

Research on the Game between Government and Investors in Pursuing Resources for Investment

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ABSTRACT

Based on the investor's motivation for investing in China's resource areas, and the government officials' performance as the assessment target, and neglecting the waste of resources, resulting in the unclear resource property rights and unreasonable utilization. The paper constructs a game model that the resource is in exchange for the investment conditioned on tax incentives and resource allocation, analyzing the different benefits of investors and the government. It is suggested that China comprehensively formulate investment policies in terms of tax incentives, official assessments, and the definition of property rights to promote the healthy and rapid economic development of resource-rich regions.

Keywords: *game; investment; resources*

INTRODUCTION

Some of China's northwest regions have high energy reserves and abundant natural resource reserves. However, for a long time, rich resources have not brought wealth and prosperity to the region. The implementation of the Western Development Policy has enabled the northwestern region to make selective use of its advantageous natural resources and has achieved tremendous economic growth. However, such short-term interest behaviors lead to over-exploitation of resources, and even worse, the definition of resource property is unknown, and national resources are infringed. Yu ji-an conducts a game research on the safety investment of coal mining companies and finds that companies do not invest in safety because of poor technical conditions, high costs, and no profitability^[1].

Qiu Xiaoming made economic people and limited rational assumptions about the behavior of local governments and analyzed the quality and quality of the government. He concluded that

foreign investors would choose government cooperation with good reputation. Transaction cost is the primary consideration for investment^[2]. Bai Baipu believes that the unclear definition of natural resource property will lead to rent-seeking behavior. Resource-based industries will encounter major bottlenecks in industrial upgrading, which is not conducive to industrial upgrading^[3]. Xiao Ming proposed that China's foreign tax incentives should adopt multiple preferential policy combinations, collaborate, and, while highlighting policy orientation, adopt different preferential measures based on different regions and types to increase foreign investors' rapid and effective investment^[4]. Chen Hailei thinks that the Ordos resources are over-used, the industrial structure is single, the manpower security is insufficient, and economic development is hindered. It is suggested to attach importance to education construction, rationally plan and use resources, and ensure sustainable development in Ordos^[5]. Zhou Weimin simulated two different game models of government investment, private

finance, and private investment under the market system and the planned system. He found that the social investment efficiency under the market system is higher than the investment efficiency under the planned system, and the private finance should be improved. The level of private investment is conducive to economic development^[6].

Based on the research of the above scholars, the paper analyzes the advantages and disadvantages of China's current investors in terms of resource allocation and the status of cooperation with the government. It analyzes the pros and cons and the value under different conditions from the perspective of game theory, and proposes effective suggestions to promote the coordinated development of China's economic health.

CONSTRUCTION OF INVESTMENT GAME MODEL IN EXCHANGE FOR RESOURCES

Investors know that the government will accept the requirements for resource allocation in order to improve its incumbent performance. The government also knows that investors are eager to invest in the project and that both parties share common knowledge in common profit, so the model is a complete information dynamic model.

- Resource-for-investment data values : The profits of the government and investors in the investment project will get different returns with different policies, so both parties, as rational people, will consider realizing their own value maximization. In both cases, they have different utility functions.

Tax Incentives

The direct economic benefits of the government are the economic growth that the project

investment brings to the local economy. It can be measured by GDP. The hypothesis is E; because the government officials usually take their own political performance into account, judging which preferential method to take can bring greater benefits to themselves. Revenue, this income is set as an indirect benefit; investor can set the direct economic return from the project as A, accept the government's tax policy, and set tax preferences as T.

Resource Allocation

The direct economic benefits of the government in implementing resource allocation are different from those in preferential taxation. Taking into account the direct allocation of resources to investors, rationality believes that investors will make full use of resources to achieve higher returns, and the government will make greater profits in the short term. Set the direct economic income of the government to P; the indirect benefit of the political achievements is set to D; but at the same time, it also faces the possibility of loss of resource property rights. Assume that the risk rate is r ($0 < r < 1$), and the value of resources is set to I. The value of the loss of property rights is Ir . When an investor acquires the property rights of the resource, because the resources are in place and the capital is sufficient, the resources can be used more effectively and the income obtained will be even greater. Assume that the investment is assumed to be B; here we assume investment the property rights owned by the individual can be arbitrarily dictated (in reality there is also the phenomenon of using resources for refinancing), and therefore the indirect value of the property right of the resource is also obtained as Ir .

RESOURCE EXCHANGE FOR INVESTMENT UTILITY MATRIX AND FUNCTIONS

Table1. Resource exchange for investment utility matrix

	policy		
	revenue		
choice		Tax incentives	Resource allocation
accept		$(E+d, A+T)$	$(P+D-Ir, B+Ir)$
Refuse		$(0,0)$	$(0,0)$

Note: (a, b) where a is government revenue and b is investor revenue.

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The above is a model constructed in two cases. Because the measurement of the income is difficult to measure accurately, letters are used instead. In order to clearly understand the logical

relationship of the returns under different circumstances, a numerical utility matrix representing the meaning will be given below:

Table2. Resource exchange for investment utility numerical representation matrix

<p>policy revenue choice</p>	<p>Tax incentives</p>	<p>Resource allocation</p>
<p>accept</p>	<p>(8,10)</p>	<p>(10,15)</p>
<p>Refuse</p>	<p>(0,0)</p>	<p>(0,0)</p>

The government gives investors preferential taxation, and when the investor accepts, the income of both parties is not as large as the income when the resources are provided, because when the resources are provided, the government has more rent-seeking behavior, and investors will be allocated resources for While expanding production, it has the ownership and use rights of resource property rights.

GAME MODEL ANALYSIS

The following will analyze the model for the exchange of resources for investment, for investors, the benefits of resource allocation must be greater than the benefits of tax incentives, as follows:

$$B+Ir > A+T \quad (1)$$

In the process of investment, government officials' eagerness for quick profits determines that the role is often passive, and investors have great freedom in choosing which policies to use throughout the process. The government's revenue in the two decisions is compared as follows:

$$P+D-Ir > E+d \quad (2)$$

- The direct economic return of investors in the formula is B, and r is uncontrollable and uncertain, so the T value can be changed. The total resource value of I has non-economic value and intergenerational value. We only measure economic value. Therefore, reducing the value of r and increasing the value of T can change the decision-making direction of

investors.

- To increase the government's performance in the formula, the gains in political performance can be changed to enable the government to consider tax incentives more.

POLICIES AND SUGGESTIONS

Reasonable Tax Incentives

The rational formulation of preferential tax policies is an essential means to attract investors to invest, and it also plays a major role in the development of the economy. With reasonable tax incentives to guide investment directions more effectively, the implementation of tax incentives should evolve with the times as the actual situation changes, adjust due to the changes in the situation, and pay attention to its timeliness.

Diversification of Government Officials' Performance Evaluation

Locally paid taxes significantly affect the promotion of local officials. Economic growth also serves as a yardstick for measuring political performance. Local officials continue to pursue better performance for their careers. The idea of greediness and greed may result in a large number of uneconomical achievements. Local governments may also ignore the costs of economic growth such as investment and cost. Taking eco-environment as one of performance evaluations not only is fair and reasonable in the measurement of political performance, but also reduces environmental pollution and is

conducive to the long-term development of the regional economy.

Clear Definition of Resource Property

Unclear resource property rights can lead to rent-seeking activities in resource-based industries and the formation of monopoly privilege, which is not conducive to the long-term development of regional economy. Deepen the reform of the property rights system in resource-based industries, increase the protection of policies on natural resource property rights, focus on overcoming the default state of resource property owners, and clarify the game strategies and payment costs of various stakeholders in resource-based industries so that resources can be effectively avoided. Unknown "lost" property rights.

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Citation: *l. Liu, "Research on the Game between Government and Investors in Pursuing Resources for Investment", International Journal of Research Studies in Science, Engineering and Technology, vol. 5, no. 4, pp. 23-26, 2018.*

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