

Prediction Personnel Needs and Empirical Analysis

---Taking the Tourist Demand in Shandong Province as Example

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ABSTRACT: In human resources planning, talent demand prediction is one of the important content. Study on the talent demand forecast, mainly serves for the reality of economic life. The purpose of this paper is based on the Shandong province tourism talent demand forecasting, to solve the problem of cultivating talents in the future, and to solve the employment problem. The article adopts the methods of quantitative analysis and qualitative analysis, each factor analysis of talent demand forecast to consider. Through empirical analysis, we obtained the prediction conclusion.

KEYWORD: Talent demand; forecast; tourism talents; Shandong Province

1 INTRODUCTION

In human resources planning, talent demand prediction is one of the important content. Since the 1980s, peoples began to study human resource forecasting in China, but due to the constraints of reality and related factors, to accurately predict the number of elements in the human resources demand for talent has been a difficult problem to solve.

Currently, the research on forecasting demand for talent shows two characteristics. First, the predicted range from a long-term development to small-scale rolling. Forecast period is shorter, reducing the impact of uncertainties. At the same time reduce the scope of the study, the research focuses on the work of homogeneity and similarity [1-2]. Secondly, the prediction method is more diversified, from trend extrapolation, regression analysis, and production function model to neural networks, support vector regression method [3-5].

2 FACTORS AFFECTING TALENT DEMAND FORECAST

Compared with economic forecasts, the factors affecting demand for talent are more and more complex. It should not only consider the economic development needs of the new talent, but also to consider the social development needs of talent,

taking into account factors affecting supply and other aspects of talent.

The impact of economic development on the demand for talent mainly reflected in these indicators such as GDP growth, fixed assets investment, industrial structure and labor productivity.

Social development needs of talent, mainly in the arts, education, health, research, and the party and government units. For example, in accordance with the provisions of relevant state policies, the number of teachers and students in schools, health professionals and health institutions beds, there should be a reasonable proportional relationship. So you can change the number of students and the number of hospital beds, and to predict the demand for teachers and medical personnel.

Other factors are the natural attrition, brain drain, talent supply. The natural attrition includes retirement, death and disability workers, and so on. Brain drain is the result of the departure of the talent market exit. Talent supply, especially in the supply of college graduates in size, can also affect the demand for talent.

3 EMPIRICAL ANALYSIS

We take the tourist demand in Shandong Province as example.

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3.1 Present Situation tourism professionals in Shandong Province

Investigation focused on the tourism administration department and traditional tourism enterprises. As of October 2013, the total number of tourism professionals surveyed is 209,618 people, including tourism administration department staff is 3060, accounting for 1.46 percent of the total. Scenic personnel are 44,690 people, accounting for 21.32 percent of the total. Tourist Hotel staff is 143,714, accounting for 68.56 percent of the total. Travel agents are 18,154 people, accounting for 8.66 percent of the total. Particular case is shown in the following table1.

Table 1Present Situation tourism professionals in Shandong Province

Tourism professionals	The number of people	percentage
Tourism administration department staff	3060	1.46%
Scenic personnel	44,690	21.32%
Tourist Hotel staff	143,714	68.56%
Travel agents	18,154	8.66%
Total	209,618	100%

* The data source: statistical yearbook of Shandong province (2013)

Tourism professionals surveyed in a college degree or above accounted for 58 percent of the total tourism professionals, in which 44 percent of college, 13 percent of undergraduate, graduate 1 percent. [6]

3.2 The basic idea of tourism professionals demand forecasts

Correctly predicted travel demand for talent is an important prerequisite for the development of personnel training strategy. This study is based on Present Situation tourism professionals in Shandong Province as the basis for the survey, based on the history and current status of Shandong Tourism talent development, combined with the Shandong Province tourism *Twelfth Five Year Plan*" and the long-term economic and social development in Shandong Development Strategy identified strategic objectives, strategic priorities and strategic layout. Combined with qualitative analysis and quantitative analysis, model predictions and empirical derivation, random micro and overall projection method to build tourism professionals demand forecasting model, and the total amount of Shandong in 2016 tourism professionals demand forecast. Provide the basis for the development of Shandong *Twelfth Five* strategic tourism personnel training.

Personnel needs of the tourism industry and the overall socio-economic development are closely

related. The data used in this paper from *the Shandong Statistical Yearbook* (2003-2013), *China Tourism Statistics Yearbook* (2013), *Twelfth Five Outline of Economic and Social Development in Shandong province*, *Tourism Twelfth Five Development Plan in Shandong province*. And the objectives associated with comprehensive volume and structure of tourism demand for talent.

3.3 Variant selection of tourism talents demand forecasts

The total scale and the speed of development of tourism professionals, depends on the level and pace of economic development, the science and technology, the society.

Specific factors such as the speed of the national economy (such as GDP growth rate), total tourism revenues, state tourism factor inputs (such as investment in human capital, etc.). This model will be used per capita GDP growth rate, the growth rate of tourist arrivals, the number of domestic tourism growth, technological progress rate, etc., to estimate the rate of development of tourism professionals, is calculated as,

$$V = y + a + i + l' / 4 \quad (1)$$

Here, v represents the growth rate of tourism talents, y represents the per capita GDP growth rate, I represent the growth rate of tourist arrivals, l' represents growth rate of domestic tourist arrivals, a representative of the speed of technological progress.

Tourism is a consumer activity, needs to have a high level of income and ability to pay, per capita GDP is an important factor affecting the level of income. Incomes increase, they will have a strong capacity to pay and travel needs, have the ability to travel. Increase people's travel demand requires more tourism talents, tourism enterprises in order to ensure adequate staff to provide quality travel services. Therefore, the per capita GDP is an indirect variable promote tourism talents growth. [7]

In travel services, the technology is only an optional variable, instead of the necessary elements. Tourism industry is a great industry with other related industries. Its development should be restricted or promote the development of other industries. Technical support for the development of tourism should be a whole line, including six elements.as tourists, travel, accommodation, food, shopping, entertainment about travel service technical support, it's quite extensive, according to the importance of tourism services can be divided into improved transportation and communication facilities, equipment, information gathering and processing, product development and sales and human resources development, and so on. [8]Technological progress in improving the overall quality of tourism services, thereby increasing the

technical level and quality of the entire tourism industry will require more and higher levels of tourism talents to support.

In summary, the per capita GDP basically reflects the population of a country or region to travel motivation and support capabilities, technological progress is measured by the size and potential of tourism development in a country or region, and the total number of tourists in general reflects tourism scale. At the same time, the size and potential of the tourism industry is bound to have a considerable size of tourism talents to support. Therefore, the scale used to measure tourism demand for talent these three variables is reasonable and feasible.

3.4 The total amount of tourism talents forecasting model

The parameters of Formula 1 is mainly based on *Tourism Twelfth Five Development Plan in Shandong province*, we call it *Plan* for short. And the *Twelfth Five Outline of Economic and Social Development in Shandong province*, we call it *Program* for short.

Based on the *plan* and *Outline*, in the "Twelve Five" period, the province's per capita annual GDP growth of 8.7%, that is $y = 8.7\%$; "Plan" put forward to 2015, the province received domestic tourists reached 480 million people, inbound tourists reached 550 million. The total tourism revenue growth is doubled compared with the number in 2010, reaching 600 billion yuan. An annual incensement of 100,000 tourism jobs was done. Based on projections, the annual tourist arrivals grew 8.44%, with an average annual growth of domestic tourism 6.53%, that is, $i = 8.44\%$, $l' = 6.53\%$. According to the "Outline" requirement, by 2015, the average annual total fixed asset investment growth of 15%, the natural population growth rate of 0.6%, whereby a further estimated value about the a .

Production function model can be exported to proceed. Set production function is,

$$y = F(t, k, l) \quad (2)$$

Here, y , k , l represent of the total output, capital and labor, t represents time. Import time variables in the production function is due to advances in technology, often manifested in the growth of output over time, that technological progress is relative, dynamic contrast different periods to reflect. Contralateral differentiating style, both sides have the same except for y :

$$\frac{dy}{y} = \frac{dy}{dt} \times \frac{1}{y} dt + \frac{dy}{dk} \times \frac{k}{y} \times \frac{dk}{dy} + \frac{dy}{dI} \times \frac{1}{y} \times \frac{dI}{I}$$

Let

$$\alpha = \frac{dy/y}{dk/k} = \frac{dy}{dk} \times \frac{k}{y}$$

$$\beta = \frac{dy/y}{dI/I} = \frac{dy}{dI} \times \frac{1}{y} \quad (3)$$

The α , β represent output elasticity of capital and output elasticity of labor. By taking the difference instead of differential, and let $\Delta t=1$, substituted into Formula 3, we get Formula 4.

$$\frac{\Delta y}{y} = \frac{dy}{dt} \times \frac{1}{y} + \alpha \frac{\Delta k}{k} + \beta \frac{\Delta I}{I} = \alpha + \alpha \frac{\Delta k}{k} + \beta \frac{\Delta I}{I} \quad (4)$$

This formula shows that the growth rate of total output, can be decomposed into three terms: the first term said, when k , l under the condition of constant value of y growth, and this growth can be attributed to technological progress. The second is represented by the capital growth through capital output elastic coefficient to bring the growth rate of output value. The third is represented by labor growth through the elasticity coefficient of labor output to output brings growth rate.

Therefore, the rate of technology progress

$$a = y - \alpha k - \beta l \quad (5)$$

On the basis of experience,

$$a = 0.3,$$

$$\beta = 0.7$$

And

$$y = 8.7\%,$$

$$k = 15\%,$$

$$l = 0.6\%$$

Based on Formula 5, we get,

$$a = 3.78\%.$$

Finally, take $y = 8.7\%$ into the formula 1, we get the $v = 6.86\%$, that is to say, in the "Twelfth Five Year Plan" period, the expected rate of economic development goals of Shandong tourism talents growth 6.86%. At this rate to predict, with 2014 October survey data as reference, then the total in 2017 Shandong tourism talents (college or above) will reach 141000 people, bachelor degree or above of tourism personnel will reach 34000. According to the *planning* requirements

$$y = 8.7\%,$$

$$i = 8.44\%,$$

$$l' = 6.53\%$$

If in the next few years, the total social investment in fixed assets and the natural population growth to maintain the basic rate of small change,

$$k = 15\%,$$

$$l = 0.6\%,$$

$$a = 3.78\%.$$

We use cumulative this simple method to calculate, can draw the next few years tourism talent (college or above) and senior talents of tourism (Bachelor degree) approximately the total, refer to table 2 and figure 1.

Table 2 Prediction of Shandong Province Tourism Talent Demand (2015-2017)

The type of talent	year		
	2015	2016	2017
Tourism talents	123774	132265	141338
Senior tourism talents	29877	31926	34116

* The data source: According to the calculated

We can use more clearly shown by the following figure:

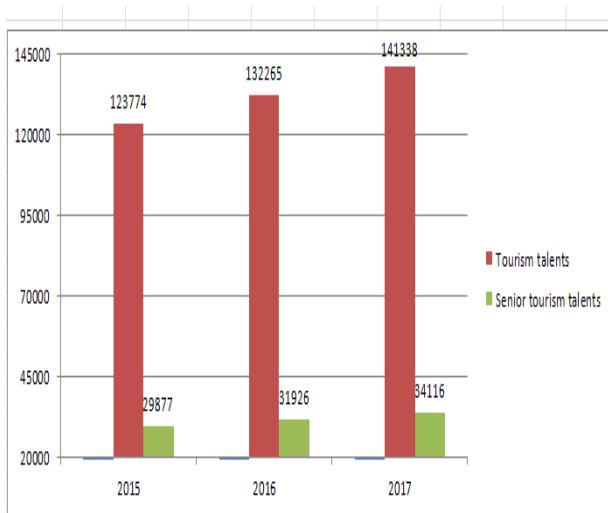


Figure 1 Trend of Prediction of Shandong Province Tourism Talent Demand (2015-2017)

4 CONCLUSION

To sum up, this paper analyzes the talent demand forecasting model. Combined with the status of Shandong province tourism talents, and starting from the actual situation of Shandong province. We conducted empirical research on this model. Through the research, we get the forecasting results, hoping to cultivate for future talent, contribute to the development of Shandong province. Due to limited conditions, we do not have the demand of tourism

talents of specific regions of the expansion targeted prediction; we will still need to do detailed work.

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