

《論 文》

Production Relations of Information and Value: Focusing on the Consideration of Digital Labor in the Consumption Process

CHIKANARI AKIHO

Key Word

digital labor, information, value, production relations, accumulation structure

Introduction

In the 21st century, giant platform companies (global capital) such as GAFA (M) have swept the world. To understand the dynamics of contemporary capitalism, which is undergoing further tectonic shifts because of the coronavirus pandemic, it is important to investigate the mechanism, that is, the accumulation structure of how their capital is becoming enormous.

In recent years, there has been an active debate on how to economically define the production of information in the consumption process, especially on whether the activities involved in its production can be defined as new labor in the information society. While the above-mentioned capitals have made this information a source of profit by “commodifying” it, consumers have become increasingly dependent on the information medium. They have become dependent on the information medium in a way that exclusively favors the capital, and the information produced by consumers has become a source of profit. Consumer information can be seen as a source of profit. The problem is whether these social relations and their changes can be defined as new exploitation and domination in an information society.

To extend this discussion, theoretical provisions on the production relationship between information and value will play an important role. In general, it is essential to understand the source of capital accumulation to elucidate the mechanism by which capital becomes enormous (monopolized). In other words, it is essential to understand the relationship between the key concepts of both (information and value), or the economic relationship between the production of value and information, to clarify the generation and development of capital against the background of the development of information technology.

Based on this research perspective, this study discusses the production relationship between information and value based on a discussion of “digital labor” in the consumption process.

1 Basic Concept of Digital Labor

1 – 1 Concept of Digital Labor and Target Domain

Digital labor is a concept with multifaceted elements, but it can be defined in a nutshell as follows:

- (1) Use of the human brain, hands, eyes, and ears, as well as digital devices and software, as tools to create new prod-

ucts.

- (2) Organizing the experiences of two or more people using the human brain, hands, ears, and mouth, as well as online media, to create new products through the formation of social relationships.¹⁾

Generally, human physical actions in the commodity production process are behaviors based on information transmitted from the human brain. Communication (information transmission) through human thought and language can also be understood as a form of social production. From this perspective, “digital labor” includes all types of human activities, not only those conducted in the traditional sphere of production and distribution.

However, from the perspective of human activities via platforms, this concept can be viewed as follows:

- (1) Independent contractor workforces responsible for their own work, such as business models that use job and logistics platforms (Uber, etc.)
- (2) Human activity used in platform-based business models that rely on new capital structures that can collect personal information and convert it into big data (Google, Facebook, etc.)²⁾

On the one hand, of the above definitions, the former mainly covers labor through atypical employment. Although there are major controversies over the nature of the workers involved and the fairness of compensation, the former is an extension of the traditional capitalist production relationship (capital-wage-labor relationship). It can be interpreted accord-

ing to the traditional concept.

On the other hand, the latter covers not only the production process but also various human activities, including the distribution process, and thus has the potential to significantly change the traditional concept of labor.^{3) · 4)}

1 – 2 Basic Perspectives on Digital Labor in the Consumption Process

Smythe’s theory, which defines the commodification of audiences by commercial mass media, is the basis for a positive argument regarding digital labor in the consumption process. According to him, advertisers use their revenues to purchase specific means of communication (TV, radio, newspapers, etc.) to encourage their audiences to purchase various products.⁵⁾ The recipients of information (consumers), in turn, form an audience (“interest” or “desire”) that encourages the purchase of products. In other words, the “audience” is produced as a product.⁶⁾

In this process, advertisers force consumers to do the “work” of acquiring product knowledge (learning) and selecting products based on that knowledge. The “consumer” in this context is a “worker” whose “free time” is

3) This “new exploitation” excludes the various types of operations (data processing, programming, software development, etc.) using digital equipment that exist in each industry.

4) The data produced by social media users should be divided into two categories: actively produced data (information that is transmitted based on a certain level of cultural skill, as in the creation of videos and audio files) and passively produced data (information that is transmitted without requiring special labor or skill, as in personal information and activity records).

5) More precisely, they obtain the right to communicate information.

6) See Smythe (1977).

1) See Fuchs (2014: 251-252). Note that Fuchs considers information as a process of cognition, communication, and cooperation, and defines digital labor in each of these domains.

2) See Fumagalli, et al. (2018: 11).

filled with work and who is forced to reproduce himself while his freedom is being eroded.

1 – 3 Production of Goods by Digital Labor in the Consumption Process

First, the means of digital labor in the consumption process can be considered to be, simply put, communication media. While paper media (books, newspapers, etc.) exist as the classical means of communication, social media has been created and continues to develop with the advancement of digital technology. In light of these historical changes, in the context of digital labor, the means of labor are generally defined as social media.

The means by which this media-holding capital (media capital) realizes profit can be found, for example, in targeted advertising (targeted advertising and recommendation functions) and mechanisms for spending time on the platform (relevant links). These devices enable digital capital to extract additional profit and surplus value from other capital and workers.

Second, the labor objects in digital labor include information, meaning, and culture. Digital labor is considered to produce digital goods by creating and disseminating new information based on sophisticated digital technology.⁷⁾

Third, the forms of products produced by social media companies are specifically personal data, social data, and metadata generated by users' digital labor. Meanwhile, in this case, labor is the creation and transmission of data through social media operations by users. The group of data formed by this transmission is the (data) product. However, if we focus on

the aforementioned "audience" perspective, we can consider the viewing of content transmitted by social media itself to be "labor".

Finally, the production time of a commodity in digital labor is the time users spend on social media. The time spent on the media can be viewed as the sum of consumption or leisure time and productive time that produces economic value (a process that produces a profit for capital).⁸⁾

In addition, Fuchs and Flisfeder define the characteristics of goods in the same labor as follows:⁹⁾

1. Constant real-time monitoring, production of semantic as well as social use values, and full knowledge by the company of the user's activities.¹⁰⁾
2. There is pro-sumption (productive consumption).¹¹⁾
3. That advertising is targeted and personalized.

8) From the perspective of emphasizing the productive nature of activities in consumption and leisure, the distinction between working hours and free time becomes blurred. Such an event (blurring of working hours) can be observed, for example, in teleworking, which has spread rapidly in recent years, but even if workers work 24 hours a day (i.e., all hours of vital activity are working hours), this in itself does not abolish the law of value but rather can be seen as an extension of it. See Rigi (2015: 191).

9) See Fuchs (2015a) and Flisfeder (2015).

10) New applications and devices function to naturalize forms of implicit participation in systems of data monitoring and extraction, extracting value from people's desire for self-understanding through the monitoring of all daily activities, including sleep Andrejevic et al. (2015: 388-389).

11) Pro-sumption is a concept proposed by Toffler (1980), who coined the terms "production" and "consumption. Internet and social media users are called "prosumers" because they are both consumers and producers of content.

7) See Nixon (2015).

4. There is an algorithmic auction to set the price of the advertising space.

2 Theoretical Basis of Digital Labor

This section discusses the Rent Theory and the Productive Labor Theory as the theoretical basis for digital labor in the consumption process and examines their characteristics and challenges.

2 – 1 Rent Theory

In the rent-oriented position,¹²⁾ advertising is a non-productive attribute of monopoly capital. The advertising sector is viewed as acquiring surplus value produced in other industries rather than producing value itself. Here, the profit earned by advertising capital is considered the advertising fee income, that is, the share of surplus value produced in other industries and rent minus the expenditures used for the advertising business (various expenses).

First, capitalists of communication capital (capital that circulates and accumulates through the process of communication) seek to redistribute value from workers' wages in the form of rent payments and receive a share of surplus value distribution from other capitalists through advertising as a form of payment.¹³⁾

For example, in the case of a cultural commodity, the purchase of the commodity is only payment for access. Capital, as the owner of the commodity, acts as a kind of landlord, granting the purchaser the right to use the cultural commodity (rather than ownership of

the cultural commodity) in exchange for rent. Capital is then considered to take value from the wages of wage laborers or surplus value from the profits of other capitalists.

The media can be considered in the same manner as above. The rent here is part of the wages of wage workers (labor value) or the profits of other capital (surplus value). Advertisers pay rent to media owners to transmit their advertisements in the media, while viewers are in a relationship to enjoy the cultural product (content provided by the media).

Based on this understanding, it is possible to interpret viewers' viewing of media (or, more strictly, their viewing of media-provided advertising) as digital labor. In other words, this series of events can be seen as a process of indirect exploitation of viewers' labor through communication capital.

In summary, it can be said that in exchange for granting the right to use the digital space, the owner of this space receives a profit (advertising fee). However, this theory does not provide sufficient evidence as to whether activity in the digital space is "labor". In the above example, the viewer enjoys the content provided by the media, but there is a fundamental question as to whether this passive activity is consistent with the active concept of "labor".

2 – 2 Productive Labor Theory

The argument from the standpoint that emphasizes productive labor and exploitation in the process sees productive labor in the production of goods to be sold to accumulate capital, and thus "exploitation" occurs.¹⁴⁾ In this case, the activities of prosumers (users who

12) Nixon (2015) is a representative discussion, and Teixeira & Rotta (2012) and Rigi (2014) are discussions that link information to rent to theorize.

13) See Nixon (2015).

14) Fuchs (2010), Rey (2012), and Fisher (2015) can be cited.

combine the characteristics of both consumers and producers) are primarily associated with distributive labor.^{15) · 16)}

First, the media's source of value and profit is the value of using data produced by internet prosumers. The economic and social benefits generated by these prosumers include, for example, posting content on YouTube and other video-sharing sites and promotion of their publications through Facebook and other social networking services. The former is rewarded in the form of the number of times the posted video is viewed or the frequency of clicks on advertising banners by viewers. The latter increases sales (i.e., contributes to the realization of the value of other products) by increasing the visibility of one's book; however, from a financial perspective, it also reduces advertising costs.

Meanwhile, these mechanisms push social media users into exploitation. If prosumers do not receive compensation for performing the above activities, the surplus value ratio, which indicates the degree of exploitation, is expected to converge to infinity.¹⁷⁾

The above activities, which are mainly communication, can be viewed as being connected

to transportation labor, which is a part of the distribution labor.

First, commercial media provide consumers with a product ideology and a "transport" ideology to consumers. Second, advertising involves the labor of producing and transporting the information. The advertising transport labor here can be seen as the organization of a communication space in which advertisers convey the promise of use-value to potential customers rather than transporting goods from A to B in physical space.¹⁸⁾

From this perspective, social network service users can be interpreted as transport laborers who carry information about the use value of a certain product (product ideology) to potential consumers. In other words, the transportation labor on social media platforms is communication labor.

Sales and advertising processes fulfill value realization, which is a condition for capital accumulation. For capital, advertising is valued as an ideological commodity that generates user interest in the product and conveys price information. In this sense, distribution activities create new use values and can therefore be interpreted as value-productive. In the process of provisioning, consumers produce use values that are sold as "commodities", and in this sense, consumer activities are also interpreted as value-productive. From this perspective, no clear line can be drawn between production and consumption.¹⁹⁾

3 Digital Labor and Value Production Relationship

Thus far, we have reviewed the basic con-

15) Distribution labor here includes labor involved in distribution functions such as transport, transportation, delivery, logistics management, and customer service.

16) There are theories on how digital labor is viewed in the position that emphasizes productive labor, based on artistic labor and domestic labor, but for the sake of brevity in the discussion, we will omit these theories from this paper.

17) However, even if there were no monetary rewards for free labor, such as participation in social media, it is possible to view prosumers as having non-material, social rewards that can take many forms, such as the satisfaction derived from facilitating communication, contributing to projects, learning new skills, etc. See Hesmondhalgh (2010: 278).

18) See Fuchs (2015a: 30).

19) See Fuchs (2015b).

tent of digital labor in the consumption process. In this section, we examine production relations in digital labor and the relationship between value production and information as a perspective from which to examine the theoretical validity of this interpretation.

3 – 1 Production Relations in Digital Labor

First, human activity involves the “transmission of information”, and labor is no different. For example, in the case of manual labor, commands are issued from the human brain to move the body and create objects. From this point of view, it is logically inconsistent and inappropriate to regard information transmission in the production process as “unproductive labor” the moment it passes through a tool machine (such as a communication device).

For example, it is unreasonable to define oral communication as productive labor but to consider it unproductive labor when the same information is transmitted through a communication medium such as e-mail.

From this perspective, in examining the theoretical validity of digital labor, it is crucial to classify it according to criteria other than the factors of production (i.e., whether or not a digital crisis is used). In this study, we believe that production relations and congruence in commodity production are important as follows:

First, in discussing whether digital activities in the consumption process can be defined as “labor”, it is necessary to examine its consistency with the traditional interpretation of “exploitation” (i.e., the existence of the capital-wage labor relationship).

In the case of general commodity production, the social average labor time required to produce the commodity is formed, and labor

wages and profits are determined through differentiation into the necessary labor time and surplus labor time for workers to produce the value necessary for their livelihood. Here, wages and profits are determined in the capital-wage-labor relationship (the class relationship between workers and capitalists), specifically by the bargaining power of both parties.

From this perspective, it is necessary to examine whether it can be said that in digital labor, where there is no conventional wage relationship (in the consumption process), there is an equivalent social relationship, or in other words, whether a relationship exists that supports workerhood.^{20) · 21)}

Second, in terms of consistency with the law of value, it is important to view the capitalist mode of production from both qualitative and quantitative perspectives.

Here, the qualitative aspect refers to production relations (capital-wage labor relations and the dominant-subordinate relations). In contrast, the quantitative aspect refers to the movement of capital based on the law of value (production of value, falling profit rates, and depressions). If we define “labor” as a series of activities in the consumption process through digital devices, software, and social media, then in examining the dynamic changes

20) Simply put, workerhood is the social quality and criteria by which a person who performs a certain productive activity is recognized as a “worker”. The main elements are the command and order relationship, the nature of the restraints, and the relationship between remuneration and burden.

21) Note that Huws considers unpaid artistic labor (blogging, posting one’s own photos, music, and videos on the Internet, etc.) to be unproductive labor and that it becomes productive labor in the Marxian sense only when workers are hired by capitalists to do work for wages, which is the “capital -wage-labor relationship”; see Huws (2014: 164-173).

brought about by this system (e.g., its impact on capital accumulation, which will be discussed below), we will need to elaborate our analysis of the production of goods produced by this system. While refining the analysis of the relationship between the production of goods produced by this system (e.g., its impact on capital accumulation, as discussed below), it is important to quantify the value produced in this process.

From the positive viewpoint of digital labor in the consumption process, the quantitative relationship between labor and value is generally explained based on the generation of “rewards”. However, finding a proportional value relationship between the input of labor and the output of goods in digital labor in the consumption process is challenging.

For example, in the case of videos and blogs created by individuals, regardless of how much time a user spends to create these contents, the amount of views and the resulting monetary gain from this content is poorly proportional and highly variable. Moreover, while the amount of this reward may increase in part due to an increase in worker proficiency (or labor productivity), it is also largely dependent on atypical factors, such as user earnings.

Thus, even if it is logically possible in this theoretical system of digital labor in the consumption process to stipulate that the commodity-forming activity (labor) essential for the reproduction of the capitalist economy is “value productive,” if the unrestricted expansion of the concepts of labor and value production makes it impossible to fully stipulate the relationship with the law of value, especially the quantitative stipulation relationship, the function of the labor value theory as a theoretical device for empirical analysis may be seri-

ously compromised. In particular, if it becomes impossible to adequately specify the quantitative prescriptive relationship, the function of labor value theory as a theoretical device for empirical analysis may be seriously impaired.

To resolve this issue, it is necessary to clarify the relationship between value production through the distinction between value and use value.

Our activities somehow produce something that is necessary for the reproduction of society (human survival). In this respect, we can say that our activities produce “use value” necessary for society.²²⁾ From the perspective of the labor value theory, while activities inside the market economy are positioned as activities that produce “value” in the capitalist economy, the movement of capital is based on the market and its laws (repetitive nature of production, the identity of activities and results, intensification of activities through competition, etc.), and in which the It is extremely difficult to regard activities outside the market as forming “value” under the same laws.

Based on this perspective, we believe that it is significant, in terms of consistency with the law of value, to define human activities (labor), which are considered to be outside the realm of the general laws of motion in a capitalist economy, as “production of use value” and to define the profit generated from there as a distribution from other sectors.²³⁾

22) Needless to say, not everything that has use value can be a commodity; only things that have use value to others (social use value) are commodities.

23) In addition, Fuchs (2015a; 28) argues that there are multiple concepts of productive labor as follows:

- Productive labour (1) : Work that produces use-values
- Productive labour (2) : Labour that produces capital

3 — 2 Relationship Between Value Production and Information

Next, as a supplement to the previous discussion, we briefly discuss the theoretical position regarding the value of the information generated in the production and distribution process from the perspective of the production relationship of commodities.

First, the production processes of commodities can be broadly classified into direct and indirect production. The former is positioned as the domain of labor processes directly involved in commodity production. In contrast, the latter is a process indirectly involved, mainly in organizational affairs (personnel, accounting, etc.), product development (research, marketing, etc.), and management and supervision (on-site command and order, etc.).

It is reasonable to view the generation and transmission of information in the former process as a value-producing activity. For example, information transmission to control production equipment as a means of labor (e.g., processing raw materials, assembling parts) can be regarded as not essentially different from manual human work, except that tool machines mediate the process and that the degree of human physical and mental fatigue varies accordingly.

The latter, however, involves the following

and surplus-value for the purpose of accumulation
 · Productive labour (3) : Labour of the combined/
 collective worker and labour that contributes to
 the production of surplus-value and capital
 He then argues that, with respect to digital labor,
 it is necessary to capture the third dimension
 above in particular. In the perspective of this pa-
 per, we agree that work that produces use value
 has social significance, but we do not believe that
 it is appropriate to characterize all of this activity
 as “value productive”, in order to maintain consis-
 tency with the law of value.

issues in defining the relationship with value production in both cases. First, organizational affairs have difficulty grasping the relationship with “embodiment” into commodities. For example, accounting, which manages the circulation of money in a company organization, is an essential activity for the movement of capital, but how is this labor “embodied” in the commodity, or in other words, how does this work contribute to the value of the commodity? It is, therefore, necessary to clarify these relationships.

Regarding the second point, product development, although it goes without saying that it is essential for creating products, the proportional relationship between input production is lacking. Similar to the aforementioned problem in the creation of digital content (videos, etc.), regardless of how much effort (labor input) is put into product development, it is unclear whether a product (labor output) commensurate with that effort is created, and this relationship is full of uncertainty, accompanied by chance. In other words, the analytical challenge is to clarify the quantitative relationship between labor (research and development) and products (outcomes).

The third point, management and supervision, is the same as the second point, and the issue is considered to be understanding the relationship between the input and output. As a supplement, even if the person engaged in this work is an employee (worker) under the employment contract, they are in a position close to the capital in terms of the production relationship. Therefore, they are considered to have a certain degree of decision-making authority over the working conditions. This worker is generally considered to be in a position (or close to a position) where they can determine their work and its remuneration. In

this sense, the worker should be distinguished from workers generally, whose reproduction costs are determined through the capital-wage labor relationship. It is theoretically appropriate to separate the worker from the subject of value formation.²⁴⁾

Next, the distribution process of goods is mainly the movement and storage of goods and the sale of goods, the former being activities directly related to the use value of goods, whereas the latter can be positioned as indirect activities. The distribution of labor discussed in the previous section, particularly advertising, is included in the latter section.

Simply put, labor in the former domain can be regarded as a value-producing activity as an externalized production process since it is an activity that preserves the value of goods produced in the production sector and realizes that value in its original form and the generation and transmission of information can also be defined in the same way. However, for activities in the latter area, the key is whether or not these activities can add value to the commodity as in the former.²⁵⁾ Still, as in the

previous discussion, the relationship between input and output is unclear, and there are difficulties in defining legality. If this point is to be emphasized, it is important to theoretically understand the information generated in the distribution process based on the transmission of information related to the direct production of the commodity.

4 Digital Labor and Capital Accumulation

In this section, we examine the changes in capital accumulation associated with the progress of digitalization from the perspective of digital labor.

4 – 1 Transformation of Labor Process and Capital Accumulation with Digitalization

Advancements in digitalization are bringing about structural changes in the capitalist economy in diverse ways.

First, the advancement of digitalization creates a system that more broadly involves workers and consumers in pursuing profit and capital accumulation by capital. In this respect, the technological development of social media functions as a strong driver of the reorganization and control of industrial reserves, as capital seeks to control and supervise labor, the production and distribution process, and the system that exists between the market and consumers for profit-making. This system also makes it easier for consumers who used to exist outside the production sphere to engage in

24) However, even among workers in managerial and supervisory roles, there are an extremely large number of workers who, rather than actually determining their own working conditions, are forced to engage in work under more difficult conditions, such as working under excessive quotas and unlimited hours. To extend this discussion, it also has a lot to do with “employment-independent work”, particularly freelance work. This new way of working, which has expanded with digitalization, can be seen as functioning as a new source of low-wage labor rather than expanding workers’ rights, such as the right to determine working conditions. These issues are beyond the framework of this paper’s discussion and will be left for another time.

25) A typical example of adding value to products in the distribution process mediated by advertising, etc. is the branding of products. A product brand

is not necessarily formed only in the distribution process of a product, but it can be considered as a special use value (pedantic consumption) that is generated and added to a product mainly in the process of advertising and sales.

commercial activities. It will be possible to involve all members of society in the marketplace, especially giant platform companies, to “exploit” them more broadly and to achieve capital accumulation more rapidly.²⁶⁾

Second, in the modern economy, “knowledge” and “space” as commodities find a new basis for capital accumulation. These factors create two new dynamic economies of scale in capitalism (the learning economy and the network economy), which serve as the basis for productivity growth (or increased surplus value).²⁷⁾

Third, communication of information through social media and other means is maximized by capital as a way to solve various problems in the realization of the product value. Traditional advertising companies have improved their technology to create shorter, more memorable advertisements to extract value from viewers, but they rely on inaccurate and unreliable analyses to monitor viewer preferences. Since the advent of social media, however, sophisticated digital technologies have made it possible to understand the changing wishes and desires of users individually, and advertisers have gained more accurate information about consumer trends.²⁸⁾

Fourth, personal information, as a source of capital accumulation, forms digital products in the form of big data, a huge aggregate of information, and forms a mechanism to earn profits through the sale of such products. In

this respect, information on the supply and demand of a company’s products is a valuable management resource for capital related to its own survival.

The conditions for acquiring personal information and converting it into big data include the formation of technological infrastructure through information technology investment and workers capable of producing or utilizing such information. The commercialization of data such as personal information (value formation) is only possible with the existence of workers and their activities engaged in labor inside and outside the production system of network capital in the process of production and distribution.

For example, hardware and software design consist of labor to operate the technological platform that constitutes the system’s infrastructure and labor to analyze algorithms and produce new information. This is the physical basis for capital accumulation during platforming.

4 – 2 Sources of Accumulation of Information Capital and its Monopolistic Control

This section refers to the sources of capital accumulation and the characteristics of the monopolistic control system in information capital, particularly in platformers, which provides the technological basis for the digital labor of the consumption process examined in this study.

First, for Internet service platforms, such as Google and Facebook (Meta), it is generally possible to find the source of their accumulation in advertising revenue. This revenue can be viewed theoretically as the distribution of profits from industrial capital. These capitals contribute to the realization of product value through advertising. However, the profits

26) See Roy (2021).

27) See Fumagalli (2015). Note that the learning economy here relates to the process of generation and creation of new knowledge and is based on new systems of communication and information technology. The network economy is also derived from the organizational methods of each district (regional networks or system areas).

28) See Fisher (2015).

from the distribution of these capitals are extremely large, and at the same time, their social influence and control become powerful through the strengthening of their monopoly.

Second, each platform further expands and strengthens its accumulation source by enclosing users through its main and other services. Google, for example, has expanded from its search sites to various services such as Gmail, Google Meet, and YouTube. In addition, this capital promotes user consumption through the analysis and dissemination of information, such as recommendation functions (“recommended” products), and maintains and strengthens the relationship between users and various services. In addition, digital labor in the consumption process, which was examined in this study, can be positioned as playing a role in this function.

Third, each platform functions as an infrastructure for producing immaterial means of production (labor objects). In a capitalist economy where digitization has progressed, each capital, centering on information capital, generates personal information through the sale of products and provision of services. The information products formed by accumulating such information are utilized as immaterial means of production (information resources for managerial decisions) for the said capital and other capital.²⁹⁾ The generation and utilization of such information is an essential ele-

ment for the enclosure of consumers through the digital functions described above and is considered to function as a key component of the demand monopoly by capital.

Conclusion

As discussed, there are many problems in regulating digital labor in the consumption process regarding theoretical validity; in particular, it is essential to expand the analysis to capture the relationship with the law of value. From this perspective, it is also essential to grasp the economics of activities in this process based on the relationship and law of value in the production of commodities.

However, this discussion is significant in that it provides a new perspective on the restructuring and strengthening of monopoly capital control over the market (consumers, workers, and capital) through platforms. For example, the accumulation of personal information through capital is closely related to the formation and development of “surveillance capitalism”. The “runaway” information “flood” (as in the case of fake news, etc.) that is materially based on platforms occupies an important position as a stepping stone to prevent and control it.

Finally, we present the remaining analytical problems in this study.

First, we presented a quantitative analysis of profit formation and capital accumulation during the consumption process. In this study, we have focused on quantitative stipulations from the perspective of consistency with the law of value, but we have not been able to adequately examine the quantitative analysis itself. Although technical difficulties are involved in the quantitative understanding of information, we would like to take another op-

29) Such information resources can be considered to be used primarily as a decision-making factor in product development and sales strategies, but if the labor in these areas is considered unproductive labor, it is theoretically more appropriate to define the costs used to obtain the resources necessary for this activity as capitalist costs (the portion distributed from profit) rather than strictly as a category of invariant capital invested in the means of production.

portunity to discuss how to do so.

The second is an analysis of changes in the labor process due to digitalization, particularly research on new employment relationships and their economic impact. Since the main focus of this study was on the consumption process, we had previously excluded consideration of this point. Still, an analysis that captures changes in this process is indispensable to clarify the full extent of the changes in the structure of accumulation in modern capitalism.

Third, we examined the competitive relationship between platformers. Although this study has focused on the theoretical consideration of the value production relationship, it has not sufficiently examined the dynamic relationship among capitals, such as the competition among various capitals and its economic and social impact. As seen in the recent rivalry between the United States and China, monopolistic market dominance is centered on platform players, while competition on an international scale is intensifying. Therefore, it is necessary to examine theoretical developments with these developments in mind.

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