

The Construction Logic of Data Finance from the Perspective of New Quality Factors of Production: An Empirical Study on the Resolution of Implicit Debt in the Yangtze River Delta

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Abstract

As data resources become a new factor of production, public data is becoming a key driving force to promote innovation and development. Its similarity with land resources and the comparability between digital industry chain and real estate industry chain make data finance a new model to replace land finance, help local governments to broaden fiscal revenue and mitigate hidden debt risks. This project aims to explore the role of public data capitalization mechanism in promoting the construction of data finance, and help local governments obtain stable and long-term income channels by building a sustainable government data asset operation mode, so as to effectively alleviate the pressure of hidden debt risk. Research and analysis show that data finance can play a direct and indirect role in dissolving the implicit debt of local governments by providing a sustainable path of capitalization income, and can play a substitution and complementary effect in coordination with other fiscal variables under the background of the "package" debt scheme. This study provides theoretical support and practical guidance for local governments to alleviate the debt crisis by building a fiscal revenue increase framework of public data capitalization and digital industry chain.

Keywords

Data Finance; Government Debt; New Production Factors; Public Data.

1. Introduction

For a long time, as a key source of funds for local infrastructure and public services, land finance has not only driven rapid urbanization, but also formed a deep path dependence. With the real estate market entering a new stage, the volatility and unsustainability of land transfer income are increasingly prominent. Local governments often use land as collateral for financing, and the debt scale expands with it. Debt repayment is highly dependent on future land income [1], falling into the cycle of "land for debt". Although the country has launched a series of debt schemes to mitigate the stock risk, the fundamental way out is to cultivate sustainable alternative financial resources and reshape the healthy foundation and long-term balance ability of local finance.

In this context, as the core production factor of digital economy, the strategic value of data resources has become increasingly prominent. Data is similar to land in terms of foundation, scarcity and exploitability, and its "resource asset capital" value transition path is highly comparable to the logic of land resource transformation. Data driven digital industrial clusters, like the real estate industry chain in the past, have the potential to create huge economic value and tax revenue [1]. Therefore, building a new model of "data finance" is regarded as the key direction to support local development in the post land finance era. It is not only a new income increasing tool, but also a systematic project to promote the market-oriented operation of

public data and cultivate long-term financial resources through mechanistic design. It aims to provide the local government with an internal "hematopoietic" function to resolve debt risks and help the financial model shift from "relying on land appreciation" to "relying on data appreciation".

Although "data finance" has attracted policy and academic attention, the practice is still in the stage of partial exploration. Its mature mode, clear path and specific mechanism to resolve local debt are still lack of systematic theoretical interpretation and empirical support. Most of the existing studies focus on data value release or industrial tax contribution, while the research on the deep integration of the whole process of public data capitalization with local fiscal security and debt sustainability is still insufficient. Therefore, it is of great theoretical and practical significance to explore how public data capitalization can promote the construction of data finance, and quantitatively evaluate the effect and path of its mitigation of implicit debt. This study is based on this practical need.

2. Literature Review

Scholars at home and abroad have extensively discussed the rise background, implementation path and fiscal effect of data finance. The relevant research can be summarized into the following three aspects:

(1) The deepening research of local government implicit debt and land financial dilemma. A large number of studies have pointed out that land finance is an important factor leading to the accumulation of implicit debt of local governments. International research found that the World Bank (2023) pointed out that many developing countries rely on land transfer income to make up for the fiscal gap, but its instability will exacerbate the debt risk in the downward cycle of real estate. The domestic research Zhang Jun (2022) further revealed the vicious circle mechanism of "land financing debt expansion dependence on land sales for debt repayment". Liu Shangxi (2021) stressed that the traditional land finance model was inadequate in supporting the demand for high-quality economic and social development. Therefore, it is urgent for us to explore and build a new mode of fiscal revenue increase to meet the development requirements of the new era.

Path exploration and theoretical innovation of data finance transformation. With the rapid development of digital economy, "data finance" has become the core strategy to get rid of the dependence on land finance. In foreign studies, the European Union (2020) and OECD (2024) paid early attention to the financial potential of data capitalization, discussed data sovereignty and Farboodi (2021) proposed the role of data trading market in optimizing local tax structure. Domestic research is more practice oriented, and puts forward a systematic transformation path. For example, Xu Weixiang (2023) constructed a "resource asset capital" three-stage jump model, which clearly depicts the complete chain from data ownership, standardization to asset value evaluation, pledge financing, and even Securitization on the table, and cites the practice cases in Shanghai, Zhejiang, Anhui and other places. The national data administration set up a digital economy innovation pilot area and other policy practices, which also provided a test ground for the marketization reform of data elements.

(2) The mechanism of fiscal revenue increase of digital industry chain and its empirical verification. The extension of the digital industry chain provides a diversified income increasing channel for local finance. Domestic and foreign studies analyze the direct and indirect effects. On the direct side, digital economy enterprises themselves become important tax sources. Xu Jiali (2022) empirical research shows that digital economy has a significant positive contribution to the growth of local fiscal revenue. Indirectly, digital technology enables the transformation and upgrading of traditional industries and indirectly drives tax growth by improving efficiency and expanding the tax base. In addition, Li Guanglong et al. (2023) found

that the digital economy can indirectly expand the consumption tax base by creating high skilled jobs and increasing residents' income. In foreign studies, the Brookings Institution (2023) also warned of the possible tax jurisdiction conflict and "digital colonialism" risk caused by data capitalization, while domestic studies put more emphasis on market-oriented reform under the guidance of the government. For example, Jiang Xiaojuan's team (2023) advocated the differentiated management of public welfare and operational data, or Ma Guangrong (2024) proposed that the benefits of state-owned data assets should be included in the budget as a whole.

The existing research has made important progress: in theory, it has initially constructed the logical chain from data elements to fiscal revenue, and tried to integrate the theory of digital economy and public finance; In practice, it started from the macro concept to the specific mode exploration and case verification, and put forward the multi-level capitalization path and market-oriented reform direction; In terms of methods, we will gradually use empirical analysis to quantify the financial effect of digital economy.

However, the research still has the following shortcomings: first, most studies focus on the macro mechanism or local case description, and lack of systematic and universal research on the whole chain operation mechanism of public data capitalization and its deep coupling with the financial system. Secondly, the special research on how to accurately connect data finance and effectively resolve local implicit debt is still weak. Finally, on the key operational problems such as data asset valuation, property right definition, income distribution and cross regional tax coordination, more breakthrough research on technological innovation and system design is needed. This study attempts to deepen and expand in this regard.

3. Theoretical Basis and Impact Mechanism Analysis

3.1. Theoretical Basis

The debt sustainability theory is the theoretical foundation for understanding and evaluating the long-term solvency of the government and formulating reasonable fiscal policies. The core idea is that the government's debt accumulation rate should not exceed its economic growth and fiscal revenue growth ability for a long time, so as to avoid falling into the vicious circle of "debt interest" spiral rise, and ensure that it can fulfill its payment obligations in the long term without causing a financial crisis.

From the perspective of theoretical connotation, debt sustainability is not only a static debt scale to GDP ratio problem, but also a dynamic intertemporal resource allocation process. It focuses on whether the government can cover the principal and interest of its maturing debt through normal tax revenue and other fiscal revenues without taking extreme measures such as default or hyperinflation under a series of constraints in the future (such as economic growth expectations, interest rate levels, fiscal revenue and expenditure structure, etc.). This connotation determines that debt management does not blindly pursue debt minimization, but seeks an "optimal" debt level that matches the stage of economic development and the demand for public services to achieve long-term fiscal stability.

The core elements of the theory mainly include: debt stock and flow, the comparative relationship between economic growth rate and interest rate ($R-G$), and the basic fiscal balance (that is, the balance of payments without debt interest). Among them, $R-G$ is the key index to judge the dynamic change trend of debt. When the real interest rate r continues to be higher than the economic growth rate G , even if the government maintains the basic fiscal balance, the proportion of debt to GDP will naturally rise due to the increased interest burden; On the contrary, if $g>r$, the debt ratio has a natural convergence trend. Therefore, maintaining healthy economic growth and controlling financing costs are the macro basis for ensuring debt sustainability.

The classic intertemporal budget constraint model provides a rigorous analytical framework for analyzing debt sustainability. The model shows that the present value budget constraint of the government requires that the sum of the present values of all basic fiscal surpluses in the future at least equal to its current outstanding debt stock. This means that any current debt accumulation must ultimately be "cashed out" by future fiscal surpluses. The model profoundly reveals the intertemporal nature of the debt problem: today's fiscal behavior is the intertemporal distribution of rights and obligations between the future government and taxpayers.

Applying this theory to local government debt management in China, especially the implicit debt problem, has important guiding significance. The implicit debt of local governments is usually not directly reflected in the statutory budget, which is complex in form and low in transparency, but its debt repayment pressure still needs to be borne by financial resources in the end. Resolving debt risks can not only rely on debt replacement, postponement and other stock transfer means. The fundamental way out is to improve the ability of local governments to create fiscal surplus in the future, that is, to cultivate stable and sustainable sources of fiscal revenue, while optimizing expenditure efficiency, so as to meet the internal requirements of intertemporal budget constraints. This provides direct theoretical support for the necessity of exploring new financial resources such as "data finance" - it aims to enhance the future "hematopoietic" function of local governments, and provide an income basis for repaying historical debts and maintaining long-term financial health.

3.2. Impact Mechanism Analysis

Data finance is not simply data selling, but a process of orderly releasing the value of public data elements and transforming them into stable fiscal revenue through systematic mechanism design. Its impact on resolving the implicit debt of local governments follows the progressive logic from consolidating the foundation to value precipitation, and then to potential stimulation, forming a mechanism of direct and indirect combination [2].

3.2.1. Data Resource

This is the starting point and basis for data finance to play its role. Its core lies in transforming the public data originally scattered and sleeping in various departments into "data resources" with clear boundaries, clear ownership, qualified quality and available for circulation and trading through data ownership, collection and integration, standardized governance and security and openness. This process itself can generate direct financial benefits, such as data registration fees, direct sales revenue of data products carried out in accordance with regulations, and provide local governments with immediate and additional cash flow. Although the initial scale of this income may be limited, its significance is to open up a non land financial revenue channel, directly increase the financial resources available for debt repayment or interest payment, and play a "blood activating" role.

More importantly, the high-quality public data resource pool itself constitutes a huge and marketable "potential asset" of local governments. When implementing debt restructuring or negotiating with financial institutions, a data resource system with clear planning, clear ownership, clear application scenarios and realization paths can be used as an important credit endorsement and potential repayment source, enhance the debt negotiation ability and market reputation of local governments, and provide a solid asset base for debt replacement (such as replacing high-cost implicit debt with low-cost financing based on future data earning rights). This is the most direct support of data finance for chemical bonds.

3.2.2. Data Assetization

The data after recycling needs to realize its economic value through application scenarios and complete the transition to data assets. At this stage, local governments, as data providers and

demand drivers, are deeply involved in specific scenarios such as smart cities, digital government affairs, and industrial empowerment through modes such as authorized operations, pricing and equity participation, and cooperative development. For example, traffic data is used to optimize urban logistics and intelligent traffic management, and government data is used to improve credit services for small and medium-sized and micro enterprises. In these scenarios, data is no longer the original data, but a productive asset that can improve efficiency and create new business models.

In the meantime, the role of the connected debt is that the operation of data assets can effectively cultivate and expand the industrial ecology of local digital economy, attract the agglomeration of digital enterprises, and promote the digital transformation of traditional industries. This can not only bring about the growth of traditional taxes such as enterprise income tax and value-added tax, but also create new jobs and consumption, indirectly expand the local tax base, enhance the vitality of the local economy and the toughness of fiscal revenue on the whole, and provide macroeconomic environment support for fundamentally improving the financial health and enhancing the long-term solvency.

At the same time, data capitalization can also generate direct fiscal revenue. On the one hand, the government can obtain a long-term stable share of equity income by holding the equity of the data operation platform or the project company; On the other hand, clearly defined data assets can be used as collateral to apply to financial institutions for pledge financing of data assets with more favorable interest rates, and the funds obtained can be directly used to repay high interest debt. Such pilot projects in Zhejiang Province and other places have proved the feasibility of this path. This has realized the transformation of data potential into financial instruments that can be directly used for debt restructuring.

3.2.3. Data Capitalization

This is the highest form of data value mining, which aims to realize and enlarge the future sustainable data income in advance through the power of the financial market. Its typical path includes exploring asset securitization (ABS) based on specific data assets or earning rights (such as smart parking data charging rights, public data open platform service fee earning rights, etc.), or establishing government led data industry investment funds. Securitization can convert the relatively stable data cash flow in the future years into a considerable amount of current financing, and directly provide large-scale and low-cost debt funds for local governments. The industrial investment fund can leverage and enlarge the investment in the key links of the local data industry chain through the way of "financial capital guidance and social capital participation", so as to accelerate the industrial maturity and financial return cycle. The mechanism at this level plays a more strategic and indirect role in resolving implicit debt. By introducing market-oriented and financial tools, it greatly enlivens the long-term value of public data and provides local governments with new options for large-scale and strategic financing in addition to land transfer. This can not only replace the existing debt at a specific time point, but also promote the formation of a virtuous cycle of "data element input - digital industry development - increase in fiscal revenue and capital gains - back feeding public services and debt repayment - further optimizing the supply of data elements". In this cycle, data finance is no longer a temporary "blood transfusion", but an endogenous "hematopoietic" system in the local economic development model, fundamentally improving the endogenous ability of local governments to cope with debt pressure and achieve long-term fiscal sustainability.

The impact mechanism of data Finance on dissolving the implicit debt of local governments is a progressive and mutually reinforcing organic whole, from "resource realization" to providing instant liquidity, to "asset operation" to cultivating alternative financial resources and improving financing conditions, and then to "capital circulation" to building a long-term

development model and strategic financing ability [3]. It directly affects the balance sheet and cash flow statement of local governments, and indirectly affects the fundamentals of regional economic development. The ultimate goal is to serve the balance of local governments' inter temporal budget constraints, and open up a new path in line with the development direction of the digital age for the realization of the real sustainability of debt.

4. Replacement of Implicit Debts of Local Governments

Since the start of the first round of debt replacement in 2015, China's resolution of implicit debt has gone through several rounds of policy iterations. The core logic of the policy has gradually deepened from the early risk mitigation of "low interest rate for high interest rate, long-term for short-term" to the precise debt for high-risk areas and grass-roots governments. The Yangtze River Delta region (Jiangsu, Zhejiang, Shanghai and Anhui) is an area with high economic activity, relatively standardized financial management and prominent land Fiscal Dependence in China. Its debt replacement practice not only reflects the implementation efficiency of the central government's debt policy, but also highlights the structural fiscal contradictions after land finance [5]. Taking the Yangtze River Delta as a sample, this paper analyzes the evolution trend of implicit debt, the scale effect and structure effect of replacement policy in the Yangtze River Delta, evaluates the real efficiency of the current debt policy and reveals its internal limitations, so as to lay the foundation for exploring the path of fiscal sustainability from the perspective of new quality factors of production.

4.1. Phased Effect of Debt Replacement

The promotion of the "package" debt scheme in the Yangtze River Delta region has achieved quantifiable phased results, which is mainly reflected in the two dimensions of the explicit pressure drop of debt scale and the precise saving of financial costs.

First, from the perspective of scale effect, the debt replacement policy has effectively promoted the total compression of implicit debt. According to the disclosure of the Ministry of Finance and relevant departments, after the implementation of debt replacement with a scale of up to 3.2 trillion yuan in 2024, the balance of implicit debt of local governments decreased significantly from 14.3 trillion yuan at the end of 2023 to 11.1 trillion yuan at the end of 2024, a decrease of more than 22%. As the current region for policy implementation, the Yangtze River Delta region has made full use of the special refinancing bond line to replace a large number of high-cost, short-term implicit debts and non-standard debts hidden in the statements of local financing platforms with local government bonds with lower interest rates and longer maturities. This process not only directly reduced the scale of book debt, but also transformed the vague government payment responsibility into clear legal debt, significantly improved the transparency of debt, and provided a clear basis for strengthening the supervision of the people's Congress and the society.

Secondly, from the perspective of financial effect, the interest savings brought by interest rate difference provide breathing space for local finance. The core logic of debt replacement is "low interest rate for high interest rate". According to public market data, the average issue interest rate of local government bonds in the first half of 2025 has dropped to a historical low of about 1.91%. In contrast, although the issuing interest rate of urban investment bonds in the Yangtze River Delta region also declined in the same period, it was still generally in the range of 2.4% to 3.5%, and the non-standard financing cost of some low rated urban investment bonds was higher. If we estimate the trillions of hidden debt stock in the Yangtze River Delta region, even if it is calculated by the interest rate difference of only 1 percentage point, the interest expenditure saved for local governments each year can reach tens of billions of yuan. For example, Jiangsu Province, through large-scale replacement in 2024, is expected to save nearly 10 billion yuan in interest expenditure throughout the year. This huge amount of savings funds

has effectively relieved the current liquidity pressure of local governments, enabling them to use more financial resources for urgent matters such as ensuring the basic livelihood of the people and paying project funds, avoiding systemic risks caused by liquidity depletion.

In addition, the replacement policy has also played a key role in stabilizing the regional financial environment. Replacing high-risk and low transparent implicit debt with local government bonds with a credit rating equivalent to national debt has significantly improved the liquidity and security of debt assets, eased the pressure on the financial market, and avoided the regional credit contraction that may be triggered by the default of individual platforms.

4.2. Deep Contradictions under the Shrinking Financial Resources

However, from some key data, the Yangtze River Delta region still faces structural contradictions that cannot be solved by the debt replacement policy[5]. Debt replacement is essentially a time for space financial technology operation, which deals with the issue of debt interest payment and principal repayment, and cannot provide sustainable financial resources for the government from the root.

On the one hand, the debt stock is still huge and unevenly distributed. At the end of 2024, the national implicit debt balance still reached 11.1 trillion yuan after replacement; In the Yangtze River Delta region, some key regions have risk agglomeration. For example, in several prefecture level cities in Zhejiang Province, the generalized debt leverage ratio has exceeded 70%, and the debt service guarantee ratio of some districts and counties is lower than 1.5. This risk indicator indicates that it will be difficult for local governments to pay debt interest after deducting rigid expenditure, and the debt service pressure is severe.

On the other hand, as a traditional pillar of financial resources, land finance is experiencing a historic ebb. The Yangtze River Delta region was once a typical region of land finance. In 2021, Jiangsu and Zhejiang provinces' dependence on Land Finance (the ratio of land transfer income to local government comprehensive financial resources) was as high as 54.1% and 52.1%, respectively. However, with the in-depth adjustment of the real estate market, the shrinkage of this core financial resource has stalled the growth of local comprehensive financial resources. The high debt stock and shrinking financial resources together increase the debt pressure of local governments. Taking Shanghai as an example, although its economic resilience is the strongest, the land market has also cooled significantly; For many cities in Zhejiang and Jiangsu, the sharp decline in land transfer income directly led to the collapse of government fund income. This change has produced two impacts: one is the absolute reduction of local disposable financial resources, and the other is the destruction of the credit basis for refinancing through land stock mortgage. The combination of high debt stock and weak financial growth has led to a continuous rise in the debt ratio (debt balance/comprehensive financial strength), which is a measure of fiscal sustainability. The national index has risen rapidly from about 222% in 2023 to nearly 269% in 2024. The situation of some cities in the Yangtze River Delta is even more worrying.

The above analysis shows that only relying on debt replacement as a policy means can not make up for the sustainable financial resource gap of local finance from the root, and local finance urgently needs to develop a new revenue model endogenous with new development momentum. Therefore, from the perspective of new quality production factors, explore new quality financial resources represented by public data, obtaining sustainable benefits through market-oriented operation of public data resources and enabling the digital economy has become an inevitable choice to fundamentally optimize the financial structure and solve the imbalance of local government revenue and expenditure.

5. Practical Investigation on the Impact of Data Finance on Local Government Debt

Due to the fact that the practice of data finance is in the exploratory stage worldwide, and it is difficult to obtain systematic quantitative data, this study will use the method of case study, focus on the policies and typical cases in the Yangtze River Delta, and analyze its implementation path and current limitations through qualitative analysis. The core logic of data finance is that the government, by means of marketization and capitalization, transforms public data resources into new quantifiable and tradable financial resources and financing tools to provide the government with tax revenue and non tax revenue. The practice of the Yangtze River Delta has derived two differentiation paths.

5.1. Cultivating Market Model

The first is the government led cultivation market model, which aims to cultivate a new and Sustainable Digital tax base. The logic is to use fiscal funds as a catalyst and lever to systematically cultivate the data element market and digital industry, and to achieve fiscal sustainability by increasing the tax base.

Take the "data coupon" policy launched by Wuhu City in Anhui Province as a typical case. Wuhu government did not directly subsidize data developers according to traditional policies, but used "data vouchers" as a policy incentive tool. The government invested 10million yuan in batches to convert the funds into negotiable "data vouchers". By issuing data coupons to enterprises, they are directly subsidized for data governance, product development and trading. On the one hand, this move has precisely reduced the initial threshold and trial and error costs for enterprises' use of data, directly stimulating effective demand. So far, the "data coupon" has paid more than 610000 yuan and successfully leveraged more than 11.57 million yuan of social capital into the field of data elements; On the other hand, it has promoted the formation of an active regional micro data trading market, and promoted the circulation and value-added of data as a new factor of production in the local economy. Practical data show that the policy has successfully cashed data coupons of more than 610000 yuan, directly leveraging the enterprises' own supporting investment of more than 11.57 million yuan, and the leverage effect of financial funds is more than 1:11. Its long-term plan is to introduce more than 100 data element enterprises through this "seed policy" by 2027, forming a data industry cluster with a scale of 50billion yuan. Wuhu Municipal government has strengthened financial sustainability from the root. Its success is directly reflected in the continuous growth of corporate income tax, value-added tax and personal income tax for highly skilled talents in the future, providing long-term and stable financial support for the resolution of hidden debt.

5.2. Asset Revitalization Mode

The second mode is a financing mode with asset revitalization as the core, which aims to directly obtain liquidity. This model focuses on solving the current asset liquidity dilemma. Through the means of financial engineering, the idle public data resources owned by the government or urban investment companies are transformed into qualified collateral recognized by financial institutions, so as to directly obtain credit funds and relieve the short-term debt repayment pressure of the government.

Taking Sihong County in Jiangsu Province as a typical case, Sihong urban construction investment and management group has accumulated 44million data records including the parking time, location and vehicle status of vehicle owners in the process of operating the county smart parking system. By desensitizing and cleaning the original data, modeling and analyzing, the group formed a smart travel parking and charging thermal analysis data set with commercial analysis value, revitalized the data resource into a data asset with a market value of 8.968 million yuan, and obtained a credit loan of 5million yuan as collateral, realizing the

revitalization of data assets. The purpose is to transform the data resources accumulated by the urban investment company in public services into mortgage products approved by the bank through financial engineering, and form a virtuous cycle from data asset financing to the generation of new data. The breakthrough significance of Sihong urban investment company is that for the first time at the county level, it has transformed public data resources from management objects to measurable, evaluated and mortgaged financial assets. It has opened up a new financing channel for local financing platforms that undertake a large number of implicit debts but lack sufficient land, real estate and other traditional hard assets mortgage. The debt conversion path of this mode is direct and immediate, which can quickly improve the cash flow of the urban investment platform and optimize its balance sheet, which belongs to the asset revitalization technology of changing stock into increment.

Through the analysis of the above two differentiation paths, we can find that the internal logic of data finance affecting local government debt has duality: we can cultivate long-term financial resources by cultivating the future tax base, and achieve short-term decompression by activating the stock assets. However, no matter which path, data finance from local pilot to large-scale promotion is deeply embedded in a series of strict institutional and technical constraints, and the enlightenment is drawn from the above cases. The first is the effective operation of data finance. The effective operation and efficiency release of data finance highly depend on the construction of a sound basic institutional ecosystem. The government should be deeply rooted in the completeness of a series of institutional rules such as data property rights, evaluation and pricing, transaction circulation and safety supervision.; Second, the efficiency release of data finance is highly dependent on the construction of basic systems such as data ownership, evaluation and trading. The government should clarify the legal rights of data assets and the credible benchmark of market value through confirmation and evaluation, and provide normative channels for data transactions.

6. Conclusion and Suggestions

6.1. Conclusion

The practice of debt replacement policy in the Yangtze River Delta region has verified that debt replacement can alleviate the current liquidity pressure of local governments and stabilize the regional financial environment through scale reduction and interest savings, but it is essentially a technical operation of "time for space", which can not solve the structural contradiction between financial resources and debt. With the historical ebb of land finance, local governments are facing a sustained financial gap and need to build a new income model. Data finance is the inevitable choice in the post land finance era.

Through the value transition path of "resources assets capital", data finance has the dual debt logic of short-term relief and long-term hematopoiesis: in the short term, it can provide instant liquidity for the urban investment platform through the revitalization of data assets to alleviate the pressure of explicit debt repayment; In the long run, the sustainability of local finance can be enhanced from the root through the cultivation of digital tax base and the transformation of enabling industries. The practice of the Yangtze River Delta region has derived two different paths: Wuhu "data coupon" model fosters digital industrial clusters and new tax bases through financial funds catalysis; Sihong data asset mortgage model converts public data into financial collateral, opening up new financing channels for grass-roots financing platforms. The two paths correspond to long-term tax source cultivation and short-term liquidity supplement respectively, providing replicable samples for data finance practice nationwide.

6.2. Suggestions

In view of the institutional and technical constraints in the current practice of data finance, local governments should promote the construction of data finance in stages: focus on public data resourcing and capitalization in the short term, complete data ownership, collection integration and standardized governance, and give priority to pilot data asset pledge financing at the grass-roots level with high debt pressure; In the medium term, we should systematically cultivate the regional data element market, guide the participation of social capital through policy tools, and establish a public data asset valuation system and transaction norms; Promote data capitalization for a long time, explore asset securitization products, and build a virtuous cycle from data element input to the development of digital industry and finally the increase of fiscal revenue.

At the same time, it is necessary to clarify the rules of public data property rights, establish a unified valuation and trading system, and strengthen the security and privacy protection of data. Strengthen the synergy between data finance and existing debt policies, take data assets as an important part of local government credit endorsement, and improve the negotiation ability of debt replacement; The operating income of data assets will be included in the full caliber budget management, and priority will be given to the repayment of implicit debt and the protection of people's livelihood. Strengthen top-level design and regional collaboration, promote the cross regional flow of public data resources, realize the systematic resolution of data finance to local government implicit debt, and provide support for the transformation of local fiscal model.

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