

# **A Study on The Strategies of Stable Poverty Alleviation and Sustainable Livelihood Capability of Rural Elderly Single Group in The Post-Well-Off Era: Taking Sichuan as An Example**

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**Keywords:** Poverty alleviation; livelihood capability; Vulnerability to poverty; Governance research; post-well-off era.

**Abstract:** We choose the rural elderly single group in Sichuan as the research object, construct the livelihood capability indicator system by capability approach and CRITIC empowerment method, and use regression analysis to explore the relationship between livelihood capability and vulnerability to poverty. Combined with theoretical and empirical analysis, we put forward closely related and feasible policy suggestions for Sichuan Province to consolidate the achievements of poverty alleviation and promote rural revitalization.

## **1. Introduction**

The research on rural elderly single group is of great significance to the long-term balanced development of population, consolidation of poverty alleviation and rural revitalization. To have great command of the real situation of this group, the most effective way is to evaluate their livelihood capability and their stability of getting out of poverty [1-4], which needs some analysis methods including regression, correlation test and so on [5-6]. Based on the analyses above, we can generalize the advantages and flaws of this group, putting forward strategies to solve their problems.

## **2. The fundamentals of evaluation system of rural elderly single group**

### **2.1 Measurement of livelihood capability index**

#### **(1) Indicator system of livelihood capability variables**

Based on the capability approach, DFID has put forward an idea of building a livelihood capability framework—"Sustainable Livelihoods Guidance Sheets [7]", which is now widely adopted academically and used to construct livelihood capability framework according to the needs of research.

In this framework, livelihood capital is the key to evaluate the rural elderly single group, which is divided into 5 parts: financial capital, human capital, social capital, natural capital and physical capital.

Starting from the five core elements of livelihood capital, combined with the characteristics of the research object and the research results, we select the following indicators to construct the livelihood capacity framework.

For financial capital, the economic situation is selected as the indicator of livelihood capability.

For human capital, the educational level and health status are selected as indicators of livelihood capability.

For social capital, status of being single and social security are selected as indicators of livelihood capability.

For natural capital, land is selected as the indicator of livelihood capability.

For physical capital, the situation of support is selected as the indicator of livelihood capability.

## (2) Calculation method of livelihood capability index

Based on the livelihood capability framework, the livelihood capability index (LCI) of an individual is defined as the sum of the individual's score of livelihood capability indicators multiplied by the corresponding weight of the livelihood capability indicators. The larger the livelihood capability index, the stronger the livelihood capability.

Note that the  $i$ -th livelihood capability indicator is  $x_i$ , the weight of the  $i$ -th livelihood capability indicator is  $\beta_i$ , The formula for calculating the livelihood capability index is:

$$LCI = \sum_{i=1}^n \beta_i x_i \quad (1)$$

## 2.2 Measurement of poverty alleviation stability

We use per capita income to build a vulnerability to poverty index (VPI). The specific steps can be summarized as the following steps.

Calculate the actual income level. If the total household income of an interviewee is  $TI$ , the number of family members is  $P$ , and the per capita income is  $AI$ , there is:

$$AI = \frac{TI}{P} \quad (2)$$

1. Determine the vulnerability to poverty line for this group.

2. Calculate the vulnerability to poverty index. For the vulnerability to poverty index, we divided all the respondents into two categories: income above and below the vulnerability to poverty line. The vulnerability to poverty indexes of the two groups are respectively  $VPI_a$ ,  $VPI_b$ , and the value of the vulnerability to poverty line is  $D$ , so the formulas are defined as follows:

$$\begin{aligned} VPI_a &= \frac{1}{AI - D} \\ VPI_b &= |AI - D| \end{aligned} \quad (3)$$

Of these,  $a$  and  $b$  indicate above and below the vulnerability to poverty line respectively.

## 3. Empirical research results

### 3.1 Data sources and survey methods

From October 2021 to February 2022, the research team travelled to the villages of Yibin, Luzhou, Leshan, Nanchong, Chengdu and other places, visited more than a thousand villagers, collected and sorted out the data by means of questionnaire survey and field interview, and collected 1209 questionnaires for rural elderly single group. After checking the integrity and logical consistency of the questionnaires, a total of 847 valid questionnaires were screened out, and the effective questionnaire rate was 70.06%.

### 3.2 Empirical analysis of the impact of vulnerability to poverty on stable poverty alleviation

The stability of poverty alleviation can be defined as: the income and living conditions of farmers who get rid of poverty can continue to stay above the standard of poverty alleviation and have a certain ability to withstand the impact of family and external risks [8].

According to the previous research design, we analyzed the survey data and obtained the analysis results as shown in the following table:

Table 1 Regression coefficients of different variables between two groups sorted by poverty line

Variables from different indicators	Vulnerability to poverty of people with incomes above the poverty line	Vulnerability to poverty of people with incomes below the poverty line
Livelihood capability index	-1.902** (0.23)	-3.509*** (0.23)
Total income (logarithmic)	-0.656** (0.46)	-1.139*** (0.62)
Agricultural profits (logarithmic)	0.04* (4.24)	-0.048** (4.53)
Income from migrant work (logarithmic)	-0.005 (5.25)	-0.039* (4.89)
Age	0.111*** (5.42)	0.113** (5.03)
Total income from farming (logarithmic)	0.036 (4.43)	-0.045** (4.77)
Wage income (logarithmic)	-0.024 (4.23)	-0.015 (4.75)
Degree of support	2.064*** (0.27)	-2.623*** (0.30)
Years of education	-2.516*** (0.19)	-3.013** (0.23)
Degree of education	-2.054*** (0.21)	-2.991** (0.25)
Note: "**", "***" and "****" indicate significant at 10%, 5% and 1% respectively, with standard errors in parentheses, the same as below. In addition to the indicators mentioned in the livelihood capability framework, a number of other relevant indicators are examined here.		

From this, we can draw the following conclusions:

1. The vulnerability to poverty of rural elder single groups increases with age.
2. There is a negative correlation between years of education, degree of education and vulnerability to poverty of rural elder single groups.

At the same time, the above two groups of income levels also show some differences:

1. The livelihood capability index and total income have a relatively small impact on people with incomes above the poverty line. For this group, their risk of returning to poverty can be explained by their demographic characteristics such as "older", "single" and "undereducated".
2. For those whose income is below the poverty line; the livelihood capability index and total income are the decisive factors of their poverty problem.

#### 4. Analysis of stable poverty alleviation strategy

Through a large number of literatures reading and analysis, combined with the framework of livelihood capability and the theoretical basis of stable poverty alleviation, viewing the problems of rural older single groups, we put forward the following stable anti-poverty strategies:

- Construct and perfect the social network and increase the social capital of this group.
- Improve and innovate the mechanism of government support to rural elderly single group.
- Strengthen education and training to improve the human quality of this group and increase their human capital.
- The government should play an active role as marriage intermediary and promote the solution to the single problem of this group.

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