

Comment Joshua Tucker

In the spirit of the conference, what follows is a prose version of Tucker's discussant slides as drafted by ChatGPT4o (and then heavily edited by Tucker) based on the following two prompts:

- *Prompt 1: I recently attended a conference where I was the discussant for a paper entitled "Online Business Models, Digital Ads, and User Welfare". I created a slide deck for my discussant remarks, and now I need to turn that slide deck into a written article of about 1500 words. I am now uploading the slide deck. Can you try to convert the slide deck to a written article of about 1500 words?*
- *Prompt 2: Ok, that was really helpful. However, I'd like you to drop the numbers and bullet points, and just make it all prose. The length of the article you gave me is only 910 words, so you should feel free to add more length.*

For those that are interested in these sorts of things, note that Tucker did not show ChatGPT the original paper at all, so the only information it had was what was contained in Tucker's slides presented at the conference.

Acemoglu, Huttenlocher, Ozdaglar, and Siderius (2024) delves into the complex dynamics among platforms, advertisers, and users, aiming to model how these relationships influence welfare outcomes in digital environments. I very much enjoyed reading the paper and thinking about its broader implications, particularly in relation to political advertising. I do, however, want to provide the caveat to readers that I am a political scientist who works on the intersection of social media, digital media, and politics, but I do not study online advertising per se; therefore, both the substance and methods of the paper are outside my areas of expertise. Hopefully, then, this commentary can be read in the spirit of the potential value-added from interdisciplinary assessments.

The paper presents a well-constructed framework that models interactions between users of platforms, firms that advertise on these platforms, and the platforms themselves. One of the paper's most compelling features is its effort to articulate how advertising functions as a source of information for users. The theoretical progression of the paper is particularly commendable, building from simpler models to more complex versions that incorporate additional real-world dynamics. Even for readers outside the field of economics, the clarity of the approach makes the arguments accessible. Furthermore, the authors' attempt to use the model to explore potential policy interventions, as well as their emphasis on the critical importance of data access for both research and policymaking, adds value to their analysis.

Turning now to questions, comments, and suggestion, let me first start with one of the central concepts, ad intensity, which could benefit from greater clarification. The idea that ads provide valuable information to users is clear, but it remains ambiguous what specific type of information ads are delivering and how a greater volume of ads amplifies this informational signal. If advertising is primarily a means of signaling product quality, why does the effectiveness of the signal increase with volume? One idea I have was perhaps to invoke Zaller (1992)'s classic

model of public opinion formation, which theorizes that individuals vary in their level of resistance to new opinions. From this perspective, might more ads lead to a greater likelihood of overcoming resistance to belief in the product's quality? If this was the case, then we would have a reason for why ad intensity is important: the more ads there are, the more people who can be convinced by the ad (i.e., if low levels of ad intensity only convince people with no or little resistance, perhaps higher levels of ad intensity could convince people with higher levels of resistance as well, and therefore higher ad intensity leads to more desire for the product?). Even if this is not the idea the authors had in mind, I think it would be valuable to provide more of a sense of why, if ads are supposed to deliver information, more ads delivering the same information are more likely to do so than fewer ads?

This focus on the ways in which consumers might differ from one another leads nicely into a question I had about the role of sophisticated users in the theoretical framework. The paper suggests that these users are willing to pay subscription fees to avoid ads, but this raises a question: if sophisticated users are capable of extracting meaningful signals from ads, why would they choose to pay to avoid them? Conversely, if they are sophisticated enough to ignore ads, then it seems inconsistent for these users to pay to remove them? In my mind, this raised the question of whether the paper would benefit from a model of user preferences that considers the value of time and cognitive effort required to filter content. This approach might give us some sense of the cost born by sophisticated users when they choose not to pay subscription fees, and thus help further to explain why they do choose to pay those fees.

Another question I would like to highlight regards the distinction between users, firms, and influencers. The paper's framework largely treats these groups as distinct, which may align well with traditional platforms like streaming services but is less applicable to social media ecosystems. On platforms such as TikTok, users often act as both consumers and producers of content (for which advertising can then be sold), blurring the lines between these roles. This influencer-driven dynamic introduces unique considerations, especially when users generate value not just as consumers of ads but as creators who drive engagement with the platform (and ultimately advertising revenue or subscription fees).

I also found myself wondering about the dichotomy between offline and online markets. I read the paper as assuming that the products being advertised were products that one could find offline as well (e.g., Nike sneakers are also sold in stores). However, my guess is that many digital ads today promote products that exist exclusively in online marketplaces. This shift has implications for the model, raising the question of what it means the model's predictions if there is no offline market? This links back to the question of the role of influencers, who in this case may be entirely responsible for producing the goods for sale in the online market, as well as for driving interest in those goods.

The differences between social media platforms and streaming services also warrants more attention in the paper. While both types of platforms employ digital ads and (potentially) subscription fees, they operate under fundamentally different paradigms. Social media platforms rely heavily on user-generated content and network effects, where the value of the

platform increases with the size and activity of its user base. Streaming services, on the other hand, do not depend on user-generated content to the same extent, and network effects are less central to their value proposition. While of course streaming services depend on data from their users to drive their recommendation algorithm, the actual *content* people are consuming on a streaming platform like Netflix is not produced by Netflix subscribers. Developing tailored models for these categories, or exploring hybrid approaches, could enhance the applicability of the paper's findings across different platform types.

I also want to raise the question of *ad quality*. While the model emphasizes user sophistication as a determinant of ad effectiveness, it does not fully explore how the quality of the ads themselves might vary. Is it possible that some ads may inherently provide low-quality signals that fail to provide useful information even to naïve users? If so, might platforms, in turn, have incentives to curate ad quality to enhance user trust and engagement? This dynamic adds another layer of complexity that could be incorporated into future iterations of the model.

As a political scientist, I was particularly interested in how the paper's framework could be extended to political advertising. More specifically, could we think of the distinction between naïve and sophisticated consumers mirrors the divide between uninformed and informed voters? Of course, political ads introduce additional complexities, such as partisanship, which would likely influence voter behavior in ways distinct from consumer behavior in markets for products. One thought in this regard is whether we can think of partisanship in the realm of political ads as playing a similar role to brand loyalty in the realm of the market for products? Another potentially important distinction around political advertising is that political campaigns also often operate with vastly unequal resources. While of course firms too have different advertising budgets, I don't think I saw differences in firm resources reflected in the model. Finally, how should we think about the role of misinformation in political advertising? Can it simply be folded into the model in the paper as a form of low-quality signaling? Or is there something fundamentally different about a political ad with misinformation because the goal of that ad is precisely to propagate low quality information?

Turning to the policy implications of the paper, I wondered from where the authors thought the political support for their proposals would come. The idea of taxing digital advertisements and using the proceeds to subsidize platforms or firms may have theoretical merit, but selling this policy to the public poses challenges. While taxing firms may be politically palatable, providing subsidies to large technology companies is unlikely to be popular. I wondered whether such measures could be reframed to emphasize their benefits for users, particularly in terms of improving welfare outcomes.

Finally, in the spirit of the conference's theme, the implications of artificial intelligence for digital advertising merit closer attention. AI offers tools to target ads more effectively, potentially ratcheting up the exploitation of the paper's naïve users. At the same time, it could also provide opportunities for users to filter out low-quality ads. I also found myself wondering whether the model in the paper had any insights for understanding how the consumer market for Generative AI tools like ChatGPT might evolve in the future. I currently see this market as operating on a

“freemium” model – could this paper offer any insights as to whether that model is likely to continue in the longer run?

In conclusion, the paper represents an important contribution to the study of digital platforms and their impact on user welfare. By raising important questions and suggesting avenues for further research, it provides a foundation for understanding the complex interplay between advertising, user behavior, and platform incentives. As the digital economy continues to evolve, this work will undoubtedly serve as a valuable resource for scholars and policymakers alike.

Works cited:

Acemoglu, Daron, Daniel Huttenlocher, Asuman Ozdaglar, and James Siderius (2024) *Online Business Models, Digital Ads, and User Welfare*. No. w33017. National Bureau of Economic Research, 2024.

Zaller, John (1992) *The Nature and Origins of Mass Opinion*. Cambridge University Press.