

Investigation and research on the effectiveness of new fiscal and taxation policies in helping SMEs to resume work and production under the background of the COVID-19

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ABSTRACT: This study takes Huainan City, Anhui Province as an example, and obtains accurate data on the effectiveness of the new fiscal and taxation policies and the resumption of production of small and medium-sized enterprises through relevant surveys, and uses logistic regression models to statistically analyze the effects of the new fiscal and taxation policies of the country in helping enterprises to resume work and production. Key elements, and use the topsis method to build a comprehensive evaluation system for the effectiveness of new fiscal and tax policies to help small and medium-sized enterprises resume work and production under the background of the new crown epidemic. Finally, specific suggestions are put forward to encourage the government to continue to improve relevant fiscal and taxation policies and measures to help small and medium-sized enterprises resume work and production and develop healthy under the background of the new crown epidemic.

KEYWORDS: COVID-19, fiscal and taxation policies, SMEs, resumption of work and production

1. Introduction

At the beginning of 2020, the new crown epidemic broke out, and the Chinese economy was facing downward pressure. Specifically, the domestic economy is clearly facing severe challenges in terms of difficulties in consumption recovery, sharp decline in private investment, soaring unemployment rate, and unoptimistic financial conditions. In recent years, SMEs have become an important force in the growth of our national economy. The number of small and medium-sized enterprises in my country accounts for more than 98% of the total number of enterprises in the country, and the proportion of output value, added value, total assets, and sales exceeds 60%. However, small and medium-sized enterprises that play an important role in economic development usually have short life cycles, lack financial strength, and relatively weak ability to deal with risks. In the face of the epidemic, small and medium-sized enterprises have obviously suffered more severe setbacks. Such problems as supply chains, declining consumers, and difficulties in capital flow indicate that small and medium-sized enterprises are facing severe risks and crises. The state has announced various policies to help small and medium-sized enterprises get out of trouble. The most effective of these is obviously the new fiscal and tax incentive policies. Therefore, scientifically calculating the current and future trends of resumption of work and production of small and medium-sized enterprises, and accurately analyzing the mechanism and specific effects of the new fiscal and taxation policies, and improving fiscal and taxation policies are very important for the restoration of production.

Regarding the fiscal and taxation policies to solve the development problems of SMEs, the current domestic literature research shows that there is still room for increasing fiscal and taxation policies to support SMEs. However, the current research mainly focuses on descriptive analysis to quantify the development status and problems of SMEs. There are still fewer studies, and there is a lack of in-depth analysis and precise positioning of the effectiveness of the new fiscal and taxation policies and future trends.

Therefore, this article takes the Bagongshan Industrial Park in Huainan City as the specific research object, combines online questionnaires and offline interviews, directs the arrow to the current situation

of small and medium-sized enterprises, uses logistic regression model to statistically analyze relevant data, and uses topsis method to implement the new fiscal and taxation policy. Carry out evaluation and analysis, and in-depth study of the mechanism and specific implementation effects of the new fiscal and taxation policies through mechanical learning methods, and explore the current problems of fiscal and taxation policies. Scientifically infer the future direction and development measures of fiscal and taxation policies to provide a stronger backing for the subsequent resumption of work and production of SMEs.

2. The status of resumption of work and production of small and medium-sized enterprises

2.1 Survey object and scope

The survey site of this research is Huainan City, and the survey objects are small and medium-sized enterprises in Bagongshan Industrial Park and Huainan Taxation Bureau.

2.2 Questionnaire content

According to the survey content, this questionnaire mainly includes the following aspects:

- ① Type of business registration;
- ② The industry to which the company belongs;
- ③ The extent of the impact of the epidemic on the company and its specific performance;
- ④ What measures are taken by enterprises facing the epidemic;
- ⑤ Policy support needed by enterprises during the epidemic;
- ⑥ When the company resumes work and production after the epidemic;
- ⑦ Enterprise's understanding of fiscal and taxation policies;
- ⑧ Ways for enterprises to obtain preferential tax policies;
- ⑨ Whether the enterprise has declared and received preferential tax policies;
- ⑩ The extent of the impact of tax burdens and financing costs on the enterprise;
- ⑪ Whether the enterprise is satisfied with the government department;
- ⑫ What suggestions do companies have to tax authorities?

2.3 Questionnaire test

① Reliability test

Reliability is used to test the consistency or stability of the results obtained from the questionnaire, reflecting the true degree of measurement. The four influencing factors in this survey are cognitive status quo, subjective judgment, participation level and motivational approach. Generally speaking, it is ideal that the Cronbach value of the internal reliability coefficient of the questionnaire subscale is above 0.8. The analysis results are shown in Table 1. The overall reliability of the questionnaire used in this study is 0.822, indicating that the research has high reliability.

Table 1 Cronbach value of each influencing factor

variable	Number of items	Cronbach'a
Cognitive status quo	4	0.768
Subjective judgment	5	0.857
Participation	4	0.866
Motivation approach	3	0.829
All variables Cronbach'a:0.822		

② Validity test

Validity test is the analysis of the validity of the results of the questionnaire, which can reflect the size of the objective result display test. If the value of KMO reaches 0.7, and the approximate chi-square and significance of Bartlett's sphericity test meet the standard, it means that the

questionnaire has good validity. After calculation, the value of KMO is 0.864, reaching the ideal state as shown in Table 2 and meeting the conditions.

Table 2 Questionnaire validity test for pre-survey

Bartlett sphericity test	Approximate chi-square	3226.903
	Degree of freedom	105
	Significance	0.008

In summary, the questionnaire passed the reliability and validity test, indicating that the questionnaire used has high credibility and meets the research requirements.

2.4 Status of resumption of work and production of small and medium-sized enterprises in Huainan City

① The status of SMEs' resumption of work and production

In accordance with the spirit of the "Notice on Further Strengthening the Resumption of Production Safety and Safety Services" issued by the Secretariat of the Huainan City Safety Committee, the Municipal Supply and Marketing Cooperative will further strengthen safety precautions and accurately implement safety production risk management in all aspects. The "six major mechanisms" strictly follow the principles of "who applies, who is responsible" and "who signs, who is responsible", standardize the restoration of production acceptance procedures, and provide advanced security services. Implement and organize material production guidance.

② New fiscal and taxation policies help SMEs resume work and production

Since the outbreak of the epidemic, the state has issued three batches of tax and fee reduction policies to help prevent and control the epidemic and resume production. The Party Committee of the State Administration of Taxation also put forward the "four forces" requirements focusing on the implementation of preferential policies, non-contact taxation management, data services and epidemic prevention and control. At the same time, the tax authorities continue to track and reflect the rework and production of small and medium-sized enterprises, analyze the development of the production and sales of small and medium-sized enterprises, and accurately implement support to help small and medium-sized enterprises resume production and unblock the upstream and downstream industrial chains. According to the value-added tax invoice data, the average daily number of business accounts for small and medium enterprises in the third week of returning to work (from February 24 to 28) has continued to rise, an increase of 20.2% from the previous week, which shows that the new fiscal and taxation policies will affect small and medium-sized enterprises under the new crown epidemic. The acceleration of enterprise production recovery has a significant effect.

3. Analysis of the actual utility of the new fiscal policy based on the logistic regression model

In the context of the new crown epidemic, the actual effectiveness of the new fiscal policy will be affected by various factors. Therefore, in the case of multiple independent variables, in order to explore the effect of a certain factor on the company's resumption of work, we will establish a multiple regression model to obtain the influence of a certain independent variable on the dependent variable based on controlling other variables degree.

3.1 Selection of impact indicators

Based on the relevant literature and theoretical basis, we selected indicators from five aspects: degree of impact by the epidemic, degree of policy understanding, subsidy enjoyment, policy implementation satisfaction, and improvement suggestions to study the impact of the new fiscal and taxation policies on the resumption of work.

3.2 Establish a multiple regression model

Firstly, the five influencing factors, namely, the degree of impact of the epidemic, the degree of policy understanding, the degree of subsidy enjoyment, the satisfaction of policy implementation, and the improvement suggestions, are respectively set as X_1, X_2, X_3, X_4, X_5 , and the multiple regression model is established as follows:

$$Y = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + \varepsilon$$

Among them, Y is the impact of the new fiscal policy on the enterprise's resumption of work, a_0 is the intercept of the regression equation on the Y axis, a_1 , a_2 , a_3 , a_4 , and a_5 are the regression coefficients corresponding to the independent variables, which are random error terms, satisfying normality Distribution means the influence of random influencing factors. Using SPSS software to calculate the influencing factor analysis results, the final model's multiple correlation coefficient is 0.57, indicating that the independent variables are closely related to the dependent variables. It shows that the model is getting better and better. The DW value is used to detect the correlation between the residuals. The DW value is 1.976, which is very close to 2, indicating that there is no autocorrelation between the residuals.

Table 3 Analysis of variance

ANOVAa						
model		sum of squares	Degree of freedom	Mean square	F	Significance
1	return	47.309	1	47.309	249.668	.000b
	Residual	145.715	769	.189		
	total	193.024	770			
2	return	56.449	2	28.225	158.716	.000c
	Residual	136.574	768	.178		
	total	193.024	770			
3	return	62.121	3	20.707	121.329	.000d
	Residual	130.903	767	.171		
	total	193.024	770			
4	return	62.781	4	15.695	92.308	.000e
	Residual	130.243	766	.170		
	total	193.024	770			

From the above analysis, excluding indicators that have little impact, the degree of impact by the epidemic, the degree of policy understanding, the degree of subsidy enjoyment, and the degree of satisfaction with policy implementation all have a significant impact on the degree of impact, so the final regression model obtained is:

$$Y = 2.163 + 0.138X_1 + 0.124X_2 + 0.1X_3 + 0.051X_4$$

Since the greater the absolute value of the independent variable standardization coefficient, the greater the impact on the dependent variable. Therefore, it can be seen that the extent of the impact of the epidemic has the greatest impact on the actual utility of the new fiscal policy on the resumption of work, followed by policy understanding and subsidy enjoyment. The effect is average, and the policy implementation satisfaction has the least impact.

4. Comprehensive evaluation of related fiscal measures based on topsis method

4.1 Introduction to the method

In order to understand the current status of the new fiscal and taxation policies in helping companies resume work, we take the implementation effects of a series of measures taken by companies during the resumption of work as a research perspective, and use the topsis method to evaluate the current status of the implementation of the plan.

4.2 The analysis process of topsis method

① The same trend of evaluation indicators

According to the basic steps of the topsis method, the data needs to be processed with the same trend first, because the indicators selected in this study are all high-quality indicators, so this step can be omitted.

② Data normalization

In order to ensure the quality of the data and the correctness of the analysis results, the collected raw data must be converted into standardized data to eliminate dimensionality and make it comparable. The principle of data normalization is:

$$Y_{ij} = \frac{X_{ij}}{\sqrt{\sum_{i=1}^n (X_{ij})^2}}$$

Where $i = 1, 2, \dots, n$; $j = 1, 2$, which represents the value of the evaluation object of i at the j index. By normalizing the values of the matrix, the matrix Z is obtained:

$$Z = \begin{bmatrix} 0.304271521 & 0.267458998 & 0.334822164 & 0.285496755 \\ 0.341895673 & 0.299672461 & 0.350246472 & 0.302516749 \\ 0.332957615 & 0.298435726 & 0.350147628 & 0.297515386 \\ 0.292246512 & 0.224587265 & 0.314252567 & 0.254687121 \\ 0.328765426 & 0.275569826 & 0.3484725965 & 0.290017574 \\ 0.296654323 & 0.247944613 & 0.3320147092 & 0.271587662 \end{bmatrix}$$

4.3 Get the sort result

Carry out the positive and negative ideal solutions of each measure, and denote with S^+ and S^- respectively:

$$S^+ = \{0.341895673, 0.299672461, 0.350246472, 0.302516749\}$$

$$S^- = \{0.292246512, 0.224587265, 0.314252567, 0.254687121\}$$

The Euclidean norm is used to measure the distance, and the Euclidean distance between each evaluation object and the positive ideal solution and the negative ideal solution is calculated according to formulas (1) and (2), which are expressed by and respectively:

$$\textcircled{1} \quad D_i^+ = \sqrt{\sum_{j=1}^m (S_{ij} - S_j^+)^2}, i = 1, 2, \dots, n$$

$$\textcircled{2} \quad D_i^- = \sqrt{\sum_{j=1}^m (S_{ij} - S_j^-)^2}, i = 1, 2, \dots, n$$

Calculate the relative posting progress C_i according to formula 3.3, and sort according to the size of C_i :

$$C_i = \frac{D_i^-}{D_i^+ + D_i^-}, i = 1, 2, \dots, n$$

The value range of C_i is $[0, 1]$. The closer the value of C_i is to 1, the closer the evaluation object is to the positive ideal solution, that is, the optimal; on the contrary, the closer the value of C_i is to 0, the closer to the negative ideal solution. The results are organized into a table, as shown in Table 4.

Table 4 Comprehensive ranking of price indicators

Evaluation index	D^+	D^-	C_i	Sort
Use corporate resources for anti-epidemic activities	0.234157621	0.221469859	0.486077	4
Increase product development efforts	0.020672383	0.256375413	0.925383	1
Adjust business planning, reduce and stop some traditional businesses, and reduce costs	0.224562587	0.231542416	0.507652	2
Reduce the number of employees and lower wages	0.265482194	0.201457679	0.431442	6
Increase investment in digital construction and accelerate online business	0.234859976	0.231288764	0.496169	3
Expand business channels	0.253521722	0.215479852	0.459542	5

4.4 Analysis of ranking results

From the ranking order in Table 5, combined with the comprehensive ranking results of the overall evaluation of the implementation status of relevant fiscal policies based on the topsis method, we can find that the new fiscal policy has the greatest impact on the resumption of work by the epidemic-affected index, followed by the policy understanding index. The subsidy enjoyment index has a general impact, while the policy implementation satisfaction index has the least impact.

5. Conclusions and recommendations

5.1 Research conclusion

This study obtains first-hand information and data on the survival conditions of small and medium-sized enterprises in Huainan City under the new crown epidemic and the effectiveness of the Huainan City Government's new fiscal and taxation policies through literature research, online investigations, and on-site interviews. The main factors affecting the survival of SMEs under the new crown epidemic and the effectiveness of fiscal and taxation policies. This leads to the following conclusions:

① Under the new crown epidemic, the new fiscal and taxation policies have helped SMEs to resume work and production.

According to the value-added tax invoice data, the average number of business accounts per day (from February 24 to 28) for SMEs to return to work in the third week has continued to rise. The increase of 20.2% in the previous week shows that the new fiscal and taxation policies under the new crown epidemic have a significant effect on the acceleration of the recovery of SME production.

② The main factors affecting the actual effectiveness of the new fiscal and taxation policies in helping SMEs to resume work and production under the new crown epidemic

According to the regression model of this study and the topsis method, it can be concluded that the impact of the epidemic has the greatest impact on the actual effectiveness of the new fiscal policy on the resumption of work. The degree of understanding is second, the degree of subsidy enjoyment has the average effect, and the satisfaction of policy implementation has the least effect;

5.2 Policy recommendations

① Further strengthen fiscal and taxation policy support based on the degree of impact by the epidemic

In the face of the epidemic, local governments should issue relevant fiscal policy support based on the extent of the impact of the epidemic. Local governments where conditions permit can set up special aid funds to increase support for small and medium-sized enterprises severely affected by the epidemic. Regions that have introduced relevant policies should strengthen departmental coordination and implement them as soon as possible to further strengthen financial support for small and medium-sized enterprises and minimize the impact of the epidemic.

Taking Huainan City as an example, the government combined with the actual situation of local small and medium-sized enterprises affected by the epidemic in Huainan City to reduce taxes and administrative fees in accordance with the law, and promote the introduction of financial support policies such as property rent reduction and exemption, payment of social insurance premiums in installments, or appropriate refund of social insurance premiums. Both may achieve better results. The government can also postpone taxes, reduce the cost of production factors, increase enterprise skill training subsidies and stable job incentives, so as to effectively reduce the cost burden of SMEs.

② Further strengthen the understanding of SMEs on government fiscal policies

Local governments should take the initiative to strengthen ties with SMEs, promote SMEs to participate in policy formulation, improve policy quality, and build an important bridge between the government and SMEs. Only by making decisions public and increasing the participation of small and medium-sized enterprises can they effectively improve their understanding of the government's fiscal and taxation policies, and effectively improve the implementation of the policies, thereby enhancing the actual effect of the new fiscal and taxation policies on the resumption of work and production of

enterprises.

③ Further improve the subsidy enjoyment mechanism of the new fiscal and taxation policy

The government should clarify the subsidy enjoyment standards, determine the subsidy amount and the conditions for subsidy application; strictly control the application process, so that the subsidy can be accurately implemented and maximized effectiveness; at the same time, it should conduct subsequent supervision and guidance to supervise the flow of subsidy funds received by SMEs, And provide guiding suggestions for the use of funds for SMEs.

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