The Research on the Costs of Military Supplies' Emergency Protection in the Pattern of Civil-Military Integration

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Keywords: Civil-military integration, Military supplies emergency protection, Cost

Abstract: From the perspective of financial cost management and control, this article at first qualitatively analyzes the main factors affecting the costs of civil-military integration of military supplies' emergency protection. Then the relevance and regression analysis were carried out to determine the weight of each influencing factor by adopting the data involved in the implementation of emergency support tasks between two Corps during 2014-2018. Meanwhile, a primary model of the financial costs of civil-military integration of military supplies' emergency security was constructed. Finally, the costs-control measures of civil-military integration of military supplies' emergency security were put forward, which provides a reference to the Cost control optimization.

1. Introduction

The purpose of realizing the integration of military and civilian personnel in the field of emergency security of military supplies is to maximize the military benefits of emergency security of military supplies through reasonable coordination, integration and allocation of military resources, which by breaking the traditional closed self-security, and reasonably relying on the market. Through the relevant economic analysis, the integration of military and civilian in the field of military supplies emergency protection can effectively realize the resource allocation role of the market to reduce the overall emergency protection cost and improve the comprehensive protection benefits. However, in the current practice of military-civilian integration military supplies emergency protection, due to the lack of systematic analysis of factors affecting cost and scientific and effective cost evaluation system, resulting in the low effective cost of military-civilian fusion of military supplies emergency security construction, units of all levels engage in construction without cost, and focus only on results and forms. If the cost of military-civilian fusion material emergency security is not effectively managed and controlled, it will seriously hinder the reform process of military-civilian fusion logistics support. Therefore, exploring the important factors affecting the financial cost of munitions emergency support in the context of military-civilian integration and the composition of financial costs, not only to strengthen the cost awareness at all levels, and steadily improve the efficiency of emergency support of military and civilian integration of military supplies [1]. At the same time, it can further improve the theory of military-civilian integration and material security, and broaden the management and control ideas of material security costs under the background of military and civilian integration.

2. Factors Affecting Financial Costs of Emergency Support for Civil-Military Materials

In this paper, taking into account the specialty of emergency security of military-civilian materials under the background of military-civilian integration, from the perspective of financial cost management, factors affecting the financial cost are divided into four categories: military-civilian integration factor, task characteristic factor, natural environmental factor and local economic factor.

2.1 Factors on the Degree of Civil-Military Integration

Civil-military integration (the degree of civil-PAPF Integration, DCCI) refers to the degree of

  DOI: 10.25236/isetbm.2019.053

freedom of human resources, material resources, financial resources and science technology, which are based on the national macro-strategic objectives to achieve the optimal allocation between the military and civil. The influence of DCCI on the financial cost is mainly reflected in the efficiency of the army's utilization of market goods and services [2]. However, the high degree of optimal allocation of manpower, material resources, financial resources, science technology in Armed Police Force and society, that is, the degree of integration of military and civilian security is relatively high, indicating that the military-civilian cooperation mechanism is relatively sound and trading cooperation is relatively smooth. Therefore, both the military and the society will greatly reduce the resistance and cost when conducting market transactions. If the civil and military security and the level of social material mobilization are low, so the Transaction costs between the Armed Police Force and society will be higher, the utilization rate of the diversified resources of the market is low, which increases the financial cost of the emergency protection of military supplies.

2.2 Factors on the Characteristics of the Task

The characteristic of the Armed Police's mission determines the number of soldiers involved in the war, the duration of the mission will directly affect the financial cost of emergency protection of military supplies. The financial cost of emergency protection of military supplies is gradually decreased according to the level of emergency, which is particularly significant, significant, larger and general [3]. Under normal circumstances, for less harmful events, and less impact events, the number of soldiers who are dispatched is relatively less, the duration of the task is short, and the task execution style is simpler. Therefore, the financial cost for the emergency protection of military supplies will be less, on the contrary, if the Armed Police Forces out of the number of soldiers of a large scale, long duration of the mission, and the task implementation style is more complex and diverse, its financial costs will inevitably be high.

2.3 Factors of Natural Environment

Because of the special characteristic of emergency protection of military supplies, when the natural environment is not conducive to the completion of the task, it will improve the time, difficulty and human and material standards of emergency protection. Natural environmental factors mainly include weather and terrain. Weather has a wide impact on emergency protection activities: if the temperature suddenly changes sharply, it will inevitably lead to extremely unstable demand for military supplies. Terrain also has a greater impact on it: the transportation, processing, storage and accurate delivery of the military supplies required by the forward-deployed forces are affected by the topography and geomorphology, if the mission area terrain is favorable, then cost of emergency security financial is lower, on the contrary, the financial cost of emergency protection will be much higher than the former.”

2.4 Factors of Local Economy

The impact of local economic factors on the financial cost of emergency security mainly lies in the financing cost of military supplies. If the mission area economic conditions are poor and lack of resources which make it difficult to raise supplies in a timely manner, then military supplies department must allocate the emergency financing from outside the mission area through various channels, which will inevitably lead to the financial cost of emergency protection of materials higher than the cost of mission area. At the same time, if the task area price index is high and the purchasing power of the currency is limited, it also increase the financial cost of emergency protection. However, if the regional market is more mature, the market is more open and free, and the local supplier will be more effective, which will reduce the financial cost of emergency protection of military supplies.

3. The Assessment and Measurement of the Financial Costs Components of the Civil-Military Integration of Military supplies’ Emergency Protection

In order to construct the primary model of the financial cost of military-civilian fusion military

supplies emergency protection, this paper extracts the main aspects of the financial cost of emergency security in the four factors mentioned above [4]. Directly assess the integration of military and civilian in the factors of military-civilian integration; and the number of soldiers involved and task duration are extracted from the characteristic of the mission factors; extracts the task area price levels from the local economic factors. Due to the number of involved soldiers, the duration of the mission, the level of price in the mission area, and total financial expenditure incurred during the entire munitions emergency support process can be consulted the Armed Police Force financial department and combat department or access to information to obtain the corresponding data, so this article mainly analyzes DCCI and natural environment factors.

3.1 Assessment and Measurement of Dcci

It can be assumed that the DCCI= $\frac{\text{Social security resource usage}}{\text{Total security resource usage}} = \frac{X1}{X}$. The total time of the munitions emergency support action on a static time point(t), material (w), funds (r), personnel (l) vehicle equipment (c) and other resources (k) used for military equipment emergency support operations at a static time point as the current military needs. The sum of the resources occupied by the material security action (K=F[tk, wk, rk, lk, ck,...]), the total amount of resources occupied by the local service guarantee (J=G[tj, wj, rj, lj, cj,...]) as the amount of utilization of civilian resources. Since the flow of funds is a good indication of resource occupancy, the formula can be simplified again. If the payment for the purchase of local security materials and the cost of self-consumption are set to Ni and Mi, the calculation formula for the degree of integration of military and civilian integration is $\rho=\frac{Ni}{Ni+Mi}\times 100\%$.

3.2 Assessment and Measurement of Natural Environment Factors

Considering that the impact of natural environment factors on financial costs is mainly reflected in the transportation, this paper selects the transportation cost incurred in emergency protection to measure this factor. In this paper, the transportation cost incurred in the process of material emergency protection is mainly divided into the requisition local vehicle cost C1, military vehicle fuel loss cost C2 and vehicle maintenance cost C3. The data of fuel consumption cost C2 can be found in the military finance department. Based on these data and combined with the prevailing market price, it is converted into a monetary value and included in the cost of transportation. The requisition of local vehicle costs C1 involved in the pre-transportation process and cost of repairing with social maintenance power is the cost of vehicle maintenance C3, which the relevant expenses incurred during the mission period can be obtained through the finance department. Then the impact of natural environmental factors on the financial cost of military-civilian fusion military supplies emergency protection is represented by the sum of the above three, namely C=C1+C2+C3.

4. Establishment of the Financial Costs Model of Civil-Military Integration of Military supplies' Emergency Protection

In order to accurately construct the financial cost model of military-civilian fusion military supplies emergency protection. The author investigates and counts the above-mentioned relevant data involved in the emergency protection of military supplies in 2013-2018. After the data was initially processed, correlation and regression analysis were performed on the data using Spss13.0. Among them, the DCCI, the number involved soldiers, the duration of the mission, the transportation cost and the price level of the mission area are respectively represented by X1, X2, X3, X4, and X5. The financial cost of military-civilian integration of military supplies emergency protection is represented by Y.

4.1 Correlation Analysis

The results show that total financial cost Y of the military-civilian integrated military supplies emergency support is significantly negatively correlated with DCCI X1,and is significantly positively correlated with the number of involved soldiers X2, the duration of the mission X3, the

transportation cost X4, and the price level of the mission area X5. The correlation analysis results are shown in Table 1.

Table 1 Correlation Coefficient Table

	DCCI	Number of involved soldiers	Task duration	Transportation costs	Price level	Total financial costs
DCCI	1					
Number of involved soldiers	0.087	1				
Task duration	0.076*	0.828**	1			
Transportation costs	0.033	0.060	0.020	1		
Price level	-0.055*	-0.025	-0.117	0.077*	1	
Total financial Costs	-0.691**	0.772**	0.780**	0.390*	0.260*	1

Note: "*" indicates a significant correlation at the 0.05 level (both sides). "**" represents a significant correlation on the 0.05 level (both sides).

4.2 Regressive Analysis

Before the regression analysis of the financial cost of military-civilian fusion military supplies emergency security is carried out, at first, we should diagnose the multi-collinearity problem between the independent variables of the regression model. The test results show that the variance expansion coefficient VIF of each variable is between 1.260 and 1.569, both less than 10.Therefore, there is no serious multi-collinearity problem between the five independent variables. Forced entry is used in the regression analysis of the financial cost of emergency protection, and the regression results are shown in Table 2. The results showed that the DCCI, the number of involved soldiers, the duration of the mission, the transportation cost and the price level explained the total financial cost of 66.7% variation.

Table 2 Regressive Results of Military and Civilian Integration Military Supplies Emergency Protection Financial Cost

Variable name	Model (dependent variable: total financial cost)
(Constant)	85.96 (2.645)
DCCI	-0. 034** (-3.394)
Number of involved soldiers	0. 384** (3.298)
Task duration	0. 441** (4.987)
Transportation costs	0.560* (5.280)
Price level	0.043* (3.298)
F	48.954
R2	0.667
Adjust R2	0.638

Note: * and ** respectively represented at the levels of 10% and 5%; the value in parentheses is the value of t.

4.3 Construction of Financial Cost Primary Model

According to the above regressive analysis results, the following formula can be used to express the military-civilian fusion of military materials security financial costs C=-0.034X1+0.384X2+0.441X3+0.560X4+0.043X5+85.96.

5. Suggestions on the Control of Financial Costs of the Civil-Military Integration of Military supplies' Emergency Protection

According to the above-constructed financial cost model of military-civilian fusion military supplies emergency protection, the following three suggestions are put forward for some controllable factors involved in the model:

5.1 Further Promote the Deep Development of Civil-Military Integration in the Field of Military Logistics

At present, the national defense field and the national economy are dominant in terms of material resources, talents, science and technology. Strengthening the integration of military and civilian can greatly reduce costs and improve the use of funds. Using the talent technology in the national field, transferring the non-core tasks of the PAP to the local industry, developing social potential and resources, and taking the military-civilian integration development path is an effective way to build a low-cost, high-quality military supplies security team. [2]At present, civil-military integration has developed into a national strategy. [5]The management system, work operation system and policy system of the civil-military integration development organization have been initially formed, However, the formation of a comprehensive, multi-domain and high-efficiency military-civilian integration development pattern, the establishment of an integrated national strategic system and capabilities, and the formation of a scale of military-civilian integration will still need to be promoted by all parties. As a result, it is necessary to further promote the in-depth development of the military-civilian integration strategy, to solve the institutional obstacles, structural contradictions and policy problems that affect and restrict the integration of military and civilian development, and to achieve low-cost and high-efficiency development in the military logistics field [6].

5.2 Strengthen the Protection of Regional Environmental Investigation and Scientifically Transfer the Capacity of Transportation

Occupying regional environmental information can gain an advantage in military demand security, and it plays a very important role in scientifically invoking capacity and effectively carrying forward the military supplies [7]. Therefore, we should pay attention to improving the input of information on military security, so as to mobilize vehicles scientifically and successfully complete the pre-transportation of military supplies. First, we should strengthen the investigation of the transport environment in the protected areas. To the geographical environment of the region, the traffic routes to conduct a comprehensive survey, so as to facilitate the scientific development of military supplies before the route, reduce the unnecessary costs. Second, it is necessary to strengthen the investigation of local transportation capacity resources in the protected areas. Make full use of the troops' own capacity and local transportation capacity, and integrate their respective advantages to complete the pre-transportation of military supplies faster and better. Third, we should strengthen the investigation of vehicle maintenance resources in the protection areas. Take advantage of local maintenance efforts to resolve vehicle damage in transit faster, ensure smooth transportation, reduce transportation and maintenance costs.

5.3 Form Procurement Order to Reduce the Cost of Material Financing

The military-civilian integrated emergency support, the financing of military supplies is mostly derived from the procurement of local suppliers, and the effective management of the financing of materials can reduce the cost of protection. First, to strengthen the supervision of bidding review, strict operating procedures, reduce the cost of supplier selection. In order to adapt to the characteristics of military-civilian integration of military-civilian security, in accordance with the principle of "simple and practical, emphasize characteristics, Unified concentration and dispersion, strict regulations", to determine the audit procedures and effectively conduct auditing supervision on all aspects of military material security. Second, choose to build a visual system for emergency material financing. If you do not know the market in time, you will not understand the market,

which may result in mistakes in decision-making, resulting in the shortage of supplies or oversupply, and quality of emergency materials is not guaranteed.[8] The third is to strengthen the supervision of the whole process of emergency material financing. In the emergency materials mobilization work, the quality of emergency materials should be strictly controlled. The departments of industry and commerce, quality inspection, and hygiene at all levels should closely cooperate to strengthen the quality inspection and supervision of emergency materials. We should use economic means, supplemented by the necessary administrative means, to control the price of emergency supplies. [9]Any commodity that is priced by the government and the price under the government's guidance must strictly enforce the price set by the government.

6. Conclusion

According to the result of the correlation analysis, regression analysis, and the financial costs model of Civil-military integration of military supplies' emergency protection, the degree of civil-military integration , the number of officers and men, tasks, duration, transportation costs, the price level has significant positive effect to the costs of Military Supplies' Emergency Protection in the Pattern of Civil-military integration. Therefore, in order to further control the financial cost in the emergency support of military supplies and promote the realization of cost-benefit maximization, it is necessary to do a good job in the above aspects of cost control.

Acknowledgement

This research was financially supported by Theory research project of Logistics University of PAP: Study on Influencing Factors of Human Resources Supply for Civil Servant.

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