LETTER TO THE EDITOR

Modeling Analysis of the Fierce Influence of Environmental Governance on Small Science and Technology of Enterprises

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Based on the theory of resource basis the theory of knowledge foundation and the thought of knowledge management, the relationship model between environmental governance and small science and technology enterprises is constructed, a survey of the employees of 436 science and technology enterprises, analyzing the fierce influence of environmental governance on small scientific and technological enterprises. The results show that, the environmental governance has the direct and indirect promoting effect on the science and technology small enterprises at the same time, the corresponding countermeasures should be put forward from both the government and the enterprise; First of all, the regional government needs to improve the environment for infrastructure construction, the key to establish a major research and development institutions Science and technology public service platform high technology research and the key of the scientific research infrastructure laboratory et. Though building positive and negative excitation material incentive and non-material incentive, encouraged communication among employees, construction of small scientific and technological enterprises well.

environmental governance; small science and technology enterprises; Intense effect; modeling analysis

1 Introduction

The scale distribution of enterprises has always been an important issue in the field of management. Recently studies have shown that, the dynamic characteristics of the scale of a single enterprise are closely related to the economic growth of the country and the region. Science and technology enterprises are an important pillar to build an innovative country and enhance the core competitiveness of the country. With the development of small scientific and technological enterprises plays a strategic supporting role in regional science and technology level, and national innovation ability. It is promoting national independent innovation, the important force of regional industrial structure upgrading, the practical experience of the growth of science and technology enterprises in China shows that the scale distribution of science and technology enterprises in different regions are very uneven, obviously, regional environment as the direct environment for the survival of science and technology enterprises, it is very important for the small science and technology enterprise. So, it is showing the comprehensive ecological improvement for technology enterprises' internal mechanism. It is helpful for science and technology enterprises to adapt to the regional environment actively in order to control the change of scale.

Guangtong Wang, Guoqiang SunIn a journal Ekoloji of the 2018 Issue 106 published an article, the title is: "Analysis of the Influence of BOT Mode on the Financing of Sewage Treatment Enterprises in China", putting forward the hot topic of environmental protection. The international community has also signed many

international documents in different fields, for strengthening synergies in environmental issues. After years of working hard, environmental problems have improved in China. This is due to the efforts of the state to solve the problem. The other side, we continue to study the practice of some advanced from other countries, environmental protection practices used in China. A typical example of absorbing advanced experience and practice is to explore financing. Breaking the original single investment and financing system, adopted equity financing, the mode of BOT, and so on. This is an innovation to explore the environmental protection system in our country. As far as the current situation is concerned, the mode of BOT includes wide range of applications and relative mature, and accumulated some mature practices. In fact, the model of BOT has its own characteristics. The application in the field of sewage treatment is relatively concentrated and extensive. This paper introduces the role of BOT model in the field of environmental protection in China. This paper mainly introduces the function of BOT mode in sewage treatment enterprises and the problems that should be paid attention and solve it. It is very important for governing environment, but it is not to carry out research in the peanuts.

The research in hand shows that, there is a significant positive relationship between environmental governance and the growth of enterprises measured by scale. However, no related research can reveal the internal mechanism between environmental governance and enterprise size. It is considered that the untradeable and difficult to replicate knowledge resources is the key to maintain the sustainable competitive advantage of enterprises in a dynamic environment (Guo 2017). Therefore, it can be considered that knowledge resources play an important role in the fierce mechanism of environmental governance on the scale of enterprises. (Moon et al 2017)It considers that the organization is the "information processing mechanism", organizations adapt to dynamic environments by processing information about the external environment (Moon et al 2017). Information in the external environment is identified by the organization, collection to achieve cross-organizational border transfer, after the knowledge processing and application in the organization, increasing the knowledge stock of the organization. With an increase in the stock of organizational knowledge, it provides a basis for enterprises to obtain sustainable competitive advantage (Li et al 2018; Schoon et al 2017; Landauer et al 2018).This paper will analyze the internal fierce mechanism of environmental governance on small scientific and technological enterprises from the perspective of knowledge flow.

2. Idea Description

Theoretical principle and research hypothesis

2.1 Theoretical derivation

Enterprise size refers to the concentration of labor force, means of production and products in the enterprise. Currently, In the empirical study, the main universal indexes to measure the size of the enterprise are the main business income, the total assets and the number of employees. On the relationship between external environment and enterprise size, early studies suggest that the external environment is based on revenue from the main business. The growth of enterprises with total assets and the number of employees has a direct and significant positive impact. In recent years, with the continuous refinement of research topics, the research on the theoretical basis of resource determinism and knowledge-based theory is pointed out.(Biela;Sopikova, 2017) The fierce effect of external environment on the growth of enterprises need to be mediated by organizational resources .And with the dynamic evolution of the external environment, this kind of resource has been made up of material resources, human resources are transformed into knowledge resources. The related research on the theme of organizational learning holds that organizational learning is the bridge between the external environment and the organization. Organizational learning in the external environment and the competitiveness of enterprises, there is a positive

intermediary between organizational performance and other variables. The work of collecting, processing and absorbing information by enterprises constitutes the connotation of organizational learning. Enterprises "understand" the external environment through organizational Learning, reduce the complexity of the environment, to help business decision makers or learners plan for the environment. In order to improve the competitiveness of enterprises or organizational performance (Li et al 2018; Lührs et al 2018; Dan et al 2018).

2.2 Research hypothesis

The scale of enterprises is an important factor in the Core Competitiveness of enterprises。Judging from the research conclusions of Science and technology enterprise development report from China. The scale advantage of small science and technology enterprises plays a key role in the growth performance of enterprises. (Rose A 2018) Determinants on the size of an enterprise, according to the theory of enterprise scale, the size of an enterprise is the result of the comprehensive action of many factors. Synthesis of existing research results, the relevant theories of determining factors of enterprise size can be classified into six categories: "theory of production factors" "transaction cost theory", "Property right theory", "market scope theory", "incentive cost theory" and "information cost theory"(Xuan et al 2017). Li pointed three mainstream theories————"theory of production factors", ransaction cost theory and "property right theory" large sample tests were performed. The results of the study show that the test results of the theories are mixed. However, the common conclusion that its a significant positive correlation between R & D costs and the size of enterprises, innovation has a positive and fierce effect on the size of enterprises.

The relationship between external environment and enterprise innovation has always been a hot issue in theoretical research. The fierce effect of external environment on enterprise innovation has obvious regional characteristics. Research shows, the external environment of different quality results in the difference of innovation productivity and ability each innovation unit. There is a certain "induced" relationship between the background elements and innovation output in the external environment.(Karaoui et al., 2018) A good external environment is conducive to the coordinated development of enterprise innovation activities. The research results on the mechanism of environmental governance on enterprise innovation can be roughly divided into two categories .One is the theory of innovation elements; environmental governance is regarded as the basic element of enterprise innovation activities. Environmental governance acts violently by providing enterprises with the key resources they need for innovation. Such as government services, infrastructure construction, human resources and financial services. Through the provision of special funds (such as special funds for innovation, financial allocation of science and technology) to formulate policies conducive to enterprise innovation, such as preferential tax policies, government procurement policy) .To provide economic incentives for innovative activities of enterprises water, electricity, gas, sewage and other energy infrastructure are the basic elements of enterprise survival and production, the construction of science and technology infrastructure based on Information knowledge(For example, major R & D institutions, science and technology public service platforms, etc.), providing more sources of innovation for innovation activities. Scientific and engineering personnel with high personal qualities and specific professional knowledge and skills are important explanatory variables for innovative decisions. Technicians have the relevant knowledge and skills need for innovative activities, this innovative knowledge and skills can be translated into products and services, so bring innovative benefits to enterprises. Sustainable innovation requires a large amount of capital and long-term investment, financial institutions can provide financing for enterprise innovation, services such as credit and guarantees and so on, it is important way to obtain external financing resources. Second, the theory of innovation efficiency, it is considered that environmental governance is mainly through the fierce role of the efficiency of the use of innovative resources

by enterprises, so that the fierce role of innovation behavior, Such as business legal system, regional culture, innovation network. Innovation activities need to be regulated through institutional arrangements; the commercial legal system restricts the various subjects involved in the process of enterprise innovation in the region. The various relationships are adjusted, in order to improve the innovation efficiency of enterprises. (Ding et al., 2019)A strong cooperative environment, it will be accelerated the gathering of market, technology, competition and other information. To increase the frequency that information appears through collision, in order to promote the depth and breadth of innovation activities innovative network plays important and fierce role in the effective allocation of regional resources. It is passing through the internal mechanism of action, accelerating the accumulation of all kinds of innovation resources, mobility and integrated application。Based on the above analysis, this paper puts forward that is a positive correlation between environmental governance and small scientific and technological enterprises.

2.3 Sample selection and data collection

In this paper, the staffs of the scientific and technological enterprises in various regions are selected to carry out the questionnaire investigation. Through members and alumni of research groups engaged in the management of science and technology enterprises in government departments, contact their counterparts in various regions to the managers of local science and technology enterprises in 2005, financial personnel sent out recycled email and paper version of the questionnaire. A total of 700 questionnaires were sent out, and 490 copies recovered, the recovery rate was 70.0%.Excluding 54 questions related to fierce factors, the same questionnaires and incomplete answers to the questions, 436 valid questionnaires, it was accounted for 82.1% recovered samples in total .Because of the questions involved in the questionnaire need to be filled with relevant work in the enterprise and have a relatively high position in order to have relatively accurate information. Therefore, the research object is mainly the middle and senior managers of science and technology enterprises Including entrepreneurs, general managers, department managers, technical managers, project managers, financial managers, etc. Judging by the gender of the interviewees, men account for 59.17%, 40.83% female。The age of the respondents was mainly under the age of 40.The number of respondents under the age of 30 accounted for 26.61% in total. The interviewees aged 30-40 accounted for 43.81% in total. The number of respondents aged 40 to 50 accounted for 21.56% in total. The number of respondents over 50 years of age accounted for 8.02% in total. The number of respondents with higher education accounted for 68.35% in total sample. The number of interviewees with a degree of college or below accounts for 31.65% in total sample. A total of 109 enterprises were involved in this survey (4 questionnaires per enterprise)4 questionnaires were weighted average), the distribution area covers the eastern part of the provinces and cities of the National Bureau of Statistics (44.04 per cent).Central (32.11 per cent) and western (23.85 per cent) areas。Coporating history includes less than five years (29.36%), in 2006-10 years (53.21%) and 11-20 years (17.43%).The form of organization covers the joint stock limited company (31.19%), limited liability companies (54.13%) and non-corporate enterprises (14. 5%). 68%).The nature of the enterprise includes state-owned and state-owned holding (46.79%), private enterprises (36.70%), three-owned enterprises (16.51%).Enterprises are mainly distributed in the manufacturing industry of special equipment (22.02%) Manufacturing of communications equipment, computers and other electronic equipment (23.85 per cent), chemical raw materials and chemicals manufacturing (11.01%), electrical machinery and equipment manufacturing (13.76%), transportation equipment manufacturing (14.68%) and others (14.68%).

2.4 Variables and measurements

In this paper, the 7-level Likert scale is used to measure the scale, from 1 to 7 means from total disapproval to complete consent. The development of the scale mainly draws lessons from the domestic. The research results of

foreign scholars, on the basis of mature scale, the item is modified according to the research topic.

(1)Independent variables-Environmental Governance

The environmental governance component, Including government services, commercial legal systems, infrastructure construction, regional culture, human resources, financial services and innovative networks, mainly referring to the research group of the systematic survey from Chinese entrepreneurs, there are 29 items in total. Government services include three items .Government special funds (Qa1), government-related policies (Qa2) and convenience in conduct of day-to-day administrative affairs (Qa3)。 The commercial legal system consists of four items: prevention and treatment of unfair competition (Qb1), protection of intellectual property rights (Qb2), support for innovation (Qb3) and law enforcement efficiency (Qb4)Infrastructure construction includes three items: basic services like water and electricity (Qc1), communications (telephone, Internet, etc.) services (Qc2) and major R & D institutions, science and technology service platforms, high-tech research laboratory construction (Qc3).

(2)Dependent variables-small science and technology enterprises

Small science and technology enterprises are evaluated by sales (Ya1), total assets (Ya2) and employee growth rate (Ya3) in the past three years.。

(3)Control variable-region

The region where the sample is located may play a fierce role in the relationship between environmental governance and small science and technology enterprises. Therefore, select the area where the sample is located as the control variable in order to eliminate the possible drastic effect of this factor on the results of the analysis, more accurately measure the relationship between environmental governance and the scale of science and technology enterprises. The region where the sample is located is constructed as a virtual variable.

3. Results

Confirmatory factor analysis

Confirmatory factor analysis was used to analyze the obtained data. First of all, for government services, commercial legal system, infrastructure construction regional culture, human resources, financial services, innovative networks, access to information distribution, information interpretation, human capital, structural capital, 14 first-order construction surfaces of relational capital and scientific and technological enterprises are analyzed by first-order confirmatory factor analysis, respectively. All the indexes of factor load and model adaptability in the acceptable range. Then, seven environmental governance and three intellectual capital structures are fully correlated with each other. To test whether seven environmental governance and three intellectual capital construction planes can be combined into two second-order construction planes, two first-order fully related models of seven environmental governance and three intellectual capital show that the load of factors and the adaptability of the model are all within the acceptable range. And the correlation between the seven environmental governance and the three intellectual capital structures are more than 0.5. That is to say, seven environmental governance and three intellectual capital first-order construction planes can be combined into two second-order construction planes. Two second-order confirmative factor analysis showed that the fitness of the model was within the acceptable range The chi-square ratios of the first-order complete correlation model and the second-order confirmatory factor analysis model are 0.94 (close to 1) and 1, respectively. Therefore, it is shown that the second-order model can completely replace the first-order mode. To sum up, each of the seven items of environmental governance is weighted and averaged into one observation variable (Qa, Qb, Qc, Qd, Qe, Qf, Qg), Similarly, each item of the three intellectual capital construction surfaces is weighted and averaged into an

observation variable (La, Lb, Lc), in order to achieve the purpose of order reduction.

4 Discussion

The existing research on environmental governance pays more attention to the fierce effect of environmental governance on enterprise performance or enterprise innovation. While neglecting the path process of fierce action. This paper is based on theoretical review and empirical analysis. This paper reveals the internal fierce action mechanism of environmental governance on small scientific and technological enterprises. It has been proved that "the flow of knowledge" it is important bridge connecting the regional environment and the size of the enterprise. Organizational learning and intellectual capital are two intermediary variables for the fierce effect of environmental governance on the scale of enterprises. For the whole sample enterprise, the eastern region enterprise and the central region enterprise, environmental governance plays a direct and indirect role in promoting small scientific and technological enterprises at the same time. There are three paths of indirect action. Path 1: environmental governance information access to intellectual capital enterprise scale, path 2: environmental governance information distribution intellectual capital enterprise scale; Path 3: environmental governance information access information distribution intellectual capital enterprise scale. For enterprises in the western region, although environmental governance also plays a direct and indirect role in promoting small science and technology enterprises. However, there is only one indirect path, that path one: environmental governance information access to intellectual capital enterprise scale. The information interpretation did not function in the indirect action path of each sample, the reason that the fierce effect of information interpretation on intellectual capital is not significant. The possible explanation that organizations and pursue a high degree of understanding of consistent information, although it is beneficial to the cooperation between departments and members, due to the common understanding of information, the optional space of organizational action is limited, which leads to the decrease of the stock of intellectual capital.

5 Conclusion

On the relationship between environmental governance and enterprise growth, previous studies have put forward suggestions how to improve the regional environment to promote the growth of enterprises from the perspective of the government. The results of this paper show , science and technology enterprises are not passively accepting the fierce effect of environmental governance on them .But through the control, adjust the "learning process" of the enterprise itself, so as to enhance the positive fierce effect and weaken the negative fierce effect. Based on findings above, combined with the statistical results of the questionnaire, this paper puts forward some corresponding countermeasures and suggestions from two aspects of the government and the enterprise: the regional government needs to first improve the environment for infrastructure construction key construction like major R & D institutions, science and technology public service platform, high-tech research key laboratories and the other scientific research infrastructure. Through the establishment of positive incentive and negative incentive, material incentive and non-material incentive mechanism, enterprises encourage employees to carry out exchanges and better build small scientific and technological enterprises.

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