

An Overview of Platform Economy and Its Algorithms: Strengths, Weaknesses and Regulatory Initiatives

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Abstract. Algorithm-based Platform Economy is growing rapidly, with digital capitalism as its core. Its advantage of accurately matching supply with demand has attracted an enormous amount of capital. However, the monopolistic nature of platform and the intelligent algorithms are constantly violating the bottom line of consumer privacy, making digital economy a weapon for capital to exploit the laboring people. Therefore, they should be strictly regulated, which is the only way for platform economy to deliver real benefits to working people.

Keywords: Platform economy; digital economy, Regulated.

1. An Overview of Platform Economy and Its Algorithms

Platform Economics is a new economic system based on digital technology, consisting of data-driven, platform-supported, and network-coordinated economic activity units, and is a general term for various economic relationships based on digital platforms. [1] The concept of platform economy was first introduced in the Report on the Work of the Government in March 2018, while platform economy has already merged as early as 2010, with the popularity of smartphones. Based on physical and virtual trading space, platform economy attracts relevant players along industry chains. It aims at facilitating transactions or information exchange between two or multiple parties, matching their supply and demand, and charging fees or making money from the price difference as revenue. The rapid growth of platform economy draws plenty of capitals, which in turn accelerates its expansion. The platform itself shows up as a competitive player and participates in the economic activities with the support of capital. It pursues profit maximization and has a huge impact on the economy. Among the top 10 of the global companies ranking by market value in 2018, many are Internet platform companies such as Apple, Google, Microsoft, Amazon, Tencent, and Alibaba.

The essence of platform economy is the creation of huge economic value through data collection and algorithmic models. For instance, Google provides searching engine for free and collects data from users. The company exploits the value of data through algorithm, and sells packaged data assets to advertisers. Ads are accurately delivered to users which brings up purchases, and the commissions paid by the advertisers generate Google's revenue. Google provides platforms for all kinds of scenario, collects data, uses algorithmic models to match information between supply and demand, and earns revenue by selling the packaged data to advertisers. Google converts random searching behaviors into valuable advertisements, while acting as neither a producer nor a consumer itself. [2]

Therefore, platform economy is an innovation of the business model rather than the product itself. It disrupts the traditional business model and creates enormous economic value using AI algorithms and digital technology. Platform economy has become a significant engine to impel China's economic development, owing to the upgrade of algorithms.

2. Strengths of Platform Economy Algorithm

The massive adoption and initial progress of platform economy algorithm rest on marketing. According to a global survey released by Deloitte in 2020, three out of the top five AI goals are marketing oriented. [3] The essence of marketing is to match the demand to the products and services with accuracy. As a result, the efficiency of business brokering has been vastly improved by the

algorithms. In August 2019, the American Marketing Association revealed a 27% increase in the implementation of AI algorithms in marketing over the past one and a half years.

AI algorithm-oriented marketing plays a significant role in the development of platform economy. To start with, many companies apply AI chatting technology in brief conversations with clients. Such algorithms can be commonly found at the early stage of consumption. With intelligent chatting, it is possible to capture the consumption tendencies of customers, so as to retain hesitating customers and make accurate recommendations. Next, platform economy algorithms can deliver accurate ad recommendations to customers based on big data analysis. Taking a competition held by the US media platform Netflix in 2006 as an instance, competitors were provided with a dataset of up to 100 million movies with titles, ratings, and review dates, and were expected to predict what films Netflix's customers would like. On September 21st, 2012, according to Reuters New York, a team that successfully improved the efficiency of Netflix's movie recommendation engine by 10 percent won the prize. The contest encouraged experts in computer science and machine learning around the world to continuously work on a more efficient recommendation engine. Accordingly, Netflix has benefited from delivering accurate video recommendations to its customers. In addition, platform economic algorithms can provide personalized analysis based on user data, turning big data directly into consumption power. Olay, a leading skin care brand, developed an online application called Skin Advisor, which allows its customers to get a personalized analysis of their skins and a recommendation for the suitable products through a "selfie" and a brief questionnaire. [4] The Skin Advisor has lowered professional labor costs while driving product sales dramatically. Meanwhile, the accumulation of massive amounts of skin data provides Olay with accurate forecasts of the current trends of the skin care market, facilitating the company to better analyze market demand to explore competitive products. Currently, the Olay Skin Advisor app is available on Android and has been updated in several versions.

3. Weaknesses of Platform Economy Algorithm

David Harvey once said, "There are many times in history that seem to contain the possibility of liberation but turn out to be a revival of the dominant practice of capitalist exploitation." In capitalist societies, the development of the platform economy remains inescapable from the restriction of "the social nature of production and the private appropriation of the productive material", and thus suffers from inherent conflicts. [5] While the platform economy algorithm utilizes big data to create value for capital, it also continuously erodes the privacy and rights of data providers —everyone uses big data and be used by big data at the same time. [6] The algorithm not only sets the game rules for users, but also makes all the behavioral data generated by the usage of the platform into their exclusive and private property in reverse. People who seem to benefit from the intelligent marketing and accurate recommendations will never be the winner in the game with capital.

On the one hand, the platform economy has an inherent monopolistic tendency with the support of capital, which will intensify the conflict of excess capital accumulation. Given that competition is the driving force of market economy development, monopoly will inevitably affect the competitive market. The platform economy abuses its monopoly position to carry out illegal acts like big data price discrimination and forcing suppliers to choose one platform out of two. In the context of e-commerce platforms, the algorithm will conduct a "user profile" based on user data, accurately portraying the private lifestyles and consumption patterns of users, which, due to the monopoly position of capital, allows it to price differently based on the consumer profile, commonly known as "big data price discrimination". With the ability to manipulate prices, capital has the power to price differently for various consumers, resulting in price discrimination. Mankind is entering an era of transparency where "algorithm is king". Algorithmic hegemony is essentially the transfer of capital hegemony to the virtual space. Forcing suppliers to choose one out of two is also a violation of rules due to platform economic monopoly. On October 8th, 2021, the State Administration for Market Regulation announced the decision to impose administrative penalties of 3.442 billion yuan on

Meituan for its monopoly of implementing “choosing one out of two” in the country’s online catering delivery platform market.[7] The means of “choosing one out of two” enhances the monopoly position of the platform; heterogeneous algorithm intensifies monopoly of information, leading to privatization of public information; the hegemony of algorithm takes control over public consumption and exacerbates the conflicts of public consumption. Baudrillard warned, “We have been simplified by technological manipulation. This simplification process becomes insane as we enter the phase of digital manipulation.” The phenomenon of technological manipulation is becoming increasingly evident in the era of digital capitalism, where algorithms have not become “gatekeepers” of value neutrality, but rather tools for capital proliferation.

On the other hand, platform economy has changed the traditional employment relations and intensified exploitation of labor by capital. Marx once said, “Capital is dead labor; like a vampire, it lives on sucking up living labor, and the more it sucks up, the more vigorous it will be.” Big data and algorithms have become a powerful weapon to exploit workers in the platform economy. Taking Meituan as an example, it has solved the food delivery riders scheduling problem using its intelligent scheduling system, Hyper Brain System, which combines technologies such as big data, AI, IoT and cloud computing to accomplish effective allocation and optimization of delivery resources, but this also raises safety hazards and overload pressure to the food delivery riders.[8] To begin with, to avoid fines for overtime delivery, riders are under great pressure to deliver take-out as fast as possible, during which cases like over-speeding and red-light running are not uncommon, driven by the algorithm of pursuing profits and efficiency. Such behavior exposes riders to huge dangers. Furthermore, the platform’s algorithm also silently collects data on each dispatch of the rider, which in turn accurately predicts the time required for each dispatch. The Hyper Brain System enables the order of labor by secretly collecting and analyzing rider data and reflecting the results back to the riders. Algorithms unwittingly engage them in the self-management process, causing workers to lose initiative and become “trapped in the algorithm”. As the accuracy of big data algorithms continues to improve, the delivery time of riders is being compressed. Finally, the emergence of the platform economy has altered the traditional employment model, and labor rights and interests are difficult to be protected. Riders and platforms are in outsourcing partnerships rather than employment relationships, which means that platforms do not need to pay social security, pensions, and other basic labor protection for them. Platforms externalize their own responsibilities, transferring their risks and seriously infringing on the legitimate rights and interests of workers, which is part of the reason for the high mobility of the food delivery rider industry.

4. Regulatory Challenges and Existing Governance of Platform Economy Disorder

Alongside the convenience the platform economy has brought, there are also downsides of abusing monopoly position and intensifying the exploitation of labor. However, the regulation of the platform economy is not an easy task. Firstly, it is difficult to identify the abuse of monopoly position, which poses great challenges to legal regulation. On October 20th, 2020, the U.S. Department of Justice initiated an antitrust case accusing Google of maintaining its monopoly in the search engine and online advertising fields through anti-competitive means.^[1] The Chrome browser developed by Google accounts for nearly 70 percent of the browser market; Android has occupied about 75% of the world’s smartphones; and YouTube is one of Google’s most important advertising cash cows, reaching 2 billion users all over the world and contributing more than \$15 billion to Google’s revenue every year, which is growing at a compound annual growth rate of 35%. Google’s absolute dominance in the searching business, coupled with its leadership in many other products, has enabled it to generate massive revenues and to abuse its monopoly position through the mode of ranking the bidding price. However, Google argues that advertisement is a broader field which is not limited to the Internet ads, and it also includes TV ads, paper ads, signage ads and others. If so, Google has not formed a monopoly in the advertisement business. Secondly, price discrimination of platform is also

hard to define precisely. For instance, the platform economy manipulates prices based on algorithmic portraits. By awarding different coupons to differently portrayed consumers, the same goods are priced at difference, which generates price discrimination. However, they merely owe it to the randomness of the coupons when facing the regulation, while the actual value of the coupon is an optimum given by the algorithms.

On November 10th, 2020, the State Administration for Market Regulation issued the “Antitrust Guidelines for the Platform Economy Industry (Draft for Comments)” to prevent and suppress monopolistic behavior; to protect fair competition; to promote the disciplined, organized, innovative and healthy development of the platform economy; and to defend the interests of consumers and the public.[9] This is not to obstacle the development of platform economy but to standardize the platforms, which is crucial for optimizing the allocation of resources, promoting cross-border integration, facilitating the upgrading of industrial structure and broadening the consumption market.

Besides, it is necessary to develop information infrastructure, improve the digital security system, strengthen the training of professionals, and enhance the protection of intellectual property rights.[10]

As Cathy O'Neil warned in her book *WEAPONS OF MATH DESTRUCTION: How Big Data Increases Inequality and Threatens Democracy*, we must be aware that “some choices are out of goodness, but many models have taken the prejudices, biases, and predilections into account, which are manipulating our lives to a great extent” (O’Neill, 2018: V). As we are being increasingly surrounded by Internet platforms, both consumers and workers should recognize the dark side of data, be alert to the capital manipulation behind technology, and fight against data violations of platforms through reflection, criticism, and actions to avoid becoming “digital refugees”, so that algorithm could truly promote the development of platform economy instead of being an accomplice of big data price discrimination.

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