

# The Logical Premise and Methodological Basis of Marx's Machine Production Theory

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Marx's production paradigm constitutes the logical premise of his construction of machine production theory. Therefore, the machine production theory elaborated by Marx has a unique research method and theoretical perspective, which is fundamentally different from other non-Marxist technical theories, which is also the basic starting point for understanding and explaining Marx's machine production theory. By defining the logical premise of Marx's machine production theory as production paradigm, we can not only reinterpret this theory based on the original context, but also examine the latest interaction between contemporary capitalism and technological reality on the basis of this interpretation. Only from the production paradigm can we truly grasp the complete connotation of "machine production" in Marx's mature criticism of political economy.

*Keywords:* production paradigm, machine production, machine theory, capitalist mode of production

## Introduction

Since the Industrial Revolution, machine production has greatly changed the overall appearance of production and life in human society, not only penetrating into the economic basis of modern production, but also shaping the daily life, spiritual and cultural values of modern human beings. At the same time, today's machine production is gradually shifting from the traditional mass mechanized industrial production to a new production model based on computers, information networks, and intelligent machines. In contemporary times, despite the changes in technological conditions, the inherent contradiction of machine production as a capitalist mode of production under the dominance of capital logic still exists. The application of new machines promotes the continuous development and benefit growth of digital economy and knowledge economy, but also makes workers and their living environment fall into deeper capitalist whirlpool. The new revolution of production and the emergence of new modes of labor and relations of production have given rise to new social phenomena, and the fundamental problems of human existence have yet to be solved. Practical problems require theoretical guidance, which makes it necessary for Marx's machine production theory to appear in contemporary times.

## The Formation of Machine Production Theory

From Marx's own thought development, the study of machine production has experienced a deepening process. In the formation of the theory of machine production, there are two distinct research stages, the watershed of which lies in *Economic Manuscripts of 1857-1858*. Before this, Marx's research object is "machine", and its

theoretical exposition can be summarized as a machine theory. After this, Marx's research object is "machine production", and its theoretical exposition is expressed as machine production theory.

Marx's earliest account of the machine problem appeared in *Economic and Philosophical Manuscripts of 1844*, in which he recognized the existence of the machine paradox by referring to F. W. Schulz's *The Movement of Production*, "despite the time saved by the improvement of the machines, the duration of slave labor in the factories increased for many of the inhabitants." (Marx, 2000, p. 16). The adoption of machines not only does not reduce the working time of workers, but extends the working time of workers and increases the burden of labor. In *German Ideology*, Marx pondered the historical role and place of the machine. The historical significance of the machine is not only reflected in its essential connection with the historical existence of man, but also in its important position in the contradictory movement of productive forces and modes of communication. In the seventeenth century, the concentrated development of handicraft industry and commerce in England created new needs which the old industrial productive forces could not satisfy, and this demand for new productive forces was

the driving force which gave rise to the third period of the development of private property since the Middle Ages, which gave rise to large industry—use natural forces to service industry, adopt machine production and implement the widest division of labour. (Marx, 1960, p. 67)

The establishment and development of large-scale industry has brought extensive influence and profound changes to human society and created world history.

In *Poverty of Philosophy*, for the first time, Marx conducted a study of machine-related problems based on the context and methodology of political economics. In Marx's view, "machine" is not an economic category, "machine is only a productive force. The modern factory based on the application of machines is the social relations of production, the economic category." (Marx, 2009, p. 622). This shows that Marx at this time only grasped the "machine" from a single perspective of productivity, intentionally separating the machine as a productive force from the factory system as social relations of production. Marx rejected P. J. Proudhon's view that the division of labour determined the machine. He pointed out that the division of labor interacts with the machine. On the one hand, machines develop with the development of the division of labor, and only under the premise of continuous differentiation of tools can machines appear. On the other hand, with the development of the application of machines, the division of labor itself has developed in a more complex and detailed direction, "to begin with the division of labor in general, so that a special instrument of production—the machine came from the division of labor, is simply an insult to history." (Marx, 2009, p. 622).

Starting from the writing of the manuscript of *Capital*, Marx went deep into the real capitalist production process to reveal the secrets of capitalist production, and on this basis, the theory of machine production was constructed. In *Economic Manuscripts of 1857-1858*, Marx analyzed the social and historical existence of the "machine", clearly pointed out the essential difference between the machine as a fixed capital and the traditional means of labor, that is, the tool, and referred to the machine as the real basis for the final establishment of the capitalist mode of production. This analysis is a turning point in the formation of Marx's theory of machine production, because Marx here reveals the internal relationship between the machine (productive forces) and the relations of capital (relations of production), and thus shows the social essence of machine production as a special capitalist mode of production. In the second draft of *Capital, Economic Manuscripts 1861-1863*, Marx's use of the term "machine production" increased significantly. In this text, Marx clarified the three stages of relative

surplus value production to refine the internal development of the capitalist mode of production itself, and the important position of machine production is thus highlighted. The theory of machine production finally took shape in *Capital*.

It can be seen that the formation of Marx's machine production theory didn't accomplish overnight, it's a deepening and gradually forming process. In this process, Marx advanced his thinking about the "machine" to the general study of "machine production", and only at this stage can the connotation of "machine production" be fully presented. Without an in-depth analysis of the mode of capital's relative surplus value production, Marx could not have constructed a theory of machine production that is fundamentally different from other machine studies. It is precisely because of the continuous deepening of Marx' production paradigm that the social historical analysis of machine production can be truly launched. In this sense, the production paradigm constitutes the logical premise of Marx's machine production theory.

### **The Connotation of Production Paradigm**

Marx explained the development process of human social history from a core concept, which is "production". On the basis of the concept of production, Marx confirmed the birthplace of human social history, analyzed the development momentum and internal laws of human social history, and pointed out the realistic road for human freedom and liberation. G. Márkus called Marx's research strategy to explain social objectivity as "production paradigm" (Márkus, 2011, p. 52). This paper uses this term to refer to Marx's basic theoretical framework for examining and analyzing social history with "production" as the core.

The first principle of Marx's production paradigm is to recognize "production" as the foundation of the historical development of human society. Marx established this principle through his criticism of speculative philosophy represented by Hegel. In this process, Marx made a clear break with the previous philosophical tradition and founded a "new" materialism, laying the foundation for a scientific critique of capitalist society and for guiding the struggle and practice of the proletariat. As the representative of German classical philosophy and modern metaphysics, Hegel's thought deeply influenced Marx. Marx took a critical attitude towards Hegel's theory. It was through the sublation of Hegel's "upside-down" concept of the man and his conception of history that Marx established his own unique understanding of "production". In Hegel, man is above all "self-conscious", the individual who exists as a thinking subject. Marx said, "Hegel turned the man into man with self-conscious instead of turning self-conscious into man's self-conscious." (Marx, 1957, p. 245). In Marx's view, man must be the starting point, but here man means "realistic individual". Only when Marx separates the rational content of "production within the scope of thought" from its idealistic roots can the investigation of the creative nature of production provide a realistic basis for understanding and solving historical problems.

The second principle of the production paradigm is to point out the duality of "production". Marx's definition of the duality of production involves two basic concepts of production paradigm, namely "productive forces" and "production relations", and the "mode of production", which is the unity of the two, is the core concept of Marx's production paradigm. The duality of production refers to the fundamental judgment that any human production is not only the production of material goods, but also the production of social relations. As soon as people begin to produce, they immediately form a bond based on material benefits. It is the continuous development of this connection that creates history and constitutes the basic content of society. Regardless of its form, a certain society is always the product of human interaction. Regarding "production" as the unity of the creation of material wealth, the production of social relations is an original idea of Marx's production paradigm.

Marx criticized Proudhon for not understanding the production and movement of the relations of production, “he who produces social relations in accordance with his material production level also produces ideas, categories, which are precisely the abstract, conceptual expressions of these social relations.” (Marx, 1972, p. 484). The study of “production” in the relations of production has become the main mark to distinguish Marx’s production paradigm from other production theories, and is also the key to Marx’s discovery of the secret of capitalist production.

The last principle of Marx’s production paradigm is that the scientific critique of the capitalist mode of production is the key to the answer to the mystery of history. If before *Capital*’s manuscripts, Marx’s main task was to establish the general principle of broad historical materialism, that is, to recognize “production” as the origin of the history of the human society, and to identify the contradictory movement of productive forces and relations of production as the basic driving force of social development, then after the *Capital*’s manuscripts, Marx applied the previous general principles to the analysis of a specific object, that is, the economic structure of bourgeois society, and examined the real and concrete general process of capitalist production. The so-called “production in general” is a set of provisions common to production in all ages. It has its reasonableness as an abstraction, without these common conditions, there is no production, and therefore “production in general” does exist. But here “general” actually means a common point abstracted by comparison, that is to say, without the various stages of the development of production in history, the economist could not abstract these general conditions. Marx’s production paradigm is not to study the abstract “general” production, but to study the reality of a particular production. Instead of elaborating the universal laws of “production” as classical economics did, it is necessary to understand the specific mode of production that develops under established premises, namely, the concrete form of capitalist production.

### **Methodological Basis of Machine Production Theory**

It is precisely because of the production paradigm that Marx’s machine production theory has a unique theoretical connotation different from the general economics and technology. Such a methodological basis fundamentally surpasses the machine research vision of classical political economy and traditional technology, and creates a research method of machine production based on critique of political economy. On this basis, Marx could answer the questions such as the paradox of machines that predecessors have not been able to solve. At the same time, it also provides methodological guidance for the subsequent research on the relationship between capitalism and the application of machines. In this sense, Marx’s machine production theory has become a valuable theoretical resource for critique of contemporary capitalism and its research on technical issues. Starting from the production paradigm, the methodological basis of Marx’s machine production theory is embodied in the following three points.

First, Marx insisted on a socially historical analysis of “machine production”. On the one hand, Marx’s analysis of machine production is a social analysis rather than a technical analysis. From the very beginning, Marx grasped the existence of the machine from a social perspective rather than a purely technical one. His thinking on the machine problem was not to explain the machine or the technology itself, but to clarify the social effects of the application of the machine. This makes Marx’s theory of machine production fundamentally different from other machine studies, especially from classical economics. Where economists saw machines only as a means of increasing labor efficiency, Marx saw the dual social effects of the use of machines, and the profound effects of these social consequences on workers and their lives.

On the other hand, Marx's analysis of "machine production" is a historical analysis rather than a factual analysis. A historical analysis requires an explanation of the generative and procedural nature of the existence and development of the object, that is to say, a given object is regarded as a generated reality instead of its particular properties under given social conditions being regarded as an unchanging fact. The latter view, without taking into account the preconditions and historical formation of the immediate facts presented in front of them, regards the particular production and the social properties of the machine and technology as natural and immutable. As G. Lukács puts it, bourgeois economics has always viewed the machine in a non-historical, non-dialectical way, and "regards the role of the machine in the capitalist production process as the 'eternal' fundamental core of the machine, as an inseparable part of its personality, thereby distorting the true objective nature of the machine." (Lukács, 1999, p. 241).

Second, Marx's concept of "machine production" contains the dialectical unity of productive forces and production relations. In Marx's production paradigm, each category shows an obvious duality, such as "money", "value", "labor", and so on, "machine" is no exception. For Marx, the machine exists as a duality, a unity of the means of labour, and fixed capital, while machine production, as a mode of production, contains the dual relations of man to nature (productive forces) and man to man (relations of production). Under the premise of capital, the duality of machine production is reflected in the unity of the labor process (material production) and the value multiplication process of capital (surplus-value production).

A traditional understanding of Marx's theory of machine production holds that "machine production" is merely a material form of production, which only represents the level of development of the productive forces, and that the productive forces and the material form follow the internal logic of technological development and appear as an independent and autonomous development of technology. The economist J. A. Schumpeter understood Marx in this way, in his view, Marx regarded the "machine" as the "propeller" to promote historical development and economic change, "the propeller's driving action does not need any external impetus, it follows the inevitable logic of the mode of production itself." (Schumpeter, 2017, p. 28). Marx's machine production theory did emphasize the fundamental role of "machine" as a social productive force, but he didn't simply regard "machine production" as the material form of production and separate it from the social form of production. For him, "machine production" itself contains a double relationship, pointing both to the transformation of the subject into the object, a technical process, and to a social process. To be precise, Marx's study of "machine production" is to reveal the intrinsic and necessary relation between the technical process and the social form, the interaction of the two is contained in machine production and constitutes the internal driving force for the development of machine production as the capitalist mode of production.

Third, the core of Marx's machine production theory lies in the critique of capitalist mode of production. As the real form of capitalist mode of production, Marx's research on machine production is bound to point to the overall critique of capitalist mode of production. "Critique" here does not mean a simple negation, but a logical and historical analysis of the object according to its intrinsic nature and regulations. It is precisely by placing "machine production" under the theoretical framework of critique on the capitalist mode of production that Marx can reveal the real social and historical connotation of machine production, and provide a scientific path for answering the paradox of machine theoretically and discarding the negative effects of the capitalist application of machine practically.

The theory of machine production with the critique of capitalist production mode as the core is still of great significance for understanding and examining the new machine production which is marked by information,

digitization, and intelligence. If the theory of machine production is only defined as Marx's investigation of "large-scale industry" in the 19th century, then the significance of the theory will not be evident in today's rapidly changing technological conditions. On the contrary, since Marx's theory of machine production does not remain as a simple description of the industrial conditions of the 19th century, but uses machine production as a medium to develop a comprehensive critique of the capitalist mode of production, the theory itself, and especially its methodological basis, retains a powerful explanatory force for the critique of capitalism today. From the second half of the 20th century to the present, the labor process theory in the United States, the Autonomist Marxism in Italy, the contemporary Western left-wing accelerationism, and the theory of "interpretation machine" all put forward the idea of returning to Marx to varying degrees, and revived Marx's own thought and the critical position of capital in the interaction with the contemporary technological reality. Therefore, the vitality of Marx's machine production theory is actually fully reflected in the active development of contemporary critique of capitalism. In order to rationally use this theory to make a scientific investigation of contemporary capital reality and technological development, a necessary prerequisite is to clarify the logical premise and fundamental methodological basis of machine production theory itself.

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