

An interpretation of planning economy era in China

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Abstract

Analyzing allocative efficiency of factors, this work discusses how we should evaluate the planning economy era in Chinese economic history from the angle of economic reform starting after that. We obtain the results as follows. Chinese economy partly began to raise allocative efficiency of productive factors during the planning economy era. And, the turnover rate of funds was closely related with economic growth rate. Thus, it can be said that, in the allocative efficiency of factors and the turnover rate of funds, Chinese economy in the planning economy era gradually formed the conditions necessary to succeed in economic reform and transition to market economy after that. Therefore, in discussing transition from planning economy to market economy, we argue that it is inappropriate to only introduce institutions of market economy to improve the inefficiency of planning economy and that it is key point for successful economic reform whether the economy has prepared to conduct the reform before it starts.

Keywords: Chinese economy; planning economy; economic reform; allocative efficiency.

1. INTRODUCTION

This paper aims to clarify how efficient resource allocation and production organizations proved to be in the planned economy of China.

Serious inefficiencies in the industrial sector have been highlighted in the planned economy of China, which consists mainly of state enterprises. Each firm (state enterprise) tended to have whole production processes running from upstream to downstream. The full-set production system, whereby a firm had whole production processes, has been claimed to cause inefficiency of production system in the planned economy in China because it was difficult for factories to operate at full capacity and there were always some idle production processes or items of equipment. Marukawa (2003) proposes the following mechanism for this. The full-set type production system in the planned economy in China had difficulty in harmonizing production processes, and tended to have one process operate at full capacity but another one

idle. Idling of production processes or equipment sometimes arose when firms with a full-set production system held their equipment enough large to meet the possible maximum level of demand, and the equipments did not operate at full capacity for the usual demand level.¹

Adoption of a full-set production system is nevertheless reasonable in planned economies. Marukawa (2003) found that some firms even had to get parts and materials not provided in plans by government for their production, and eventually made them themselves to ensure a stable supply, resulting in the maintenance of many production processes. Stable trade of parts and materials between firms in a planned economy was less easy than in a market economy, and the full-set production system relieved a firm from difficulty in procurement. Reducing the difficulty in procuring parts and materials might also be more important for firms than raising the net work rate of factories through reducing idle production process or equipment. Consequently, the rationality of the full-set production system in those days cannot be wholly denied, and it is interesting to investigate the efficiency of the full-set production system by econometric means. This is done in the present paper.²

Some documents suggest that the full-set production system was not used throughout the entire industrial sector in China in those days. An example is after the failure of the Great Leap Forward. At that time, government undertook economic adjustment of state enterprises and closed or merged many poor-performing state enterprises. In this process, firms with relatively few production processes increased in number (according to the Research Group of China's Business History, 2002, p. 505). This suggests that some firms took charge of relatively few production processes, and formed a work division relationship with others. Other documents suggest routine procurement by firms from the outside, specifically from other firms, in the planned economy in China.³ Anecdotal evidence is that division of work between firms was considerable in China even in that era.

These arguments together imply that firms which adopted the full-set production system coexisted with others that made use of production systems relying on the division of work between firms. Thus, we should also study econometrically the efficiency of production systems relying on the division of work between firms.

We now consider the advantages and disadvantages of both production systems.

¹ Marukawa (2003) points out that completely controlling variation of demand is difficult also in a planned economy.

² Mizobata (1983) indicates that most firms had an almost whole production process from upstream to downstream in the Soviet Union also, since adopting a full-set production system was appropriate to production conditions in those days, for example in allocating valuable machine tools.

³ China's planned economy was looser than that of the Soviet Union, and local governments and firms did not only follow orders from central government, but also frequently made short-term production plans at their discretion, following which the parts and materials necessary for production were procured (Research Group of China's Business History, 2002, p. 182).

The full-set type maintained many production processes in a firm and tended to have difficulty in harmonizing production processes. If an upstream production process was delayed, downstream processes are also liable to stop and idle. However, this system suffers less from difficulty in procuring parts and materials and sluggish production, since most of parts and materials are also produced within a same firm.

On the other hand, the work division type production system might lead to a higher net work rate of factories than the full-set type. Downstream processes of production are not constrained by provision of parts and materials from upstream in the same firm, because procurement proceeds from outside. This too can have its difficulties, however. In planned economies, firms are often worried about difficulty in procuring parts and materials. The problem could lead to reduction of net work rate of factories.

How well did each production system actually work in the planned economy in China? We tackle this question below. Various aspects of the planned economy in China have been studied before. Chen et al. (1988) look at productivity in the industrial sector over the long term in the planned economy era. Dong and Putterman (2000) analyze employment behavior of state enterprises, and Imai (2000) studies wages of labor in the planned economy in China. Zhang et al. (2007) and Li and Yang (2005) investigate economic outcomes of such political events as the Great Leap Forward or the Great Proletarian Cultural Revolution. This paper is in the same category: it pays particular attention to production systems of state enterprises at the core of the planned economy and studies them empirically using historical statistical data.

The paper is organized as follows. Section 2 describes the framework of our empirical analysis. Section 3 explains the data used. Section 4 considers the results of the estimation, and Section 5 presents conclusions.

2. FRAMEWORK OF ANALYSIS

This section sets out the framework of our empirical analysis.

A detailed discussion is to be provided at the conference.

3. DATA

To be reported at the conference.

4. RESULTS

To be discussed at the conference.

5. CONCLUSION

Our findings are summarized as follows.

First, our measurement shows that growth in firm unit number predominated over growth in firm size in the industrial sector in the planned economy of China. The presence of a full-set production system was likely to be less dominant than is commonly held, and the industrial sector tended to be oriented to a work division type production system.

Second, both shifting to a full-set production system and shifting to a work division type production system had a positive effect on the net work rate of factories in the 1950s, whereas they had negative effect on the net work rate in the 1960s and 70s.

Third, shifting to a work division type production system was an economically reasonable strategy for production organization in the 1950s in China. However, this strategy came to be unreasonable from the economic viewpoint in the 1960s and 70s. This could be for political and military reasons which required firms or factories to be geographically dispersed at the cost of economic efficiency or surplus.

Therefore, in discussing transition from planning economy to market economy, we argue that it is inappropriate to only introduce institutions of market economy to improve the inefficiency of planning economy and that it is key point for successful economic reform whether the economy has prepared to conduct the reform before it starts.

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