



Study on Reform of Management Mechanism of Veterans Participating in Volunteer Service

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Abstract. Through an empirical analysis of veterans' willingness to participate in volunteer service in Chengdu-Chongqing area, this paper found that exogenous variables such as service years, educational level and gender of veterans, as well as endogenous variables such as return and harvest, external support, service channels and participation projects of veterans had a significant impact on their willingness to participate in volunteer service. In order to improve the willingness of veterans to participate in volunteer service, the current management department of veterans should improve the organizational system and strengthen the standardized management, improve information docking to ensure supply and demand match, establish a normal guarantee to eliminate worries, implement various incentives to demonstrate personal value.

Keywords: Veterans, Volunteer service, Management mechanism

1 Introduction

In recent years, reports on voluntary public welfare activities conducted by the veterans affairs department or voluntary service teams of veterans have frequently been hot searches, and veterans have won wide respect from the society, which has triggered our new thinking on the role and value of veterans in the new era. [1][2][3] Veterans have made great contributions to the country and the people during their service, and are still high-quality human resources of the society after their retirement. They can give full play to their strengths and advantages, actively participate in volunteer service activities, and better integrate into social life and realize their own value in the process of boosting economic and social development. [4][5] However, at present, there are problems of low understanding level and low research degree of veterans' participation in volunteer service, and theoretical research lags far behind the needs of practical development.

Through empirical analysis of veterans' willingness to participate in volunteer service in Chengdu-Chongqing area, this paper explores the main influencing factors and influencing mechanism of veterans' participation in volunteer service, and provides

data support and theoretical guidance for the management department of veterans to guide and motivate veterans to participate in volunteer service activities.

2 Empirical Analysis of Veterans' Willingness to Participate in Volunteer Service in Chengdu-Chongqing Area

2.1 Data Sources

We designed a questionnaire on veterans' willingness to participate in volunteer service in Chengdu-Chongqing area. By using the three-stage sampling survey method, the veterans were selected from 11 main urban areas in Chengdu and 9 main urban areas in Chongqing.

It is estimated that the total number of veterans in 20 districts and counties in Chengdu-Chongqing area is about 2 million. Based on this, the optimal sample size $n=384.16$ for formal sampling is determined. In order to ensure the reliability of data and collect sufficient sample size, we expanded the number of questionnaires issued to 480, and finally recovered 442 questionnaires, of which 403 were valid, with an effective rate of 95.3%.

2.2 Questionnaire Design and Variables Description

Based on the characteristics of veterans' participation in volunteer service activities, we designed eight exogenous variables in the questionnaire, including gender, age, educational level, occupation, current income, service years, service branches, and professional expertise during service. Eight endogenous variables (as shown in Table 1), including concern level, service approach, participation project, service duration, reward harvest, external support, incentive form, and guarantee mode of veterans' participating in volunteer service, are also included to measure their impact on the willingness and degree of veterans' participating in volunteer service.

Each endogenous variable contains 5 indicators, and the degree of each indicator is measured by using 5-level Likert scale, with 1-5 indicating the degree increases in turn.

2.3 Data Analysis

2.3.1 Establishment of Model.

In order to simplify the modeling process, we set the veterans' willingness to participate in volunteer service as 0 if they are 4 or 5, that is, they are not willing to participate in volunteer service. If the willingness is 1, 2, 3, it is 1, that is, willing to participate in volunteer service. A binational logistic regression model is developed to examine the relationship between concern level (G1), service approach (G2), participation project (G3), service duration (G4), reward harvest (G5), external support (G6), incentive form (G7), guarantee mode (G8), and willingness to participate (Y).

A binomial logistic regression model is a classification model represented by a conditional probability distribution $P(Y|X)$ in the form of a parameterized logical

distribution. Here the random variable X is a real number, and the random variable Y is either 1 or 0. In this study, X is a set of random vectors, namely $X=(G_1, G_2, G_3, G_4, G_5, G_6, G_7, G_8)$, and Y is the willingness to accept. Our binomial logistic regression model is as follows:

$$\ln \frac{p}{1-p} = \alpha + \beta_1 G_1 + \beta_2 G_2 + \beta_3 G_3 + \beta_4 G_4 + \beta_5 G_5 + \beta_6 G_6 + \beta_7 G_7 + \beta_8 G_8$$

Where p represents the probability that the intention to participate $Y=1$, and $1-p$ represents the probability that the intention to participate $Y=0$.

2.3.2 Selection of Model.

We call the difference between the actual predicted output of the model and the real output of the sample "error", the error of the model on the training set is called "training error", and the error on the test set is called "generalization error". Obviously, we want to get a model with low generalization error. Therefore, we used the 10-fold cross-validation method to divide the sample into 10 mutually exclusive subsets of similar sizes, each subset should maintain the consistency of data distribution as much as possible, that is, each subset is obtained from the sample through stratified sampling. Then, the union of 9 subsets is used as the training set at a time, and the remaining subset is used as the test set, so that you can obtain 10 training sets and test sets, so that you can conduct 10 training and test, and finally return the average of the 10 test results, as shown in Figure 1.

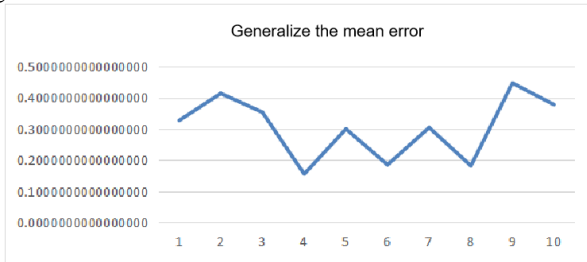


Fig. 1. Ten-fold Cross-validation Diagram

We select the group of models with the lowest mean generalization error, that is, Group 8, as shown in Table 1.

Table 1. Ten-fold Cross-validation Table

Class number	Mean test error	Generalize the mean error
1	0.12195121951219512	0.3272294601219204
2	0.2195121951219512	0.4139161645970035
3	0.14634146341463417	0.3534482133216937
4	0.025000000000000022	0.1561249499599599

5	0.09999999999999998	0.29999999999999993
6	0.0357142857142857	0.18557687223952263
7	0.10344827586206895	0.304543478149236
8	0.03448275862068961	0.18246560765962705
9	0.27586206896551724	0.44694763437295587
10	0.1724137931034483	0.37773969483114905

As shown in Table 2, the significance of the eight independent variables is less than 0.05, and all of them can pass the significance test, indicating that there is a significant correlation between the participation intention of veterans and the concern level, service approach, participation projects, service duration, reward harvest, external support, incentive forms, and guarantee mode.

Table 2. Summary of Logistic Regression Analysis Results

Variables	Regression coefficient	Standard error	Z -value	Wald x2	P -value	OR -value	95%CI
Concern level	-0.7180	0.209	-3.429	0.001	0.015	-10.308	0.257~0.485
Service approach	0.3821	0.387	1.038	0.299	0.001	6.161	0.674~0.893
Participation project	0.3706	0.483	0.768	0.443	0.256	5.317	0.723~0.926
Service duration	-0.1942	0.378	-0.514	0.607	0.018	3.547	0.660~0.946
Reward harvest	0.4097	0.450	0.713	0.476	0.001	7.202	0.733~0.919
External support	0.3991	0.452	0.816	0.415	0.005	6.256	0.706~0.964
Incentive form	0.1640	0.444	-0.369	0.712	0.049	2.707	0.667~0.855
Guarantee mode	0.3446	0.415	0.830	0.407	0.237	1.159	0.706~0.896
Intercept	-0.0284	0.771	1.051	0.001	0.089	0.000	0.000~0.027

As can be seen from Table 2, the model can be expressed as:

$$\ln \frac{p}{1-p} = -0.0284 - 0.7180G_1 + 0.4021G_2 + 0.3706G_3 - 0.1942G_4 + 0.3207G_5 + 0.3691G_6 - 0.1640G_7 + 0.3446G_8$$

2.3.3 Evaluation of Model.

There are many metrics you can choose from to evaluate the performance of your model. In this study, we chose to investigate the prediction accuracy and AUC values of the model, the specific values are shown in Table 3.

Table 3. Prediction Accuracy of Logistic Regression

		Predicted value		Prediction accuracy	Prediction error rate
		0	1		
True value	0	43	6	86.05%	13.95%
	1	11	343	96.79%	3.21%
collect				95.60%	4.40%

As shown in Table 3, the overall prediction accuracy of the model is 95.60%, and the simulation fitting is acceptable. When the true value is 0, the prediction accuracy is 86.05%. When the true value is 1, the prediction accuracy is 96.79%.

The ROC curve of the model is shown in Figure 2.

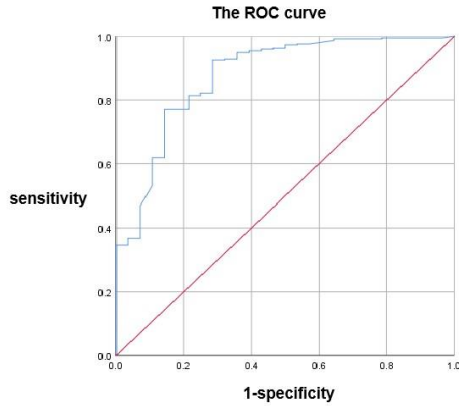


Fig. 2. ROC Curve

The calculated AUC value is 0.9891, which is close to 1, indicating that the model has a good fitting effect.

2.3.4 Analysis and Conclusion of the Model.

Table 4. Comparison Table of OR Value

Variables	OR-value
Concern level	-10.308
Service approach	6.161
Participation project	5.137
Service duration	3.547
Reward harvest	7.202
External support	6.256
Incentive form	2.707
Guarantee mode	1.159

As shown in Table 4, the odds ratio (OR value) of the concern level is -10.308, meaning that the willingness to participate decreased by 10.308 units for every unit increase in the concern level. This is consistent with common sense that the more worried veterans are about the prospect of volunteering, the more cautious they become about volunteering and the less willing they are to participate. As for the concern of most respondents about participating in volunteer service, how to further regulate the process of participating in volunteer service will be the key to promote the participation of veterans in volunteer service.

The odds ratio (OR value) of service approach is 6.161, which means that the participation intention increases by 6.161 units for every unit increase in the service approach. This shows that veterans are more inclined to participate in volunteer service through organizational channels. The promotion of veterans' participation in volunteer service requires the government, communities, veterans affairs departments and other units to take the initiative to effectively connect veterans volunteers with the served objects, and further improve the efficiency of veterans' participation in volunteer service.

The odds ratio (OR value) of participating projects is 5.317, that is, the participation intention increases by 5.317 units for each additional unit of participating projects. This shows that as long as the establishment of voluntary service projects that veterans consider meaningful, it can better stimulate the willingness of veterans to participate. For veterans, volunteer service projects that reflect their advantages and highlight their unique values can give them a sense of accomplishment and satisfaction, and stimulate their willingness to participate in volunteer service.

The odds ratio (OR value) of service duration is 3.547, that is, the participation intention increased by 3.547 units for every unit increase in service duration. In these fast-paced times, veterans generally lack large chunks of free time to volunteer. Therefore, the relevant departments should arrange the volunteer service time reasonably, and make the time of veterans' participating in volunteer service more flexible, so as to enhance their willingness to participate in volunteer service.

The odds ratio (OR value) of reward harvest is 7.202, which is the largest among the eight variables, meaning that the willingness to accept increases by 7.202 units for every unit increase in reward harvest. This shows that veterans are very concerned about the benefits of participating in volunteer service, and the more lucrative the rewards, the stronger the willingness to participate. For veterans, many years of service experience has made them somewhat disconnected from the society. Therefore, social recognition and recognition of veterans can enhance their sense of accomplishment and satisfaction.

The odds ratio (OR value) of external support is 6.256, that is, for every unit increase in external support, participation intention increases by 6.256 units. This advantage ratio was the second highest among all variables, indicating that veterans expect more support from society for their participation in volunteering. Therefore, the government and the community should give more support to the veterans to participate in volunteer service, and enhance the sense of accomplishment and satisfaction of the veterans to participate in volunteer service.

The odds ratio (OR value) of Incentive form is 2.707, that is, every increase of incentive form by one unit, participation willingness increases by 2.707 units. This means that veterans pay less attention to incentive forms such as bonuses, certificates and promotions, and veterans participate in volunteer service more for the purpose of increasing social recognition, giving play to their personal advantages and enhancing self-confidence.

The odds ratio (OR value) of security mode is 1.159, that is, the participation intention increases by 1.159 units for every unit increase of security mode. This means that veterans are relatively less concerned about how to secure their participation in volunteering. In spite of this, the government and the community still need to provide more comprehensive protection for the veterans who participate in volunteer service, and increase investment in funds, materials and other aspects, reflecting the importance of the society to the participation of veterans in volunteer service.

3 Proposals for Reform of the Management Mechanism for the Participation of Veterans in Voluntary Service

The above empirical analysis results show that at this stage, most of the veterans have a high degree of willingness to participate in volunteer service. They believe that participation in volunteer service can increase social identity, integrate into social life as soon as possible, establish new social relations, broaden interpersonal circle, and demonstrate their own value, enhance self-confidence and obtain a sense of accomplishment in volunteer service. But they also have concerns about volunteering. They believe that the current participation in voluntary service lacks standardized organization and coordination, appropriate ways and means, adequate material support, professional training guidance and so on. Based on this, in order to improve the willingness of veterans to participate in volunteer service and to better play the role and value of veterans, the management department of veterans should reform and innovate the management mechanism from the following aspects.

3.1 Improve the Organizational System

The veterans affairs department may set up professional volunteer service teams based on the advantages and talents of the veterans in chemical prevention and epidemic prevention, medical and health care, rescue and disaster relief, etc., carry out volunteer services with distinct themes, prominent focuses and rich connotations, highlight their characteristics, display their talents and highlight their characteristics, and transform the professional advantages of the veterans into volunteer service advantages.^[6]

The veterans affairs department may set up full-time veterans volunteer service management posts, which are specifically responsible for organizing and mobilizing the majority of veterans to participate in volunteer services in accordance with laws and regulations, and incorporate voluntary volunteer behaviors of veterans into a standardized management system.

Establish a management system for veterans volunteer service in collaboration with multiple departments. The Bureau of Veterans Affairs gives full play to the role of the Party organization as a fighting fortress, strengthens ideological and political guidance, and ensures the correct political direction, value orientation and work orientation of the volunteer service of veterans. The veterans service center (station) shall be responsible for establishing, managing and supervising the veterans volunteer service team, directing and coordinating its voluntary service activities. Civil affairs departments, emergency management departments, Communist Youth League committees, financial departments, tax departments, etc., can give policy support to the volunteer service work of veterans. The community can serve as the main front to guide veterans to volunteer service.^[7]

3.2 Improve Information Interconnection

Improve the information management system for veterans. The veterans service center (station) can rely on the community to conduct detailed investigation and analysis of the gender, age, education level and current occupation of the veterans, comprehensively assess the data information of the veterans, and improve the information management system of the veterans on this basis, and carry out real-time dynamic updates. Then sort out the professional fields and advantages of veterans, according to the classification of management and qualification. For veterans with professional skills or experience in chemical prevention and epidemic prevention, engineering construction, medical and health care, material transportation, rescue and disaster relief, a special database can be established to provide more accurate information for veterans to participate in volunteer services. After the veterans service center (station) accepts the volunteer service demand, the task demand is entered into the veterans information management system, which can quickly and accurately identify the types of personnel needed, and recommend the relevant types of veterans information for screening and coordination. The powerful information management system for veterans can lay the necessary information foundation for veterans to participate in volunteer service and ensure the precision of volunteer service work for veterans.

Establish a supply and demand docking mechanism for veterans to participate in volunteer services. Veterans are widely dispersed in various regions, units and posts, and the relevant departments lack the necessary channels to organize and gather them quickly. Relevant departments can make full use of the Internet, big data, blockchain and other technologies to establish a unified national veterans volunteer service management platform to achieve integrated management of online registration, review and supervision, information transmission, rapid response, service records, assessment and evaluation, and quantitative scoring of volunteer services. Relying on the veterans volunteer service management platform, the local veterans service center (station) can guide and deploy the veterans volunteer service work in the area according to the time and cause, achieve the accurate scheduling of the specific area and special category of volunteer service team, and improve the pertinence of the veterans volunteer service work.

3.3 Establish a Normal Guarantee

The veterans affairs department may incorporate the volunteer service of veterans into the overall arrangement of basic funds, provide necessary financial guarantee for the special work of the veterans service center (station), and the veterans service center (station) provides necessary materials, equipment, subsidies, personal accident insurance and other material guarantee for the veterans participating in volunteer service.

Emergency management departments, civil affairs departments, Communist Youth League committees, civilization offices and other relevant departments can flexibly adopt government purchase, entrust, lease, employment and other ways to actively cultivate and support distinctive veterans volunteer service projects.

Social organizations, enterprises, institutions, the public and other social forces are encouraged to provide funds, materials, equipment, insurance and other resources for voluntary service projects of veterans through donations.^[8]

3.4 Implement Various Incentives

The recognition and publicity of the voluntary service of veterans should be normalized, and the role of honor and incentive should be played. The advanced models emerging in the participation of veterans in volunteer service should be deeply excavated, and platforms such as television, newspapers, newspapers and Internet new media should be fully utilized to increase publicity, report, demonstration and propaganda, convey the good voice of veterans to the society, establish a good image of veterans, let more people know about the role and contribution of veterans, and improve the society's respect and attention to veterans. The veterans who have outstanding volunteer service performance should be commended and publicized in a timely manner to stimulate their sense of honor and gain.^{[9][10]}

A special reward fund for veterans should be set up to provide economic incentives. It can be funded by the department of veterans affairs, or raise funds from enterprises, individuals, charitable organizations and other social channels to establish a special reward fund for veterans, and timely give certain economic rewards to veterans who have participated in outstanding volunteer services.

Keep close contact with the employer and play the role of job motivation. Communicate and coordinate with employers, give priority to recommending high-quality jobs for veterans who have outstanding volunteer service performance, or recommend them to employers in a timely manner as the criteria for priority promotion and reuse, evaluation and promotion.

Cooperate with taxation and other administrative departments to give full play to the role of fiscal and tax incentives. Communication and coordination with tax, finance and other administrative departments, the tax department can provide veterans who have outstanding performance in volunteer service with special tax reduction and preferential policies for entrepreneurship, the financial department can give the veterans three years after the completion of the three-year business loan full financial discount interest.

4 Conclusion

Through an empirical analysis of veterans' willingness to participate in volunteer service in Chengdu-Chongqing area, this paper found that exogenous variables such as service years, educational level and gender of veterans, as well as endogenous variables such as return and harvest, external support, service channels and participation projects of veterans had a significant impact on their willingness to participate in volunteer service. In order to improve the willingness of veterans to participate in volunteer service, the current management department of veterans should improve the organizational system and strengthen the standardized management, improve information docking to ensure supply and demand match, establish a normal guarantee to eliminate worries, implement various incentives to demonstrate personal value.

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