COPPAcalypse? The YouTube settlement's impact on kids content

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THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER

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Thought experiment: The web without cookies?

More precisely, a web with only "strictly necessary cookies" to enable basic functions like adding product to cart

- No personalized ads
- Ad revenue falls
- Reduced funding for content & services

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Advertising

Off

Personalization

Off

- No personalized recommendations
- No personalized search
- No user curation (e.g., playlists, notifications)
- No comments

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Background

Event study: YouTube settlement over COPPA violation

- **YouTube Settlement**: Google pays $170M for showing personalized ads to kids without parental consent
  - Largest COPPA fine at the time, #11 largest FTC fine since 2000
- **Consequence**: No personalization for <u>Made-for-Kids (MFK)</u> content
  - Affects YouTube globally on January '20 (announced in Sept '19)
  - MFK content designated by creators & YouTube automated detection
  - No personalized search or recommendations
  - Disabled comments, subscriber notification, & adding to playlists ●

YouTube is a **top content destination** for children

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○ YouTube is the 2nd most popular website online (SimilarWeb)
○ 23% of the $1.2 global billion digital ad spending on kids (PwC, 2019)

YouTube's creators feared the "COPPAcalypse"

- FTC's 2019 COPPA Rule Review received 119K comments with 71% referencing "YouTube"
- Multiple online petitions with >million total signatures
- Only contextual targeted ads: ad revenue could fall 60-90%*
- Creators planned to create less content, exit, or pivot from children

Sources: *Katz & Fenner (2019), anonymous YouTube channel

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Data

Data sample and collection

Require channel list to seed the YouTube data API

- **Main sample:** 5,066 top US channels in top 3 MFK categories
  - Types[†]: Education (18%), entertainment (59%), & film/animation (15%)
  - **MFK types**[†]: non-MFK (75%), MFK (14%), & mixed (12%)
  - 1.8M total videos from July 1, 2018-December 31, 2020 ●
- **Data sources:**
  - **Social Blade**: Identify top 100K channels on YouTube by subscribers
    - Also, channel-level historical daily total views & subscribers
  - **YouTube Data API**: Video-level data
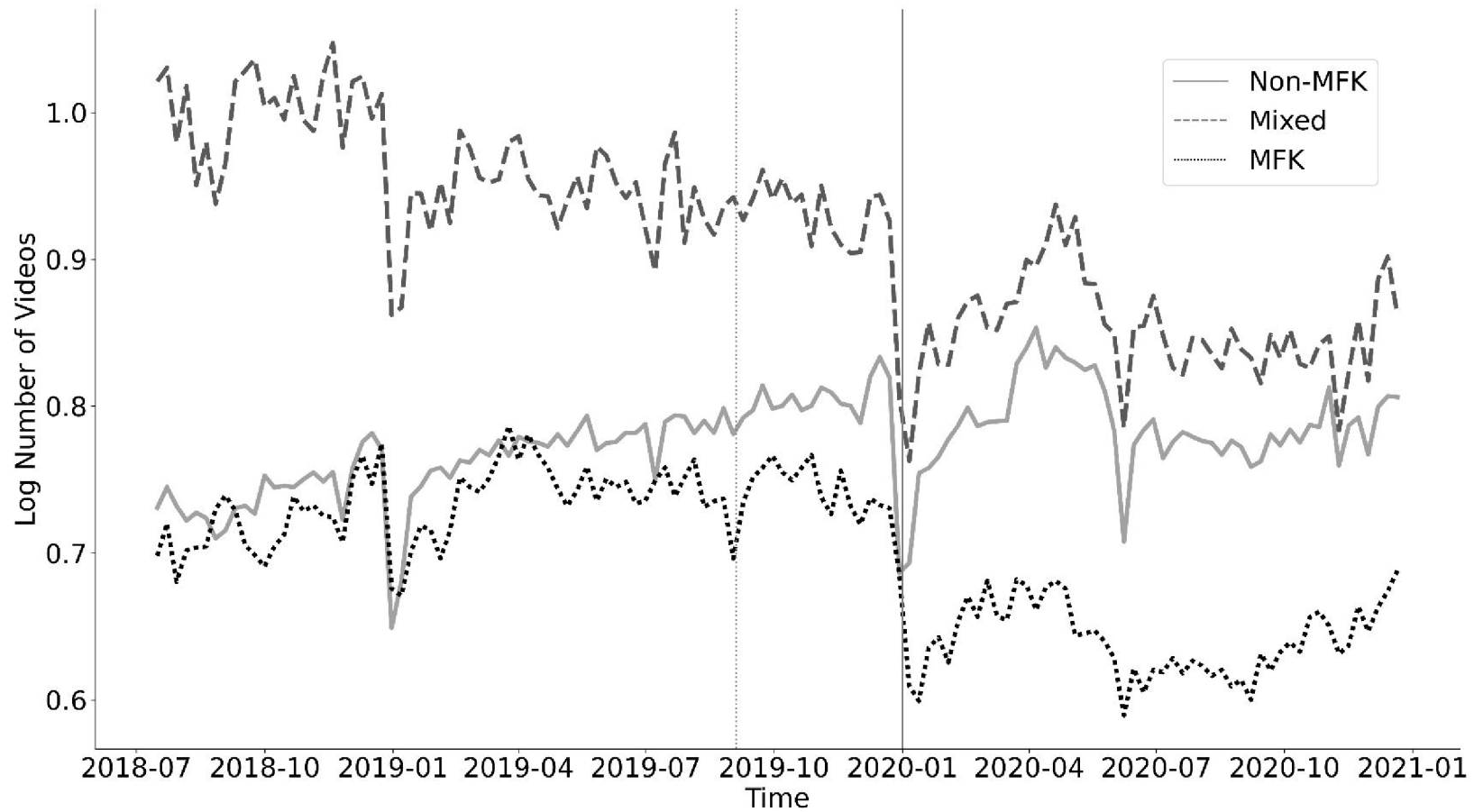   - Time released, category

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- ■ "Made for kids" (MFK) status
- ■ Views, likes (at time of collection)

†Categorized based on majority of content prior to Sept. 2019 announcement

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MFK channel production falls relative to non-MFK

Potential concern of different pre-trends among Mixed channels (relative to non-MFK)

Video Production by Channel Type

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Empirical approach founded on difference-in-differences

- **Difference-in-differences** (with channel & week fixed effects)
- **Two treatment** groups: MFK & mixed channels (separately)
- **Control** group: Non-MFK channels
- NB: Compare pre-announcement to post-COPPA
  - Allow for 3 month interim adjustment in content supply

Treatment

Control

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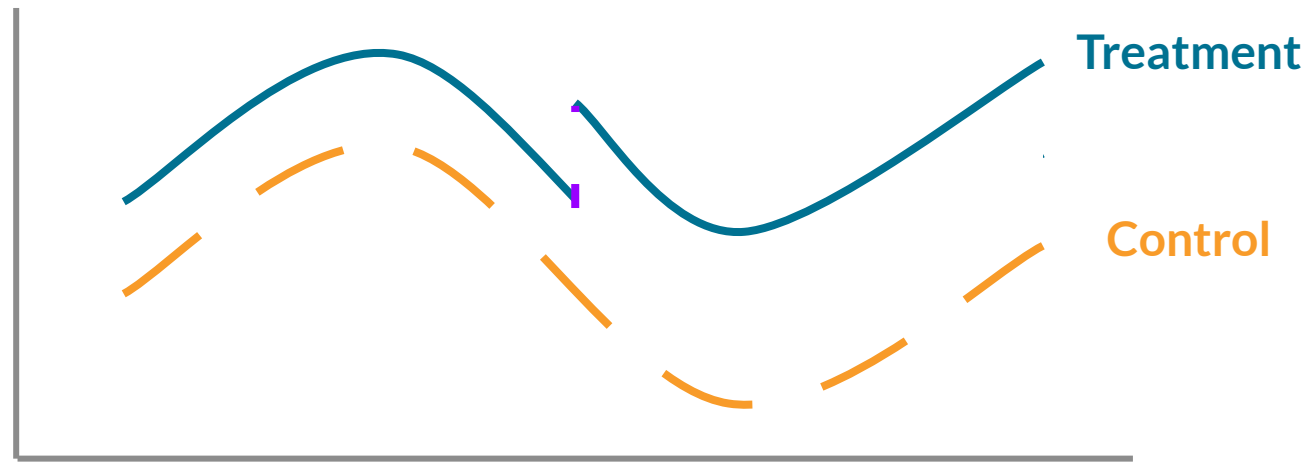
Results:
Content supply

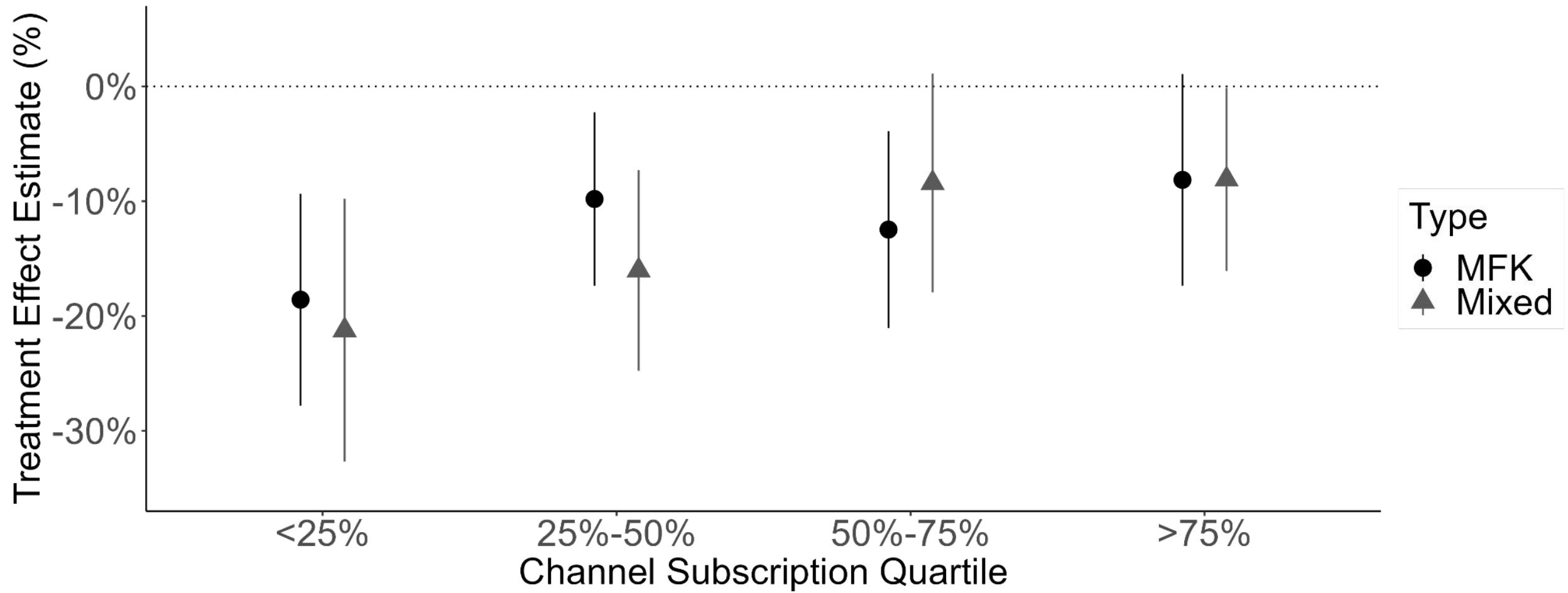# MFK production falls & Mixed channels pivot to non-MFK

Panel differences suggest smaller Mixed channel estimates: releases fall 5.2% and MFK share falls 5.0%

	Log Weekly Videos per Channel	Weekly Share of MFK Videos
MFK × Post-COPPA	-0.129***	-0.027***
	(0.022)	(0.005)
Mixed × Post-COPPA	-0.136***	-0.095***
	(0.024)	(0.010)
MFK × Anticipation Period	-0.042**	-0.015***
	(0.017)	(0.003)
Mixed × Anticipation Period	-0.075***	-0.040***
	(0.022)	(0.007)
R^2	0.663	0.932
N	650,830	380,270

Smaller channels (by subs) cut content creation more

Treatment Effect Estimate (%)

y-axis labels: 0%, -10%, -20%, -30%

x-axis label: Channel Subscription Quartile

x-axis categories: <25%, 25%-50%, 50%-75%, >75%

Type
- ● MFK
- ▲ Mixed

Content Categories

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Results:
Content quality

Channels may reduce quality due to reduced revenue

Quality is hard to quantify for YouTube content. We propose **three quality measures:**

1. **Content originality**: All else equal, content duplication is worse for viewers
   - **Content originality score** uses video transcripts to identify & quantify duplicate text chunks between videos
2. **Manual transcriptions**: YouTube's automated transcriptions contain errors, which hurts hard-of-hearing & learning to read from captions
3. **User ratings**: Like/view ratio indexed by MFK/non-MFK

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All 3 quality measures fall for MFK channels

Relative decline: 11.2% in original content, 25.9% in manual captions, 10.3% in user ratings

	Original content share[a]	Manual caption share[b]	Normalized Like/View[c]
MFK × Post-Settlement	-0.077***	-0.038***	-0.103***
	0.010	(0.013)	(0.029)
Mixed (MFK videos)	-0.021	-0.024	0.063*
× Post-Settlement	0.014	(0.020)	(0.037)
Mixed (non-MFK videos)	-0.003	-0.012	0.027
× Post-Settlement	0.005	(0.012)	(0.021)
MFK × Anticipation Period	-0.030***	-0.021**	0.021
	0.009	(0.010)	(0.026)
Mixed (MFK videos)	-0.001	-0.019	0.059
× Anticipation Period	0.009	(0.016)	(0.037)
Mixed (non-MFK videos)	0.003	-0.002	0.019
× Anticipation Period	0.005	(0.010)	(0.016)
Week, channel-MFK type FE	Y	Y	Y
Adj.R^2	0.630	0.712	0.731
N	254,700	278,166	387,483

Results: Viewer demand

MFK: New subscribers fall 29% & new views fall 22%

Outcomes are total new subscribers/views per week at the channel level

	Log (New Subscribers+1)	Log (New Views+1)
MFK × Post-COPPA	-0.288***	-0.222***
	(0.084)	(0.038)
Mixed × Post-COPPA	-0.273***	-0.139***
	(0.085)	(0.041)
Week, channel fixed effects	×	×
R^2	0.574	0.867
N	325,258	325,258

Notes: Where the dependent variable is in log form, each dependent variable has 1 added to it to avoid issues with zeros or negative numbers. Post-COPPA is defined as weeks after Jan. 1, 2020. Robust standard errors clustered at the channel level are in parentheses.

Views more concentrated in channels with more subs

Drop in views in smaller channels consistent with loss of personalization (search & recommendations)

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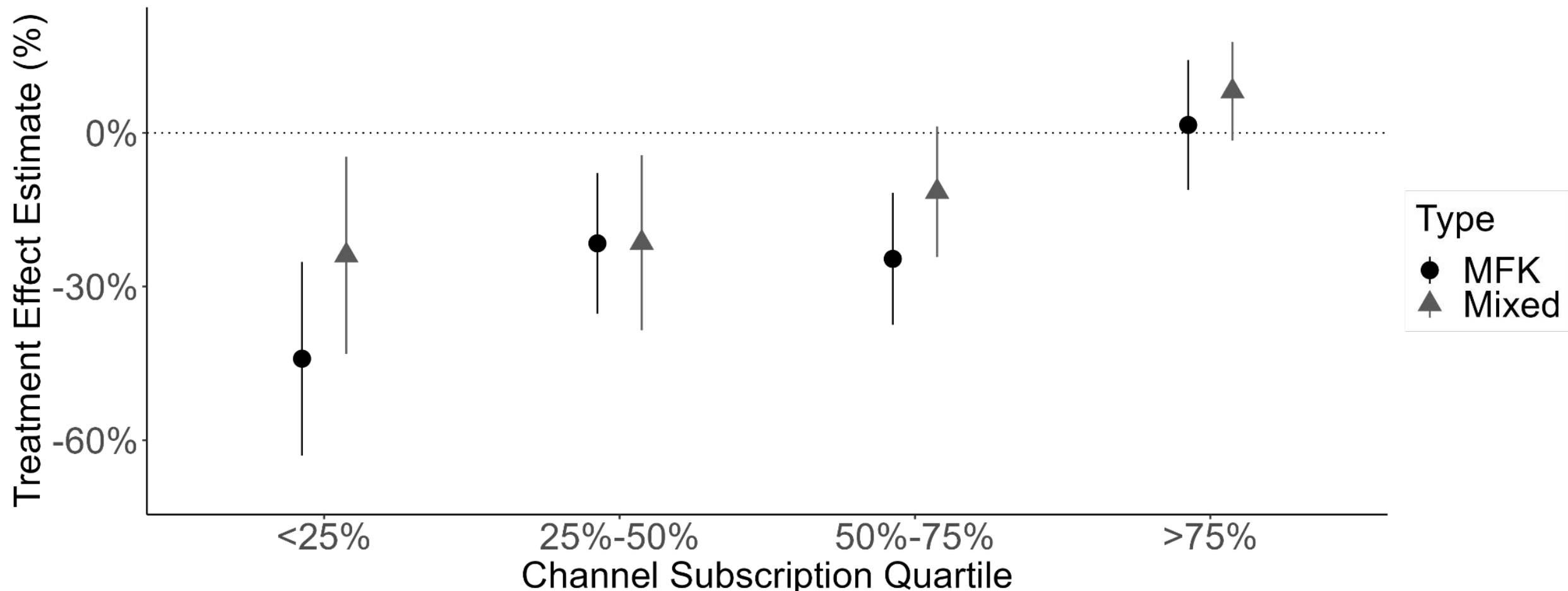
Conclusion

Summary of results

- **MFK supply** hurt by YouTube Settlement
  - Original, MFK video releases decline about 19.6% for MFK channels
    - i.e., 12.9% + (1-12.9%)*(7.5%+2.7%)
  - Quality suffers on objective & subjective dimensions
  - Similar reduction in education category releases
- **MFK demand** hurt by YouTube Settlement
  - MFK views fell 22%
  - Concentration of views in top channels consistent with loss of platform personalization

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- Traditional welfare logic suggests producer & consumer harm, with offsetting consumer benefit of improved privacy

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Thanks for your comments!