The Urban Appraisal Research of the Chain Enterprises on the Basic of the AHP Theory

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Abstract: The urban appraisal is the foundation of the chain enterprises' successful sitting strategy, which greatly reflects the enterprise' competitive power and the orientation of expansion strategy. This paper aims to study the problem of city selection of the chain enterprise. First of all, it uses the cluster analytic method to classicize the city, and then through establishes the city evaluation model, carries on sorting using the analytic hierarchy process to the similar city. Finally, it makes the empirical analysis to the six cities in Jiangsu Province. At last it establishes the model of urban evaluation which is based on the AHP theory to solve the problem of sitting of the retail chain enterprises, which has important theoretical significance in guiding how the chain enterprises expand and choose a new region orderly.

Key words: city evaluation; expansion of chain; AHP

1. Introduction

In the process of chain enterprises' scale expansion, the selection of cities is the first step of chain strategy which can be realized successfully, and it also has certain, significance for the development of chain enterprises. This paper has made a general survey of the research on the model of sitting of retail business' outlets which tends to influence the relevant qualitative and quantitative factors of sitting of retail business' outlets. This paper has established relevant mathematical models of analysis to the microcosmical and specific outlet's sitting, which the paper pays little attention to the macroscopically urban evaluation and analysis. There was no a set of systemic analytical approach in this paper, and just collected some economic data to make a empirical judgement.

This paper tries to establish a complete approach of urban evaluation to study and analyse how the chain enterprise expand and choose a new region to establish stores orderly.

1.1. The approach of study and analysis of urban evaluation theory

The inevitable choice of the chain enterprises' expansion of scale is to carry out chain expansion strategy, i.e. the management strategy of outlet's space which could bring synergistic effects and advantage of scale. At present, there are two methods of expansion pattern of retail chain enterprises.

One is the enclosure made when the retail enterprises economies of scales by means of adopting the approach of establishing branches intensively, exploiting market's potential adequately and forming local monopoly to reduce administration cost and logistics cost. For example, Suning, Guomei, Hongtusanbao all choose this approach of expansion.Another is the leap mode. The chain enterprises continue to choose economic developed cities which have great potential to establish branches by using jumping mode. On the one hand, the enterprises set up shops in the economic developed cities to seize valuable place in order to obtain the advantages of preferred development, such as computer city. In addition, the enterprises give

priority to establish branches in some cities from the powerful competitors, and continue to develop quickly. Some regional supermarkets and department stores mainly use this approach.

1.2. Research approach of urban evaluation theory.

Either enclosure copy mode of chain or leap copy mode of chain faces two problems; one is the scarcity and limitation of resources of retail chain enterprises. In the large –scaled copy process, the enterprises have a large demand for the support of information system, the ability of logistics distribution, qualified people and funds. Yet these resources are not available until a new cycle comes, so it is a bottleneck restriction for the retail chain enterprises in the short term. Therefore, the key issues for the enterprises to consider establishing branches are allocating these limited resources to the most efficient region scientifically.

In addition, among various cities, the enterprises should enter into the cities which have a larger economic scale and developing space of retail market through comparing the sequence of different cities, thus the opportunity cost of cities' selection will be reduced, the rate of return on investment of enterprises will be enhanced and the payback period of investment will be shortened. All of these are beneficial to maximise enterprise's profit in a short time. For this reason, this paper established the model of analysis and evaluation of cities, and used the approach of AHP to analyse cities' sequence scientifically.

2. The choice of urban evaluation indicator

Establishing urban evaluation model is the basic prerequisite in deciding how chain enterprises choose a new region orderly.

There are many factors can influence the development of retail business in a city, such as economic status, market competition, urban infrastructure degree of city's openness and so on[1]. The research shows: there are three factors influence the development of retail business, i.e. urban attraction, development of retail market and market competition status. (see chart 1)

Chart 1. Diagram of influencing factors of urban evaluation

Urban attraction

Urban valuation factors

Development of retail market   Market competition status
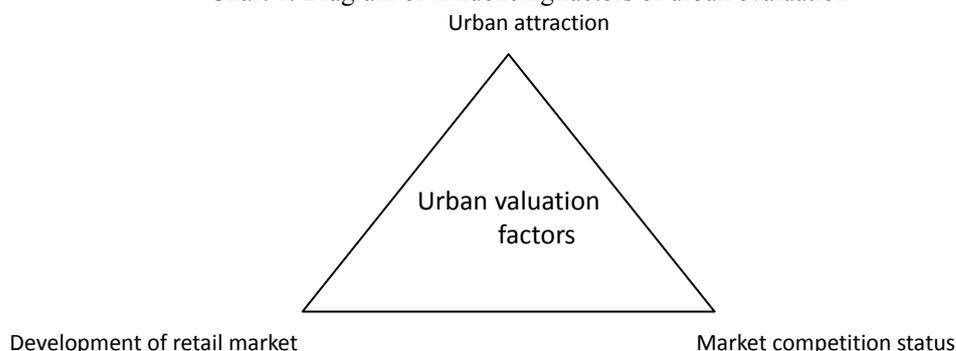
2.1 Urban attraction

The degree of urban attraction depends heavily on the cost of investment, the basis of supply chain and the accumulation effect.

The main factors of cost of investment that need to take into consideration are rent, renovation costs, transfer fee and manpower cost etc. Among these, the first three factors accent for 60% of total expenses of establishing branches. In view of the availability of data, this paper compared the rent and manpower cost of selected cities. Because there are many differences in rental prices of different regions among different cities, this paper compared the coverage rate of primary business area in different cities. The data of rent can be obtained from the shops-rental prices index or the market research, and the data of manpower cost can be obtained through comparing average wage of different cities.

The essential condition of chain's development is the infrastructure of supply chain which involves transportation and traffic condition along the city roads and its surrounding roads, the number of logistics service providers of the city, and the degree of logistics network's coverage and its efficiency of delivery and distribution.

The accumulative effect refers to the degree of perfect of upstream and downstream of the industrial chain, various industries and economic activities can generate the economic effect which as a centripetal force can attract economic activities more to a certain area [2]. This is the basic factor of urban formation and development and the foundation of retail business' development. The accumulative effect can show us the number of business circles and relevant retail providers and the related supporting facilities of after-sale service industries.

2.2 The development of retail market

The development of retail market is mainly influenced by the purchasing power index, growth rate of retail sale and urban development planning.

The purchasing power index reflects the level of urban residents' purchasing power. The high index reflects the high level of purchasing power which is beneficial to the development of retail enterprises. According to the calculation formula which was published in the American magazine named "management of sale and marketing" the calculation formula of purchasing power index is: $Bi=0.5Yi + 0.3Ri + 0.2Pi$. Bi means the ratio of regional purchasing power index to national purchasing power index [3]. Yi means the ratio of regional per capita disposable income to national per capita disposable income. Ri means the ratio of regional sales volume to national sales volume. Pi means the ratio of total population to total national population.

Growth rate of retail market mainly involves the city's total retail sale of goods and its growth rate. These data can be acquired from city statistical yearbook.

The urban development planning and expansion reflect city's development situation. The speed of urban expansion may influence the original pattern of sale; meanwhile, it indicates that the enterprises will obtain more access to the market. The enterprises can learn about the urban development planning from the government work report and the field surveys.

2.3 The market competition situation

There are three indicators influence the market competition situation, i.e. the degree of saturation and industrial concentration, and the courage rate of retail outlets.

The degree of saturation, i.e. the competitive level, is mainly to investigate the number of potential consumers, the purchasing volume of every consumer, and the management area of dealing market's saturation factor which is up to the measurable degree of commodity sales' saturation in the specific business circles to help the operators of new established stores learn about whether the similar industries there are overmuch or not. Generally speaking, the stores' success rates must be higher in the lower-saturated region than those in the higher-saturated region [4]. The calculation formula of saturation factor of retail business is:

$$IRS = \frac{H \times RE}{RF}$$

(H means the number of potential consumers who buy a certain kind of commodities in a certain city. RE means every consumer's expenditure on a certain kind of commodities in a certain city. RF means the management area of dealing in similar products in a certain city.)

The degree of industrial concentration reflects the industry monopoly and competition situation, and it is usually measured by CR4 (it means the top-four enterprises' total market share in the industry) and CR8 (it means the top-eight enterprises' total market share in the industry). The "Bein classification" theory is used normally in the word to classify the industries whose degree of industrial concentration CR4 and CR8 are more than 30% and 40% respectively as the monopolized industry. The more concentrated the industry is, the stronger influence the local monopoly will be. This is harmful to some small companies' development, because monopoly enterprises have the ability to control the market price.

The coverage rate of retail outlets is the theory of retail facilities planning which was formed in the Soviet Union in the middle of 1950s. It measured the saturation degree of retail facilities in a certain area. Here, the coverage rates of retail outlets can be expressed as the ratio of the number of urban retail outlets to

the urban population. The lower ratio means there is a broad space for the development of urban retail facilities, and it is beneficial to the development of retail industry.

3. The city evaluation on the basis of AHP theory

The characteristics of the analytic hierarchy process are to analyse the essence of the complicated decision issues and influencing factor and inner connection deeply [5]. On this basis, this paper used the less quantitative information to change the thinking process of decision into mathematization theory, it can provide simple decision method for the complicated decision issues of urban evaluation which is multi-objective and multi-criterion and has no structural characteristics. The model of the analytic hierarchy process in this paper (see chart2) is: the destination layer is city sitting; the criterion layer is urban attraction, development of retail market, and market competition situation; the sub-criterion layer is the sub-factor of every factor in the criterion layer, i.e. urban evaluation index; the lowest layer is the program layer, i.e. the selected cities.

Using the software yaahp0.5.2 to calculated the index weight of criterion layer and sub-criterion layer (see chart 1)

According to the calculated results of the index weight in chart 1 and the weight under each city's index in chart 2, this paper calculated the score of every city's these cities into order (see chart 2)

4. Conclusion

This paper provided the thinking of analysis and evaluation methods for chain enterprises when they enter into the selected cities orderly to establish branches, and establish of AHP which need to consider the quantitative factors and qualitative factors to sort these selected cities into order, and decided how the chain enterprises enter into a new region orderly.

This paper has made a empirical analysis to the 6 cities in Jiangsu province, and come up with the sequence of these selected cities, such as Xuzhou, Yangzhou, Nantong, Zhenjiang, Taizhou and Lianyungang. The research conclusion can provide certain theoretical reference for retail chain enterprises when they choose to establish branches in some cities orderly.

5. References

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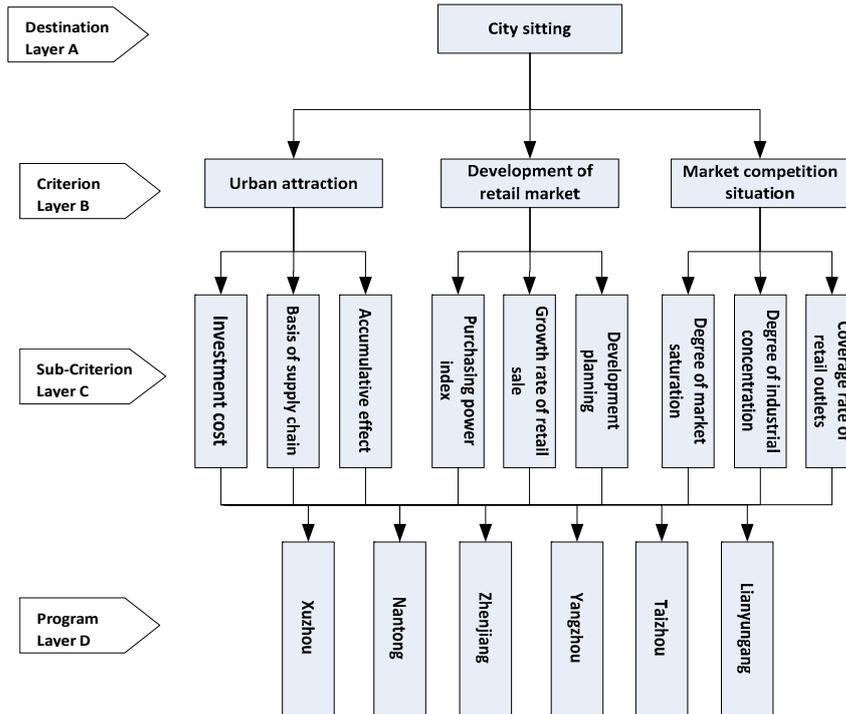
Chart 2 structure chart of AHP

Chart 3 the results of index weight of criterion and sub-criterion layers

Criterion layer B	weight	Sub-criterion layer C	weight
Urban attraction	0.2864	Investment cost	0.4680
		Basis of supply chain	0.1967
		Accumulative effect	0.3353
Development of retail market	0.4272	Purchasing power index	0.3745
		Growth rate of retail sale	0.3745
		Development planning	0.2510
Market competition situation	0.2864	Degree of market saturation	0.3745
		Degree of industrial concentration	0.2510
		Coverage rate of retail outlets	0.3745

Chart 4 sorted table of city

Alternative program	Xuzhou	Nantong	Zhenjiang	Yangzhou	Taizhou	Lianyungang
weight	0.2061	0.1751	0.1475	0.1766	0.1450	0.1497