Case Study on the Effect of GEP in Chinese Local Government Performance Evaluation

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[Abstract] Since the 18th CPC National Congress, ecological value realization has been mentioned in an important place. Local governments, as the implementers of the "Two Mountains Theory," play a significant role in realizing ecological value. Under China's national goal of "realization of ecological value," this paper criticizes the existing government performance evaluation mechanism and discusses the role of GEP (Gross Ecosystem Product) in the evaluation of local government performance. By integrating GEP evaluation, this paper tries to fix the existing government performance evaluation mechanism.

[Keywords] realization of ecological value, local government performance evaluation, GEP evaluation, service-oriented government, ecological environment status index

Introduction

GEP means Gross Ecosystem Product. Corresponding to GDP, GEP is the sum of the value of products and services provided by the ecosystem for human welfare and sustainable economic and social development. GEP includes the value of products of the production system, the value of ecological regulation services, and the value of ecological cultural services (Ouyang Zhiyun, Zhu Chunquan, and Yang Guangbin et al., 2013). Under the idea of caring about ecology, local governments in China have made great efforts to explore sustainable ecological value path (Chen Qing, 2018). Local governments should follow the institutional mechanism of the "Two Mountains Theory." Therefore, the question arose about how to evaluate the effectiveness of the government. Was the traditional GDP (gross domestic product) evaluation still applicable to the evaluation of the government's performance? These questions needed to be considered and explored. Based on the GEP data of Lishui City in the past years, we analyzed the value-added situation of GEP and GDP. We also tried to find the correlation between GEP and GDP so as to explore the GEP effect on GDP growth and the GEP effect of local governments' performance evaluation.

Literature Review

Regarding the relationship between GEP and national economic accounting, Ouyang Zhiyun, Zhu Chunquan, and Yang Guangbin (2013) believed that GEP should be combined with the system of national economic accounting, which was called ecological GDP or green GDP. Ma Guoxia, Zhao Xuetao, Wu Qiong, and Pan Tao (2015) believed that GEP should be a separate indicator, independent of the system of national accounts, specifically to reflect the value of the products and services provided by the ecosystem for human beings.

From the perspective of government performance evaluation, Chen Hua and Xing Huichao (2017) believed that the main difference between changing government performance was also a promotion mechanism to further improve the level at which a government fulfilled its social responsibility.

The two concepts of "limited government" and "promising government" did not conflict. "Promising government" was a "limited government" that reasonably participated in the allocation of resources, but did not interfere with the market order beyond the border. A service-oriented government must be both promising and limited. In the process of realizing the value of ecological products, we called for building a service-oriented government, advocating the return of the role of the government, and advocating that the government become a limited and promising government. Scholars Tao Xuerong and Tao Rui believed that the government should be a "service-oriented government taking citizens as the service object, taking diverse participation as the service form, taking cooperation and coordination as the service basis, and meeting public needs as the service orientation" (Tao Xuerong & Tao Rui, 2006).

As for the concept of a service-oriented government, Zhang Kangzhi (2006) first proposed the concept of service-oriented government. He believed that: A service-oriented government is a government that serves the people. It is expressed in the language of political science as to serve the society, while expressed in the language of professional administration as to serve the public. Service was a basic idea and value pursuit. The government positions itself as a service provider and takes serving the society and the public as the basic purpose of its existence, operation, and development. In Professor Jingmin's opinion (2006), the service-oriented government was a government based on the rule of law and was a responsible government, which took citizens as its standard and service as its purpose.

On the basis of the new public management theory, Robert B. Denhardt and Janet V.Denhardt (2003) put forward the new public service theory, which pointed out that the government should play a role of serving rather than steering. The government should place efficiency and productivity in the broader framework of democracy, community, and public interest so as to establish a public service administration system based on public consultation, dialogue, and public system.

Russell M. Linden (2002) believes that the organization had great advantages, such as the organizational structure being more transparent and complete, and with the development of society, it will continue to change and adjust; with reference to this organizational form of the establishment of the government, it was all from the masses; and with all results-oriented change of government, the operation mode of the government can refer to the enterprise .

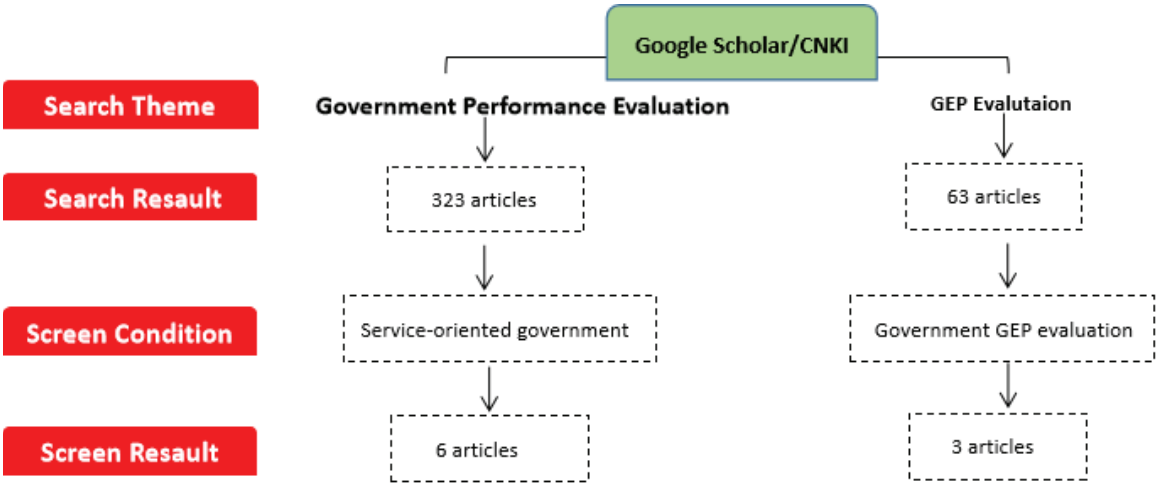
Robert Roots (1996) also put forward in the New Governance that government governance was actually a new governance process, which only changes the governance method under new conditions.

Methodology

The literature search method used the China National Knowledge Infrastructure (CNKI) (https://www.cnki.net/), Google Scholar (https://scholar.google.com/), and the Official Website of Lishui Municipal Government (http://www.lishui.gov.cn/). The last search date was 21 February 2023. First, the articles were obtained based on CNKI and Google Scholar. Because the study objective of this paper was to find out the relationship between GEP evaluation and a local government's performance, we defined the key words to be "Government performance" and "GEP evaluation." Three hundred and twenty-three articles were found with the theme of "Government

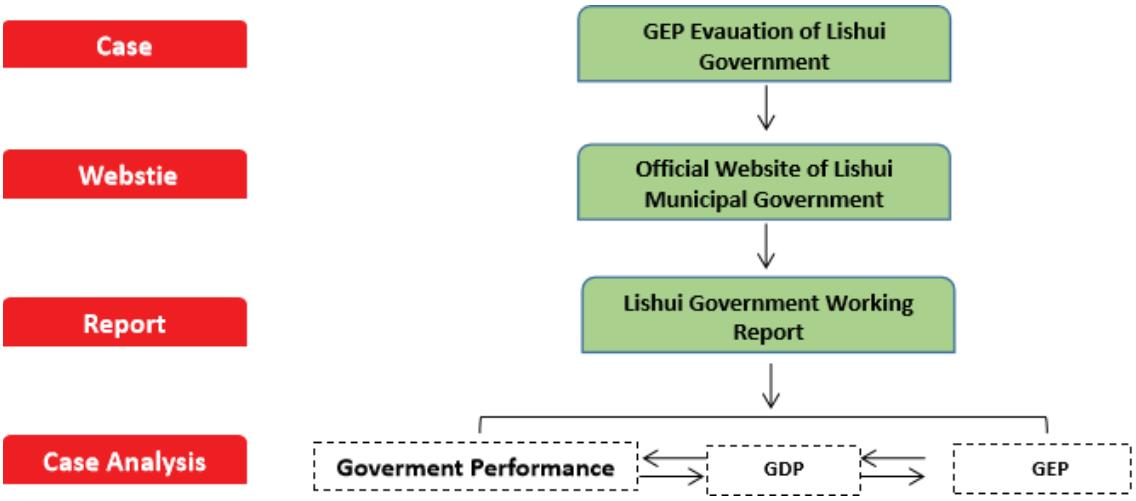
performance." Then, we screened 6 articles. By reading these 6 papers, we found that "service-oriented government" theory could be the supporting theory for our study. We also found 63 articles with the theme of "GEP evaluation" and screened 3 articles that regarded GEP as a government performance evaluation tool. Figure 1 shows the process of the literature search and screening.

Figure 1
The Process of Literature Search and Screening



We used case analysis as the second methodology of this study. As Lishui City was the first city to use GEP as a government performance evaluation tool, we took the Lishui City Government in Zhejiang Province as the research sample. The Lishui Government Working Report of 2019 to 2022 was found in the Official Website of the Lishui Municipal Government (http://www.lishui.gov.cn/). We also integrated and collected the news reports, comments and data related to GDP and GEP in the past years in Lishui City so as to have a further vision of the Lishui government's work and the ecological value transforming work. By comparing the environment index, GDP and GEP, we wanted to figure out GEP's importance to government administration. Figure 2 shows the process of case search and analysis.

Figure 2
The Process of Case Search and Analysis



Case Analysis

Before the government paid attention to ecological value, the Lishui City government often used GDP to evaluate the performance of the local government. However, in the process of realizing the ecological value of government, the Lishui government's performance evaluation, based on GDP, would cause the fragmented administration crisis of the local government, which is embodied in the department competition and resource waste. In the logic of GDP evaluation, the economic growth index was emphasized in the hierarchical department, which created a strong sense of competition among departments. It also resulted in the refusal of cooperation among departments and the loss of teamwork. The ecology was a whole, and the realization of ecological value could not simply be divided into partial works among local government administrative departments.

After the 18th CPC National Congress, the Lishui City government began to realize the importance of environmental governance and the disadvantages of only focusing on GDP for the realization of ecological value. The GEP comprehensive evaluation index system designed by the Lishui City Government of Zhejiang Province included five indicators: "ecological material products, ecological regulation services, ecological cultural services, double growth and double transformation, and the construction of ecological product value realization mechanism." Among them, ecological material products, including ecological agriculture, ecological energy, and two other secondary indicators, accurately measure and evaluate the overall level and comprehensive performance of regional ecological agriculture and clean energy industry development.

Ecological regulation services included nine secondary indicators, including water conservation, soil conservation, flood regulation and storage, water quality purification, air purification, carbon fixation and oxygen release, climate regulation, pest control, negative oxygen ion concentration, etc., to scientifically evaluate the effectiveness and contribution of regional environmental protection and ecological governance, and to accurately evaluate regional ecological environmental capacity and high-quality green development potential. Eco-cultural services included three secondary indicators, such as ecotourism, landscape value, and cultural

creativity, to systematically evaluate the correlation and contribution value the improvement of regional environmental quality and the development of cultural and creative industries. Double growth and double transformation accurately reflected the economic benefits from ecological regions. The establishment of an ecological value realization mechanism included two secondary indicators: application mechanism and management mechanism.

According to the Report of GEP of Lishui City from 2019 to 2022, since the year of 2019, 99% of surface water monitoring in sections in Lishui City had achieved Class III or above, 100% of cross-boundary crossing sections had achieved the standard, and 100% of the city's 10 centralized drinking water sources at or above the county level had achieved the standard. Urban acoustic environment quality remained stable, with the mean value of regional environmental noise of 54.2 decibels and urban road traffic noise of 65.6 decibels. The air quality of the nine counties was between 98.1% to 100%, and the air quality ranked seventh among 168 key cities in China. The water environment quality ranked tenth among 339 cities at or above the prefecture level. In the year 2022, Lishui had become the only prefecture-level city in China with both water and air quality ranking among the top ten. The city's ecological environment status index had ranked first in Zhejiang province for 18 consecutive years. The public satisfaction of ecological environment ranked second in Zhejiang province. Therefore, the recent four years' GEP were obtained from the Report of GEP of Lishui City 2019-2022 (Report of GEP of Lishui City 2019-2022).

According to the Report of GDP of Lishui City, in 2022, Lishui's GDP was 183.087 billion yuan, calculated at comparable prices, which is an increase of 4.0% over the same period of last year, is higher than the national (3.0%), and higher than the province (3.1%). According to the 2022 GDP of Lishui City, the added value of the primary industry was 11.771 billion yuan, up 4.4% and contributing 0.3 percentage points to GDP growth. The added value of the secondary industry was 70.591 billion yuan, up 4.3%, contributing 1.6 percentage points to GDP growth. The value added of the tertiary industry was 100.725 billion yuan, up by 3.9% and drove GDP growth by 2.1 percentage points. The added value of the three industries accounted for 6.4%, 38.6%, and 55.0% of GDP, respectively. We also obtained the four years' GDP from the Report of GDP of Lishui City 2019-2022; they are shown in Table 1.(Report of GDP of Lishui City 2019-2022).

Analyzing the data from GDP of Lishui City and Report of GDP of Lishui City, in four consecutive years, shows that the GEP data ranked in first place in Zhejiang Province. To find the relationship GEP and GDP, we made a correlation between these three data from 2019 to 2022. Table 1 shows that the correlation between GEP and GDP was 0.848182398, which means GEP and GDP had a strong relationship. (Report of GDP of Lishui City 2019-2022 & Report of GEP of Lishui City 2019-2022).

Was GEP pushing the increase of GDP? According to the two reports, "the GDP of Lishui City" and "the GEP of Lishui City," from 2019 to 2022, during the epidemic period, the "Lishui Shangeng" Lishui regional public agriculture brand helped the city's tourism added value account for 8.0% of GDP, ranking first in Zhejiang Province. GEP also helped the average value added of strategic emerging industries and high-tech industries in Lishui, which increased by 11.1% and 9.9%, respectively. Lishui City was the first city in China to measure GEP, which started in 2019. GEP had promoted the value-added of GDP to some extent, especially in the aspect of ecological agricultural industries. The data in Table 1 proves that there was a certain correlation between GEP and GDP; therefore, local governments should take GEP into consideration, and local governments should give GEP a higher weight in government performance's evaluation. (Report of GDP of Lishui City 2019-2022 & Report of GEP of Lishui City 2019-2022).

Table 1
Correlation Coefficient between GEP and GDP

	GEP（billion yuan）	GDP (billion yuan)	Correlation Coefficient Between GEP and GDP
2019	362.136	147.66	0.848182398
2020	402.119	154.002	
2021	410.467	171.003	
2022	418.921	183.087	

---Report of GDP of Lishui City 2019-2022 & Report of GEP of Lishui City 2019-2022

What did the Lishui government do during the past four years? The Lishui government focused on the teamwork of local government departments in promoting the realization of ecological value. GEP evaluation was used to accurately measure the Lishui ecosystem governance. GEP evaluation also scientifically evaluated the progress and effectiveness of environmental protection and resources. As it could comprehensively inspect the ability of the government leaders to serve green development, it was included in Lishui government leaders' evaluation and evaluation system. Until now, the Lishui government had already seen the GEP government evaluation's advantages of clear objectives, dynamic, overall planning, and moderate adjustment.

The Lishui government focused on "the overall goal of Lishui whole city." By using GEP evaluation, the Lishui government avoided the "goal alienation" dilemma caused by GDP evaluation. Under GDP evaluation, the public governance goal of "citizen satisfaction" was often mentioned and not easily alienated. On the basis of emphasizing the administrative intention of "paying attention to the welfare of citizens," the Lishui government built up five GEP indicators of "ecological material products, ecological adjust services, ecological and cultural services, double growth and double transformation, and ecological product value realization mechanism" to evaluate government performance, so that government performance was measured by coordinating economic and social benefits. The GEP evaluation made the Lishui government pay more attention to "overall objectives" rather than "individual indicators," which was more conducive to the coordinated governance of all departments and levels.

While using GEP evaluation, the Lishui government found its work on ecological process dynamically. Dynamic means that unexpected risks will be considered when making plans and evaluating local government actions to make local government planning more flexible. Unlike GDP evaluation, which "only focuses on economic benefits and economic growth," the GEP evaluates environmental benefits, social benefits, and uncontrollable natural disaster factors. At the same time, there was enough space for flexibility in the formulation of the plan to cope with the negative impact of future unknown risks on the implementation of the Lishui government's plan.

The GEP evaluation not only focuses on local government's administrative performance, but also on local government's mobilization ability in mobilizing other elements of society to participate in the realization of ecological value. Among the five indicators of Lishui GEP, economic growth was no longer overemphasized, but the environment and its value were closely related to people's livelihoods, which helped the local government understand the different

responsibilities of government and enterprises. The Lishui government returned the task of economic growth to the market and enterprises, and the government's performance evaluation focused on public goods and public services. The Lishui government was now hoping to build up a "ecological bank," which would collect fragmented ecological resources and transform them into high-quality ecological asset packages. The Lishui government also hoped to entrust professional enterprises with the transformation of ecological resources into assets to realize ecological value. Among them, local enterprises achieved economic benefits, and the Lishui government achieved public service objectives. Finally, the Lishui government reached the government function of "service-oriented government."

Discussion

By using GEP to evaluate, the Lishui government improved not only GDP but also citizens' satisfaction. Thus, the Lishui government realized ecological value. However, how to deal with the relationship between GDP and GEP needs to be further studied. This article hoped to find a local government evaluation method that could be learned from other local governments. We need to use GEP to evaluate a local government's performance and find a balanced point between GDP and GEP evaluation. The evaluation method should take both GDP and GEP into consideration, especially to combine GDP evaluation with GEP evaluation.

The updated evaluation method focuses on meeting the needs of citizens and highlights "citizen satisfaction," which will increase the quality of ecological or public products with "citizen satisfaction" as one of local government evaluation indicators. Although the quality of some ecological or public products that can increase "citizen satisfaction" cannot be measured by quantity, it can be appropriately transformed into the value of ecological work. It will not evaluate government performance by the amount of economic growth, nor will it fail to evaluate local government performance, nor will it lead to the deviation of government administrative objectives. Finally, the goal is to increase "people's welfare" so as to achieve the unification of quantification and quality, the unification of results and processes, and the unification of economic and social benefits.

The local government evaluation method utilizes both GDP and GEP evaluation advantages. This evaluation method is the result of combining economic index and environmental index. This evaluation method is also the result of the mutual transformation and coordinated promotion of GEP and GDP. Only the GDP that grows under a good ecological environment can be used as an indicator to evaluate local government's performance, while the short-term economic benefits that grow on the basis of destroying the environment cannot be used as an evaluative indicator. Therefore, this evaluation with both GDP and GEP evaluation's advantages has a good internal dual promotion role. A good environment promotes economic development, and economic development also promotes the upgrading of environmental quality.

The strategy of building up this evaluation is to coordinate the responsibilities of multiple regions and departments. It builds an overall responsibility mechanism covering different regions, different governance levels, and different departments.

The evaluation method of using both GDP and GEP evaluation advantages is based on information technology. It will integrate scattered ecological resources through ecological technology, improve agricultural productivity through agricultural technology, and, ultimately, make ecological resources and agricultural resources more conducive to economic benefits. Through network technology to achieve cooperation and governance among different departments, and through science and technology to reduce carbon emissions, economic growth, the method

uses environmental protection and environmental quality upgrading to generate good environmental and social benefits. Finally, it reaches the internal virtuous circle.

Conclusion

Quantitative indicators should be reexamined in government performance evaluation. In essence, quantitative indicators, such as GDP, are only tools that do not distinguish between good and bad. What should be prevented is that local governments take the quantitative indicators as the only goal. Under this circumstance, some local governments even "create fake data" to achieve the goal, which deviates from the government's original intention to "serve citizens and satisfy citizens." Only by weakening the data and not clinging to the economic benefits can the government administration have a clear target.

By using GEP to fix the evaluation of the government's performance, the government's power will not be unlimited. The local government should optimize the top-level system design to guide all social entities participating in the realization of the ecological value. The policies should support various social organizations to be involved in the realization of ecological value. At the same time, brand creation, pricing, sales, and other business work in the realization of ecological value should be assigned to enterprises with relevant qualifications. In addition, the realization of ecological value needs the participation of citizens. Therefore, the government should use its educational function to publicize the concept of environmental protection and encourage various social organizations to participate in the realization of ecological value. The government needs to return to its role of "service," guide the economic subjects, and motivate citizens to establish the awareness of the ecological value realization. Local governments need institutional innovation and technological innovation at the same time to achieve the coordinated work of all levels of the government departments. Specifically, it is necessary to establish an overall concept in local governments to avoid the refusal of cooperation or "prevaricate responsibility" among all levels and departments of the local government.

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