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Deepening Supply Side Reform and Resolving Overcapacity

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Abstract

Resolving the problem of overcapacity, especially in the heavy industry sector such as steel industry, is a key problem to deepen the structural reform of supply side. The overall consideration is to overcapacity, the efficiency transformation of state-owned enterprises and regional development is particularly prominent. With the former static DEA estimates the industrial capacity utilization rate of different methods, considering the enterprise in the production of dynamic decision process, DSBM model is used to calculate the dynamic redundancy capacity of 2009-2016 years China steel utilization rate based on listed companies. We have drawn the following conclusions: Firstly, there was significant difference between the rate of capacity utilization by using dynamic and static dynamic capacity, capacity utilization is more real and accurate reflection of the enterprise production and operation environment of the complex changes in the decisions made by the static and dynamic adjustment, capacity utilization indicates the existence of overcapacity of listed steel companies. Secondly, dynamic analysis of enterprise registration type, enterprise scale, the region that based on the volatility of private enterprises is less than the use of state-owned enterprises, small scale enterprises production capacity, capacity utilization rate was significantly higher than that of large and medium-sized enterprises, while the Northeast has serious overcapacity problems, the iron and steel industry in the western region of the capacity utilization rate variation is particularly evident significant regional differences. On the basis of the above conclusions, some suggestions for the development of the industry are put forward.

Keywords

Supply side reform; Overcapacity; Capacity utilization; Inventory.

1. INTRODUCTION

In the report on the work of the government of the national two sessions in 2018, Premier Li Keqiang said that we should closely rely on reform to solve the problems of economic development and structural imbalance, vigorously develop emerging industries, transform and upgrade traditional industries, and improve the quality and efficiency of the supply system. In the past five years, we have made solid progress in "Three Removal, One Reduction and One Supplement" and withdrawn over 170 million tons of steel production capacity. In this process, resolving overcapacity, eliminating backward production capacity, especially in heavy industries such as steel and coal, has become a key problem in deepening supply side structural reform, while a large number of heavy Industries how to develop the state-owned enterprises and realize the efficiency reform has become the "difficult problem" of the supply side structural reform. Therefore, deepening supply side structural reform, resolving overcapacity and realizing efficiency reform of state-owned enterprises are closely related, influenced and interacted with each other.

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However, there has been controversy in academia about how serious overcapacity is, especially in China's steel industry. J. Bain first put forward the concept of "long-term overcapacity" in 1957[1]. The author thinks that overcapacity is a long-term trend, that is, overcapacity still exists in the period of demand maximization, that is, overcapacity is a long-term phenomenon. Compared with the statistics of major countries in the world, China's capacity utilization rate is not the lowest, and China's overcapacity is not serious [2]. From the perspective of micro formation mechanism, overcapacity is the result of dominant strategy when enterprises face the entry threat of potential competitors[3]. It is the "operation option" of enterprises in the uncertain environment [4], the state of collusion equilibrium in a certain market structure[5], and the development of China under the condition of information asymmetry "Surge phenomenon" in investment due to the consensus of home on future industrial development information[6]. It can be seen that various micro formation mechanisms of overcapacity show that overcapacity is only a by-product of enterprise market decision-making. In terms of actual capacity calculation, Zhang and Jiang used the data from 2001-2011 to study and found that the capacity of heavy industries such as steel and coal was far from serious overcapacity, and the dynamic capacity was lower than 0.65 for a long time[7]. There, what is the nature of overcapacity in China's iron and steel industry? How serious is it now? There is no doubt that the first thing to solve the problem of overcapacity in China's iron and steel industry is to measure it properly. Only on the premise of scientific judgment of overcapacity, find out the root of overcapacity and manage it can we achieve a targeted goal. In the process of measurement, we should focus on the differences between state-owned enterprises and private enterprises, the regional differences between the East, the West and the northeast, the changes before and after the implementation of supply side reform, and the impact of supply side reform on steel production capacity.

At present, domestic and foreign scholars mainly use survey method, peak value method, function method and data envelopment analysis (DEA) to study the problem of overcapacity. However, these methods have at least two defects: first, there are obvious differences in the assumptions of these methods, so the corresponding production capacity definition standards are not the same. For the measurement of economic significance, the implicit condition is that the goal of manufacturers is to maximize profits (minimize costs). These assumptions are based on western mature market economy countries. For developing countries, the micro mechanism may be different. Especially for transition countries like China, the transition to a mature market economy needs a process. Manufacturers are faced with an unfamiliar and changeable business environment. In this context, the hypothesis of minimizing the manufacturer's production cost or maximizing the profit implied by the potential output in economic sense may not be fully applicable to China, and the measurement method based on production technology rather than economic sense may be more suitable for China's national conditions. Second, these methods, especially the latter three, belong to the "black box" evaluation method [8], that is, when measuring the capacity utilization rate, these methods are based on the initial input and final output data of each decision-making unit to measure the efficiency, regard the research object as a "black box", and ignore the intermediate links of specific production and the links between each link And it can't explain which specific links are responsible for the ineffectiveness. However, if we ignore these intermediate input processes and their impacts, we will not only ignore the actual dynamic decision-making process of enterprises when measuring overcapacity, but also easily distort the evaluation of capacity utilization and economic performance, thus misleading policy recommendations.

Therefore, considering that these methods do not examine the decision-making process of cross period production when measuring the capacity utilization rate, and regardless of the micro formation mechanism of overcapacity, the production of enterprises should be regarded as a dynamic behavior, and the overcapacity brought by the cross period decision-making of

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enterprises should also be included in the model. Referring to the DSBM model proposed by Tone and Tsutsui, this paper attempts to extend the existing capacity utilization measurement model to the dynamic framework[9]. Tone and Tsutsui introduced the concept of continuous activities to connect consecutive periods. The dynamic structure shows that the current continuous activities will affect the future input-output level of enterprises.

This paper extends the existing research from the following three aspects: (1) Adopting the measurement method in the sense of technology rather than in the sense of economy is more suitable for China's economic development stage and transition characteristics after the economic crisis; this method takes inventory as a continuous activity of iron and steel enterprises, and considers the dynamic decision-making and production process of iron and steel enterprises in different periods, which is more practical Production process. (2) SBM model based on redundancy is used to measure the capacity utilization rate of listed iron and steel enterprises in China, while DEA model based on radial has the problem of overestimating the capacity utilization rate when the input is redundant or the output is insufficient. (3) There are great differences in regional economic development in China, and there may be significant regional differences in the performance of industrial capacity utilization. Based on the analysis of the difference between the static and dynamic capacity utilization of Chinese steel enterprises, this paper makes a further detailed analysis of the dynamic capacity utilization, and discusses the dynamic capacity utilization of listed steel enterprises from the perspectives of registration type, region and scale, so as to improve our understanding of the overcapacity of Chinese steel industry.

2. CALCULATION OF STEEL CAPACITY UTILIZATION RATE

2.1. Capacity Utilization under Static DEA

Based on the above discussion, this paper will use DEA method to estimate the capacity utilization in the sense of technology. Fare et al. first realized the use of DEA method to estimate the capacity utilization rate, assuming that the input factors include variable input (labor L, fixed input factors are capital K and intermediate input Z, and the output is the total industrial output value y.. It can be seen that under the static DEA analysis framework, the production of each phase is relatively independent. This means that an independent production frontier needs to be estimated for each period, resulting in the capacity utilization rate under the framework not having cross period comparability. Considering that China's economy is in the transition period of rapid development, this paper will assume that the production technology is variable in return for scale, which will be closer to the real production process.

In addition, for the model oriented problem, the output definition of the steel industry is relatively clear, this paper chooses the output oriented model. Considering two production technologies with different constraints, the first includes all inputs, and the second only contains fixed input elements, we can get:

$$\theta^* = \max \theta$$

$$\text{s.t.} \sum_{i=1}^{N} \lambda_i L_i \le L_O, \sum_{i=1}^{N} \lambda_i K_i \le K_o, \sum_{i=1}^{N} \lambda_i Z_i \le Z_o,$$

$$\sum_{i=1}^{N} \lambda_i y_i \ge \theta y_o, \sum_{i=1}^{N} \lambda_i = 1, \sum_{i=1}^{N} \lambda_i = 1, \quad (1)$$

$$\hat{\theta}^* = \max \hat{\theta}$$

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$$\sum_{i=1}^{N}\lambda_i K_i \le K_o,\ \sum_{i=1}^{N}\lambda_i y_i \ge \hat{\theta}\, y_o,\ \sum_{i=1}^{N}\lambda_i = 1,\ \lambda_i \ge 0 \tag{2}$$

Among them, λi is the weight vector, which is used to construct the production front; θ is the scaling ratio required for the observation output to reach the production front level; the angle sign o represents the input and output of the evaluated unit. For decision unit o, the maximum potential output when all input factors are considered as given is θ *yo, when only fixed input factors are considered as given, and other variable input factors can change freely, the capacity is θ *yo. Under this condition, fare et al. expressed the capacity utilization rate as:

$$CU_o = \theta^* / \hat{\theta}^* \tag{3}$$

There are two points to pay special attention to the capacity utilization rate under this definition: first, the capacity utilization rate obtained by this method does not consider the technical inefficiency. Because fare et al. regards the technical inefficiency and the unused capacity as two mutually exclusive parts, the capacity utilization rate is downward biased. Coelli et al. suggested that technical inefficiency should be considered as a part of the unused capacity. Therefore, capacity utilization can be defined as the ratio of real output to capacity. Second, in the radial model of formula (2), when the radial efficiency is reached (θ = 1), if there is still redundancy in the output ,θ*yo can not reflect the real capacity, which will lead to the upward bias of capacity utilization estimation. In order to solve this problem, SBM model can be introduced. Under the above conditions, the SBM model considering only fixed input elements can be expressed as follows:

$$\eta^* = \max 1 + \frac{s^+}{y_o}$$

$$\text{s.t.}\sum_{i=1}^{N}\lambda_i K_i \le K_o,\ \sum_{i=1}^{N}\lambda_i y_i - s^+ = y_o,\ \sum_{i=1}^{N}\lambda_i y_i - s^+ = y_o,\ \lambda_i \ge 0, s^+ \ge 0 \tag{4}$$

Where, S + represents the redundancy of the output of the evaluated unit, and η * is the maximum output expansion ratio of the inspected unit under the output guidance. Here, the capacity utilization rate can be expressed as CU= 1 / η *, and the capacity utilization rate under this definition has excellent properties such as unit invariance and monotonicity.

In view of the shortcomings of the static model and the needs of the real activities, this paper extends the existing static capacity utilization measurement model to the dynamic framework by referring to the DSBM model proposed by Tone and Tsutsui . By introducing the concept of continuous activities, different periods are linked, and then the capacity utilization that can consider the dynamic cross period decision-making behavior of micro enterprises is measured. The dynamic structure shows that the current continuous activities will affect the future input-output level, and through the connection of the cross period activities, the unique production frontier is constructed for the whole sample period, and then the shortcomings of the static model that the results are not cross period comparable are corrected. At the same time, because the dynamic DEA model only constructs one production frontier for the whole sample period, the results are cross-sectional and comparable, so this method can be applied to multi-section cross-sectional analysis of panel data. In the specific measurement process, this paper takes

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inventory as a continuous activity, not only because inventory is an important variable that affects macroeconomic fluctuations, but also because the inventory adjustment behavior of enterprises will directly affect the investment and production of enterprises. From the perspective of national accounts, although the proportion of inventory investment in GDP is not very large, the fluctuation of inventory investment is highly related to the fluctuation of GDP. A thorough understanding of inventory behavior is a necessary condition for a thorough understanding of economic cycles[11]. In a word, no matter how the influence mechanism of inventory on production, the production behavior of an enterprise should be regarded as a dynamic cross period decision-making process that continuously adjusts inventory investment and then affects production capacity. Therefore, it is not only necessary but also reasonable to introduce inventory as a continuous activity into the dynamic measurement model of capacity utilization.

At the same time, this paper regards net fixed assets as fixed input and gross industrial output as output. In this paper, INV is added to the model as a continuous activity. Under the technical condition of variable scale return, the global dynamic capacity utilization of the oth decision-making unit can be obtained by solving the following linear programming problems:

$$\tau_o^* = \max \frac{1}{T}\sum_{t=1}^{T}(1+\frac{s_{ot}^+}{y_{ot}})$$

$$\text{s.t.} \quad K_{ot} = \sum_{i=1}^{N}\lambda_i^t K_{it} \qquad (t=1,2,...,T)$$

$$y_{ot} = \sum_{i=1}^{N}\lambda_i^t y_{it} - s_{ot}^+ \qquad (t=1,2,...,T)$$

$$INV_{ot} = \sum_{i=1}^{N}\lambda_i^t INV_{it} + s_{ot}^{free} \qquad (t=1,2,...,T) \qquad (5)$$

$$\sum_{i=1}^{N}\lambda_i^t INV_{it} = \sum_{i=1}^{N}\lambda_i^{t+1} INV_{it} \qquad (t=1,2,...,T-1)$$

$$\sum_{i=1}^{N}\lambda_i^t = 1 \qquad (t=1,2,...,T)$$

$$\lambda_i^t \geq 0, s_{ot}^+ \geq 0, s_{ot}^{free} : free \qquad (\forall o,t)$$

Here, λt is the weight vector of T period, which is used to construct the production front and redundant variable, respectively, to represent the shortage of output and the deviation of inventory. Tone and Tsutsui defines four types of continuous activities: good, bad, free and fixed. This paper holds that inventory should be a free and continuous activity, because inventory is easy to adjust, and its increase or decrease has no clear distinction between good and bad in economic sense. The constraint conditions describe the continuity between T and T + 1 periods, which is the key to distinguish this method from the static method. The weight vector λ t is used to construct the production frontier, so the change of λ t can be regarded as the change of production technology, and the left-hand part of the equation means the "optimal inventory level" in t period. Therefore, the last constraint in formula (5) means that when the production technology changes from λ t to λ T + 1, if the inventory level of each decision-making unit does not change, the optimal inventory will not change. The above constraints show that the production technology can change suddenly, and the adjustment of inventory level is a continuous process. The above process is similar to the jump variable and viscous variable when saddle is stable in macroeconomics. According to the definition of Sahoo and Tone (2009),

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the global dynamic capacity utilization of observation units can be expressed as. In addition, the dynamic capacity utilization of the decision-making unit in each period can be expressed as. It is worth noting that DSBM model can calculate the capacity utilization rate of T period at the same time, instead of solving the linear programming problem separately for each period as the traditional static model, so as to effectively avoid the incomparable problem of cross period.

3. CALCULATION OF CAPACITY UTILIZATION RATE

3.1. Index and Data Description

In this paper, when building the production frontier, the total industrial output value is regarded as output, the capital stock is regarded as fixed input, and the inventory is regarded as continuous activity. Variable inputs are not considered because they are not constrained in the model. This paper constructs the input-output data of 31 domestic listed iron and steel enterprises from 2009 to 2016. The original data comes from wind database. ② use DSBM model to estimate the capacity utilization of each year. The specific construction process of input-output data is as follows:

First, for the total industrial output value, this paper uses the ex factory price index of provincial industrial producers to reduce. The ex factory price index of provincial industrial producers is taken from the 2012 China City (town) life and price yearbook and the statistical yearbook of all provinces and cities over the years, and adjusted to the price index based on 2009.

Second, capital stock. The treatment of capital stock is as follows: first, calculate the annual average balance of the net value of fixed assets every year, then calculate the investment amount of new fixed assets every year, then use the price index of fixed assets investment in different regions to reduce the investment amount of new fixed assets, finally, take the data of 2009 as the base period, and add up the capital stock of each year year. The price index of investment in fixed assets by region is taken from the Yearbook of life and price of Chinese cities (towns) in 2012 and the statistical yearbook of all provinces and cities over the years, and adjusted to the price index with 2009 as the base period.

Third, inventory. In this paper, the ex factory price index of provincial industrial producers is used to reduce. The ex factory price index of provincial industrial producers is taken from the 2012 China City (town) life and price yearbook and the statistical yearbook of all provinces and cities over the years, and adjusted to the price index based on 2009.

At the same time, according to the different types of registration after listing, this paper divides the industrial enterprises into three categories: state-owned, private and foreign-funded. Among them, there is only one foreign-funded iron and steel enterprise, and the sample data is too few. It is more important not to be included as the representative of foreign-funded enterprises, but only to compare the state-owned and private enterprises. According to the scale differences, it is divided into large and medium-sized iron and steel enterprises And three small-scale enterprises. According to the number of employees and operating revenue of listed steel enterprises, we define enterprises with more than 10000 employees or annual turnover of more than 10 billion yuan as large-scale enterprises in 2016 (if one of the conditions is met, it is set as large-scale enterprises); medium-sized enterprises are defined as enterprises with 5000-1000 employees or turnover of 5-10 billion The enterprises with the number of employees less than 5000 and the turnover less than 5 billion yuan are classified as small-scale enterprises. It should be noted that 31 listed iron and steel enterprises, as the representatives of better scale efficiency in the iron and steel industry, may have significantly higher profitability and capacity utilization than the average level of the iron and steel industry. The data of all variables are from the annual financial reports of Listed Companies in wind database, except for special notes.

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3.2. Capacity Utilization Estimation Results

According to the method described above, the capacity utilization ratio of 31 listed steel enterprises from 2009 to 2016 is estimated by using Gams software. In order to analyze the difference between dynamic capacity utilization and static capacity utilization, this paper uses static model and dynamic model to estimate the capacity utilization of 31 Chinese steel listed companies.

Table 1. Dynamic and static capacity utilization rate of listed iron

Year	2009	2010	2011	2012	2013	2014	2015	2016	Average
Dynamic	0.6259	0.6375	0.6866	0.6975	0.6990	0.7291	0.6700	0.7216	0.6834
Static	0.6964	0.6922	0.7065	0.7073	0.6928	0.6936	0.6944	0.6823	0.6957
State-owned	0.6924	0.6948	0.7067	0.7061	0.6932	0.6949	0.6935	0.6838	0.6957
Private	0.7104	0.6836	0.7054	0.7094	0.6879	0.6854	0.6990	0.6750	0.6945
Large	0.6899	0.6940	0.7064	0.7109	0.6990	0.6998	0.6932	0.6866	0.6975
Medium	0.6710	0.6726	0.6940	0.6766	0.6694	0.6698	0.6767	0.6764	0.6758
Small	0.7340	0.7086	0.7195	0.7314	0.7044	0.7057	0.7144	0.6802	0.7123
Northeast	0.6656	0.6684	0.6513	0.6462	0.6525	0.6607	0.6498	0.6392	0.6542
East	0.7169	0.7077	0.7220	0.7314	0.7133	0.7243	0.7250	0.6954	0.7170
Central	0.7018	0.6888	0.7110	0.7195	0.7042	0.7083	0.6987	0.6820	0.7018
west	0.6678	0.6824	0.7058	0.6818	0.6614	0.6321	0.6566	0.6854	0.6716

3.2.1 Overall situation

According to the estimated results of capacity utilization rate of iron and steel industry, the average capacity utilization rate of iron and steel industry in the sample period estimated by the dynamic model is 69.57%, while the average capacity utilization rate estimated by the static model is 68.34%. In the average sense, the difference between the two is large. Xu Haiyang et al. made a comprehensive judgment based on the consumption structure and level of a country, the characteristics of industrial production process, industrial organization structure, and the overall operation of the industry. They believed that China began to enter the stage of heavy chemical industry in 2001, 72% - 74% of which was the range of "desirable" capacity utilization rate. Therefore, if the judgment standard of overcapacity adopted by Xu Haiyang et al. is lower than 72% - 74%, there is indeed a serious problem of overcapacity in China's steel industry.

From the change trend, the dynamic capacity utilization ratio changes less than the static capacity utilization ratio, which indicates that after the continuous activity of inventory, micro enterprises can adjust their investment, inventory, production and other decision-making behaviors according to their own economic environment and industry development expectation, so as to obtain relatively scientific and accurate production of Chinese listed steel enterprises The result of availability.

As a whole, there is a certain overcapacity phenomenon in China's steel listed enterprises, no matter by the average value of the sample period or by the type of calculation method. As the enterprises with better scale and efficiency in the steel industry, 31 listed steel enterprises are all in overcapacity on average, especially in some years. It can be seen that the overall overcapacity of China's steel industry is too high The remaining phenomenon is serious, and the pressure of capacity removal is great. The supply side structural reform needs to be further promoted. From the change of dynamic capacity utilization rate, it can be seen that after the economic crisis in 2008, with the four trillion fiscal stimulus and large-scale infrastructure plan adopted by the central government, the capacity was improved temporarily. However, after

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reaching the peak in 2012, with the gradual withdrawal of the stimulus plan and the adoption of a series of trade protection measures by various countries, only from November to December 2012, the United States, the European Union and Australia were included Seven countries, including Australia, launched 12 "double anti-dumping" and "countervailing" investigations on China's iron and steel industry. The "double anti-dumping" investigation brought about a sharp decline in exports, while the growth of domestic demand was limited, resulting in a large increase in the inventory of iron and steel enterprises, a decline in the utilization rate of production capacity year by year, showing a gradual downward trend. In 2012-2013 and 2015-2016, there was a more obvious downward trend. However, the trend of static capacity utilization rate is totally different. From 2009 to 2014, the capacity utilization rate gradually increased. From 2014 to 2015, it dropped to a low point and rose again. It reflects the inclusion of the continuous activity of lack of inventory, and the overall capacity utilization rate shows a fluctuating and rising trend.

3.2.2 Type difference

According to the type of enterprise registration, 23 of the 31 steel listed enterprises are state-owned enterprises and 7 are private enterprises. In the comparison of capacity utilization efficiency between state-owned enterprises and private enterprises in 2009-2016, private enterprises experienced three times of decline in capacity utilization efficiency in 2009-2010, 2012-204 and 2015-2016, and the overall change range of capacity utilization efficiency of private enterprises was also larger than that of state-owned enterprises. The state-owned iron and steel enterprises have experienced the increase of capacity utilization efficiency in 2009-2011, which is also mainly due to the large-scale investment in infrastructure construction in the "four trillion" plan after the economic crisis, which promotes the rapid increase of domestic steel demand, making the capacity utilization rate rise briefly in this period. With the gradual withdrawal of the four trillion plan, and the increasing anti subsidy and anti-dumping investigations on the iron and steel industry in foreign countries, the demand at home and abroad has declined, resulting in a large increase in the inventory of enterprises and a gradual decline in the utilization rate of production capacity. In general, the utilization ratio of steel capacity of state-owned enterprises and private enterprises is lower than the "desirable" capacity level of 72% - 74%, and the overall overcapacity tends to be serious, but the fluctuation range of state-owned enterprises is relatively small, which is related to the relatively large scale and the government's regulation and support of supply side structural reform.

3.2.3 Regional differences

However, in terms of the regional differences in the capacity utilization ratio of listed steel enterprises, the capacity utilization ratio in Northeast China is at the lowest level, and it has been in a state of serious overcapacity for a long time, and it is in a state of further deterioration. However, the capacity utilization rate in the East is at a high level, which is at a reasonable level during 2011-2015, but it is worth noting that the capacity utilization rate shows a downward trend in the later period. However, the fluctuation of the capacity utilization rate of the listed enterprises in Central China is similar to that of the non steel enterprises, except that the average capacity utilization rate is lower than that of the eastern China, and there is overcapacity. However, the production capacity utilization rate in the western region fluctuates the most, which indicates that the economic environment is relatively fragile, and the production and operation of enterprises are greatly affected by the external environment. The western region is also the only one in which the production capacity utilization rate of the iron and steel industry has increased since 2014. The decline of the production capacity utilization rate in the early stage is too large to stop the rebound, enterprises adjust production activities and the state increases its support for the development of the western region Degree is closely related.

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4. CONCLUSION

This paper uses dynamic and static SBM models to estimate the capacity utilization rate of 31 listed iron and steel enterprises in China from 2009 to 2016. The results show that: (1) in the sample period, the static capacity utilization rate of listed iron and steel enterprises is 68.34%, and the dynamic capacity utilization rate is 69.57%, which is far lower than the "agreed" capacity level of 72% - 74%. There are obvious overcapacity problems in listed iron and steel enterprises. As a listed iron and steel enterprise with better scale efficiency, there are still overcapacity problems, and the average capacity utilization level of the whole iron and steel industry may be lower, There is a more serious problem of overcapacity. From the perspective of change trend, the dynamic capacity utilization rate has roughly experienced two stages, and has obvious procyclical characteristics. And the static model estimates the capacity utilization rate fluctuates greatly, which has a cyclical trend of rising. (2) From the classification of registration types, the capacity utilization rate of state-owned iron and steel enterprises is higher than that of private iron and steel enterprises, and the fluctuation range is relatively small; from the perspective of scale difference, the capacity utilization rate of small-scale listed iron and steel enterprises is higher than that of large-scale iron and steel enterprises, but the overall fluctuation is declining, and the dynamic capacity utilization rate in the later period is declining significantly. (3) From the perspective of regional differences in capacity utilization rate of iron and steel enterprises, the capacity utilization rate of listed iron and steel enterprises in the eastern region is far higher than that of other regions, and the problem of overcapacity is not obvious, while the problem of overcapacity in the northeast region is relatively serious, which has been in a low level for a long time and is still declining. However, the largest fluctuation of the capacity utilization rate in the West reflects that the regional economic environment needs to be further improved and developed stably. The capacity utilization rate in the central region is lower than that in the East, leading the other two regions, and the "rise of the central region" needs further support. The capacity utilization rate of iron and steel industry is gradually decreasing from east to west and from south to north. In terms of policy implications, this paper suggests that we should avoid excessive interference of macroeconomic policies in the short term and focus on establishing an effective market economy environment in the long term..

In the long run, the key to resolving overcapacity lies in the establishment of a long-term market mechanism conducive to the independent decision-making of micro enterprises. In an effective market economy environment, an enterprise, regardless of its size, ownership nature and industry differences, can effectively adjust its production and operation behavior dynamically and improve the capacity utilization rate. Although the Central Committee has pointed out that the general idea to solve the problem of overcapacity in China is "four plus one", in the specific implementation process, we should adhere to the market-oriented direction and adopt market-oriented means, that is, adhere to the market forces, the main body of enterprises, local organizations and the central support, highlight the key points, comply with the rules and regulations, and comprehensively use market mechanism, economic means and legal methods, We should take measures according to local conditions, implement policies in different categories, and treat both the symptoms and the symptoms, actively and steadily resolve excess capacity, and establish a long-term mechanism of market-oriented adjustment of excess capacity.

What's more, the key to improving TFP lies in deepening supply side structural reform. The outstanding difficulties of deepening supply side structural reform lie in resolving overcapacity, eliminating backward production capacity, and on the supply side In the process of structural reform, we should pay attention to the establishment of a market-oriented, effective, long-term and scientific industrial policy, pay attention to the differences between the reform of state-

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owned enterprises and regional development, and guide a number of enterprises to become "unicorn" enterprises in the field of industry segmentation, speed up the supply side structural reform in the new era of China's special socialism, build a modern economic system, and comprehensively Build a strong, prosperous, democratic, civilized, harmonious and beautiful modern socialist country.

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