



How Digital Platforms Increase Inequality

Digital platforms should combat their natural tendency to arbitrarily favour certain users.

In their 1995 book *The Winner-Take-All Society*, Robert H. Frank and Philip J. Cook explained how a few highly rated sportsmen win the bulk of rewards in their field. As digital platforms gain prominence, we are likely to see winner-take-all outcomes across a wider range of professions beyond sport, entertainment and the few widely known cases in the corporate world.

Winner-take-all careers are created through cumulative advantage. Once a player gains a small advantage over other equally skilled players, it snowballs over time. This phenomenon, coined the “Matthew effect” by sociologist Robert Merton, is part of the reason why the rich get richer while the poor get poorer. Merton first described his findings while demonstrating that the more reputed scientists in a group tend to get the most credit for the group's work, regardless of who actually did the work.

The reputation of scientists is encoded in the form of research citations, which allowed Merton to objectively study this phenomenon. He observed that scientists with greater reputation have greater access to future rewards and resources, strengthening their reputation further. Over time, this leads to a cumulative advantage.

Few other markets have had such efficient mechanisms for encoding reputation. However, with

the rise of digital platforms, reputation can now be encoded and digitised across many sectors. Salient examples would be freelancer platforms such as Upwork and Fiverr.

Cumulative advantage through digitised reputation

Digital platforms use several inputs (including user feedback) to create a reputation score for every user. This score helps to ensure that work and resources are matched with highly reputed users, mitigating the risk of negative experiences.

This reputation score enables a few users to achieve outsized results on the platform. The platform's search and recommendation algorithms provide greater visibility to users with higher reputation scores. For example, a highly rated host on Airbnb is likely to be more trustworthy than a lower rated one and thus, to be prioritised by the platform.

A platform may also editorially select and showcase such users to demonstrate the quality of its workers. Of course, platform users are likely to prefer interacting with highly reputed users. As a result, these well respected workers attract more work and resources, which increase their ability to garner higher reputation in the future. Conversely, users with poor reputation scores have lower visibility,

further decreasing their ability to strengthen their reputation. These feedback loops compound over time, skewing the rewards and resources in favour of a privileged few users.

Cumulative advantage through digitised social influence

Digital platforms may also encourage the creation of cumulative advantage by digitising users' social influence and social capital. Networks like Twitter and Instagram, which encourage users to follow others, allow their members to build influence. These networks grow through preferential attachment: New users are more likely to connect to existing users with a large following than to those with a small following. Much like digitised reputation, digitised influence creates a rich-gets-richer feedback loop. As they gain greater visibility on a platform, the users with more followers find it easier to acquire even more followers.

Cumulative advantage across platforms

Further, multi-platform users benefit from a cumulative advantage across platforms. Users with a large following on one platform can easily build influence on another by inviting their followers to join them on other platforms. Hence, users who gain advantage on one platform can transfer such advantage over onto multiple platforms. As an example, users with a large following on social platforms are more successful on crowdfunding platforms than those with relatively smaller followings.

Through these feedback loops, certain users will benefit from cumulative advantage, both within a platform and across platforms. As platforms become ubiquitous, this will promote the emergence of winner-take-all outcomes across a wider range of professions.

Arbitrary inequality

The cumulative advantage obtained by certain platform users may also lead to arbitrary inequality. Two equally skilled users may thus benefit from widely divergent rewards, depending on their initial situations.

In particular, users who join a platform in its early days are likely to gain greater cumulative advantage than users with similar profiles who join later. This inequality arises from three factors.

First, some users may find it easier to 'game' a platform's reputation system and gather fake reviews when the platform's governance mechanisms are not fully formed. When they began, platforms like Amazon and Airbnb were plagued by

fake reviews. Now Amazon verifies purchases and prioritises reviews by verified buyers. Likewise Airbnb flags situations where a host and guest repeatedly book rooms with one another, as it could be an attempt to build fake positive reviews. These governance mechanisms, however, weren't in the platforms when they first took off.

Wrong incentives

Second, platforms may start out with policies that inadvertently encourage the arbitrary assignment of positive reputation. At its launch, Airbnb's rating system was designed so that a host's review of the guest became public before the guest had reviewed the host. This incentivised hosts to write overly positive reviews for their guests, in the hope of inducing reciprocation. Early adopters of Airbnb could rapidly acquire positive reputations. The platform fixed this issue in July 2014, after which reviews were not made public until both sides have reviewed the other. Airbnb hosts who joined after the new policy have had a hard time catching up, even if they offer services of a similar quality.

As the cumulative advantage of early adopters is compounded over time, late joiners may find themselves crowded out as the platform algorithms favour users with higher reputation. Moreover, with tighter platform governance, users can no longer "game the system" to gather quick advantages.

Third, as we have already mentioned, a platform may editorially select and feature a small number of high quality users in order to signal the quality of talent on that platform. However, if this selection isn't based on consistent and objective criteria, it may arbitrarily increase the cumulative advantage of the select few.

In February 2009, Twitter launched its "Suggested Users" list. New users were encouraged to auto-follow 20 accounts from a curated set of 241 users. Anil Dash, a technology blogger, saw his followers grow from 50 to 2,500 one day after being included in this list. Others in his situation made similar gains. However, it is unclear if the original editorial selection was based on consistent and objective criteria. Arbitrary inclusion on this list would vastly help a user gain undue influence on the platform. Today, Twitter algorithms use multiple criteria to drive recommendations across a wider base of users.

Implications

In the early days of a platform, its creators make several design choices to incite desired behaviours. These choices can have a large impact over time and lead to unintended consequences.

When new platforms test various initiatives, they should measure them on both their ability to spur desired activity and their likelihood of creating arbitrary advantage for a few users. Closely monitoring the growth of top users can help new platforms spot early signs of arbitrary inequality and rein in the situation before it is compounded.

In addition, platforms should employ mechanisms to level the playing field for late joiners. For example, a freelancer platform may encourage new users to participate in automated testing to garner a certain level of initial reputation. This may help new users get their first jobs on the platform and give them a chance to enhance their reputation through social feedback.

Finally, platforms should invest in community management to ensure that new users receive adequate guidance on the workings of the platform. Low-skilled users could also be offered skill-enhancement services.

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