

Study on Cost Management and Control of Chemical Enterprises in Economic Slow-down Period

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Abstract: In order to solve the problem of low efficiency of cost control in the analysis of conventional cost management and control methods for specific types of enterprises in a specific period, a study on cost management and control of chemical enterprises in the economic slowdown period was put forward. The cost composition of chemical enterprises is determined. Based on the calculation of the cost comprehensive coefficient, the research model of cost management control of chemical enterprises in the economic slowdown period is constructed. The cost management strategy of chemical enterprises in the economic slowdown period and the cost control strategy of enterprises are given. The research of this paper is realized. The experimental data show that the proposed cost management and control research is more conventional than the conventional cost control method. The effectiveness of cost control is improved by 42.14%, which is suitable for the cost management control of chemical enterprises during the economic slowdown period.

1. Introduction

Conventional methods of enterprise cost management and control are analyzed from the aspects of enterprise development and external environment. The strategies of enterprise cost management and control are given. They are not analyzed according to the specific economic situation, nor are they analyzed specifically for an industry. When applied to a specific economic period and a specific type of enterprise, there are some shortcomings in the effectiveness of cost control [1]. Therefore, the study on cost management and control of chemical enterprises during the economic slowdown period is put forward. In view of the specific economic slowdown period, this paper studies the cost management and control of chemical enterprises, points out the composition of production cost of chemical enterprises, calculates the comprehensive cost coefficient, constructs the research model of cost management and control of chemical enterprises in the economic slowdown period, and gives out the cost management strategy of chemical enterprises in the economic slowdown period, as well as the cost control strategy of enterprises, this paper studies.

2. Constructing the Research Model of Cost Management Control in Chemical Enterprises during the Economic Slow-down Period

In order to realize the construction of the research model of cost management control in chemical enterprises during the economic slowdown period, the cost composition of chemical enterprises is determined firstly, the main and secondary factors of cost composition are pointed out, the specific function of the economic slowdown period is determined, and the comprehensive cost coefficient is calculated to complete the construction of the research model of cost management control in chemical enterprises during the economic slowdown period.

2.1 Determining the Cost Composition of Chemical Enterprises

Reasonable control of production cost is the basic skill for the rapid development of enterprises. In order to construct a cost management control research model for chemical enterprises in the economic slowdown period, the composition of production cost of chemical enterprises is analyzed first, and its main and secondary components are determined. Through visiting and investigating several chemical enterprises, the composition of production cost of chemical enterprises is obtained, as shown in Table 1.

Table 1 Cost Composition of Chemical Enterprises

Cost Composition of Production	Main influencing factors	Secondary influencing factors
Direct Cost of Product Production	Raw material cost	Operation and Maintenance of Equipment
	Direct wages	Costs of electricity, water and gas consumption
	Depreciation cost	Taxes and fees
Non-direct cost of product production	Enterprise operating costs	Material Consumption Cost
	Packaging and transportation costs	Financial related formalities

The production cost of its chemical enterprises mainly consists of two parts, namely, the direct cost of product production and the indirect cost of product production. The proportion of direct production cost and indirect production cost of different chemical enterprises is different. The proportion deviates from the normal range, which will lead to the cost control imbalance of chemical enterprises, easily lead to financial crisis and loss of market competitiveness [2].

From the perspective of cost composition, the direct cost of product production mainly includes the cost of raw materials, operation and maintenance of equipment, direct wage, power consumption, water consumption, gas consumption and so on. The main factors affecting the direct cost of product production are raw material cost and direct wage. The direct wage includes normal post wage, subsidy, welfare, social insurance and so on [3].

The indirect cost of product production mainly includes depreciation cost, various taxes, operation cost of enterprises, consumption cost of materials, packaging, transportation cost and financial related formalities cost [4]. The indirect cost of product production is the necessary cost of enterprise operation, and its reasonable control of the indirect cost of product production is the core content of the cost management strategy of chemical enterprises in the economic slowdown period.

2.2 Cost Comprehensive Coefficient Calculation

In order to manage and control the cost of chemical enterprises in the economic slowdown period, the research model of cost management and control of chemical enterprises in the economic slowdown period was constructed. The research model was based on the determination of the cost composition of chemical enterprises and the calculation of the comprehensive cost coefficient. The key procedure of the research model of cost management control in chemical enterprises during the economic slowdown period is to calculate the comprehensive cost coefficient.

In order to calculate the comprehensive cost coefficient, we first determine the specific function of the economic slowdown period, which is different from the stimulative growth environment. The economic slowdown period has a greater test on enterprises [5]. The specific function of the economic slowdown period can be expressed by formula (1):

$$\sigma = (1 + a \frac{\partial b}{\partial t}) E \varepsilon \quad (1)$$

In the formula, a represents the average growth rate of China's GDP in the past three years, b represents the purchasing managers index (PMI) of chemical enterprises, E represents the expected growth of the world economy, and ε represents the expected growth of China's economy.

According to the determination of the specific function of the economic slowdown period, and based on the major and minor factors of the production cost, the calculation of the large-range coefficient of production cost is carried out. The calculation of the large-range coefficient of production cost is to determine the cost control level of the chemical production industry. The formula for calculating the large-range coefficient of production cost can be expressed by formula (2):

$$\psi = \int A \sigma \kappa C^{\frac{1}{2}} dx \quad (2)$$

In the formula, A represents the main influencing factor of cost, κ represents the secondary influencing factor of cost, and C represents the comprehensive state of operation of chemical enterprises.

Based on the determination of the large range coefficient of production cost, the calculation of the comprehensive coefficient of production cost is carried out. The comprehensive coefficient of production cost is the product of the large range coefficient of production cost and the weight coefficient of unit production cost, as shown in formula (3):

$$L = \xi \times \psi \quad (3)$$

In the formula, ξ represents the weight coefficient of unit production cost. Units in different periods have different weight coefficients of unit production cost. The determination of the weight coefficient of production cost is determined by the production cost structure of enterprises. Usually, the value is between 0.75 and 1.50. According to formula (3), it can be seen that the bigger the weight coefficient of unit production cost is, the bigger the comprehensive coefficient of cost is, and the risk of cost management is easy to occur.

Based on the determination of the cost composition of chemical enterprises and the calculation of the comprehensive cost coefficient, the research model of cost management and control in chemical enterprises during the economic slowdown period was established.

3. Study on Realizing Cost Management Control of Chemical Enterprises in the Slow Economic Period

The research on cost management and control of chemical enterprises in economic slowdown period is based on the established research model to determine the comprehensive cost coefficient, analyze the comprehensive cost coefficient of enterprises in different periods, analyze the comprehensive cost coefficient, and point out the cost management and control strategy.

3.1 Cost Management Strategies of Chemical Enterprises in the Slow Economic Period

In the economic slowdown period, a good cost management system of chemical enterprises has a certain role in promoting the cost control of chemical enterprises. The comprehensive cost coefficient of chemical enterprises ranges from 0.45 to 0.65, which is the best value [6]. Over 0.65, excessive waste of production costs, higher cost of producing single product than the normal level of peers, lower market competitiveness, easy to lead to financial crisis. For this reason, when the comprehensive cost coefficient of chemical enterprises is greater than 0.65, chemical enterprises should formulate active cost management strategies to deal with the phenomenon of excessive production costs. Make enterprise production cost return to normal level.

We should reasonably control the non-direct cost of product production, investigate the consumption of materials, packaging, transportation and normal operation of enterprises in the production process, eliminate the hidden danger that the comprehensive cost coefficient continues to increase, reduce the normal operating expenses of non-enterprises, reduce the approval and unnecessary non-operating expenses.

3.2 Cost Control Strategy of Chemical Enterprises in the Slow Economic Period

Similarly, when the comprehensive cost coefficient of chemical enterprises is less than 0.45, enterprises should strengthen cost control strategies and adjust the proportion of direct cost and indirect cost of product production, which is different from the cost management strategies of chemical enterprises in the economic slowdown period. Enterprise cost control strategies are more important and cost control than cost management.

Cost control means mainly include three ways. One is to optimize the proportion of direct cost of product production to indirect cost of product production. The main cost of a well-functioning enterprise lies in the direct cost of product production. For chemical enterprises, indirect cost of product production should be less than a quarter of the direct cost of product production. More enterprise funds should be used for product production. Quality control, part of the funds for product promotion and enterprise operation.

The second is to advocate energy saving, reduce unnecessary packaging and other costs, integrate the cost management strategy of chemical enterprises in the economic slowdown period, use natural lighting, reduce the consumption of energy such as unnecessary electricity and tap water, avoid excessive packaging, control production costs and optimize the production mode of enterprises.

Thirdly, through the relative cost control method, we can control the relationship among output, cost and income, optimize the structure, make the comprehensive cost coefficient of the enterprise in the best state, and complete the cost management control research of chemical enterprises in the economic slowdown period.

4. Examples Analysis

In order to ensure the validity of the research on cost management and control of chemical

enterprises in the economic slowdown period proposed in this paper, an example is analyzed. In the process of analysis, six chemical enterprises are used as the analysis objects, and conventional enterprise cost management and control methods are used as the experimental comparison objects to carry out cost control effectiveness control experiments.

4.1 Data Preparation

Six chemical enterprises were selected to produce chemical reagents, fine chemical products, printing chemicals, plastic additives, petrochemical industry and surfactants. Its enterprise scale, mode of production and number of enterprises are shown in Table 2.

Table 2 Preparation of Experimental Data

Project	Parameter Range	Remarks
Enterprise Scale	0.2,1.7,3.2,4.7,6.2,7.7	(Annual output value/RMB 100 million)
Enterprise Production Mode	24-hour Continuous Production	Automated Production
Number of Enterprise Staff	200,1700,3200,4700,6200,7700	For ease of Calculation, it is Proportional to the Size of the Enterprise.

According to the cost composition, cost structure and operation of the enterprises under investigation, the two methods are analyzed. Because of the confidentiality of the business, the cost structure of the enterprises is not disclosed here.

In order to measure the effectiveness of different methods of cost management and control research, expert evaluation system is used to evaluate. That is to say, by employing relevant industry experts to analyze the results and give an objective score, they should not employ less than seven experts. The average score given by seven experts should be calculated by percentage instead.

4.2 Result Analysis

According to the expert scoring results, the experimental comparison curves of two different cost management control methods are drawn, as shown in Fig. 1.

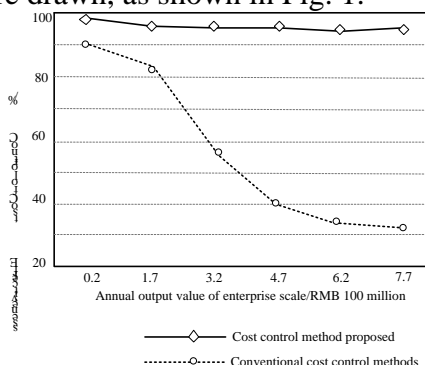


Fig.1 Experimental comparison result curve

Based on the experimental results, the average statistical calculation shows that the proposed cost management and control method is 42.14% more effective than the conventional cost control method, which is suitable for the cost management and control analysis of chemical enterprises in the economic slowdown period. The research on cost management and control of chemical enterprises in economic slowdown period is real and effective.

5. Conclusion

This paper puts forward the research on cost management and control of chemical enterprises in the economic slowdown period. Based on the construction of the research model of cost management and control of chemical enterprises in the economic slowdown period, the cost management strategy of chemical enterprises in the economic slowdown period and the cost control strategy of enterprises are given. The research is carried out in this paper. In order to ensure the validity of the research, the experimental analysis is carried out. The experimental data show that the proposed method is effective. The research on cost management and control of chemical enterprises in economic slowdown period has high effectiveness. I hope this study can provide theoretical basis for cost management and control of chemical enterprises in economic slowdown period.

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