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# Efficiency Evaluation of Financial Support for Rural Industry Revitalization in Eastern China

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### Abstract

*The purpose of this study is to evaluate the efficiency of financial support for rural industry revitalization in eastern China. Comparative analysis of the efficiency of provincial financial support for rural industrial revitalization in eastern China can provide reference for various provinces to formulate financial policies for rural revitalization. In the research process, 5 evaluation indicators were selected using the panel data of the 2016-2021 "China Financial Statistical Yearbook" and "China Statistical Yearbook", and the DEA and Malmquist index methods were used for calculation. The results show that the average efficiency of financial support for rural revitalization in the 10 eastern provinces from 2015 to 2020 was generally higher, with the efficiency values all higher than 0.8, and reached 0.908 in 2017. The comprehensive efficiency of financial support for rural industry revitalization in Tianjin, Shanghai and Hainan has reached the best. From 2015 to 2020, the total factor productivity of financial support for rural industry revitalization in the eastern region has a "V"-shaped fluctuation. Total factor productivity has the fastest growth. The provinces are Beijing, Hebei and Shandong showing negative growth. It is recommended that relevant provinces improve their strategies for financial support for the revitalization of rural industries. The scope of future research should be expanded to most areas of China and the evaluation indicators should be optimized.*

*Keywords: Financial Support, Rural Revitalization, DEA, Malmquist Index, Eastern China*

## 1. Introduction

The rural revitalization strategy is a major strategy proposed by the Chinese government, which aims to solve the agricultural, rural and peasant problems that have long plagued the country's development. This is very similar to the Saemaeul Movement in South Korea. Industrial prosperity is the primary task of rural revitalization, and the development of rural industries is an important engine for promoting agricultural and rural modernization. Finance is the blood of modern economic operation. In order to realize the comprehensive

revitalization of rural industries, finance must play an important role in supporting the revitalization of rural industries. Therefore, it is particularly important to improve the rural financial system, optimize the allocation of financial resources in rural revitalization, improve the efficiency of financial support for the revitalization of rural industries, give play to the role of finance in supporting "agriculture, rural areas and farmers", and achieve the national rural industry revitalization strategic goal.

From 2015 to 2020, the changes in the total output value of fiscal expenditure on agriculture, forestry and water affairs and the financial support for the revitalization of agriculture, forestry, animal husbandry and fishery and rural industries in eastern China are shown in Figure 1(a) and Figure 1(b). The total expenditure and total output value basically show a steady upward trend. Financial support will promote the development of the agricultural industry developing.
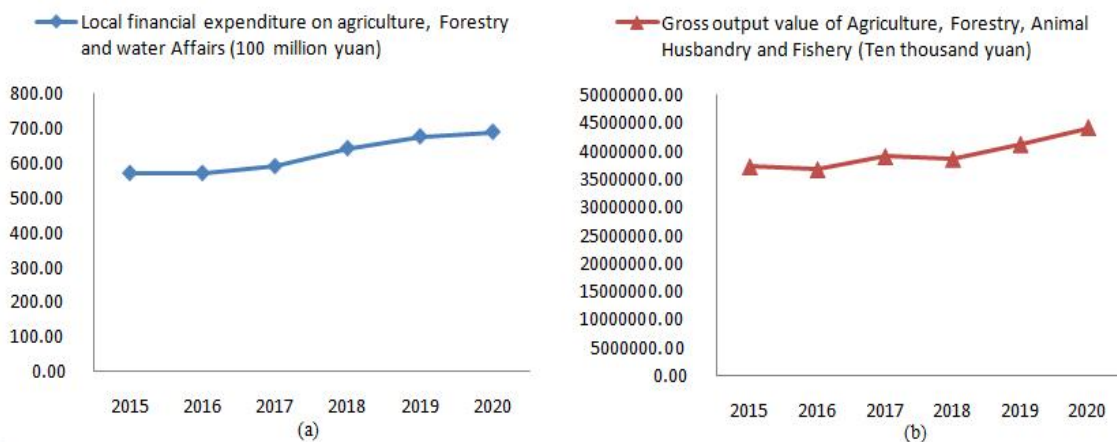


**Figure 1. Total output value of financial expenditure on agriculture, forestry and water affairs and financial support for agriculture, forestry, husbandry and fishery in Eastern China from 2015 to 2020**

At present, the level of rural financial development is not high, and the efficiency of fund use is not balanced, which have become pain points and difficulties that restrict the work of "agriculture, rural areas and farmers" and promote rural revitalization. Financial services for agricultural modernization are an important area of financial services for the real economy. Only by promoting financial resources to be more inclined to "agriculture, rural areas and farmers" can we provide more guarantees for the priority development of agriculture and rural areas. To this end, analyze the use efficiency of financial support for rural revitalization, further promote the structural reform of the financial supply side, allocate more financial resources to the key areas and weak links of "agriculture, rural areas and farmers", and promote the development of financial support to promote the revitalization of China's rural industries. It is necessary to study the efficiency of financial support for rural industry revitalization in different regions.

Under the background of the implementation of rural revitalization strategy in China, there are few literatures on the efficiency of financial support for rural industry revitalization, which provides sufficient space for the development of this study. The purpose of this study is to analyze the efficiency of financial support for rural industry revitalization in 10 provinces in eastern China by using DEA and Malmquist index methods, to explore the bottleneck restricting financial support for rural industry revitalization in eastern China, and to propose improving the countermeasures for financial support for the revitalization of rural industries.

## 2. Related Concept and Literature Review

### 2.1 Related Concepts

### 2.1.1 Rural

Rural is an appellation relative to a city, referring to a place where the population is more dispersed and mainly depends on agriculture as its source of life. The countryside is the foundation of the existence of a country, and it promotes and coexists with cities and towns, and together constitute the space for human existence and activities.

### 2.1.2 Rural Industry Revitalization

Rural industry revitalization is the content of rural revitalization focusing on industrial fields, with the purpose of realizing the integration of primary, secondary and tertiary industries in rural areas and the prosperity of rural industries. The prosperity of rural industries is the prosperity of all rural industries, and the revitalization of rural industries is an important support for the overall situation of rural revitalization.

### 2.1.3 Financial Support

Regarding the concept of financial support, there is currently no unified definition in the academic circle. Based on the summary of many scholars [1-4], this study believes that rural financial support in the context of industrial revitalization refers to the sum of all activities of financial government departments and financial institutions to serve rural industry revitalization, such as policy-making activities of financial government departments, construction of modern rural financial organization systems, agricultural credit activities of banking institutions, agricultural institutions of insurance institutions. Insurance innovation activities, agriculture-related financing activities in the securities market, etc.

### 2.2 Literature Review

China's rural revitalization strategy was proposed in 2017, and then related researches on financial support and rural revitalization were carried out successively. This is a continuation of the "new rural construction" proposed by China in 2005. Regarding the research on financial support strategies for rural industrial revitalization, Relevant studies suggest that to improve the financial service rural revitalization strategy, the financial service system should be improved to support rural revitalization and development [5]. Some scholars believe that more financial resources should be allocated to the key areas and weak links of rural economic and social development to better meet the diversified financial needs of rural revitalization [6]. The researchers proposed that the institutional incentive effect of policy financial support can reduce the financing cost of rural economic entities [7]. Some scholars put forward countermeasures and suggestions from the aspects of financial product innovation and model innovation, financial policy implementation, and optimization of work efficiency to promote the orderly development of rural revitalization [8]. Regarding the research on the financial support path for the revitalization of rural industries, Some scholars proposed to comprehensively strengthen the implementation of the four-in-one cooperation model of "finance + bank + guarantee + insurance" [9]. Relevant studies show that the "three-in-one" new rural credit cooperation is a feasible model for financial support for rural revitalization [10]. The study found that the demand for financial products and services for rural revitalization continues to increase, and at the same time, Henan province's rural financial support system is also constantly developing and improving, in order to more effectively support the overall rural revitalization. The financial demand of rural operating subjects is changing from low level to high level. The strong financial demand is the main motive of rural financial development in Henan Province. Although the rural financial supply system of Henan province has been constantly improved, there are many shortcomings such as the mismatch of financial resources, the low level of rural financial development and the high financial risk. Therefore, to support the rural revitalization of Henan province, rural finance should

strengthen the innovation of financial products, improve the quality of financial services, and improve the market supervision mechanism, so as to achieve the balance between supply and demand of rural financial resources [11].

At present, there are few quantitative studies on the efficiency of financial support for rural industrial revitalization in China, which provides sufficient space for this study. By selecting appropriate input-output indicators, using the DEA model and the Malmquist index method, this study used 2015-2020 data to measure the output efficiency of financial support for rural industrial revitalization and its changes in 10 eastern provinces of China, and strived to provide information for the revitalization of rural industries in China. Provide reference for the optimization of financial support structure and high-quality development.

## 3. Analytical Methods

### 3.1 DEA Model

Data Envelope Analysis (DEA) is a common method to measure financial efficiency, and it is a typical nonparametric estimation method. In the late 1970s, this method was pushed to a new course by the American scholar Charne. On the one hand, the one-to-one input-output model is developed into a many-to-many input-output model; on the other hand, an effective frontier of the data envelopment model is constructed, and the idea of the data envelope is standardized into the data envelope theory. In the DEA theoretical model, the homogeneous DMU (Decision-making unit) is an important concept. It reveals the essence of DEA technology, that is, what DEA analysis analyzes is a relative efficiency. Specifically, if there are n similar decision-making units put into production, n input-output combinations are formed, and the level of control production technology is constant, then there must be a combination with the least input and the most output, that is, the optimal combination. The efficiency of these optimal combinations is the efficiency frontier, and other combinations are inefficient and ineffective compared with them [12]. The DEA analysis method uses mathematical programming (including linear programming, multi-objective programming, generalized optimization with a cone structure, semi-infinite programming, random programming, etc.) to evaluate research objects with multiple inputs and multiple outputs It is called relative effectiveness among Decision Making Units. Judging whether the DEA is valid according to the data observed on each DMU is essentially judging whether it is located on the "production frontier" of the production possible set [13]. Based on the impact of changes in production scale of enterprises on output, the DEA model is divided into two models. CCR model, that is, changes in production scale of enterprises have no effect on output (the return to scale is constant); BCC model, that is, changes in production scale of enterprises will cause An increase or decrease in output (variable returns to scale).

### 3.2 Malmquist Index

The Malmquist index was first put forward by Swedish economist and statistician Malmquist in 1953. In 1994, Fare et al. established the Malmquist productivity index model to investigate TFP growth. This method makes up the gap that the traditional DEA model cannot carry out dynamic analysis of efficiency changes. The specific concept is as follows in equation (1):

$$TFP = TEch \times TECHch = PEch \times SEch \times TECHch \tag{1}$$

In equation (1), *TFP* is total factor productivity. *TEch* represents the change of technical efficiency from stage *t* to stage *t+1*. When *TEch>1*, it indicates that the technical efficiency has been improved; otherwise, it indicates a decline. *TECHch* represents the influence of the technology progress index from *t* to *t+1* on the

efficiency change trend. When *TECHch>1*, it indicates that the technology has made progress and brought about the improvement of regulatory efficiency. Otherwise, it indicates that the technology progress has not brought about the improvement of regulatory efficiency [14].

### 3.3 Selection of Efficiency Index

By reviewing the previous research literature, it is found that the current literature on financial support for rural industry revitalization in China has a large difference in input-output indicators. This study uses three indicators, namely, the financial expenditure of agriculture, forestry, animal husbandry and fishery, the balance of agriculture-related loans in domestic and foreign currencies, and the number of outlets of rural financial institutions to reflect the financial support input to the development of rural industries in terms of national financial expenditure, financial and material resources of financial institutions. Two indicators, gross industrial output value and rural per capita disposable income, are used as output indicators. Input-output indicators are shown in Table 1.

### Table 1. Input-output indicators

|  | Project | Unit |
|---|---|---|
| Input indicators | Fiscal expenditure on agriculture, forestry and water affairs($X_1$) | One hundred million Yuan |
|  | Agriculture-related loan balance in local and foreign currency($X_2$) | One hundred million Yuan |
|  | Number of rural financial institution outlets($X_3$) | Piece |
| Output indicators | Gross output value of agriculture, forestry, animal husbandry and fishery($Y_1$) | Ten thousand Yuan |
|  | Rural per capita disposable income($Y_2$) | Yuan |

### 3.4 DMU Determination and Data Collection

According to the requirement that DMU is not less than 2 times of the input-output indicators, the DMUs in this study are 10 provinces in eastern China, namely Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan. The data used are from the 2016-2021 "*China Financial Statistical Yearbook*", "*China Statistical Yearbook*" and "*China Regional Financial Operation Report*", Wind database, etc. The calculation process was carried out using DEAP2.1 software.

## 4. Results Analysis

### 4.1 Static Efficiency Analysis

The technical efficiency (TE) of financial support for rural revitalization in 10 provinces in eastern China from 2015 to 2020 is measured, and the results are shown in Table 2. The overall efficiency reflects the effective utilization of rural financial resources as a whole. From the average level of the eastern region, the efficiency of financial support for rural revitalization in the 10 eastern provinces from 2015 to 2020 was generally higher, with the efficiency values all higher than 0.8. The highest value is 0.908, and the overall input and output are relatively efficient. Looking at the results of each province, only the three provinces of Tianjin, Shanghai and Hainan have achieved the best comprehensive efficiency of financial support, and there is no waste of investment. The TE of Fujian, Shandong and Guangdong is 0.991, 0.972 and 0.915, indicating that the technical efficiency of these provinces is highly efficient. The efficiency of financial input and output

in other provinces has not yet reached the best level. In particular, the efficiency of the four provinces of Beijing, Hebei, Jiangsu and Zhejiang is lower than the regional average, reflecting that there is still a large gap in financial services for "agriculture, rural areas and farmers".

**Table 2. TE of financial support for rural revitalization from 2015 to 2020**

| DMU | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Mean | Ranking |
|---|---|---|---|---|---|---|---|---|
| Beijing | 0.743 | 0.924 | 0.822 | 0.702 | 0.717 | 0.736 | 0.774 | 9 |
| Tianjin | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1 |
| Hebei | 0.907 | 0.757 | 0.890 | 0.776 | 0.746 | 0.796 | 0.812 | 7 |
| Shanghai | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1 |
| Jiangsu | 0.826 | 0.850 | 0.814 | 0.825 | 0.773 | 0.760 | 0.808 | 8 |
| Zhejiang | 0.479 | 0.513 | 0.580 | 0.558 | 0.542 | 0.524 | 0.533 | 10 |
| Fujian | 0.947 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.991 | 4 |
| Shandong | 1.000 | 1.000 | 1.000 | 0.991 | 0.915 | 0.926 | 0.972 | 5 |
| Guangdong | 0.811 | 0.956 | 0.978 | 0.906 | 0.944 | 0.895 | 0.915 | 6 |
| Hainan | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1 |
| Eastern mean | 0.871 | 0.900 | 0.908 | 0.876 | 0.864 | 0.864 | 0.880 | - |

The BCC model is used to calculate the pure technical efficiency (PTE) as shown in Table 3. The results show that the pure technical efficiency of financial support for rural industry revitalization in Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan from 2015 to 2020 is effective. The mean value of pure technical efficiency in Hebei Province from 2015 to 2020 is 0.924, and the mean value of pure technical efficiency is higher than 0.9, which is close to effective state. The province with the lowest mean pure technical efficiency is Beijing, which is 0.886. The pure technical efficiency value of BCC model from 2015 to 2020 is higher than that of CCR model.

**Table 3. PTE of financial support for rural revitalization from 2015 to 2020**

| DMU | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Mean |
|---|---|---|---|---|---|---|---|
| Beijing | 0.891 | 0.939 | 0.877 | 0.874 | 0.873 | 0.864 | 0.886 |
| Tianjin | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Hebei | 0.970 | 0.894 | 0.978 | 0.895 | 0.887 | 0.920 | 0.924 |
| Shanghai | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Jiangsu | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Zhejiang | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Fujian | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Shandong | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Guangdong | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Hainan | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Eastern mean | 0.986 | 0.983 | 0.986 | 0.977 | 0.976 | 0.978 | 0.981 |

The results of Scale efficiency (SE) are shown in Table 4. The SE of financial support for rural industry revitalization in Tianjin, Shanghai and Hainan from 2015 to 2020 is 1, which is effective. The SE of Fujian,

Shandong and Guangdong were 0.991, 0.972 and 0.915, respectively, all of which were above 0.9, which could be considered as high efficiency. The mean SE of Beijing, Hebei and Jiangsu was 0.872, 0.878 and 0.808, respectively. Zhejiang province has the lowest scale economy efficiency, with an average value of 0.533, which is in a state of low efficiency.

**Table 4. SE of financial support for rural revitalization from 2015 to 2020**

| DMU | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Mean |
|---|---|---|---|---|---|---|---|
| Beijing | 0.834 | 0.984 | 0.937 | 0.803 | 0.821 | 0.852 | 0.872 |
| Tianjin | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Hebei | 0.935 | 0.847 | 0.910 | 0.867 | 0.841 | 0.865 | 0.878 |
| Shanghai | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Jiangsu | 0.826 | 0.850 | 0.814 | 0.825 | 0.773 | 0.760 | 0.808 |
| Zhejiang | 0.479 | 0.513 | 0.580 | 0.558 | 0.542 | 0.524 | 0.533 |
| Fujian | 0.947 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.991 |
| Shandong | 1.000 | 1.000 | 1.000 | 0.991 | 0.915 | 0.926 | 0.972 |
| Guangdong | 0.811 | 0.956 | 0.978 | 0.906 | 0.944 | 0.895 | 0.915 |
| Hainan | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Eastern mean | 0.883 | 0.915 | 0.922 | 0.895 | 0.884 | 0.882 | 0.897 |

As shown in Figure 2, the mean values of TE, PTE and SE in 10 provinces in the eastern region from 2015 to 2020 were compared. The technical efficiency of the 10 provinces in the eastern region is mainly played by PTE. The SE of Beijing, Hebei, Jiangsu and Zhejiang provinces is lower than 0.7, with redundant input and insufficient output, reflecting that these provinces still have room for improvement in promoting the development of inclusive finance.
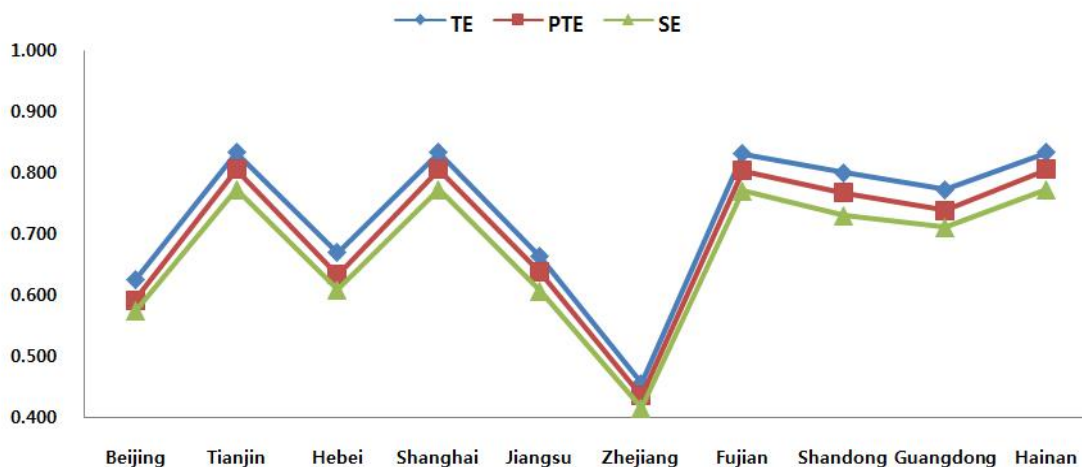


**Figure 2. Average distribution of TE, PTE and SE supported by financial support for rural revitalization in eastern China**

### 4.2 Dynamic Efficiency Analysis

In order to reflect the dynamic trend of financial efficiency, the Malmquist index of financial support for rural revitalization from 2015 to 2020 was decomposed and measured as shown in Table 5.

The average total factor productivity of the eastern region from 2015 to 2020 was 1.037, with an average annual growth of 3.7%. The progress index was 1.036, with an average annual growth rate of 3.6%, and the technical efficiency index was 1.001, with an average annual growth rate of 0.1%. The improvement of the technical efficiency index did not offset the positive effect of the technical progress index on the improvement of total factor productivity, and the impact of technical efficiency needs to be strengthened. From the perspective of provincial values, the province with the highest total factor productivity is Beijing, with an average annual growth rate of 13.2%; followed by Tianjin, with an average annual growth rate of 8.3%. Guangdong's total factor productivity showed a slight growth of only 0.6%. Only Hebei and Shandong have total factor productivity less than 1. The technical efficiency index and technological progress of these two provinces are both less than 1. Both are factors that cause low total factor productivity. Both technical efficiency and technological progress are still weak.

**Table 5. Average change and decomposition of TFP of financial support for rural revitalization from 2015 to 2020**

| DMU | TEch | TECHch | PTEch | SEch | TFP | TFP Ranking |
|---|---|---|---|---|---|---|
| Beijing | 1.007 | 1.124 | 0.995 | 1.010 | 1.132 | 1 |
| Tianjin | 1.000 | 1.083 | 1.000 | 1.000 | 1.083 | 2 |
| Hebei | 0.982 | 0.984 | 0.992 | 0.986 | 0.968 | 10 |
| Shanghai | 1.000 | 1.072 | 1.000 | 1.000 | 1.072 | 3 |
| Jiangsu | 0.984 | 1.038 | 1.000 | 0.984 | 1.020 | 6 |
| Zhejiang | 1.020 | 1.027 | 1.000 | 1.020 | 1.046 | 4 |
| Fujian | 1.011 | 1.033 | 1.000 | 1.011 | 1.044 | 5 |
| Shandong | 0.985 | 0.998 | 1.000 | 0.985 | 0.983 | 9 |
| Guangdong | 1.024 | 0.982 | 1.000 | 1.024 | 1.006 | 8 |
| Hainan | 1.000 | 1.017 | 1.000 | 1.000 | 1.017 | 7 |
| Mean | 1.001 | 1.036 | 0.999 | 1.002 | 1.037 | - |

This shows that the provinces in the eastern region need to improve the efficiency of financial support to agriculture through TE measures such as improving the level of bank management. On the one hand, we should continue to strengthen the organizational management and resource allocation of financial institutions to improve the efficiency of financial technology; on the other hand, we should actively improve the development level of inclusive finance and improve the technical progress of financial resource allocation through innovative means such as improving financial infrastructure and enriching agricultural-related financial products.

As shown in Figure 3, the fluctuation process of Tech and TFP of the 10 provinces in the eastern region from 2015 to 2020 is basically consistent, and the change trends of the two are basically the same. The curve of technological progress is relatively flat, with small fluctuations. The "V"-shaped fluctuation of total factor productivity is mainly caused by the change of TEch, and it can also be considered as the effect of the change of the scale efficiency index.
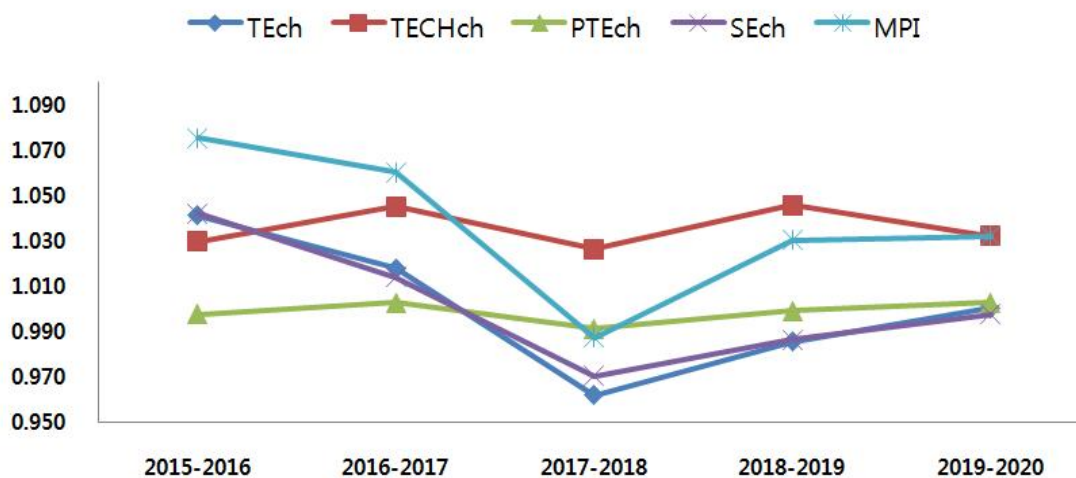
**Figure 3. TFP and its decomposition in eastern Provinces from 2015 to 2020**

## 5. Conclusions

This study used DEA and Mamlquist index methods to evaluate the efficiency of financial support for rural industry revitalization in 10 eastern provinces in China. The conclusions were as follows: First, in eastern China, only 3 provinces of Tianjin, Shanghai and Hainan have achieved the best comprehensive efficiency of financial support. The other 7 provinces have not yet achieved the best financial input-output efficiency. The efficiency of Zhejiang is lower than the regional average, and the comprehensive efficiency of financial support in Zhejiang is the lowest. The changes in the comprehensive efficiency of the 10 provinces in the eastern region are mainly constrained by scale efficiency. Some provinces have redundant input and insufficient output, and there is still room for improvement in promoting the development of inclusive finance. Second, the "V"-shaped fluctuations in total factor productivity were mainly caused by changes in TEch. The province with the highest total factor productivity is Beijing, followed by Tianjin. Guangdong's total factor productivity shows slight growth. Hebei and Shandong have negative total factor productivity growth.

The limitation of this study is that the number of input-output indicators is insufficient, and only the provinces in eastern China are used to measure the efficiency. The future research direction is to expand the scope to most provinces in China, and at the same time expand the number of input-output indicators, in order to put forward more reasonable suggestions for financial support for rural revitalization.

## Acknowledgement

## References

[1]   Yan, Y., *Research on Financial Support of Rural Land Circulation in Panjin City,* Ph.D. Thesis. Dalian University of Technology, CHINA, 2016.
DOI: CNKI:CDMD:2.1017.701857

[2]   Liu, Y., *Research on Financial Support of Huaian Municipal Government to Promote Real Economy Development,*   Ph.D. Thesis. Yangzhou University, CHINA, 2018.

DOI: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201802&filename=1018142150.nh

[3]   Wang, D., *Research on Financial Support for the Development of Strategic Emerging Industries in Jiangsu Province,* Ph.D. Thesis. Jiangsu Normal University, CHINA, 2018.
      DOI: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201802&filename=1018990176.nh

[4]   Gao, J., *Research on Financial Support for Tourism Industry Development in Shanxi Province,* Ph.D. Thesis. Shanxi University of Finance and Economics, CHINA, 2018.
      DOI: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201901&filename=1018125698.nh

[5]   Q. Shao, "Thoughts and Measures of Financial Serving Rural Revitalization Strategy," *China Agricultural Accounting*, No.8, pp. 35-37, August 2019.
      DOI: 10.13575/j.cnki.319.2019.08.016.

[6]   M. F. Lu, "Research on Rural Financial Supply-side Structural Reform to Support Rural Revitalization Strategy," *Contemporary Economic Management*, Vol. 41, No.10, pp. 84-90, April 2019.
      DOI: 10.13253/j.cnki.ddjjgl.2019.10.012.

[7]   H. W. Liao, and Y. D. Chi, "Policy-based financial support for the adjustment of rural industrial structure under the rural revitalization strategy," *Theoretical Journal*, No.01, pp. 86-96, January 2020.
      DOI: 10.14110/j.cnki.cn-37-1059/d.2020.01.010

[8]   F. Liu, Y. Y. Wu, and Y. C. Chen, "Research on financial support for rural revitalization and development strategies: Taking Renshou County as an example," *Business Economics*, No.01, pp. 185-188, January 2021.
      DOI: 10.19905/j.cnki.syjj1982.2021.01.059.

[9]   Cui, C. T., Cui, Y. L., and Han, M. L., "Practical exploration of financial support for rural revitalization," *Contemporary Rural Finance*, No.12, PP. 53-57, December 2018.
      DOI:  10.3969/j.issn.1007-3604.2018.12.016.

[10] T. Mao, and C. D. Xie, "The Mode and Path of Financial Support for Rural Revitalization: Thinking Based on Zhejiang's 'Trinity' Rural Credit Cooperation Practice," *Contemporary Rural Finance*, No.10, pp. 10-16, October 2018.
      DOI: CNKI:SUN:NCCZ.0.2018-10-002

[11] Z. Z. Chen, "Motivation, restriction and effective path of rural finance supporting rural revitalization in Henan Province," *Trade Show Economics*, No. 01, pp. 147-149, January 2022.
      DOI: 10.19995/ j.cnki.cn10-1617 /F7.2022.01.147.

[12] Qin, Z. F., *Research on Commercial Bank Efficiency and Its Influencing Factors,* Ph.D. Thesis. Shanxi University of Finance and Economics, CHINA, 2018.
      DOI: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201901&filename=1018125681.nh

[13] H. S. Yan, H. H. Kim, and J. W. Yang, "Efficiency Analysis of Chinese Blockchain Concept Stock Listed Companies," *International journal of advanced smart convergence(IJASC)*, Vol. 9, No.3, pp. 17-27. September 2020.
      DOI: http://dx.doi.org/10.7236/IJASC.2020.9.3.17

[14] C. J. Li, J. W. Jeon, and H. H. Kim, "An Efficiency Analysis of Fishery Output in Coastal Areas of China," *International journal of advanced smart convergence(IJASC)*, Vol. 9, No.3, pp. 127-136, September 2020.
      DOI: https://doi.org/10.7236/IJASC.2020.9.3.127