

# Overview of the Measurement and Improvement of Military Financial Expenditure Benefits\*

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**Abstract**—In 2018, China's defense spending budget increased by 8.1% and reached 11,069.51 billion yuan. As an important aspect of China's fiscal expenditure, military fiscal expenditure is related to China's national defense and army building capabilities, which affects the international status of China. This paper combs and discusses the efficiency of military financial expenditure theoretically, and analyzes the characteristics of the measurement of military financial expenditures at the macro, meso and micro levels. After comparing the changes in macro and micro fiscal expenditure benefits in terms of homogeneity, externality and measurement difficulty, it comes to the conclusion that the macro level efficiency of military financial expenditure should be studied by marginal analysis method, and the micro level efficiency of military financial expenditure should be studied by performance management method, cited by some usual research methods. Finally, starting from the different characteristics of macro and micro military expenditures, the paper summarizes the ways to improve the efficiency of military financial expenditure from both macro and micro aspects.

**Keywords**—military financial expenditure; benefit evaluation; marginal analysis; performance management

## I. INTRODUCTION

In 2017, the national general public budget expenditure was 203.33 billion yuan, and the fiscal expenditure was planned to be 1,044.397 billion yuan, a year-on-year increase of 7%, accounting for 5.1% of public budget expenditure. In the "Report on the Implementation of Central and Local Budgets in 2017 and the Central and Local Budgets in 2018", the Ministry of Finance pointed out that in 2018, China's defense budget expenditures increased by 8.1% to reach 11,069.51 billion yuan. As an important aspect of China's fiscal expenditure, military fiscal expenditure is related to China's national defense capability and the level of military modernization, which in turn affects China's

international status and determines whether China's development has a long-term peaceful and stable domestic and international environment.

## II. STUDYING THE THEORETICAL BASIS AND PRACTICAL SIGNIFICANCE OF MILITARY FINANCIAL EXPENDITURE BENEFITS

### A. Research Background and Significance

1) *Studying the benefits of military finance expenditure is conducive to ensuring the steady progress of national defense and military modernization from a financial perspective:* The long-term stable and healthy development of the national economy and the complex changes in the political environment at home and abroad requires the establishment of a strong modern army as a guarantee. Although the supply of military fees is increasing from an absolute scale, China's comprehensive financial resources are still far behind the developed countries. And compared with developed countries such as the United States, the relative scale of military expenditures of fiscal expenditure are still low, and it cannot be caught up in the short term. At present, it is in the period of important strategic opportunities for national development and military reform. The inefficient method of military expenditure management has increased rapidly in the absolute scale of military supply, while the relative proportion have decreased, which has seriously affected the full use of military expenditures and intensified the contradiction between military supply and demand and restricted the pace of national defense and army building. An important means to resolve the contradiction between the relative supply of military expenditures and the achievement of national defense goals is to improve the efficiency of military financial expenditures as a whole, to optimize the structure of military expenditures, and to promote "connotative" growth.

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2) *Studying the benefits of military financial expenditures, in line with the principle of maximizing market economic benefits:* In recent years, with the rapid development of the market economy and the deepening of the pace of military economic reform, the quality and efficiency of military expenditures have received more and more attention and attention. The contradiction between the breadth and depth of the price mechanism's role in the market economy environment and the current relatively lagging military management concepts and means make it imperative to improve the quality and efficiency of the armed police fund management. Although the goal of national defense and army building is not to pursue profit maximization, the defense sector as a public goods supplier mainly provides combat products (or deterrence). However, the operation and management of defense fees should focus on efficiency and results, and gradually step into the new track of refinement and strategic management. Strengthening the evaluation and supervision of the use of military expenditures is consistent with the trend of adapting to market economy reform.

3) *Studying the benefits of military financial expenditures is conducive to the elimination of power rent-seeking from the system:* In recent years, the army has been repeatedly exposed to major corruption cases, and some high-ranking officials in the army have involved huge amounts of corruption. Its corruption has misappropriated huge amounts of public funds and privately swallowed large areas of public land. The reason is that military finance expenditures lack supervision and have low efficiency. This provides the criminals with the possibility of corruption and fraud, prone to moral hazard and adverse selection in economics. Studying the control of the flow of military expenditures through the system and the balance of power is conducive to the elimination of corrupt officials inside the military and military expenses from being misappropriated

#### B. Concept Definition and Theoretical Analysis

Military financial expenditure benefits refer to the comparison between military labor consumption or military labor occupation in military economic activities and the effective results obtained in accordance with military needs. It is an extension and specific application of economic benefits in the field of military finance, expressed as:

$$\text{Military financial expenditure benefits} = \frac{\text{effective results obtained in line with military needs}}{\text{military labor consumption (occupation)}}$$

Military labor consumption includes two aspects: living labor consumption and materialized labor consumption. The labor consumption of living labor is usually directly expressed as the labor of military personnel, military enterprise employees and other military service personnel, and it can be calculated by the service time or monetary value. Wartime manifests itself in the consumption of the labor itself, that is, the casualties of personnel, which cannot be reflected in monetary units. The materialized labor consumption is mainly manifested in the various weapons and equipment, ammunition and other supplies actually consumed by military training and combat operations, which can be easily reflected through physical and value indicators. Military labor occupation includes two aspects: living labor occupation and materialized labor occupation. The military is a labor force. As long as it is in service, whether it is consumed or not, it takes up the potential form of living labor. Military machinery and equipment, weapons and equipment, military airports, docks, military factory rooms, barracks and training venues, etc., other than depreciation, military transportation vehicles, and military industrial products in military enterprises and military materials in reserve state are occupied by materialized labor.

The effective results of military labor refer to the results that meet the military needs of the country. The specific performance is military achievements, economic achievements, political achievements and social achievements. The core is the first two aspects. There are two forms of economic outcomes, direct and indirect. The direct economic results are to maintain the country's economic order and economic operating environment. Indirect economic outcomes are achieved by savings in labor

consumption. For example, the troops use the saved labor and funds for national economic construction through the reduction of personnel and the balance of military expenditures. The military achievements are mainly manifested in operational achievements, military training achievements and military education achievements. These achievements are difficult or even impossible to reflect with physical or value indicators, and can only be expressed indirectly through indicators such as the level of military and political training, military quality, the number of enemy casualties, and the degree of damage to enemy targets.

#### C. Characteristics of Military Financial Expenditures

The labor results of military financial expenditures are mainly manifested in the need for the state to carry out security defenses and maintain social stability of military activities or wars, that is, it manifests itself as a kind of support and destructive power and lethality to the enemy. Determined by the essential characteristics of military activities, military fiscal expenditure has its own characteristics in addition to the general attributes of fiscal expenditure:

1) *The non-profit of results:* Military expenditures as an expenditure of expenditure, the overall result is an increase in national defense capabilities, it is difficult to express monetary benefits.

2) *The relative nature of measurement:* The labor outcomes of certain economic activities in war or military training do not appear as direct monetary gains and cannot be measured in monetary units. It can only be measured indirectly and approximated. Therefore, the scientific

measurement of the benefits of military financial expenditures is a concern. Military financial expenditure cannot be measured absolutely, nor can it be the only standard to measure the benefits.

3) *The comprehensiveness of the content:* Military economic activities include different types of practical activities. Such as: Weapons, equipment and other military articles produced in military scientific research and production activities, Military fixed assets such as military projects formed in the capital construction activities of the armed forces, Military personnel and supplies in military transportation, Medical and health activities in the armed forces which ensure the health of servicemen and to prevent and treat injuries, military consumption activities which eliminate enemy effectives and safeguard national security.

4) *The externality of the role:* The result of military financial expenditure labor is the combat effectiveness of the troops and national security. And it has the characteristics shared by the whole society. It is a typical public product with strong externalities and sharing.

Through the understanding of the concept of military financial expenditure benefits and the specific analysis of the numerator and denominator in the formula, as well as the characteristics of military financial expenditures, it can be seen that the military financial expenditure benefits are difficult to measure with specific indicators.

### III. CHARACTERISTICS AND RESEARCH METHODS OF MILITARY FINANCIAL EXPENDITURE BENEFITS AT DIFFERENT LEVELS OF MACRO AND MICRO

In order to measure the benefit of this special military financial expenditure, the preset target of military financial expenditure must be defined, and then examine the labor costs and resource occupations for such military economic activities, with as little labor and resources as possible to achieve the intended goal.

The core factor in the effectiveness of military financial expenditure is to obtain military achievements in line with the needs of national security and military struggle, which is also the intended goal of military economic activities. The essence of improving the efficiency of military financial expenditure is to achieve the predetermined goals of military economic activities and rationally allocate and utilize fiscal expenditures.

#### A. *Characteristics and Comparative Analysis of Military Financial Expenditure Benefits at Different Levels of Macro and Micro*

After setting the predetermined target, the level of the research object is to be determined. Military financial expenditures are divided into macro, medium and micro military expenditures according to the scope and expenditure items. The military financial expenditure benefits are also divided into three levels. The macro-military financial expenditure benefit refers to the overall situation of the military economic development, the total input of the whole process and the total output or the total cost and the total

utility, which relates to the overall development of the national strategy. The mid-view military financial expenditure benefit refers to the contrast between the input and output of a certain department of the military economy, a certain region, a large unit, or the cost and utility. To a large extent, it is affected by the macro-military financial decision-making, but there is also relative independence. Micro-military financial expenditure benefits refer to the contrast between input and output, cost and utility of specific military units or specific military expenditure items. It is subject to the control, regulation and adjustment of macroeconomic and meso-military fiscal policies.

The three levels of military fiscal expenditure have the common characteristics, namely, the non-profit of results, the relativity of measurement, the comprehensiveness of content, and the sharing of roles. However, the homogeneity of the measurement of military financial expenditure at different levels, the comprehensiveness of the content, and the degree of externality of the role are different.

The specific components of micro-military fiscal expenditure are few, and the financial security tasks are homogenous. Under the same institutional environment and leadership management environment, it is relatively easy to measure. For example, the units of the Armed Police Force have the tasks of guarding, guarding, etc., which are relatively fixed. The corresponding financial management work guarantee tasks are relatively simple, and the expenditure and expenditure benefits are easy to establish standards for measurement. Many scholars have tried to establish a set of evaluation index system to measure the effectiveness of certain funds management. Balanced scorecard is a relatively common research method. In addition, the research on the evaluation system of military asset management benefits is relatively mature.

It involves the overall planning of the national strategy and the impact of military structure benefits on the effectiveness of military financial expenditures. The macro and meso-military financial expenditure benefits cannot be simply summed up by the measurement results of micro-military financial expenditures. Macro-military fiscal expenditures involve more military units and the content is more comprehensive, including different types of practical activities. Such as: military scientific research and production activities, military infrastructure construction activities, military transport activities, military health activities, military activities that directly destroy the enemy's vital forces to defend national security. At the same time, macro-military fiscal expenditures have formed military achievements such as overall national defense power and military deterrence. These achievements are shared by all citizens and have strong externalities. There is no objective standard for the measurement of benefits, and the subjective color is stronger.

The graph can be used to visually represent the homogeneity, externality and measurement difficulty of the measurement of the benefits from the macro to micro military expenditures, as shown in "Fig. 1":

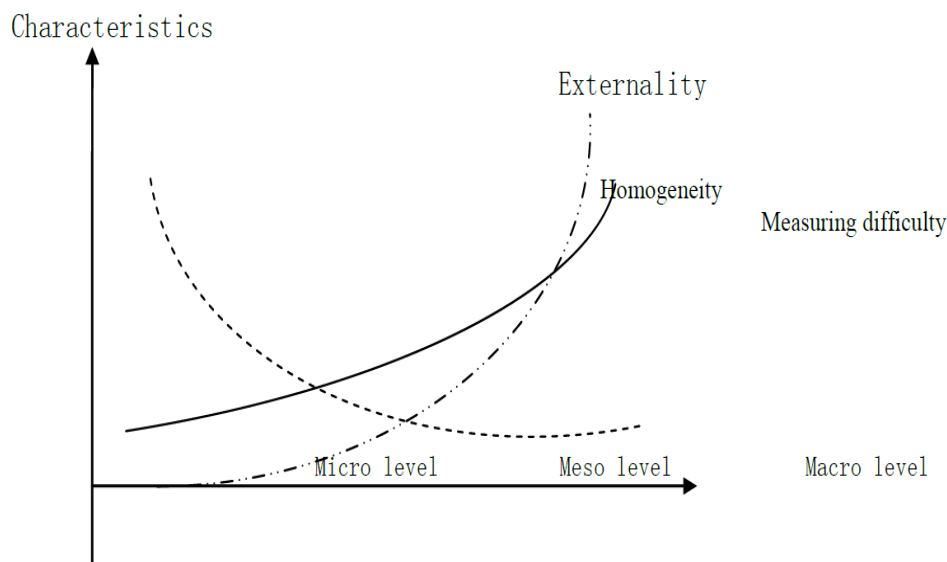


Fig. 1. Characteristics of military financial expenditures at different levels.

The more the military financial expenditure benefits are biased towards the micro level, the stronger the homogeneity, the weaker the externality, the lower the difficulty of measurement; the more the military financial expenditure benefits are toward the macro level, the weaker the homogeneity, the stronger the externality, the more difficult the measurement will be. When the level and characteristics of military financial expenditures are different, the measurement ideas and research methods are different. Specifically, the micro-military financial expenditure benefits can be borrowed from local enterprises' mature performance measurement and management methods such as balanced scorecards to regulate and control the military economic activities of all units. The macro-military financial expenditure benefits cannot be directly measured, but they can be indirectly compared with the method of marginal analysis of public economics in order to find the best way of military financial expenditure and improve the efficiency of military allocation.

#### B. Application of Marginal Analysis Method in Measuring the Benefit of Macro Military and Military Expenditure

1) *Cost-benefit analysis*: Cost-benefit analysis is often used in the analysis of public sector such as government expenditure. The method is to estimate the marginal social income and marginal social cost of a project. If the marginal social income exceeds the marginal social cost, the resource

should be allocated to the project. Usually, the present value of the net income of the investment project is calculated as the evaluation standard. The formula is (where NSB stands for social benefit; PV represents performance value; B stands for income; C stands for cost; r stands for discount rate; t stands for age; B stands for time the term.):

$$NSB = PV(B - C) = \sum_{t=0}^H \frac{B_t}{(1+r)^t} - \sum_{t=0}^H \frac{C_t}{(1+r)^t}$$

The cost-benefit analysis method can be used in the analysis of macro-military financial expenditures. After detailed investigation and demonstration, if the income of a military economic expenditure is much larger than the cost, the expenditure can be made; if the revenue is close to the cost, it needs to be done by relevant experts with further investigation and argumentation; if the income is less than the cost, the military economic expenditure should not be theoretically carried out.

2) *Marginal cost effectiveness analysis*: Sometimes the cost is difficult to estimate, but there are multiple options to achieve the same goal, study the marginal cost of different options, and find the lowest marginal cost method, called the marginal cost effectiveness analysis. As shown in "Table I":

TABLE I. MARGINAL COST VALIDITY ANALYSIS TABLE

Project	marginal cost and effect
<i>Increase medical personnel</i>	Spend 32,000 yuan each, and sacrifice one soldier less.
<i>Improve medical facilities</i>	Spend 15,000 yuan each, and sacrifice one soldier less.
<i>Each person is given a gas mask</i>	Spend 150,000 yuan each, and sacrifice one soldier less.

Comparing the marginal costs and effects of different projects and finding the same effect, the marginal cost of improving medical facilities is the lowest. Under this

circumstance, military financial expenditures need to first ensure the improvement of medical facilities, followed by



the increase of medical personnel, and the availability of gas masks to purchase gas masks.

3) *Cost-benefit analysis*: In order to apply the cost-benefit analysis method, it is necessary to determine the specific objectives, and strive to turn the target into a specific description of the performance or benefit. Then start to study solutions which are available to achieve the target, and to determine the alternative. A general analysis and cost calculation of the program can determine the human, material, and financial resources that each program may consume, that is, the utility scale. After analyzing and comparing the effects of various scenarios, the optimal solution is generated from it.

There are two methods of cost-benefit analysis: one is to stipulate benefits first, and the lowest cost to achieve benefits; the second is to stipulate the cost first, and choose to achieve the maximum benefit with the established cost.

### C. Application of Performance Management in Micro-military Financial Expenditure Benefits

The military financial expenditure benefits of micro-units are measurable and can be measured by a reasonable performance evaluation system. The combination of military performance evaluation and military internal control and audit supervision can play its due role. It should establish a supervision and evaluation mechanism, reward and punish, and establish a long-term mechanism for performance management.

1) *Index system for the evaluation of micro-military financial expenditure benefits*: The benefit evaluation index system is the standard for evaluating the benefits and is the key link for the management of military benefits. The indicator system is generally divided into three levels of structure, namely the three-level indicator system. The first-level indicator is the evaluation dimension, focusing on the strategic thinking and strategic concept of the assessment. The secondary indicators are called basic indicators, focusing on evaluating strategic objectives and focusing on the functional structure within the organization. The third-level indicators are called specific indicators and are divided into two types: factor indicators and quantitative indicators. The factor indicators are mainly qualitative indicators. The military department provides the society with defense and stability public goods. The public products have the characteristics of special product form, lack of product value and unique product elements. It is difficult to simply measure. A considerable part of military economic benefits can only be used for qualitative purposes. The quantitative indicators are mainly ratio data-type indicators which reflect a certain quantitative relationship between specific departments in terms of agreed responsibilities and performance status. These indicators also reflect the benefits of military financial expenditures from the perspective of quantitative statistics, with specific objectivity.

The weak links are identified through scores of various indicators. Reward units and individuals that strictly implement financial and economic laws and regulations so as to mobilize the enthusiasm and creativity of performance evaluation objects. Punishing the behaviors violating financial and economic laws and regulations urges the evaluation objects to improve their vigilance in the process of using budgetary funds. Government need to pay attention to financial management behavior to avoid military spending slipping in the wrong direction. The establishment of an indicator system for the evaluation of micro-military financial expenditures can improve financial work in a targeted manner, effectively reduce the ineffective cost of military expenditures, and promote the improvement of military financial expenditures.

2) *Internal control and audit supervision*: The internal control and auditing of the military is a control system and supervision system established to ensure the effective implementation of the state and public fiduciary responsibility, and to eliminate fraud, waste, abuse of power, mismanagement, etc. in the process of military financial management. The "cage" and framework of expenditures are of great significance for ensuring that military finances are not wasted, safe and complete, and are an important means of improving the efficiency of military finance expenditures.

The military's comprehensive financial expenditure supervision and evaluation mechanism includes four aspects. The first is internal supervision. Financial expenditure must ensure the accounting cashier reconciliation after the end of month. The unit shall check the accounts with bank at least once a week, check with subordinate at least once a quarter and check with superior at least once every six months to ensure that the accounts are consistent with the actual accounts. The second is joint supervision.

By using effective carriers such as "regular inspection, business review, comprehensive assessment, special audit", organizes discipline inspection personnel, financial personnel, and auditors to conduct inspections, evaluate and audit on the implementation of financial management and internal control. Then report the results and strictly investigate the responsibility. The third is to rely on the supervision of the masses. The financial department of the unit publicizes the budget implementation on the internal network of the military system on a quarterly basis and actively accepts the supervision of the masses. At the end of the year, the finance department writes a detailed analysis report on the implementation of the budget and the fund of the family, and reports to the Standing Committee of the Party Committee. For financial affairs involving the interests of the masses, the image of the organs and the general concern of the masses, distinguishing them at different levels, such as party committee leaders, government departments and grassroots units can improve the transparency of financial affairs while complying with confidentiality. The fourth is the supervision of clean government. The discipline inspection department combines the party style and clean government construction, establishes a risk prevention and control mechanism for

regular debriefing and reporting by the masses, and controls the waste and loss of the use of funds and materials through the evaluation of benefits.

#### IV. WAYS TO IMPROVE THE EFFICIENCY OF MILITARY FINANCIAL EXPENDITURE

##### A. Macro Aspects

First, promote the reform of the military financial management system and management model, and dynamically optimize the military economic structure. The military economic system includes the military budget system, the military asset management system, and the military production system. In China, due to the deep-rooted influence of the traditional planning system, the rigidity of the military economic system still exists in different degrees in various aspects. In the military economic system reform, China draws on the advanced experience of other countries. For example, like the United States, Advanced economic management methods such as balanced scorecard and informatization will be introduced into military finance. With the development of the new military revolution, the composition of the elements of combat effectiveness is constantly changing, the importance of equipment expenditure is further enhanced, the requirements for joint command and joint guarantee of various arms are increasing day by day, and the military economic structure needs to keep pace with the times and continuously optimize dynamically.

Second, relying on the national strategy of military and civilian integration to improve the efficiency of resource allocation, based on the comparative theory of social division of labor, some economic activities organized by the military, such as medical care and personnel training, have no comparative advantages and relatively low benefits compared with local governments. It is necessary to make full use of the advantages of local economic development by relying on the strategy of civil-military integration to further promotes social division of labor, reduce redundant allocation of resources, maximize economies of scale. Then the efficiency of military will be improved greatly in military production, talent training, and scientific research.

##### B. Micro Aspects

The first is to introduce performance management tools to achieve detailed management of specific projects for military financial expenditures. Since the 18th National Congress of the Communist Party of China, President Xi has made a series of important instructions on strengthening military expenditure management, repeatedly stressing that "there must be a chapter on spending money, what money can be spent, and what money can't be spent on accounting, according to saving every copper plate. The spirit sets a rule and declares the whole army to implement one." Effective management military expenditures management should focus on "The cost of spending must be effective, inefficient must be held accountable", optimize the allocation of financial resources and improve the control of expenditures. China

should ensure military expenditure is spent as effectively as possible to maximize the benefits of the military expenditure.

The second is to strengthen internal control and promote the normalization of military financial expenditure supervision. Improvement and overall planning of audit and internal control laws and regulations, measures, methods and means can help promote military financial expenditure activities to be institutionalized and standardized. The normalization of audit and the effectiveness of internal control can reasonably ensure the legal compliance of unit operation management, fair and equitable resource allocation, true and complete accounting reports and related information. In this way, the efficiency and effect of each sum of funds can be improved, and the fraudulent behaviors of units can be prevented and rectification. Finally, the efficiency of military financial expenditure can be realized.

#### V. CONCLUSION

Military performance management is an inherent requirement for deepening the reform of the military management system. This is the only way to improve the efficiency of military expenditure and rule the military according to law. The theory of financial performance evaluation has just started in the military research and application, and it has certain innovation and practicability. It is a useful exploration for improving the efficiency of the management of the armed police funds and deepening the reform of the financial management system. This paper only discusses the characteristics of the measurement of military financial expenditures at the macro, meso and micro levels and the applicable research and management methods. The specific performance management methods still need further research.

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