Study on the Impact of Exit Audits of Natural Resource Assets and High-quality Development of Enterprises

--Taking the Example of Heavily Polluting Enterprises

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Abstract. For a long time, the appraisal system of leading cadres is mainly oriented to economic development, which makes local cadres neglect local environmental protection and ecological civilization construction when developing local economy. In order to change the situation of massive waste and depletion of natural resources, the Party and the government integrate the construction of ecological civilization into the assessment factors, gradually establish and innovate to improve the external audit system of natural resource asset departure audit for leading cadres. By constructing a double difference model, the results of natural resources assets departure audit will promote enterprises to realize high-quality development, reflecting the impact of this policy on the real economy as a whole, and providing a certain reference basis for decision makers to formulate policies.

Keywords: Audit of Natural Resource Assets of Leading Cadres; High-quality Development of Enterprises; Total Factor Productivity.

1 Introduction

High-quality development is a new term that appeared in the 2017 National Congress, which implies that there is an upgrade in the way of economic development. Low-carbon, green and sustainable has been the main melody of production and life in contemporary society, and the high-quality development of enterprises is exactly in line with this melody. At the same time, with the development of economy and society, on the one hand, enterprises represented by manufacturing enterprises and heavy polluting enterprises obtain a lot of economic profits by virtue of abundant natural resources, but due to excessive logging and irrational use of natural resources, the problems caused by energy shortage are becoming more and more prominent. On the other hand, for a long time, local government officials at all levels in China have been assessed mainly based on their economic development during their term of office, and local officials have neglected the serious pollution of the natural environment and the over-consumption of resources while excessively pursuing GDP growth. To change this situation, the Party and the Government have proposed that leading cadres be subjected to an audit of natural resource assets in order to improve the way in which local officials at all levels are assessed.

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2 Literature Review

Natural resources assets audit as an external audit system, its audit report not only needs to contain the auditor's own opinions, but also needs to put forward the solution to the audit opinions, and this solution will inevitably bring a series of impacts, which is mainly manifested in two aspects: to promote the improvement of the regional environment [1] and to enhance the regional economic development. First of all, in the impact on the regional environment, mainly through the supervision of leading cadres and regulating government behavior play a role in two aspects. Liu Minghui et al. (2016) [2] put forward that for the situations such as damage to natural resource assets due to human factors found in natural resource asset departure audits, which need to hold leading cadres accountable, the auditing institution should put forward an audit treatment opinion and transfer it to the relevant departments in accordance with the regulations. And in terms of regulating government behavior, Wang Shufeng et al. (2022) [3] mentioned in the study of constructing an indicator system for the quality of natural resource asset exit audits that governments at all levels should attach great importance to the audit of natural assets, and tilt towards the audit of economic responsibility in terms of personnel staffing and funding budgets. At present, most of the studies on the impact of natural resource asset departure audit on regional economic development are analyzed from a macro perspective. Han Feng et al. (2020)[4] used the spatial Durbin model to explore the impact of national audit on the quality of urban economic development and its spatial effect; it is believed that the impact of the regional implementation of natural resource asset departure audit on the quality of economic development in local and neighboring areas is a comprehensive reflection of the impact of the role mechanism of the five aspects of kinetic energy transformation, structural upgrading, development efficiency, energy saving and emission reduction, and sharing of results.

3 Theoretical Analysis and Research Hypothesis

3.1 Main Regression Analysis

Enterprises, as the micro subjects of high-quality economic development, are the solid foundation for realizing high-quality economic development. At the macro level, the implementation of natural resource asset departure audits of leading cadres is conducive to changing the concept of development and realizing green and low-carbon development, which is the proper meaning of high-quality economic development [5]. At the micro level, the implementation of natural resource asset departure audits helps to strengthen environmental protection, reduce the waste of resources, and prompt heavily polluting enterprises to embark on the road of independent transformation and upgrading [6]. In summary, the hypotheses are.

H1: Natural resource asset departure audits have a positive impact on high quality business development.

3.2 Enterprise Operational Capacity

The meaning of enterprise operating capacity is: The enterprise's own internal and external and its growing decision-making and business planning ability, is the ability of the enterprise to utilize capital profitability. Huang Sujian (2018) [7] proposes that realizing the high-quality development of enterprises cannot be separated from the core ability of enterprises to cultivate and have resource allocation. Through the rational utilization and allocation of resources, it enables enterprises to achieve higher profitability [8]. It is conducive to the better pursuit of high-level, high-level, high-efficiency economic value, promotes the benign development of the enterprise, and ultimately plays a role in realizing the high-quality development of the enterprise. In summary, the hypothesis is proposed:

H2: Improvement in firms' operational capacity is conducive to strengthening the positive correlation between exit audits of natural resource assets and high-quality development of firms.

3.3 State-owned Versus Non-state-owned Enterprises

As the correlation between management remuneration and enterprise performance in state-owned enterprises is relatively weak, the lack of policy implementation due to interests has been drastically reduced. Non-state-owned enterprises do not have the natural advantages of state-owned enterprises, and the problems of difficult and expensive corporate financing are more prominent, making it difficult to realize a high level of value creation. The positive effect of departure audit of natural resource assets on the fulfillment of corporate environmental responsibility is more significant in state-owned enterprises [9]. This paper puts forward the research hypothesis:

H3: The contribution of exit audits of natural resource assets to high-quality enterprise development is more pronounced in state-owned enterprises.

4 Research Design

4.1 Modeling

In this paper, 2014 is taken as the dividing line, and the heavy polluting enterprises in the pilot area are divided into control group and experimental group, with reference to the study of (Sun Wenyuan (2020) [10]). The design model is as follows:

$$TFP = \alpha_0 + \alpha_1\ Treat + \alpha_2\ Post + \alpha_3\ Treat*Post + \alpha_i\ Controls_{it} + \delta i + \delta t + \varepsilon \quad (1)$$

$$TFP = \beta_0 + \beta_1\ Treat + \beta_2\ Post + \beta_3\ Operation + \beta_4\ Treat*Post*Operation + \beta_i\ Controls + \delta i + \delta t + \varepsilon \quad (2)$$

$$TFP = \beta_0 + \beta_1\ Treat + \beta_2\ Post + \beta_3\ SOE + \beta_4\ Treat*Post*SOE + \beta_i\ Controls + \delta i + \delta t + \varepsilon\ (3) \quad (3)$$

4.2 Sample Data

Data were collected from 2007 to 2021, and fifteen heavily polluting industries were selected based on the identified heavily polluting industries. Policy pilot information was obtained through the China Audit Yearbook to divide the control and experimental groups.

4.3 Description of Variables

Explanatory variables: pilot period and pilot area, being in the pilot period or time assigned a value of 1[11].

Explanatory variables: total factor productivity of enterprises [12] is the explanatory variable, LP method is an innovation based on OP method, which calculates total factor productivity by intermediate product inputs of enterprises, so this paper adopts LP method which is more accurate in calculation.

5 Empirical Analyses

5.1 Analysis of Main Regression Results

To test whether the natural resource asset departure audit has an impact on the high-quality development of enterprises, this paper conducted a regression analysis of Model 1, and the specific regression results are shown in Table 1.

Table 1. Benchmark regression

	(1) TFP_LP	(2) TFP_LP	(3) TFP_LP
did	0.588***	0.084**	0.227***
	(0.109)	(0.041)	(0.063)
Firm Age		0.158***	-0.179
		(0.039)	(0.159)
Size		0.488***	0.376***
		(0.015)	(0.034)
ROE		1.236***	0.913***
		(0.114)	(0.114)
Lev		0.401***	0.711***
		(0.091)	(0.158)
SOE		-0.076**	-0.042
		(0.030)	(0.088)
_cons	8.290***	-3.134***	0.159
	(0.025)	(0.309)	(0.701)
Observations	824	824	822
R-squared	0.046	0.707	0.880

Table 1 reports the results of the baseline regression. The first column reports the results of the univariate regression of natural resource asset audits on the high-quality development of firms, with a regression coefficient of 0.588, which is significant at the 1 percent level. The second column reports the regression results with the addition of control variables such as firm size, with a regression coefficient of 0.084, significant at

the 5 percent level. The third column reports the regression results with the addition of individual and time fixed effects, with a regression coefficient of 0.227 and significant at the 1 percent level. From the above, enterprises will increase total factor productivity and promote high-quality development of enterprises through natural resource asset departure audits, and there is a high level of significance in both statistical significance and economic significance, and Hypothesis 1 is verified.

5.2 Moderating Effects

Table 2. Moderating effects

	(1) TFP_LP	(2) TFP_LP
did	0.215***	0.078
	(0.034)	(0.110)
ATO	1.187***	
	(0.066)	
diA	0.430***	
	(0.157)	
FirmAge	0.216**	-0.152
	(0.089)	(0.159)
Size	0.565***	0.375***
	(0.019)	(0.034)
ROE	-0.015	0.897***
	(0.068)	(0.115)
Lev	0.053	0.695***
	(0.078)	(0.159)
SOE		-0.046
		(0.089)
diS		0.243*
		(0.125)
_cons	-5.669***	0.114
	(0.426)	(0.697)
Observations	822	822
R-squared	0.967	0.880

Table 2 reports the impact of firms' operational capacity and nature of ownership on natural resource nature exit audits to enhance firms' total factor ratio and promote firms' high-quality development. The first column reports the results of firms' operational capacity on the positive impact of enhanced natural resource asset exit audits on firms' high-quality development, with a diA coefficient of 0.430, which is significant at the 1 percent level. The second column reports the results of the nature of ownership on the positive impact of strengthening the exit audit of natural resource assets on the high-quality development of firms, with a diS coefficient of 0.243, which is significant at the 10 per cent level.

This means that enterprise operational capacity has a significant positive moderating effect on the relationship between natural resource asset audit and enterprise high-quality development, and hypothesis two is valid. Because in heavy polluting enterprises, the higher the enterprise's operating capacity, the more profit the enterprise can obtain for equipment renewal and technological innovation, and under the effect of the pilot policy of natural resource assets departure audit, the higher the enterprise's operating capacity, the easier it is to promote the high quality development of the enterprise.

At the same time in the same natural resource asset audit pilot situation, it can be found that this positive effect is more significant in state-owned enterprises, hypothesis three is established. This is because the state-owned enterprises because of its ownership nature in the implementation of the policy more responsive to the call of the state, in the implementation of the more active; and more strong capital without the burden of technological innovation input failure, the total factor productivity of state-owned enterprises has been improved, to achieve high-quality development of enterprises.

6 Conclusion

As an audit system, exit audit of natural resources assets of leading cadres can help the development of local green economy. This paper takes the pilot policy of exit audit in 2014 as the time demarcation line. A double difference model is used to analyze the change of total factor productivity of heavy polluting enterprises before and after the implementation of the resource audit; and the conclusion is drawn that the implementation of exit audit can help to realize the high-quality development of heavy polluting enterprises. At the same time, the study concludes that enterprise operating capacity and the nature of ownership of state-owned enterprises as moderating variables can strengthen the incentive effect of the exit audit of natural resources assets on the high-quality development of enterprises.

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