Analysis of Brand Ecological Limiting Factor and Brand Development Strategy
— Take Tianjin City as an Example

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Abstract:

Brand ecology is a system of interaction between brands and the ecological environment they are attached to [1]. Brand ecological factors are environmental factors that affect the survival and development of brands, which are generally classified into four categories: economic ecological factors, social ecological factors, enterprise ecological factors and other ecological factors [2]. Ecological factors do not exist in isolation, and the importance of each factor is different. This paper analyzes the ecological factors to determine the factors that play a leading role. The empirical results show that technological innovation factors, material market factors, labor market factors, passenger transport factors, consumer market factors have a significant impact on brand value. After the elimination of multicollinearity by stepwise regression, it is concluded that technological innovation is the dominant factor affecting the brand value of Tianjin. Based on this, a series of strategic suggestions for brand development are put forward.

Keywords:

Brand ecology; Ecological factor; Technological innovation factor;

1 Problem proposed

Brand is the core competitiveness of a region and a positive factor to promote regional progress. Tianjin is a big economic city. Although the municipal party committee and municipal government always attach importance to brand economy, its development is always weak compared with that of Beijing, Guangdong, Shanghai and Zhejiang. A total of 133 Chinese companies made the list of the Top 500 Global Brands by Brand Finance, a British Brand value consulting firm, in 2020, but Tianjin did not make the list. In the list of "Top 500 Chinese Brands in 2020", only 7 enterprises from Tianjin entered it. The main problems are as follows: first, lack of awareness of big brand and slow development of the first brand; Second, product homogeneity is serious, innovation is serious insufficient; Third, brand management is not sound, and brand construction is not systematic, consistent and long-term [3]. Such a situation is detrimental to the economic development of Tianjin, and the market will be occupied by foreign brands step by step. Therefore, this paper starts with the ecological factors that affect the brand development, analyzes the leading factors, and solves the problems in the brand development pertinently.

2 Model construction

Generally speaking, economic ecological factors include consumer market, capital market, material market, labor market and industrial structure factor. Social ecological factors include political environment, culture, education, social system and policy; Enterprise ecological factors include enterprise culture, marketing management, technological innovation and quality management; Other ecological factors include natural resources, logistics, information and media, etc. [4]. Based on these influencing factors, this paper uses factor analysis method of State software to discuss the influence of leading factors on Tianjin brands.

2.1 Variable Design

In this paper, the brand value in "China's 500 Most Valuable Brands" by World Brand Lab 2020 was selected as the dependent variable, and the data were authoritative and accurate. In order to ensure the accuracy and measureability of the acquisition of explanatory variables, the dependent variables in this paper are consumer market factor, material market factor,

industrial structure factor, education factor, technological innovation factor, quality management factor and logistics factor. The symbols and definitions are shown in Table 2.1.

variable	symbol	Definition	description
The dependent variable	brand value	brand	The brand value
Explain variable	consumer market	consumption	consumption Expenditure in Tianjin
	materials market Tianjin	materials	total assets of retail and wholesale enterprises in
	labor market	labor	average Wage of Tianjin
	industrial structure tertiary industry	structure	ratio of the proportion of secondary industry to
	education	education	education Funds of Tianjin
	technology innovation	innovation	Tianjin technology market turnover
	quality management	quality	qualification rate of spot check in Tianjin
	logistics	passengers	passenger volume of Tianjin
	freight	freight	Tianjin cargo volume

Table 2.1 Symbols and definitions of related variables

Note:

① Consumption expenditure refers to the sum of the annual consumption expenditure per capita of urban households in Tianjin and the cash expenditure per capita of living consumption per capita of rural households in Tianjin.

② the labor market we do not consider the quality of workers, do not consider the impact of the unemployment rate;

2.2 Model establishment

The data of each explanatory variable were selected from Tianjin Statistical Yearbook in 2020. After analysis, the selected data meet the requirements of homogenous variance and normal distribution. The model is established as follows:

$$Brand_i = \beta_0 + \beta_1 consumption_i + \beta_2 materials_i + \beta_3 labore_i + \beta_4 structure_i + \beta_5 education_i + \beta_6 innovation_i + \beta_7 quality_i + \beta_8 passengers_i + \beta_9 freight_i + \&_i$$

3 Empirical Analysis

Through the linear regression of the data, the complex correlation coefficient R=0.997, α=0.05, indicating that the overall correlation of this model is very high and has research value. Through the statistical analysis of the data, the results are as follows:

Table 2.2 Table of Phase Relation Numbers

	brand value	consumer market	materials market	labor market	industrial structure	education	technology innovation	quality management	logistics	freight
brand value	1.000	.575	.873	.7763	-.549	.279	.991	.271	.341	-.024
consumer market	.677	.993	.822	.433	-.456	.537	.706	.296	.288	.201
materials market	.903	.855	.994	.578	.462	.549	.861	.175	.494	.073
labor market	.311	.403	.732	-.309	.545	.604	.211	.489	.098	.081
industrial structure	-.779	-.445	-.490	-.201	1.000	.165	-.693	-.017	.143	.567
education technology	.399	.348	.528	.471	.192	1.000	.162	-.362	.787	.658
innovation	1.000	.783	.906	.879	-.643	.135	1.000	.208	.175	-.039
quality management	.248	.271	.136	.421	-.056	-.115	.378	1.000	-.093	-.107
logistics	.224	.223	.501	.264	.119	.807	.332	-.073	1.000	.603
freight	-.031	.127	.173	.545	.488	.708	-.039	-.124	.812	1.000

As can be seen from Table 2.2, except for the freight volume factor, other variables are highly correlated with brands.

Table 2.3 Table of Coefficients

	Non-standardized		regression		
	coefficient				
	B	standard		Check valuet	

model	deviation		Beta		Sig
Constant	721.957	1332.857		.541	.517
consumption	-.126	.077	-.242	-.268	.024
materials	.469	.153	.509	2.935	.001
labor	.000	.088	.450	.137	.004
structure	16.496	669.104	.021	.033	.949
education	.044	.000	-.089	-1.765	.140
innovation	.000	.000	.558	5.040	.000
quality	1411.990	1538.073	.065	.553	.721
passengers	.006	.002	.198	2.880	.015
freight	-.012	.008	-.054	-.873	.320

The regression equation is as follows:

Brandi=721.957+-.126consumptioni+.469materialsi+.322laborei+16.496structurei+.000educationi+.000innovationi+1411.990qualityi+.006passengersi+-.012freighti

Table 2.3 shows that on the basis of α=0.05, technological innovation factor, material market factor, labor market factor, passenger transport factor and consumer market factor have a significant impact on brand value. In order to find the leading factor, we further regression the data, the complex correlation coefficient is R=0.987, the overall correlation of this equation is high. F=286.764 (α=0.05), indicating that the regression equation is significant at the level of α=0.05. After eliminating multicollinearity by stepwise regression, the T value of technological innovation factor is 28.762, and the T value of labor market factor is 10.604. By calculating the Beta coefficient of all variables, it can be seen that the Beta coefficient of technological innovation factor is 0.977, and the Beta coefficient of labor market is 0.433. Therefore, technological innovation is the dominant factor affecting the brand value of Tianjin.

4 Suggestions on brand development strategy of Tianjin

4.1 Improve the technological innovation capability

Technological innovation is the decisive leading factor that affects Tianjin's brand value to stagnate. Technological innovation cannot be separated from the support of special government funds. The government should integrate production, education and research, and allocate special funds to enterprises with good brand building foundation, such as Master Kong and Tasly. Together with universities in Tianjin, the establishment of "industry-university-research integration economy", colleges and universities cooperate with enterprises to solve unresolved problems.

4.2 Give play to the government's advantages

Tianjin should establish a working mechanism of brand construction, which is promoted by the government, taken the initiative by enterprises, organized and coordinated by chambers of commerce and trade associations, improve the brand ecological environment, and coordinate the mutual relations among the economic environment, political environment, social and cultural activities and natural environment of the brand, so as to develop synchronously and coordinate with each other.

4.3 Relying on industrial clusters

Tianjin should learn from the experience of regions with developed brands such as Beijing, Zhejiang and Shanghai, develop supporting industries and upstream and downstream industries, turn the pillar industry of machinery manufacturing into a leading industry, and turn a single product into an industrial cluster. In addition, Tianjin enterprises should communicate with each other, with well-known enterprises to drive the unknown enterprises, strong enterprises to pull the weak enterprises.

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