Empirical Study on the Optimization of Enterprise Organizational Model under the Logistic Model-Based Virtual Economy Conditions

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Abstract

In recent years, the rapid development of China's virtual economy has fully satisfied people's consumption demands for both material and spiritual aspects. However, the development of the virtual economy, when bringing huge economic benefits to the society, will also have great impacts on the traditional enterprise organizational model. In order to improve the enterprise organizational model under the virtual economy conditions and propose an efficient optimization plan, this paper, with the application of the binary logistic model, empirically analyses the factors influencing the choice of organizational model by enterprises under the virtual economy conditions, and describes what model can improve the organizational performance of enterprises in different cases. This research is of important theoretical and practical significance to optimizing the enterprise organizational model under the virtual economy conditions and alleviating the predicament of enterprises.

Keywords: Virtual Economy, Enterprise, Organizational Model, Optimization.

1. BACKGROUND

1.1 Literature review

Under the virtual economy conditions, enterprises usher in new opportunities for development, in which case the circulation of products increases and risks also increases. In a manner of speaking, with the action of virtual value, enterprises are not only concerned about the demands of people for new energy products, but, more importantly, enhanced consumer shopping experience. The traditional enterprise organizational model is too simple to satisfy the increasingly diversified consumer demands under the virtual economy conditions, and this prevents the further development of enterprises. Therefore, to optimize the enterprise organizational model by starting from the virtual value has become an opportunity for the development of new energy enterprises. Recently, scholars at home and abroad have studied enterprise organizational model under the virtual economy conditions. Liu Yixi said that under the virtual economy conditions, enterprises should rely on their feature advantages, build strategic heights for development, and cultivate leading enterprises, and build regional and dominant industrial clusters (Liu, 2013). Liu Gang compared the organizational models of Chinese and Korean enterprises as well as problems existing in such models, and found that the organizational models of both countries are of some complementarity to each other (Liu and Rong, 2013). Zhao Yanfen proposed a collectivized control model in line with the modern enterprise system and standards, in a move to enhance the development capacity of enterprises (Zhao, 2014). Chen and Pang studied China's enterprise knowledge management organization, and pointed out that China's enterprises must propose a strategic policy, so as to provide enterprises with convenience in terms of knowledge distribution, absorption, creation, etc., and gain competitive advantages (Chen and Pang, 2010). A review of the above literature shows that currently China's current research of enterprise organizational models is still too simple and not systematic, and the research of enterprise organizational models under the virtual economy conditions is even less. This provides an important research space in this paper, and also provides new ideas for the optimization of organizational model of Chinese enterprises.

1.2 Purpose

The virtual economy, derived from virtual capital, occurs on the basis of the loan capital and bank application system, and evolves with the rapid development of the credit economy. Compared with the real economy, the virtual economy has high liquidity and high risks. Under the virtual economy conditions, enterprises usher in

new opportunities for development, in which case the circulation of products increases and risks also increases. In a manner of speaking, with the action of virtual value, enterprises are not only concerned about the demands of people for new energy products, but, more importantly, enhanced consumer shopping experience. The traditional enterprise organizational model is too simple to satisfy the increasingly diversified consumer demands under the virtual economy conditions, and this prevents the further development of enterprises. Therefore, to optimize the enterprise organizational model by starting from the virtual value has become an opportunity for the development of new energy enterprises. Moreover, the emergence of the virtual economy will shift competition in the traditional market to the creation of potential value, which is of great practical significance to enhancing the core competitiveness of enterprises.

2. EMPIRICAL RESEARCH

2.1 Theoretical framework

Enterprises need to choose organizational governance structure based on the hypothesis of bounded rationality and opportunism. In addition, different features lead to some differences in the type of transactions, resulting in different contractual risks. In order to avoid risks, enterprises must choose different governance structures or institutional arrangements. Moreover, the transactionfeatures of the supplier and the enterprise are related to the product features and environmental factors of both sides. In other words, enterprises choose industry organizational models subject to multiple factors. Thus, this paper proposes a framework that affects the choice of enterprise organizational models, and gives the relevant hypothesis: the choice of enterprise organizational models is mainly affected by the enterprise environment, enterprise features and transaction costs (as shown in Figure 1).
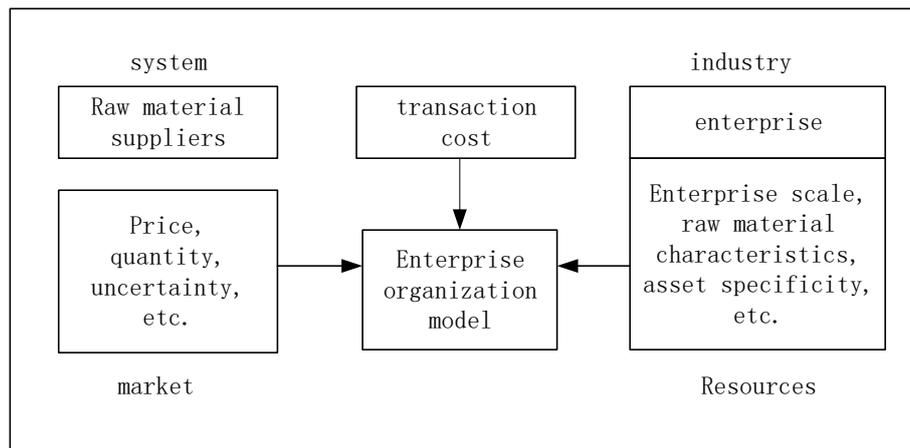

Figure 1. Diagram of the Choice of Enterprise Organizational Model

Data Sources: Proposed Based on Relevant Theoretical Research

2.2 Model explanation and variable description

This paper proposes an empirical model of factors that influence the choice of enterprise organizational model by a raw material enterprise based on the above analysis and the features of such enterprise.

$$R_i = F(E_i, EF_i, TC_i) + e_i \quad (1)$$

Where *R* represents the organizational model chosen, and is the function of *E*, *EF* and *TC*; that is, the explanatory variables are divided into environment *(E)*, enterprise features *(EF)* and transaction cost *(TC)*, for each of which some specific, measurable variables can be chosen as alternative variables; e_i is the stochastic disturbance.

2.2.1 Environmental variables

Choice behaviours of enterprises are influenced by environmental factors. The environmental factors referred to herein are mainly system, resources, and market, and this paper focuses on the external system, resources and market features, and uncertainty.

2.2.2 Enterprise feature variables

Based on the above theoretical analysis, enterprises choose the optimal organizational model under the internal and external environmental constraints, and many studies based on the organizational model from the perspective of farmers also included the features of farmers and features of production into the scope of analysis. Therefore, it is necessary to analyse the enterprise's own features.

2.2.3. Transaction cost variables

The transaction cost includes information cost, negotiation cost and supervision cost. The information cost comes from the transaction cost that may occur when the information on the relevant goods, price and transaction objects is searched during an expected transaction. The negotiation cost is the cost for a specific contract transaction as well as the cost generated as agreed as per the transaction clause until the completion of the transaction, such as the negotiation cost generated during a specific contract transaction and the negotiation cost generated upon signature of the contract in case of an event of default. The supervision cost is the cost required to ensure that the transaction counterparties comply with the transaction clauses.

This paper assumes that x1 represents that the enterprise considers that raw materials provided by the supplier is reliable; X2 represents which how enterprise production is affected by the timeliness of delivery; x3 represents the asset specificity; x4 represents the major means used by the enterprise to measure the quality of the raw materials; X5 represents the fluctuations of each quarterly purchase price; x6 represents the breach of contract by the supplier. The description of variable features and their influence on dependent variables are as shown in Table 1.

Table 1 Description of Variable Features and Expected Possible Influence on Dependent Variables

	Variable Name	Assignment Definition	Mean Value	Standard Deviation	Estimated Impact Direction
Dependent Variable	Choice of the Industry Organizational Model	loose =0, semi-tight =1	0.4	0.49	
Environment Variable	X1	totally disagree =1; disagree =2; basically agree =3; agree =4;	3.63	1.13	?
	X2	the same as X1	2.22	1.09	?
Enterprise Features	X3	non-negotiable = 1; negotiable but with great loss = 2; negotiable with small loss = 3; negotiable = 4	3.14	0.54	-
	X4	measurement of quality from appearance judgment to instrumental analysis	2.08	0.42	+
Transaction Cost	X5	below 10% = 1; 10%~30% = 2; more than 30% = 3	1.71	0.51	+
	X6	few = 1; sometimes = 2; often = 3	1.35	1.11	-

2.3 Choice of the measurement method

The enterprise organizational model is chosenas a dependent variable, loose = 0, semi-tight = 1. Therefore, the binary regression analysis model is used in this paper. The value of the dependent variable is as follows:

$$y_i \begin{cases} = 0 \ if \ y_i = 0 \\ = 1 \ if \ y_i > 0 \end{cases} \quad (2)$$

The logical probability distribution function is used for the Logistic model as follows:

$$P_i = F(Z_i) = F(\alpha + \beta_i X_i) = \frac{1}{1+e^{-z}} = \frac{1}{1+e^{-(\alpha+\beta_i)}} (3)$$

Upon sort-out, $Z_i = \ln\frac{P_i}{1-P_i}$, namely $\ln\frac{P_i}{1-P_i} = Z_i = \alpha + \beta_i X_i$. Y_i in formula 2 represents the enterprise organizational modelchosen by the enterprise;$X_i$in formula 3 represents the factor chosen; β is the estimate parameter.

2.4 Model estimation results and analysis

In this paper, SPSS 22.0 is used to have a retrogression treatment of the relevant data of 20 chosen enterprises. The backward screening method was adopted, and the significance test was carried out automatically by SPSS22.0. The minimal variables of Wald were eliminated, and then the regression equation was re-fitted and tested until all variables were basically significant. Finally, the results of measurement estimation were given. It can be seen from the measurement results of each model that all models are tested to be significant, and the results of different statistical models are similar and stable. Due to limited space herein, only three models are listed: model one incorporates all variables into the model to obtain results, and model three shows the measuring model results of all significant variables (see Table 2).

Table 2 Binary-Model Regression Results of Factors Influencing the Choice of Enterprise Organizational Model

Explanatory Variable	Model One		Model Two		Model Three	
	Coefficient (B)	WaldValue	Coefficient (B)	WaldValue	Coefficient (B)	WaldValue
Constant	-11.25	1.324	-8.641	1.742	-14.245	8.215
X1	3.185*	2.847	2.648**	5.048	1.654**	4.328
X2	2.852*	2.145	-1.741*	4.341	…	…
X3	-8.185*	2.431	-2.152***	3.044	-2.004**	4.458
X4	-1.128	0.528	…		…	
X5	3.175*	2.317	2.128**	5.752	2.424**	4.128
X6	0.285	0.475	…			

Note: ***, **, * represents significance at 1%, 5% and 10% respectively.

According to the model measurement results in the above table, the major factors influencing the choice of enterprise organizational model, the significance and the degree of influence are summarized as follows:

First, the enterprise environmental factors have a great impact on the choice of organizational model. In case of a mature local market, enterprises tend to choose loose organizational models in a rational choice to reduce business risks. Moreover, the empirical results show that enterprises with reliable supplier quality will adopt the semi-tight form. In addition, although the regional dummy variables are not very significant in the final model, most of the models are significant at 10%, with negative coefficients, showing that in regions with highly mature resources and market, enterprises are more willing to adopt loose organizational models; in other regions with not so mature resources and market, enterprises are more willing to adopt semi-tight models so as to ensure the supply of raw materials.

Second, enterprise feature factors have certain influence on the choice behaviour of enterprises. Larger-sized enterprises are more likely to adopt semi-tight models; that is, in terms of the purchase of raw materials, they tend to choose stable supply channels. In order to reduce or avoid risks, small enterprises are more willing to adopt flexible market transactions, and serious homogenization results in fierce competition during production, to the disadvantage of the choice of highly tight models by enterprises. Moreover, enterprises with greater asset specificity are more likely to adopt semi-tight models.

Third, enterprise transaction cost factors have different effects on the choice of organizational model. The model results show that in each purchasing season, when prices of raw materials have large fluctuations, most of the enterprises will adopt semi tight models in a way to reduce transaction risks with the help of contract constraints.

When enterprises have strong information acquisition ability, or when the information is symmetric, most of the enterprises will choose semi-tight models.

3. IMPLEMENTATION PATH FOR ENTERPRISES TO OPTIMIZE MODELS

3.1 To implement strict supply chain supervision systems to maximize the protection of consumers' rights and interests

If to operate efficiently, enterprises must strengthen the supervision of all aspects in the supply chain. Enterprises should expand the coverage of supervision, develop a comprehensive plan, and establish relevant supervision mechanisms to define rights and obligations. In addition to reviewing the relevant data materials, enterprises should go into enterprises for field investigation to completely eliminate blind spots of supervision, monitor in a full range and at all levels, promote the linkage of all supply chain aspects, and improve their operating efficiency. In addition, enterprises should specially collect problems reported by consumers by establishing network supervision systems, and therefore supervise and inspect the relevant products, and, when necessary, take certain punishment systems to maximally protect consumer rights and interests.

3.2 To speed up transformation to improve the circulation quality of products

The virtual economy and enterprise organizational models are the most fundamental aspects to consumers, and consumers are won from services. The optimization of models should be carried out in the following two aspects. First, for the purpose of consumers as end users, enterprises should speed up promoting the integration of service functions, so as to improve the quality of after-sale services provided by enterprises, enhance the competency of the after-sale staff, and improve the efficiency of transportation with quick corresponding services. Second, during the transfer of products, enterprises should design consumer & product resources, choose appropriate circulation channels, and reduce the circulation costs with intensive means of transportation. Finally, enterprises do not need to market to customers, but need to enhance customer satisfaction with online and offline experience, in a way to prompt customers to voluntarily participate in the supply chain, and then improve the circulation quality of products.

3.3 To build information platforms to stabilize the trust between enterprises and sellers

Enterprises may build information sharing platforms between enterprises and sellers by guiding planning, and share information on product operation, dividend policies, consumer demands, etc., on the sharing platforms, so as to ensure that products can reach consumers on time. Therefore, enterprises should increase efforts in the development of information technology platforms, and actively introduce modern information technologies such as the Internet of things, big data, global positioning system and geographic information system in a way to effectively integrate such technologies with all business circles in all channels. On this basis, enterprises should actively optimize and innovate their marketing plans, and attract potential customers to promote commodity consumption. They should also set up office areas for the operation and management of professional information platforms, regularly update and optimize the information on online products and pages of products, and improve the sharing rate of information resources.

3.4 To enhance their market identification ability and reduce circulation risks

Enterprises should strengthen their market identification, and cooperate with highly trustworthy partners to keep all circulation aspects at low levels. In publishing information on cooperation, enterprises should provide real names to enhance mutual trust. And enterprises should have very accurate control of market circulation, effectively predict circulation risks, and start risk control and management measures in a timely manner to minimize losses. In addition, enterprises should be more accurate and prompt in products with respect to sales prediction, store management, intelligent replenishment, warehouse management, transportation and other aspects, predict the market conditions in a timely manner, and take effective measures avoid risks if any.

3.5 To improve the internal management system to optimize the member assessment system

The performance evaluation of enterprise members should include sales performance as a key assessment index. Physical stores and online stores of the same local retail enterprise may consolidate all the sales as its sales performance. In addition, physical stores and warehouses that sell products online may also include certain sales

performance in the sales performance of physical stores in the same region. On this basis, it cannot only avoid malicious competition among internal staff, but also promote the overall sales of such enterprise, in a way to help maintain its own brand and image. In addition, enterprise members should strengthen communication and benefit sharing mechanism to eliminate internal frictions between all sales channels under the virtual economy conditions. At the same time, enterprises may also improve the management of super member stores, strengthen training to staff in stores, increase management reform, and implement the unified responsibility system.

4. CONCLUSION

To sum up, optimization of organizational models by enterprises under the virtual economy conditions built in this paper can be used to effectively improve the production efficiency and market competitiveness of enterprises. Specifically, enterprises should implement strict supply chain supervision systems, accelerate transformation, and build information platforms, to the extent to be the key to the optimization of organizational models. It won't be long before such optimized models under the virtual economy conditions are widely applied.

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