

The Debt Risk of Economic Downward Pressure and Financial Sustainable Development -- Take Liaoning Province as an Example

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Abstract. With the normal development of covid-19 and the gradual progress of economic recovery in the middle and late stages of the epidemic, large-scale tax and fee reduction is still the focus of fiscal policy in the "14th Five-Year Plan". However, at present, the increasing downward pressure on the economy and the moderating growth of fiscal revenue have brought about the contradiction between revenue and expenditure, which has a profound impact on the sustainability of China's fiscal development. Based on this background, this paper takes the policy of tax and fee reduction and government debt ratio of Liaoning Province in recent years as the entry point to analyze the current state of government finance and debt operation in Liaoning Province, studies its potential pressure and risks, and suggests that while reducing taxes and fees, it should realize the sound and sustainable development of finance through measures such as "open source and reduce expenditure" and construction of debt risk identification and supervision mechanism.

Keywords: Tax and Fee Reduction, Financial Pressure, Debt Risk, Sustainable Financial Development.

1. Introduction

1.1. Research Background

In recent years, the downward pressure on the Chinese economy has increased, and the in-depth implementation of structural tax and fee reduction and the demand for economic recovery has led to the financial situation of Liaoning Province is not optimistic^[1]. It is difficult for fiscal revenue to meet fiscal expenditure, and local government debt is faced with great risks. Economic development and urban construction constantly put forward higher requirements, leading to increased risks of local government debt in total amount, repayment, management and supervision of Liaoning Province^[20]. It is urgent to improve the local government debt system and give full play to the positive role of local government debt^[3].

In addition, the inherent contradiction of fiscal revenue and expenditure and debt pressure of Liaoning Province gradually emerged with the downward economic situation and produced an invisible crisis^[4], which requires the government to timely self-check and make targeted adjustments in order to realize the stability of regional economy and the benign and sustainable development of finance.

1.2. Research Purpose and Significance

This paper analyzes the current financial situation of Liaoning Province and its subordinate local governments, examining the economic pressures that have intensified due to the macro background. The paper identifies the current financial pressures and potential debt risks, and provides targeted policy suggestions. The aim is to seek the sustainable and benign development of local finance, even under the complex economic environment.

Based on the analysis of the financial revenue and expenditure status and debt issuance of the local government, this paper evaluates the financial problems in Liaoning Province^[5], and puts forward improvement suggestions based on the actual development status of the local government, to improve the development potential of the local finance and the adaptability to debt risks^[6].

2. Macroeconomic Situation of Liaoning Province

In recent years, the overall economic output and per capita GDP of Liaoning Province have remained at a relatively high level in China^[7]. According to data, in 2020, the regional gross domestic product of Liaoning Province reached 2.51 trillion yuan, ranking first among the three provinces in northeastern China^[9]. Overall, as a former heavy industrial base, Liaoning Province has established an industrial system dominated by petrochemicals, smelting, and other industries^[8]. The stability of general public budget revenue is relatively strong, but its quality has declined somewhat^[10]. From 2018 to 2020, the general public budget expenditure in the province increased year by year^[17], and the self-sufficiency rate of finance (general public budget revenue / general public budget expenditure) was 49.01%, 46.17%, and 44.16%, respectively, with moderate financial self-sufficiency capability^[12].

The northeastern region represented by Liaoning Province is an area that has received sustained attention and revitalization efforts at the national level. Currently, the region is undergoing a critical period of transformation and contradiction. The economy in the old industrial base has slowed down, and the pressure of the COVID-19 epidemic has compounded the challenges faced by the region's grassroots finance. As a result, Liaoning Province is facing enormous tests in its efforts to maintain financial stability and promote economic growth^[13]. Risks in the economic and social fields continue to accumulate, and this phenomenon is not only universal throughout China but also has unique regional characteristics^[14].

Table 1. Major Economic Data of Liaoning Province from 2018 to 2020

project	2018	2019	2020
GDP (100 million yuan)	25315.4	24909.5	25115.0
GDP growth rate(%)	5.7	5.5	0.6
Per capita GDP(yuan)	58008	57191	58967
Fixed asset investment growth rate (%)	3.7	0.5	2.6

Data source: "Liaoning Statistical Yearbook" and the official website of the National Bureau of Statistics of China

3. Potential Fiscal Pressures and Realistic Challenges

3.1. Poor Economic Environment and Inherent Structural Problems

Since 2020, China's economic development has been facing both internal downward pressure and the increasing risks of a complex and uncertain external environment. The global economy has been in decline and the process of economic recovery has slowed down; the resurgence of COVID-19 outbreaks in various parts of the country has brought huge pressure and crisis to the market and economic entities^[15]. Due to the impact of factors such as the pandemic and industrial transformation and upgrading, Liaoning Province's gross domestic product (GDP) in 2020 was considerable in number but the year-on-year growth rate was only 0.6%, 1.7 percentage points lower than the national average level^[20]. Overall, in 2020, Liaoning Province showed a trend of "low investment growth, continuous decline in exports and consumption", and economic growth continued to be under pressure^[19].

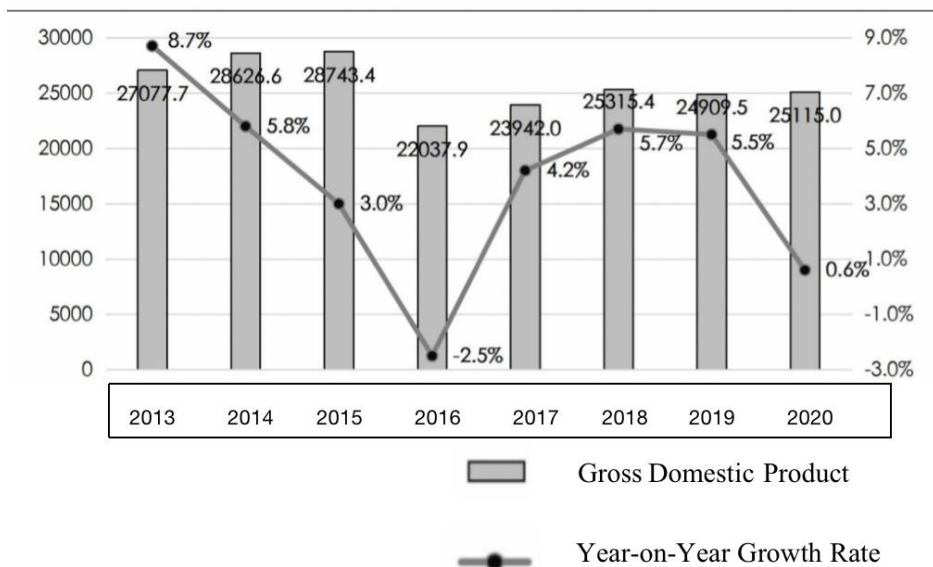
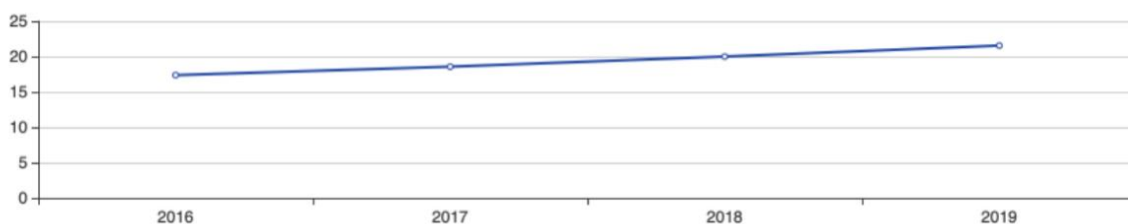


Figure 1. Liaoning Province's Economic Total and Growth Rate in Recent Years

Data source: Wind official website and Liaoning Statistical Yearbook

On the other hand, Liaoning Province has always relied on industrial sectors such as equipment manufacturing, metallurgy, and petrochemicals as its pillar industries and main drivers of economic growth. However, currently, the industrial economy in Liaoning Province is still dominated by traditional heavy industries, and the high dependence on state-owned enterprises has led to insufficient development of the private economy^[17]. This largely hinders the initiative for regional economic growth and increases the pressure for industrial transformation and upgrading. At the same time, with the proposal of China's "carbon peak and carbon neutrality" goals, the environmentally-friendly development of industrial enterprises has become a trend, which also poses challenges to the economic development of various regions in Liaoning Province^[18].

Recent years have seen a relatively large net outflow of permanent residents from Liaoning Province, which has exacerbated the degree of aging and brain drain in the region. This phenomenon has had a negative impact on the economic development of the entire province and significantly affected the potential for local economic growth.



Old-age dependency ratio

Figure 2. Pension Burden Coefficient of Liaoning Province

Fiscal revenue is an intuitive indicator reflecting the economic performance of the government. From 2011 to 2020, the general public budget revenue of 41 counties (cities) in Liaoning Province showed an overall trend of first increasing and then decreasing^[20]. Especially since 2019, due to the impact of the COVID-19 epidemic and the implementation of tax reduction and fee reduction policies, multiple factors have overlapped, leading to insufficient growth momentum in fiscal revenue. Overall, local fiscal revenue has been hovering at a low level.

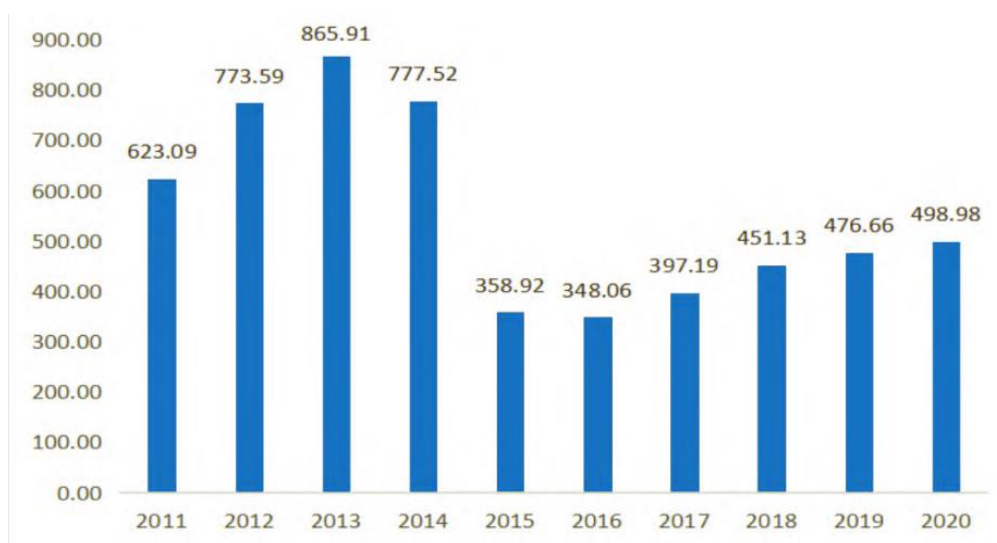


Figure 3. Income of 41 County (city) Governments in Liaoning Province from 2011 to 2020

Data source: Wind official website and Liaoning Statistical Yearbook

On the other hand, there exists a significant gap in general public budget revenue among regions, which highlights the obvious state of unbalanced development. Furthermore, due to the insufficient growth momentum of revenue in each county (city), the overall growth rate of fiscal revenue in Liaoning Province has shown a downward trend, resulting in a loss of fiscal potential and unfavorable conditions for achieving long-term sustainable economic stability (as shown in Table 2).

Table 2. General Public Budget Revenue Growth Rate from 2011 to 2020 (%)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
City growth rate	40.55	24.15	11.93	-10.21	-53.84	-3.03	14.11	13.58	5.66	4.68
Growth rate of Liaoning Province	31.84	17.49	7.68	-4.52	-33.37	3.44	8.74	9.33	1.39	0.13

Data source: National Bureau of Statistics website, "China Statistical Yearbook"

Table 2 shows that the revenue of local county (city) governments has a significant impact on the overall revenue growth of Liaoning Province. In recent years, the growth rate of fiscal revenue of the Liaoning provincial government has been declining year by year and has been hovering at a low level^[19]. These factors have a certain rigid impact on fiscal expenditure and implementation of fiscal policies, which in the long run is not conducive to the sustainable development of Liaoning's finances. Moreover, due to the large income gap among local governments, it will put pressure on the provincial government's transfer payments and is also not conducive to the healthy economic development of the entire province. Taking 2020 as an example, in the 41 counties (cities), the highest general public budget revenue in Zhuanghe City (5.723 billion yuan) is 17.8 times that of the lowest general public budget revenue in Xifeng County (321 million yuan)^[20].

3.2. Structural Contradictions in Fiscal Revenue and the Low Level of Local Self-Sufficiency

Regarding fiscal expenditure, local governments in Liaoning Province have exhibited a rigid growth trend. The financial security level of some local governments is operating at a low level, and hidden expenditures generated in some stability maintenance processes are creating a significant burden on grassroots finance. This situation is not conducive to implementing relevant economic policies at the provincial level, and the overall fiscal expenditure pressure continues to deepen invisibly.

On the other hand, Liaoning Province's overall fiscal self-sufficiency rate is low, and structural contradictions between revenue and expenditure have always existed. Taking 2020 as an example,

the total fiscal expenditure of Liaoning Province was 2.26 times that of the total fiscal revenue, and the fiscal self-sufficiency rate was about 44.16%, it has been declining in recent years^[20]. At the same time, from a micro perspective, the fiscal self-sufficiency rate of local governments in Liaoning Province is lower than that of the provincial government, and there is a large gap between regions. In addition, due to the insufficient growth potential of local government revenues and the implementation of a series of positive fiscal policies such as tax reduction and fee reduction, local governments are facing significant fiscal pressure and debt risks.

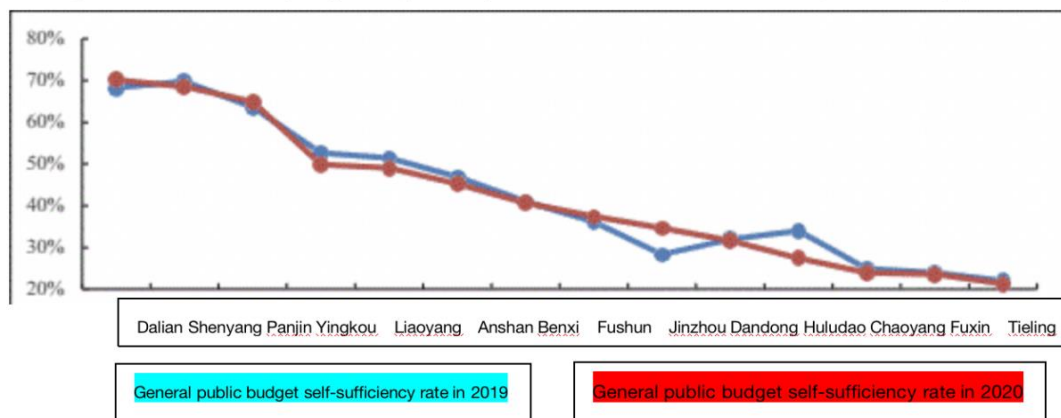


Figure 4. Financial Self-Sufficiency Rate of Local Governments in Liaoning Province (%)

3.3. Continued Tax Cuts and Continued Debt Growth

Facing the dual requirements of economic downward pressure and the urgency of post-epidemic recovery, Liaoning actively implemented the policy of tax and fee reduction and made great progress. But at the same time, the contradiction between the decline of fiscal revenue and the inertia of fiscal expenditure has become increasingly prominent^[19]. Although tax and fee cuts will help expand the tax base in the long run, they will inevitably affect the budget balance in the short run.

Here, we construct a constraint equation hypothesis of local government debt to study the impact of continuous tax and fee reduction policies on the finance of Liaoning Province and other local governments. Suppose D represents the total amount of government debt to be repaid and i represents the nominal interest rate of government debt, then it can represent the debt interest expenditure of the government. Suppose E represents other basic government fiscal expenditures, T represents fiscal revenue, P represents transfer payments, and represents the scale of government deficit increased in the region a during $t^{[1]}$. Therefore, the static constraint equation of local government debt can be constructed: $(D_{at} - D_{at-1}) + T + P = iD + E$

Hypothetical nominal deficit $X=(D_{at} - D_{at-1})=iD + E - T - P$, it can be concluded that the government debt interest expenditure is positively correlated with the fiscal deficit, because the increase of the accumulated debt balance will have a deferred effect on the fiscal expenditure pressure. By the same token, large and sustained tax cuts will reduce government tax revenue, increase the burden of debt interest, and eventually exacerbate the fiscal deficit^[20].

Suppose the nominal interest rate of national debt, where represents the inflation rate, then the nominal deficit can be decomposed into two parts: the basic deficit Z and the deficit formed by debt, i.e. Let, the nominal growth rate of GDP n is the sum of the real growth rate r and the inflation rate, namely, then, $\frac{\Delta D_{at}}{D_{at}} = \frac{X}{D} = \frac{Z+iD}{D} = \frac{z * GDP}{D} + i$

If take the government debt ratio as $d = \frac{D}{GDP}$, the growth rate of government debt can be expressed as y , and

$$y = \frac{\Delta D}{D} - \frac{\Delta GDP}{GDP} = \frac{z * GDP}{D} + i - n = \frac{z}{d} + r - g$$

Thus, the dynamic constraint equation of government debt can be obtained as: $y = \frac{z}{d} + r - g = 0$, government debt ratio is as following when equilibrium state is reached, $d^* = \frac{z}{g-r} = \frac{\text{exp-tax-pay}}{g-r}$, where exp represents government basic expenditure, tax represents tax revenue, and pay represents government transfer payment. According to the actual situation, $r < g$ is established under the current economic situation, and partial derivative of the government debt ratio under the equilibrium state can be obtained: $\frac{\partial d^*}{\partial \text{tax}} = \frac{\partial d^*}{\partial \text{pay}} = \frac{-1}{g-r} < 0$, $\frac{\partial d^*}{\partial \text{exp}} = \frac{1}{g-r} > 0$

Because the partial derivative of tax and transfer payments is negative, that is, theoretically, when other factors remain unchanged, the impact of tax revenue or transfer payment reduction on the instantaneous rate of change of the government debt ratio is positive, that is, the negative incentive of tax or transfer payment on the government debt ratio^[5]. The pressure of long-term tax reduction on local fiscal expenditure cannot be ignored, and the fiscal deficit will be transmitted to the local government debt.

Based on the available data, Liaoning Province has a weak financial base and needs to consider and address the revenue-expenditure gap caused by tax and fee reductions from multiple perspectives. The implementation of structural tax and fee reduction policies will certainly create significant expenditure pressure on its finances and impact future financial stability. Additionally, Liaoning Province and its local governments carry relatively large debts, which will exert sustainable pressure on future financial development, as debt risks continue to rise.

4. Analysis of Potential Debt Risks

4.1. Total Debt and Repayment Risk

Liaoning Province, due to its own financial pressure and predicament, has a large stock of debt, and because Liaoning Province has not established a scientific debt target system and implemented it, and the government is still constantly borrowing new debt^[20]. In the current debt is difficult to dissolve, new debt is piling up, Liaoning provincial government has to face the total risk of government debt.

In 2020, the government debt limit of Liaoning Province was 1,063.749 billion yuan, and the government debt balance was 925.711 billion yuan. The province issued 155.331 billion yuan of local government bonds in 2020, including 55.446 billion yuan of special bonds and 99.785 billion yuan of general bonds. In general, the government of Liaoning Province has a large scale of debt, and its debt funds are mainly used for the construction of public welfare projects, investment in municipal transportation and other infrastructure. However, such investment has a large scale, long cycle and slow return. As a result, it is difficult for the government debt funds to obtain considerable returns when investing in such projects, and the independent virtuous turnover of financial funds cannot be realized^[11]. As a result, it is particularly difficult for the government to repay local government debt by relying on debt investment income, and it is highly dependent on transfer payments and subsidies from superiors.

Looking at the government debt repayment pressure, the scale of local government debt in Liaoning Province was significant at the end of 2020, and it had increased compared to 2019. The ratio of government debt balance to general public revenue in that year was more than 240%. This highlights the financial payment pressure and heavy debt burden carried by local governments, which have contributed to the overall rise in debt risk within the province. These conditions are not conducive to the sound development of the regional economy.

4.2. Debt Supervision Risk

From the overall situation, Liaoning provincial government debt has internal and external dual risks. The internal risks are mainly reflected as follows: the current financial system of Liaoning Province does not have an institution to clearly supervise all links of government debt, and fails to

form an effective restriction on government debt. Internal supervision agencies did not timely summarize and analyze the debt situation of various local governments, resulting in the continuous rise of local debt even beyond the government's ability to pay, that is, the scale of bond issuance does not match the economic development situation. External risks are manifested as low transparency of government information, irregular and incomplete disclosure of financial information, and lack of a good public supervision mode and feedback channel^[2].

In summary, the finance of Liaoning Province and its local governments are exposed to risks from both internal and external supervision. This situation is not conducive to the sustainable development of government debt within a reasonable and controllable scope, nor does it promote the construction of modern finance. Instead, it can lead to higher financial payment pressure and increased hidden debt risks.

5. Measures to Achieve Sustainable Financial Development

5.1. Ease the Contradiction Between Revenue and Expenditure

With the increasing demand for economic recovery, Liaoning Province's transfer payments to local governments and related fiscal expenditures are expected to gradually increase. However, the implementation of tax and fee reduction policies has affected Liaoning Province's fiscal cash flow, resulting in an expanded fiscal gap. Therefore, it is crucial to increase financial revenue through various channels to achieve the goal of "open source". To achieve this, the government needs to activate the precipitation funds - funds that have not been arranged or have been arranged but have not been used in actual operations - to improve their efficiency and ease the current expenditure constraint. Additionally, while borrowing moderately, it is essential to pay close attention to local debt risks and explore new sources of revenue to improve overall economic strength and profitability, ultimately increasing the level of fiscal revenue.

The tax sharing system is directly influenced by the economic scale and structure of a region. In the case of Liaoning, as an industrial province, the total amount of tax revenue and distribution share is largely determined by the province's economic aggregate. To make the most of its industrial base advantages, Liaoning should focus on improving the industrial chain of its manufacturing industry, promoting industrial transformation and upgrading, and supporting innovation as the main driving force to achieve high-level economic development. The government should also provide sufficient policy support to alleviate the problem of insufficient and unbalanced development, by improving the tax business environment and increasing investment attraction.

To address the challenge of the state-owned economy's large share in Liaoning Province, it is important for relevant government departments to dispose of state-owned capital in a proper manner. This will enable the development of the private economy and enhance overall economic vitality, supporting the implementation of the "14th Five-Year Plan". By grasping development opportunities, promoting economic transformation, and pursuing reasonable growth in quantity and steady development in quality, Liaoning Province can achieve high-quality financial and economic development. To make up for the fiscal gap caused by tax and fee reductions, the province should generate more revenue through economic development while also alleviating the contradiction between government revenue and expenditure. This can be achieved by improving the tax business environment, attracting investment, and providing sufficient policy support to promote industrial transformation and innovation as the main driving forces of high-level economic development.

"Throttling" means moderately reducing government expenditure and reducing unnecessary expenditure^[18]. The government should set up a red line of expenditure to ensure that fiscal expenditure is based on government achievements. When the deficit is too large, government expenditure should be reduced to avoid financial paralysis. On the other hand, we should give full play to the leverage role of government investment, so that it can not only reduce excessive intervention in the market, but also stimulate the vitality of private investment and transform government investment into private investment. In this way, the crowding out effect caused by

excessive government investment can be controlled and the contradiction between government revenue and expenditure can be alleviated.

5.2. Weaken Debt Risks Through Multiple Channels

Based on the high level of debt in Liaoning Province, it is crucial to prevent potential debt risks from multiple perspectives and analyze specific countermeasures according to different debt types. From the above analysis, it is apparent that direct explicit debt accounts for a significant portion of local government debts in Liaoning Province. To address this issue, the Liaoning provincial government should formulate a reasonable repayment plan based on the specific amount of debts and the final repayment period and adhere strictly to the plan. To address direct and implicit debts that may be liable for debt repayment, governments at all levels should calculate the debt scale reasonably, make full use of the debt repayment reserve system, and prepare adequately to prevent risks. It is important to prevent a fiscal crisis caused by excessive deficit under the downward pressure of the economy.

Due to the large gap of debt level among local governments in Liaoning Province, more efforts should be made to establish a scientific debt index system^[12]. By strengthening control and management of local debt, we will effectively defuse the relatively high level of debt stock. An efficient and reasonable debt issuance and repayment system will be established on the basis of core indicators such as debt dependency, debt burden ratio, debt growth rate and debt repayment ratio.

To prevent unnecessary debt risks, Liaoning Province should focus on improving the internal and external supervision mechanisms of government debt. The audit department should evaluate the debt status by taking into account factors such as debt structure and expected risk. Moreover, the performance supervision and evaluation system of government debt should be enhanced, with a focus on sustainable financial development. Externally, a transparent and open fund information disclosure mechanism should be established, and government affairs information should be disclosed to the public in a timely and transparent manner. These efforts will help build an internal and external linkage supervision system and better promote the sound development of debt while mitigating potential debt risks.

5.3. Atrengthen the Efforts to Reduce the Financial Burden and Establish a Relevant Guarantee Mechanism

In order to address the issue of unbalanced development among local governments in Liaoning Province, as well as the differences in debt risk and financial pressure, it is important to clarify the expenditure targets and expenditure sequence for all levels of finance. This will ensure that economic activities are carried out in an orderly manner, and that the risk of transferring economic pressure is minimized. By doing so, resources can be allocated more efficiently, and local governments can better manage their financial situation. Additionally, it is important to establish a more effective coordination mechanism among local governments to promote the balanced development of the region and avoid the negative impact of excessive competition.

Second, we need to speed up the improvement of the local tax system and resolve fiscal difficulties and pressures at all levels under the trend of tax and fee cuts through institutional mechanisms. Therefore, on the premise of maintaining overall economic stability, it is necessary to appropriately increase the share of the newly increased financial resources at the grass-roots level, effectively promote the sinking of financial resources, and ensure that the grass-roots governments have adequate fiscal revenue. At the same time, provincial finance should focus on improving the transfer payment system, help the local government relieve the contradiction between revenue and expenditure under the double pressure of economic downturn and tax and fee reduction, improve the back-up security of economically backward areas, narrow the gap of financial pressure between regions, and finally realize the overall high-quality development of the provincial finance^[14].

In addition, local expectations of transfer payments may lead to excessive demand for local financial funds and the "efficiency trap" of fiscal expenditure. This may distort local behaviors and

pose risks to long-term fiscal sustainability. Therefore, it is important to be alert to these risks and actively promote the legalization of the transfer payment system. We also need to optimize the internal structure of transfer payments to ensure long-term fiscal sustainability.

6. Conclusion

Overall, Liaoning Province is facing significant pressure on fiscal expenditure and debt risk due to the policy of structural tax reduction and fee reduction. The contradiction between revenue and expenditure, as well as the unbalanced development among the local governments, further exacerbate the volatility and uncertainty of the overall economy in the province.

In light of the potential risks facing Liaoning Province, it is crucial to address existing problems, prevent future crises, and chart a sustainable path forward for the financial sector. Achieving this requires effectively balancing the relationship between tax and fee cuts and the fiscal gap, and resolving the structural contradiction between total revenue and expenditure. Only by doing so can we reduce local fiscal risks and attain a relative fiscal balance.

To better implement the strategy of regional economic revitalization, it is essential to promote economic development mode transformation through innovation. This will pave the way for the high-quality and sustainable development of Liaoning Province's financial economy.

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