The Shaky Foundations of the Digital Economy

Book Review: Tim Hwang, Subprime Attention Crisis

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2020-12-08

Advertising, Tim Hwang writes in his brilliant anatomy of the attention economy, is "the dark beating heart of the internet" (p. 3). The money that flows from it is the life blood that sustains an ecosystem of products and services that has become so natural to us that we often forget how contingent (and strange) it actually is. I'm not saying this as an external observer. In fact, I rely on this ecosystem as much as anyone. Just in the last few hours, I've looked at Google Maps to see how to best get to a friend's place; I've used Facebook's Messenger to coordinate an event; I've scrolled through Twitter; I've watched a *Kurzgesagt* video on Youtube about what happened if the Earth got kicked out of the solar system; and I've listened to the second of two recent *Freakonomics* episodes on whether (digital) advertising actually works. None of this cost me anything, thanks to the (dark) magic of advertising. I'd be surprised - no utterly flabbergasted - if anyone reading this had not, just in the last few hours, used at least one product or service funded by advertising.

Like it or not, "in 2020, the business of the internet is, by and large, an advertising business" (p. 4). Digital advertising has made Google and Facebook into two of the 7 most valuable companies on the planet; it has given us incredibly useful free services such as Google Maps or Google Scholar, it has subsidized research on autonomous driving or A.I.-assisted cancer diagnosis, and, most importantly, it has profoundly shaped what we do on and how we think about the internet. The question that Tim Hwang raises in *Subprime Attention Crisis* is whether the impressive economic edifice of an ad-driven digital economy is built on speculative sand, and whether this sets the stage for a sudden and painful adjustment of inflated expectations and valuations to a more sober reality - much like what happened with subprime mortgages before the financial crisis (hence the title). The answer to these questions, Hwang argues, is largely yes - an argument that he drives home with the simple clarity and analytic authority of someone who knows how the digital sausage is made. There are two ways in particular in which Hwang adds to what the existing literatures on the attention economy and surveillance capitalism have already established. First, Hwang does not stop at the observation that advertising is a marketplace for attention but goes on to ask and explain "precisely what kind of marketplace online advertising is" (p. 12). So what kind of marketplace is it? It is a marketplace that bears a lot more resemblance to modern-day financial markets, where machines do most of the buying and selling, than to the "practice of selling billboards in the *Mad Men* era of the 1960s" (p. 13). Hwang goes on to show that this uncanny resemblance between financial markets and *programmatic advertising* - the leveraging of software to auction slices of attention millions of times per second - is "no accident" (p. 15). It is a choice that was both contingent in its origins and profound in its implications.

Hwang shows that the structural transformation of advertising markets into quasi-financial markets for human attention was not a foregone conclusion. Online advertising could have developed differently - and with it the entire digital economy. It is one of the great contributions of this book to describe - with less jargon, fewer words, and more clarity than anything I've read on this before - how the design of online advertising markets "has been inspired not by the culture of nerds in garages but instead by the more buttoned-up world of the capital markets" (p. 34). Technology here is only a necessary condition for such modern online advertising markets to work; but it is the performative models of how markets work - imported from financial markets and championed by specific individuals like the economist Hal Varian at Google - that made these markets into what they are today.

> "Technology enables the game to be played, but it does not dictate the rules of that game. The second, equally important development that gave birth to the programmatic advertising marketplace was ideological: the adoption of the mental frames of finance" (p. 41).

The result of this marriage between digital technology and a financial logic profoundly shaped the way we act and interact on the internet. It led to an extreme form of commodification of attention, in which attention is standardized and abstracted into discrete units (such as a "viewable impression", in the industry's jargon) which can then be sold "frictionlessly in a global marketplace" (p. 43). An example for how the imperatives of such a marketplace shape the architecture of the internet itself is the like button. Commodification, Hwang writes, requires attention to be "legible (…) [advertising platforms] must structure 'engagement' in a way that it is easy and accurate to measure" (p. 116). The like button is a way to do just that - it invites certain types of easily measurable "engagement" while discouraging others. It thus shapes what we do on the internet, while mainly serving the advertising business model. The like button has become so ingrained into our daily routines that we barely even notice it anymore, and have a hard time imagining different ways of liking content on the internet.

This brings us to the second big contribution of *Subprime Attention Crisis*: that online advertising markets not only structurally resemble financial markets, but that they also produce some of the same pathologies. Here, Hwang goes in a different direction than much of the existing literature. Instead of pointing to the invasive, individually and collectively harmful nature of business models that rely on the commodification of human attention (a genre which has culminated in Shoshana Zuboff's massive The Age of Surveillance Capitalism), Hwang questions the economic foundations of these business models themselves. This is a welcome change. For one, it does not force the author to concede too much to the promises of the tech platforms. If one's point does not depend on the ability of these companies to skillfully predict and manipulate human attention, then one is much freer to question this ability and throw some sand into the very hype machine that makes digital advertising so appealing.

This is where Hwang's book is so valuable. It is basically an elaborated case for why the emperors of digital advertising wear in fact no (or very little) clothes - and why that is a problem not just for the emperors but for the economy at large (the irritation that Hwang's book reportedly caused in Silicon Valley suggests that Hwang is everything but wrong). And in a way, and this makes the emperor-has-no-clothes-comparison so apt, we all knew this. I'm always amazed, for example, when people still don't use ad blockers, and at how different the internet looks to them. I've also noticed that I got pretty good at quickly detecting, ignoring, and skipping ads that I still encounter. In fact, if you look at the cover of *Subprime Attention Crisis* and are quickly able to identify both author and title of the book amidst all the 'ads', you should be able to do the same on the internet (I am indebted to Leon for this very perceptive observation).

But let us take one step back and see how Hwang goes beyond this intuition to make a much more comprehensive, theoretically sophisticated and empirically substantiated case against the online advertising economy. First, Hwang shows why the value of online advertising may be much lower than its price - and why this value has been decreasing over time. On the one hand, and this is what I have just pointed to, people increasingly ignore or actively resist online advertising. For example, banner-type ads are estimated to be a 100 times less effective than 25 years ago, and a recent experimental study on online advertising found that "brand keyword ads have no measurable short-term benefits" while non-brand keywords result "in average returns that are negative." At the same time, ad blocking gets more and more popular around the world. Already in 2016, 615 million devices were actively blocking ads, and in 2019 around 30% of internet users use ad blockers. Digital ads, then, might be far less effective than their sellers try to make us believe - they might be "not so much a miracle cure as snake oil" (p. 141). On the other hand, the attention that ads still receive "is increasingly garbage - the product of a massive, fraudulent economy designed to extract money from advertisers" (p. 77). For example, in 2017 the *Financial Times* noticed that fraudsters were selling fake *Financial Times* ad inventory on many different ad exchanges, making around $1.3 Million per month.

Second, Hwang shows how the opacity of online advertising markets makes it very difficult to assess the actual value of advertising, creating conditions ripe for market failure. Worse yet, neither buyers nor sellers are likely to put an end to the divergence between the value and the price of advertising, which effectively inflates a bubble. On the demand side, "advertising budgets are pouring into this market bubble because they have nowhere else to go" (p. 94). Hwang draws an analogy with the savings glut hypothesis which argues that large flows of money in search for profitable investments can create bubbles, simply because the money has to go somewhere. Here, Hwang's argument would have benefitted from a closer analysis of the organizational and ideational reasons why companies don't cut back on advertising (perhaps because advertisers have a large say in these decisions) or why they thought that digital advertising is the best or safest bet for existing budgets (perhaps because digital platforms have successfully branded digital advertising as *the* future of advertising). On the supply side, Hwang argues that a "potent brew of greed and insulation from consequences can encourage players to stoke the market and overvalue what is being traded" (p. 101-102). Again, much like in financial markets, there are actors like marketing/rating agencies or the operators of programmatic advertising/creators or mortgage-backed securities that have an incentive to inflate the value of ads/mortgage-backed securities.

In a way, an ad itself is like a financial derivative in that its price derives from an underlying product - in that case not mortgages but the attention that they promise to capture. If that attention is subprime, there is a dangerous disconnect between price and value of the derivates - a disconnect that the history of financial crisis teaches us can only temporarily be covered up by opacity and perverse incentives. But eventually, actors will realize that a commodity is overpriced, prices will 'snap' closer to their real value, and an ensuing panic or crisis of confidence can severely cripple a sector (or even an entire economy) for years to come.

This brings us to the last point of the book: what is to be done about the brewing subprime attention crisis? Here, Hwang argues for a "controlled demolition" (p. 114). There are three reasons why this demolition should be controlled, i.e., why we should not just let things runs their course and wait for the bubble to implode. First, bubbles grow larger over time, and the larger they are the more damage they do. Second, a controlled demolition makes it easier to distribute the social costs of the crisis equitably. Third, "an uncontrolled popping of the bubble is less likely to lead to permanent change" (p. 121). These points are well worth considering, and they point to some of the larger of the way the digital economy is currently organized. After all, it is a problem that so much of our digital infrastructure depends on advertising, and it is not easy to see how these things can be funded differently *and* equitably. There are of course subscription-based models, the shift to which is perhaps the most important development in the digital economy today. But not only do such shifts take time, which is why we need to make sure that alternative ecosystems have the time establish themselves before the advertising ecosystem comes crashing down. It is also unclear if a subscription-based model is really such a good deal for many people. Sure, it takes the edge off the polarizing and privacy-violating practices of today's attention merchants. But advertising also finances a whole host of free services that are both valuable and would be impossible to afford for some if subscription-based:

> "Imagine waking up to the announcement that searching the web would now require a monthly subscription fee, or that your favorite social network would have limited features until you added a credit card to sign up for a premium version. Imagine being charged on a per-trip basis for navigating with Google Maps. Think of WhatsApp—which was acquired by Facebook in 2014 but has not made significant money for the platform10—being shut down in order to preserve Facebook's bottom line. How much would you be willing to pay for these services? What would you shell out for, and what would you leave behind?" (p. 26-27).

Hwang does provide concrete suggestions for how to deflate the online advertising bubble. For example, he proposes the establishment of a National Bureau of Advertising Research (NBAR) modeled after the National Bureau of Economic Research (NBER) which could systematically scrutinize the "two pillars of faith" of programmatic advertising: measurability and effectiveness. He also proposes the introduction of transparency regulations modeled after mandatory disclosure legislation in financial markets (a reasonable but surprisingly tame suggestion). He does not, however, have a detailed proposal as to how the positive effects of advertising (e.g., free services or the funding of independent media) can be put on an alternative financial footing. To be clear, Hwang leaves no doubt that the end of online advertising as we know it "could deny vulnerable segments of the population access to the critical services that they have come to rely on. Failing to address these issues in advance would be a cruel kind of irresponsibility" (p. 121). But what does that mean in practice: should there be a bail-out package if hundreds of thousands of YouTubers, Tiktokers, and Instagrammers are suddenly (or even slowly) cut off from advertising money? Should there be a publicly guaranteed access to services like Google Maps? And if so, should these be public (and potentially subpar) services or will there be a voucher system where individuals can decide whether they want to spend their digital allowance on

Google Maps or a newspaper subscription (an arguably less appealing but, given the move of digital platforms into the provision of public goods, increasingly likely scenario)?

Having said this, Hwang's book is clearly one of the most important books written on tech in recent years. Not only does it masterfully dissect modern attention economies and carve out the myriad connections between financial and digital capitalism. It also a timely warning cry for an overhyped digital economy that has benefitted for too long from the strange fact that both its supporters and its critics had reason to hype the abilities of digital attention merchants. This is not to say that their promises are entirely void, nor that the entire digital economy relies on advertising (Amazon, Apple, Netflix or Microsoft are just a few obvious counterexamples). But it is to say that there is very good reason to believe that many digital business models are built on foundations that are shakier than many people believe, and that we better demolish this glittery edifice in a controlled manner and replace it with something better, rather than letting it collapse uncontrollably.

To conclude on an ornithological metaphor, Hwang is doing the job of three birds. Like a reverse **Owl of Minerva**, which in Hegel's famous description 'spreads its wings only with the falling of the dusk', he makes sense of a historical condition not as it has almost ended but as it is doing better than ever. Taking his flight already with the dawning of day, Hwang provides a powerful anticipatory autopsy of an existing and growing bubble at the heart of the digital economy. Like a **canary in the digital coal mine**, he warns the rest of us of its potentially detrimental consequences just before it is too late (one could have also used the metaphor of the Capitoline geese here). And drawing inspiration from the **Phoenix**, Hwang makes sure to let us know that something better can arise from the ashes of the digital advertising economy. In an almost Hölderlinian spirit of 'where there is danger, also grows the saving power', Hwang stresses that the imminent crisis could be a chance for renewing and redesigning the digital economy itself. "The collapse of the global advertising market would produce a great opportunity for alternative business models to take shape, and a chance for the internet to take a different shape as well" (p. 119). Given that it seems almost easier to imagine a world without the internet than to imagine an internet without advertising, it is naturally hard to sketch exactly how that would look like. But it is certainly worth thinking about it now, and to be prepared when people will inevitably look for new ideas in the interregnum between what is now and what is to come.