content by comparing changes in demand for paid VIP content with changes in demand for free non-VIP content on streaming services.

Our empirical results reveal a *positive* effect of TikTok condensed clips on streaming services demand. Specifically, we observed that the boycott event led to an approximately 3% drop in the number of views for the original VIP content on the focal streaming platform. To explain this, we conceived that short-form condensed clips could be viewed as user-generated samples of original video works. They produce positive spillovers by enhancing the visibility of TV series and attracting interested viewers to the full-length content on streaming services. However, such enhanced visibility cannot guarantee the shift to streaming platforms once and for all; condensed clips may also induce potential substitution effects that will compete against the enhanced visibility. Specifically, consumers could evaluate the cost and benefit of shifting from short-form video platforms to streaming services (Deng et al. 2022). Our further analyses reveal that shifts are more likely to occur for TV series with higher ratings or heavier plots, as well as for specific episodes with especially engaging subplots.

This study makes the following contributions. First, our research expands the piracy literature (Danaher and Smith 2014, Ma et al. 2014, Qian 2014) by focusing on another potential competitor of original works, that is, short-form derivative condensed clips. We empirically document the influence of derivative works on copyrighted content, thus bridging the gap between the intense theoretical discussions (LaPolt et al. 2015, Menell 2016) and the scant empirical evidence.[4] Our empirical analyses on shifts in users' viewing behavior underscore the distinct nature of condensed clips (i.e., their partial

displacement from original content), which emphasis will prompt more meticulous investigations into their roles in the entertainment industry. Second, our work contributes to the literature on UGC and entertainment products (Liu 2006, Gong et al. 2017, Seiler et al. 2017, Zhang et al. 2020). Condensed clips made by amateur creators can be regarded as a new type of UGC with noisy diagnosticity (Liikkanen and Salovaara 2015, Park et al. 2021, Grewal et al. 2022). Nonetheless, such user-generated condensed clips, unlike most other types of UGC that primarily revolve around objectives related to information sharing, community formation, self-expression, and entertainment (Godes and Mayzlin 2004, Lovett and Staelin 2016, Seiler et al. 2017), have the potential to serve as substitutes for the original works. Meanwhile, the literature having focused on the textual forms, our study delves into the realm of video-based UGC. This content form is enriched with visual and acoustic features (Schwenzow et al. 2021) and is progressively becoming the primary source of product information (Yang et al. 2023).

More importantly, our results recall and speak to the intensive policy, legislative, and managerial debates on derivative works, copyright, and fair use (Peters 1978). Although the systematic shifts from condensed clips to streaming platforms and their potential impacts on viewing habits pose new challenges to the TV series market in the long run, our research directly responds to the current severe criticism of condensed clips on Tik-Tok that they (at least potentially) steal traffic from video streaming services. Drawing from the present work, we have summarized the following simple rebuttal statement:

Although streaming platforms may be suffering declining engagement these days, our results show that among various kinds of alternative contents on short-form video platforms, user-generated condensed clips might not be foes but actually friends, systematically offering measurable benefits in the era of TikTok entertainment app domination, wherein the cultural transition toward fast-food-like entertainment continues and will actually accelerate with the deletion of condensed clips due to unavailing boycotts.

2. Data

In our empirical analyses, we focused on TV series, having collected their demand data from iQIYI, one of the largest video streaming platforms in China, with a market share greater than one-third.[5] iQIYI classifies TV series into two groups, VIP and non-VIP. Consumers who pay subscription fees (approximately $30 per year) have access to all VIP and non-VIP videos, whereas consumers who do not pay can watch only non-VIP content for free. By September 2022, iQIYI had more than 100 million subscribers. Our sample included TV series available on iQIYI in April of 2021. Given that the

boycott event occurred in April 2021, we excluded series released between January and April 2021 to avoid the complication caused by unobserved promotional efforts for these relatively new contents. In total, we had 1,165 TV series released before 2021 on iQIYI. We collected each series' daily number of views from March 1 to June 30, 2021.

We measured the number and volume of condensed videos on Chinese TikTok (i.e., douyin.com). Specifically, we relied on the TikTok Index, which is released on a website operated by a marketing intelligence provider associated with the Douyin Group.[6] This index reflects the popularity not only of search keywords but also of associated content (i.e., both the number of related videos and their viewing volumes). There were 248 TV series whose TikTok Index data were not accessible, due to either ambiguity issues or nonexistence (see Online Appendix D.2 for details and robust results for all 1,165 TV series). Our main analyses focused on the remaining 917 TV series, including 383 VIP and 534 non-VIP series.

To establish a holistic picture of each TV series, we further collected additional descriptive information from Douban (i.e., www.douban.com), the largest third-party movie/TV review platform in China. We obtained the number of episodes, producer country, genre, review volume and valance (i.e., score), release time (from which we determined TV series' age), and the synopsis. Table 1 compares key variables among different samples before the boycott event. On average, a TV series consists of 33 episodes and receives 392 reviews on Douban, with an average rating of 6.17 out of 10. As can be seen, there are significant differences between VIP and non-VIP series. iQIYI's managers, in fact, strategically place more VIP labels on those series that are produced in-house, released more recently (with an average age of 3.44 years for VIP series versus 5.57 for non-VIP series), and are longer (35.10 versus 31.91 episodes). Besides, the VIP series had received more views on iQIYI (1,613.61 versus 1,056.56 views) and, correspondingly, more reviews on Douban (3,136 versus 89 reviews). Regarding the popularity of related condensed clips on TikTok, unsurprisingly, the VIP series had gained more attention on TikTok. We will later provide justifications and robustness tests to support our identification strategy for these two types.

3. Identification Strategy

We identified the causal impact of condensed clips using the boycott events in April 2021 (refer to Online Appendix B for comprehensive background details). On April 9, 53 major film and TV companies, 15 industry associations, and 5 leading video streaming services issued a joint statement to protest against copyright infringement on short-form video-sharing platforms.

Table 1. VIP vs. Non-VIP TV Series Before Boycott Event: Key Variables

Variables	Full (N = 917)	Non-VIP (N = 534)	VIP (N = 383)	Comparison
From Douban				
Episodes	33.243 (13.606)	31.912 (12.193)	35.099 (15.183)	<0.001
Age (yr)	4.678 (4.345)	5.569 (4.880)	3.436 (3.063)	<0.001
Score	6.173 (1.610)	6.045 (1.715)	6.290 (1.502)	0.049
log(Reviews)	5.968 (2.725)	4.607 (2.094)	7.866 (2.341)	<0.001
From TikTok				
log(TikTokIndex)	2.332 (2.140)	1.723 (1.766)	3.181 (2.320)	<0.001
From iQIYI				
ViewVolume	1,289.224 (745.457)	1,056.564 (605.271)	1,613.612 (800.118)	<0.001
SelfMade	100 (10.9%)	4 (0.7%)	96 (25.1%)	—

Notes. The "Comparison" column shows p values when comparing the VIP and non-VIP series. In the last row, we report the absolute number (and the ratio in parentheses) of TV series self-made by iQIYI. The other rows present the mean value among samples with the standard deviation in parentheses. Age is calculated based on series' launch date to the year 2021. When computing means and std. dev of scores, we removed 243 TV series lacking score values on Douban. Because of their high skewness, we reported the logarithm values for Reviews and TikTok Index (before the boycott event) accordingly.

They indicated that they would launch intensive copyright protection actions to fight against unauthorized derivative clips on short-form video platforms. On April 23, 524 movie stars joined the protest and issued another joint statement, thus raising even more awareness of the issue.

As a result, TikTok, as the largest short-form video platform in China, suddenly was under immense pressure to increase its intellectual property protection efforts and be more proactive in removing derivative condensed clips infringing on copyright owners' exclusive rights. Because of the large volumes of existing and newly generated short-form videos on TikTok, identifying and processing copyright violations immediately proved costly. Given that the penalty for copyright infringement can differ across different TV series, TikTok prioritized its copyright protection effort by focusing more on certain TV series.

We argue that TikTok, in removing user-generated condensed clips, paid more attention to the VIP series. There are two main reasons. First, most VIP series had been produced by the companies participating in the boycott events, and they claimed to intensify their copyright protection effort jointly. In contrast, non-VIP series had been produced mostly by small publishers or were even open to the public. Second, most of the profit of streaming platforms comes from membership fees charged to its paid subscribers, and only paid subscribers have access to the VIP series. It is for these reasons, we believe, that TikTok was more stringent in removing condensed clips associated with VIP series. We thus used the VIP series as the treatment group and the non-VIP series as the control group. That is, we posited that the VIP series would be more affected by the boycotts than would the non-VIP series.[7] Figure 1 plots the time-varying treatment effects on $log(\texttt{TikTokIndex})$ according to a relative time analysis. As illustrated, we observed a significant drop (approximately 40%) in the

VIP series' TikTok Index after the boycott events. This implies that after the boycotts, TikTok did remove more clips related to the VIP series but did not remove (or removed very few of) the non-VIP series.

4. Empirical Analyses and Results
4.1. DiD Model and Main Results

To quantify the causal effects of condensed clips, we used a DiD model (Goldfarb et al. 2022), considering the non-VIP series as our control group and the VIP series as our treatment group. We specified our DiD model as follows:

$$\texttt{View}_{it} = \alpha \cdot \texttt{VIP}_i \times \texttt{After}_t + \beta \cdot \texttt{Past}_{it} + \texttt{Series}_i$$
$$+ \texttt{Day}_t + \varepsilon_{it}, \qquad (1)$$

where our dependent variable (DV), $\texttt{View}_{it}$, is the number of views of TV series i on iQIYI on day t; $\texttt{VIP}_i$ is binary and equals one (or zero) if series i is a VIP series (or a non-VIP series); $\texttt{After}_t$ equals one if day t is after

Figure 1. (Color online) Time-Varying Treatment Effects on log(TikTokIndex)
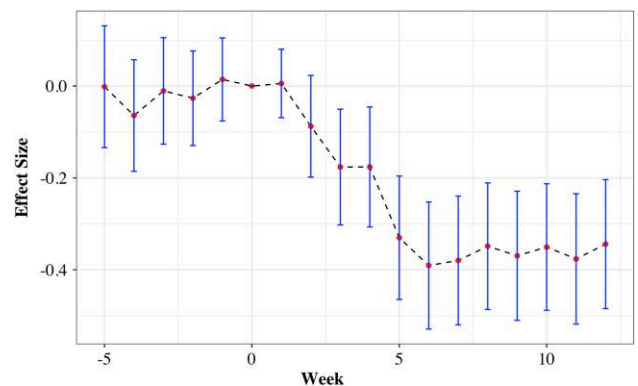
Notes. Week 0 denotes the week of April 2, 2021. It was the week immediately before the boycott (i.e., April 9, 2021). The error bars are 95% confidence intervals for the estimated coefficients (dots).

the boycott event, and zero otherwise; $VIP_i \times After_t$ is our variable of interest, and α captures the corresponding effect. A positive α means that removing condensed clips would stimulate users to watch the original TV series on streaming platforms, which suggests a competitive or substitutional role of user-generated clips in relation to the original works. Conversely, a negative α reveals a drop in demand on the focal video streaming platform, thus reflecting an advertising or complementary effect. In addition, we controlled for a series-specific time trend, proxied by $Past_{it}$, which denotes the logarithm of series i's number of days from its release day to day t. $Series_i$ and Day_t are series fixed effects and day fixed effects, respectively. ε_{it} is an i.i.d. (independent and identically distributed) random shock to $View_{it}$. To account for potential correlation in the standard errors within series, we clustered standard errors at the series level.

To begin with, our DiD model satisfies the pretreatment parallel trend assumption (please refer to Online Appendix C.3 for more details). Because there were two boycott events on the 9th and 23rd, column (1) of Table 2 presents the main effects with Equation (1) after we dropped data between the two dates. We observed a significant and negative estimate of $VIP \times After$, suggesting that the views of the original TV series on streaming platforms dropped after TikTok's removal of related condensed clips. In other words, condensed clips on TikTok generally serve as friends, instead of foes, for streaming services. Based on this conservative specification, they brought, at the minimum, approximately 3% traffic (43.94/1,613.61, where 1,613.61 is the average view volume of the VIP series before the event) to the focal video streaming platform. Such a positive effect would possibly generate values equivalent to around 65 million US dollars (3% × $2.3 billion, iQIYI's

Table 2. Impact of Condensed Clips on Views of Original TV Series

Dependent variable: *View*	(1) Panel OLS	(2) Panel Poisson
$VIP \times After$	−43.942***	−0.026**
	(12.368)	(0.009)
Past	−418.250***	−0.231***
	(48.023)	(0.025)
Series fixed effect	Yes	Yes
Day fixed effect	Yes	Yes
Observations	98,119	98,119
Adjusted R^2	0.043	—

Notes. Robust standard errors (in parentheses) are clustered at the series level. We conducted a robustness test to check whether extreme values drove our effect. In particular, we deleted 21 TV series whose views ever exceeded the first 1% percentile. Using the remaining TV series, the skewness of $View_{it}$ dropped significantly to 0.334. We then reran our model using this subsample, and the main effect remained significant and quantitatively similar (i.e., the coefficient of our variable of interest was −39.325).

***p < 0.001; **p < 0.01.

annual revenue from membership subscriptions in 2020) in one year for the streaming platforms. In addition, to accommodate the "count data" nature of view volumes (as nonnegative integers) and further probe the robustness of our result, we estimated a fixed-effect Poisson model in column (2) of Table 2, which is both qualitatively significant and quantitatively similar ($e^{-0.026} - 1 \approx -3\%$) to our main specification. This further validates the measurable positive effects of such clips. In Online Appendix D and Online Appendix E, we conduct multiple robustness checks and matching approaches to validate our main findings.

4.2. Explanation and Discussion

Condensed clips, generated by ordinary users and viewed for free, contain (incomplete) sampled content of the full version of a video work. Hence, in terms of their form and effects, such clips can be viewed as user-generated samples of original authentic works. On a general basis, as Bawa and Shoemaker (2004) point out, sampling could bring opposite effects to product purchases. The downside arises from cannibalization on spontaneous demand, as samples may cannibalize regular purchases that would have occurred if samples were not received (Arora et al. 2017). Conversely, the positive effects of sampling include expansion effects with enhanced visibility in the market (Deng et al. 2022) and acceleration effects associated with consumer learning (Dey et al. 2013).

In our context, however, the cannibalization effect should be weaker. As prior studies on sampling and versioning have suggested, the cannibalization effect of sampling mainly comes from spontaneous consumers (Bawa and Shoemaker 2004), who, in our scenario, are already aware of the original content, interested in watching it, but have yet to do so. Nevertheless, in the entertainment industry where the product life cycle is relatively short (Godes and Mayzlin 2004), consumer interest decays over time and does not last long (Lovett and Staelin 2016). In fact, the popularity of a film or TV series is bound to diminish at a fast rate, resulting in a very small group of spontaneous consumers in the post-airing periods. At the same time, most condensed clips are generated and posted after the official airing periods to avoid scrutiny from streaming services. Thus, their negative cannibalization effects on original works are assumed to be limited.

Conversely, visibility enhancement becomes salient in this context, as visibility or awareness has consistently been a major challenge in the saturated TV series market (Gong et al. 2017). This market indeed is fiercely competitive. Short-form condensed clips, as user-generated free samples, hold the promise of generating more demand for original TV series with the help of platforms' recommendation algorithms and their

unprecedented effectiveness in boosting awareness and advertising (Yang et al. 2023).

To support the previous explanation, we empirically examined whether the treatment effects were more pronounced in TV series lacking official condensed clips. To market their copyrighted works, leading streaming platforms or TV series publishers have official accounts on TikTok, which selectively release official clips of original video works. Because such clips had been created legally by copyright owners, they were not affected by the boycott event. Thus, after the removal of other user-generated condensed clips, the visibility of TV series with official clips would be influenced to a lesser degree. In contrast, those without official clips would become relatively less visible afterward. Consistent with this argument, we noticed that TV series with official condensed clips experienced a minimal decline of only 1%, whereas TV series without official clips suffered significantly greater drops (−4%). According to this result, condensed clips could be used to supplement firm-initiated word-of-mouth (Gong et al. 2017) and direct-marketing efforts (Liu et al. 2018). Please refer to Online Appendix F for complete empirical results and additional support with other moderating factors, including age (Lovett and Staelin 2016) and search index (Lu et al. 2021).

4.3. Systematic Shifts

Our context involves mostly nonspontaneous viewers who would not have been aware of the original content without the user-generated samples. However, even with the enhanced visibility, the spontaneous shift from condensed to full-length versions cannot be guaranteed. Condensed clips may indeed serve as a competitive surrogate by way of partial displacement, rendering the above enhanced visibility of original content unavailing, and discouraging shifting. More specifically, in deciding whether to shift from the partial surrogate to a complete version, nonspontaneous consumers might face a trade-off between cost and benefits (Deng et al. 2022). Accounting for both the potential costs (i.e., economic costs such as membership subscription and time cost) and benefits (e.g., psychological gains from binge-watching; Flayelle et al. 2020), we hypothesize that consumers would decide to shift only when benefits exceed costs systematically. We synthesize our empirical results in Table 3 and offer details and discussion in Online Appendix G.

4.3.1. Which TV Series to Opt for? We considered two moderators for capturing utility gains consumers consider at the TV series level: score and genre. First, score reflects quality (Ryoo et al. 2021). Consumers are more likely to enjoy immersion experiences from TV series with higher scores and to receive more utility gains from the shift. On the contrary, for TV series with low

scores, viewers who have watched such clips are likely to perceive the original episodes to be of low quality and that there is no need to shift, due to the low or negative utility gains. Furthermore, although traditional firm-produced samples might illustrate the best part of a product to promote sales (Arora et al. 2017), such user-generated sample clips inherit characteristics from UGC (Chevalier and Mayzlin 2006) and can be critical. They add information to the market and facilitate the revelation of quality. Consequently, shifting is less likely for TV series with low scores, despite the enhanced visibility. Our empirical results confirmed this divergence.

Second, TV series encompass numerous setup-development-climax-end cycles, incorporating various subplots throughout their entirety (Aronson 2005). In contrast to movies, where suspense often revolves around the ultimate resolution of the main storyline, TV series offer suspense not only at the overarching story level but also within the subplots. Genres lacking suspense, such as romantic or family themes, typically feature longer, more tranquil shots to portray character development and the overarching narrative (Cutting 2016), whereas crime and fantasy genres hinge on shorter audiovisual shots (Zhang et al. 2020) and subplots filled with intricate twists and turns. Given the constraints of condensed clips of only a few minutes in length, it is highly impractical to include every twist and turn for crime and fantasy genres, making them less susceptible to replacement by condensed clips. Therefore, viewers might derive greater utility from switching to genres with numerous omitted twists and turns in the condensed version. We were able to confirm this trend empirically, as plotted in Figure 2. We also validated this pattern using alternative information extracted from spoiler reviews (in Online Appendix G.1.2).

4.3.2. Which Episode(s) to Opt for? Condensed clips typically are user-generated subsamples containing only a small selection of the most engaging scenes. According to the binge-watching literature (Flayelle et al. 2020, Woolley and Sharif 2022, Lu et al. 2024), increased exposure to specific parts of a TV series can have a profound impact on viewers' consumption preferences for original works. Specifically, the increased perceptual fluency and understanding (Leavitt and Christenfeld 2011) afforded by the most captivating scenes suggest that the "viewing begets viewing" phenomenon is more likely to manifest within subplots containing such scenes. In essence, stimulated by the immersive experience or flow (Flayelle et al. 2020, Woolley and Sharif 2022), viewers are motivated to shift to the specific episodes to explore the twists and turns of the subplots introduced by condensed clips, which could not fully capture them due to time constraints. For other episodes where condensed clips have spoiled the overarching storyline, viewers might find

Table 3. Summary of the Systematic Shift

Moderators	Rationale	Empirical findings
TV series level		
Score	TV series with higher scores provide more utility gains during the shift.	High score: −6.1%*** Low score: −2.6%*
Genre	TV series with more twists and turns are less likely to be replaced by short condensed versions.	Figure 2
Episode level		
Engagement Metric of Each Episode	Condensed clips are made up of engaging scenes, leading viewers to primarily shift to the episodes containing these scenes for a smoother and more enjoyable binge-watching experience.	Metric up by 0.1: −1.3%*** Figure 3
Platform level		
Multiple Channels	TV series exclusively broadcast on a single platform receive all the shift spillovers, thus having larger effects.	Single channel: −4.4%** Multiple channels: −2.2%*

Note. In the last column, we calculated the effect size of moderation analyses by percentage, based on the same rationale as −3% in the main finding.
***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

themselves content with this shorter version and consider condensed clips to be a qualified partial surrogate, leading to significantly fewer utility gains from switching.

To delve into episode-level shifts, we constructed a smaller subsample of TV series with complete episode-level engagement information and view-volume data for the same period. The data set consisted of 332 TV series, each containing between 30 and 76 episodes, resulting in 14,197 episodes. Each episode was associated with a unique engagement metric. The data set also included 1,519,079 daily view-volume observations. Please refer to Online Appendix G.2 for more details on the sample collection, the construction of the engagement metric, and the empirical results. The empirical

estimates suggested that viewers significantly shifted to more engaging episodes of original TV series. With the engagement metric increasing by 0.1 (around its standard deviation), episodes would experience a notable 1.3% boost in view volume attributable to the condensed clips.

To better visualize this episode-level shift, we divided TV series into 30 bins in the order of episodes. We averaged the engagement metrics (bar height) and heterogeneous treatment effects (bar color, darker color denoting larger effects) within each bin accordingly, as plotted in Figure 3. Visually, the fluctuation of bar height suggested abundant subplots, as well as twists and turns across episodes, validating the design of numerous cycles within each TV series (Aronson 2005). More

Figure 2. (Color online) Heterogeneity by Series Genre
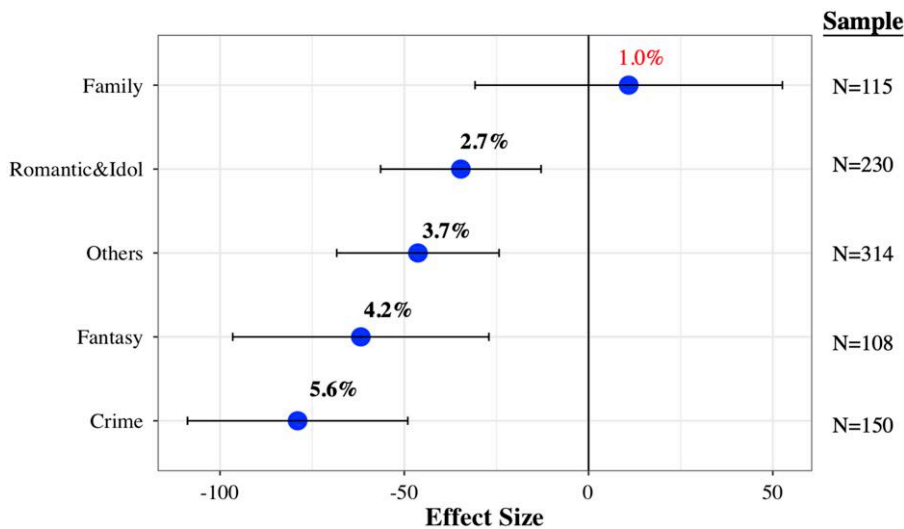
Note. The dots are estimated point coefficients with genre dummies, and the horizontal lines are 90% confidence intervals for those estimates.

Figure 3. (Color online) Systematic Shift to Specific Engaging Episodes
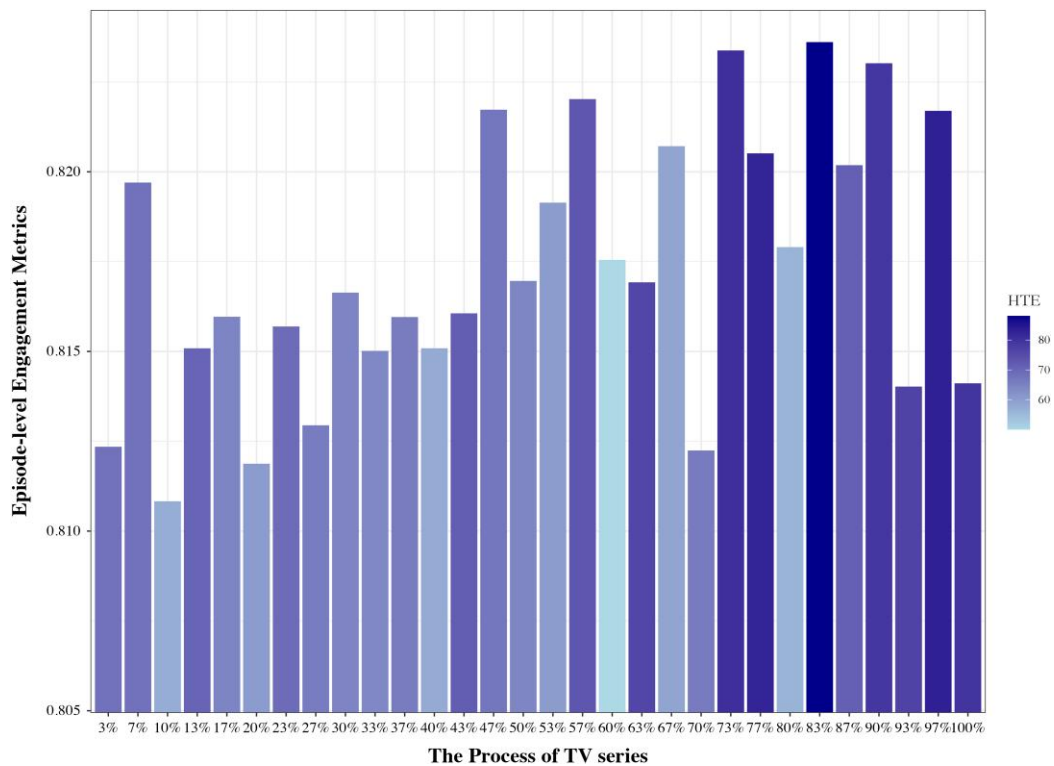
Notes. We divided each TV series (30–76 episodes) into 30 bins in the order of episodes. The bar height and color denote the average engagement metrics and treatment effects within each bin, respectively.

importantly, the bar height and darkness were highly correlated ($r = 0.45$, $p = 0.01$), suggesting that viewers indeed shifted to more engaging parts. Or conversely, the less engaging parts were likely to be replaced by the condensed version.

4.3.3. Which Platform to Shift to? Finally, we explored whether viewership exclusion would bring additional gains. This offers more insights into how shifts occur in reality. We found that TV series exclusively broadcast on a single channel were influenced more than were those available on multiple streaming platforms, and that the drop was almost twice that for series available on multiple channels. This coefficient is quite consistent with the duopoly streaming platform market, in that viewers might shift to one platform to which they have subscribed if the TV series is multihoming.

5. Conclusion

Despite the ubiquity of short-form videos and the continuous decline in consumers' engagement with streaming services, we have seen very little evidence of any causal effects of short-form condensed video clips on original works. This study bridges this gap empirically. With the help of a joint boycott event launched by copyright owners in China, we demonstrated, with solid

empirical evidence, that condensed clips, on average, have measurable positive effects (approximately 3%) on original video works. Further analyses suggested that condensed clips serve as free user-generated sampling of original works, enhancing visibility, especially for works without official promotion. We extended our analyses by showing that such user-generated content would, by way of partial displacement, systematically reshape users' viewing behavior toward original TV series. In particular, viewers would shift to TV series or episodes with more utility gains, and streaming platforms would benefit more from such amateur promotions with the exclusive broadcasting strategy.[8]

Practically speaking, our research highlights possibly sizeable and measurable profits from an appropriate collaboration between the two kinds of platforms, which contradicts the "fierce competition" view in managerial practice that TikTok steals traffic from video streaming services. Specifically, streaming platforms can strategically provide scenes from certain types of TV series (e.g., those with higher scores, that are less visible, or those with many twists and turns) for ordinary users and thereby use condensed clips generated by them on TikTok to attract an audience. For legislative institutions, similarly, and contrary to the intense legal criticisms, our results ease the concerns over rampant

digital piracy among emerging markets (Narasimhan et al. 2015) and provide suggestions for policymakers when making tradeoffs between different IPR protections (Fink et al. 2016), especially when the copyright owners of these video works are mostly giant monopolies or duopolies in the entertainment market.

It is important to emphasize that while condensed clips do direct traffic to the original works, they also have the potential to shape viewers' consumption preferences systematically over time. For instance, viewers may intentionally shift to specific segments, which could pose a disruptive challenge to the industry. Moreover, our analyses primarily concentrated on the demand side to highlight the positive impact on copyrighted works. However, we must also consider the adverse effects on creativity, which can, in turn, affect the productivity of original works (Telang and Waldfogel 2018, Li et al. 2021). Neglecting these aspects could again potentially disrupt the entire entertainment industry.

Acknowledgments

Endnotes

[1] See https://mashable.com/article/tiktok-condensed-movies. Accessed on November 24, 2023.

[2] See http://www.chinadaily.com.cn/a/202306/02/WS647924bea3107584c3ac3740.html. Accessed on November 11, 2023.

[3] The distinction in the extent of displacement from original content gives rise to variations in consumption patterns, behavioral mechanisms influencing potential market expansion effects, and affected pathways. Please refer to Online Appendix A for more details about the relationship of this study to prior literature on piracy, trailers, and UGC.

[4] Two recent works may be related to this study, one from the music industry focusing on song covers (Watson 2018) and the other from the video game industry focusing on videos of influencers playing games (Li et al. 2024). However, in both cases, the likelihood of cannibalization is low due to the consumption patterns in their respective industries (Lu et al. 2020).

[5] See https://en.wikipedia.org/wiki/IQIYI.

[6] See https://trendinsight.oceanengine.com/arithmetic-index. This website, similar to Google Trends, analyzes the daily popularity of any given keyword on TikTok. To identify videos related to a given keyword, TikTok not only includes video keywords in the captions but also employs state-of-the-art machine learning algorithms to find related videos according to their content, even though their titles do not cover the focal keyword.

[7] TikTok did not release its exact implementation policies concerning this removal. We acknowledge the existence of noncompliance issues due to incomplete deletion. Our main results are thus more

cautiously interpreted as intention-to-treat (ITT) effects or, arguably, a conservative estimate for the average treatment effects on the treated (ATT). Please refer to Online Appendix C.2 for more comprehensive discussions with empirical evidence supporting our identification strategy.

[8] We acknowledge one limitation, as we cannot identify the exact content deleted by TikTok. If armed with a finer-grained data set, future research could enable a deeper exploration of diverse aspects within condensed clips, such as the extent of modifications made to these clips in relation to the original content. This could enrich our understanding of how to optimize the advantages of condensed clips to (effectively) allay copyrighted owners' concerns.

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