



# Evaluation of Livelihood Capital of Poverty Alleviation Households in Northwest China

Zhiyi Xu<sup>(✉)</sup>

School of Government, Beijing Normal University, Beijing, China  
201931260020@mail.bnu.edu.cn

**Abstract.** Livelihood capital is the basis for poverty alleviation households to earn a living, and the improvement and optimization of livelihood capital is the key to governance of relative poverty. In order to accurately evaluate the livelihood capital of poverty alleviation households, this paper uses the entropy method to establish an evaluation system for the livelihood capital of poverty alleviation households, and evaluates the livelihood capital of poverty alleviation households in Shaanxi, Gansu and Ningxia. The results show that the livelihood capital of poverty alleviation households in Shaanxi, Gansu and Ningxia is still at a relatively low level. Among them, the livelihood capital of poverty alleviation households in Ningxia Hui Autonomous Region is the best among the three provinces, and the livelihood of poverty alleviation households in Shaanxi Province is the worst among the three provinces.

**Keywords:** Livelihood Capital Assessment · Entropy Method · Northwest China

## 1 Introduction

Livelihood capital is the basis for farmers to increase production and income and is also the source of power for sustainable development. The lack of scientificity in the total amount and structure of livelihood capital will seriously hinder the realization of farmers' livelihood goals. At present, the focus of China's poverty alleviation work has shifted to alleviating relative poverty, and relative poverty governance has become an important measure to stabilize the effectiveness of poverty alleviation, prevent a return to poverty, and assist the rural revitalization strategy, as well as the main means to reduce livelihood vulnerability. After the elimination of absolute poverty, based on China's basic national conditions and development stage, the problem of relative poverty will continue to exist, and it is urgent to put the problem of relative poverty in a prominent position, especially in the northwest region where the level of economic development is relatively backward. The livelihood capital of poverty alleviation households is a collection of various resources for poverty alleviation households to earn a living. It is at the core of the sustainable livelihood analysis framework and is the basis for farmers to carry out livelihood activities and make livelihood arrangements. Therefore, the situation of the livelihood capital of the poverty alleviation households is the key to the governance of relative poverty, and the assessment of the livelihood capital of the poverty alleviation households is the basis for the follow-up research and work.

© The Author(s) 2023

Y. Chen et al. (Eds.): ICMETSS 2022, ASSEHR 693, pp. 429–441, 2023.

[https://doi.org/10.2991/978-2-494069-45-9\\_53](https://doi.org/10.2991/978-2-494069-45-9_53)

## 2 Method

### 2.1 Indicator Selection

In the framework of sustainable livelihood analysis, the livelihood capital of farmers is composed of five types of capital, including physical capital, natural capital, financial capital, human capital and social capital [1]. Referring to previous research, this paper measured 10 the five types of livelihood capital by citing 10 indicators. Physical capital includes: house and drinking water [2]. The housing conditions of the poverty alleviation households are measured by whether they have safe housing, and the drinking water conditions of the poverty alleviation households are measured by the way of drinking water. Natural capital includes: cultivated area and forage area [3]. Because the sample data in this paper are from three provinces of Shaanxi, Gansu and Ningxia, most of the poverty alleviation households in this area will carry out animal husbandry, and forage resources are a necessary condition for animal husbandry, so this paper adds the forage area indicator to the natural capital. Financial capital includes: poverty alleviation microcredit and agricultural insurance [4, 5], measuring the poverty alleviation microcredit situation of poverty alleviation households by the amount of poverty alleviation microcredit, and measure the agricultural insurance situation of poverty alleviation households by whether they participate in agricultural insurance. Human capital includes: age and mandarin [6], the main age of users is an indicator of age, and the proportion of households who can speak Putonghua is used to measure the Putonghua situation of poverty alleviation households. Social capital includes: personal relationship and social concern [7]. The number of times the person in charge of assistance visits the poverty alleviation households in a year is used to measure the personal relationship of the poverty alleviation households, and the number of channels for the poverty alleviation households to obtain village information is used to measure the social concern of the poverty alleviation households. The specific evaluation indicators of the livelihood capital of the poverty alleviation households are shown in Table 1.

### 2.2 Entropy Method

In addition to scientifically selecting the evaluation indicators of the livelihood capital of the poverty alleviation households, this paper refers to the evaluation method of the livelihood output of the poverty alleviation households, and selects the entropy method to calculate the weight of each indicator, to achieve an objective evaluation of the livelihood capital level of the poverty alleviation households. The indicator weight determination process is as follows:

Step 1: Standardization of indicator data. To eliminate the large differences in units, magnitudes and types of each indicator data, each indicator data should be standardized before the indicator weight is determined. In this paper, the extreme value method in the normalization method is used to process the index data, and the data value is limited in the range of 0 to 1, thereby eliminating the adverse effects of extreme value samples and realizing the convergence and dimensionless quantification of the index data.

Suppose there are  $n$  evaluation indicators and  $m$  samples in the system,  $x_{ij}$  ( $i = 1, 2, \dots, m, j = 1, 2, \dots, n$ ) is the value of the  $j$ th indicator under the  $i$ th sample, and  $y_{ij}$

**Table 1.** The Evaluation Index System of Livelihood Capital of Poverty Alleviation Households

Primary Indicator	Secondary Indicator	Indicator Description	Indicator Property	Indicator Source
Physical Capital A <sub>1</sub>	House B <sub>1</sub>	Is there safe housing?	Positive indicator	Huang Zhigang, etc., 2021
	Drinking Water B <sub>2</sub>	Tap water, centralized water supply facilities, decentralized independent water collection, decentralized independent water storage.	Positive indicator	
Natural Capital A <sub>2</sub>	Cultivated Area B <sub>3</sub>	The per capita arable land area of the village.	Positive indicator	Lin Jing, etc., 2021
	Forage Area B <sub>4</sub>	Per capita pasture area in the village.	Positive indicator	
Financial Capital A <sub>3</sub>	Poverty Alleviation Microfinance B <sub>5</sub>	Amount of Poverty Alleviation Microcredit.	Positive indicator	Wu Lijuan, Li Ding, 2019
	Agricultural Insurance B <sub>6</sub>	Whether to participate in agricultural insurance?	Positive indicator	Cui Yalan, Lu Dehong, 2018
Human Capital A <sub>4</sub>	Age B <sub>7</sub>	Age of head of household.	Negative indicator	Wang Guohong, 2018
	Mandarin B <sub>8</sub>	Percentage of families who speak Mandarin.	Positive indicator	
Social Capital A <sub>5</sub>	Personal Relationship B <sub>9</sub>	The number of visits to the person in charge of assistance in a year.	Positive indicator	Liu Hongbin, Wang Jinhao, 2016
	Social Concerns B <sub>10</sub>	Number of channels for obtaining village information.	Positive indicator	

is the value of  $x_{ij}$  after normalization. The formula is as follows:

$$y_{ij} = \begin{cases} \frac{x_{ij} - x_{min}}{x_{max} - x_{min}} + 0.01, & x \text{ is a positive indicator} \\ \frac{x_{max} - x_{ij}}{x_{max} - x_{min}} + 0.01, & x \text{ is a negative indicator} \end{cases} \quad (1)$$

where positive indicators are normalized using the first equation in (1), and negative indicators are normalized using the second equation Ln (1). In addition, the Ln function will be used when calculating the information entropy. In order to avoid the meaningless influence of Ln (0), this paper performs non-negative translation on all normalized values, that is, adds 0.01 to all values.

Step 2: Calculate the weights.

First, use the standardized index data to calculate the proportion  $P_{ij}$  of the  $j$ th index under the  $i$ th sample. The formula is as follows:

$$P_{ij} = \frac{y_{ij}}{\sum_{i=1}^m y_{ij}} \quad (2)$$

Second, calculate the information entropy of the  $j$ th index, the formula is as follows:

$$e_j = -\frac{1}{\ln m} \sum_{i=1}^m p_{ij} \ln p_{ij} \quad (3)$$

Finally, calculate the weight of the  $j$ th indicator, the formula is as follows:

$$W_j = \frac{1 - e_j}{\sum_{j=1}^n (1 - e_j)} \quad (4)$$

Step 3: Calculate the livelihood capital score of the  $i$ th sample, the formula is as follows:

$$S_i = \sum_{j=1}^n W_j \times P_{ij} \quad (5)$$

### 3 Results

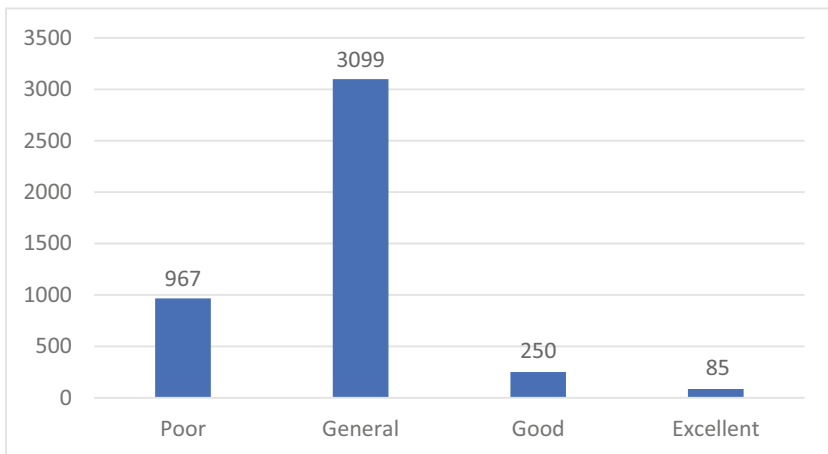
Through the calculation and sorting of 5 first-level indicators and 10 s-level indicators of the livelihood capital evaluation system of poverty alleviation households in Shaanxi, Gansu and Ningxia, the weight of each indicator in the entire evaluation system is obtained. The specific results are shown in Table 2.

First, standardize the raw data of poverty alleviation households to eliminate the influence of dimensions on the results. Secondly, the standardized data is calculated according to the weight ratio, and the livelihood capital score of each poverty alleviation household is obtained. Finally, according to the score, the K-means cluster analysis method is used to divide the livelihood capital score of poverty alleviation households into 4 levels, they are poor grade [0.0383, 0.1633], a total of 967 households, accounting for 21.97%, general grade [0.1634, 0.2985], a total of 3099 households, accounting for 70.42%, good grade [0.2986, 0.4808], a total of 250 households, accounting for 5.68%, Excellent grade [0.4809, 0.8132], a total of 85 households, accounting for 1.93%. The specific results are shown in Fig. 1.

On the whole, the average score of livelihood capital of poverty alleviation households in Shaanxi, Gansu and Ningxia is 0.2077, which is in the general level.

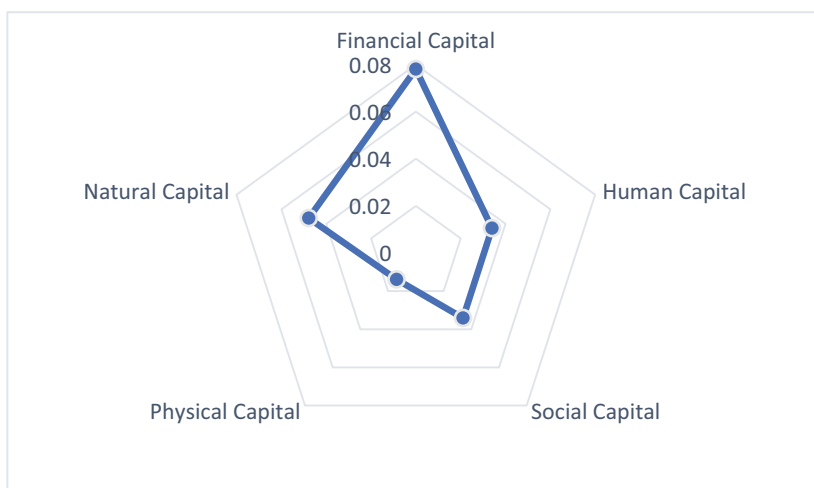
**Table 2.** Weights of Evaluation Indicators for Livelihood Capital of Poverty Alleviation Households

Primary Indicator	Secondary Indicator	Comprehensive weight
Physical Capital A <sub>1</sub>	House B <sub>1</sub>	0.0032
	Drinking Water B <sub>2</sub>	0.0113
Natural Capital A <sub>2</sub>	Cultivated Area B <sub>3</sub>	0.1011
	Forage Area B <sub>4</sub>	0.436
Financial Capital A <sub>3</sub>	Poverty Alleviation Microfinance B <sub>5</sub>	0.101
	Agricultural Insurance B <sub>6</sub>	0.0853
Human Capital A <sub>4</sub>	Age B <sub>7</sub>	0.0254
	Mandarin B <sub>8</sub>	0.0753
Social Capital A <sub>5</sub>	Personal Relationship B <sub>9</sub>	0.0815
	Social Concerns B <sub>10</sub>	0.0799



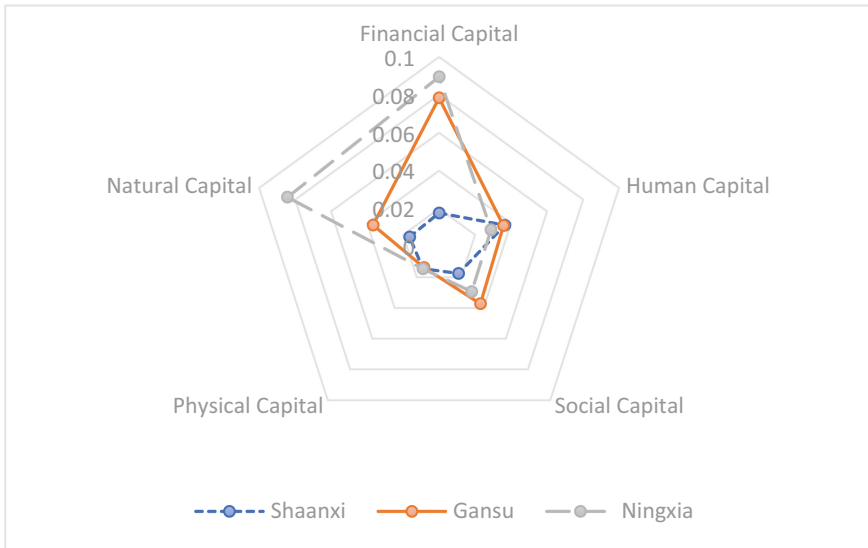
**Fig. 1.** Distribution of livelihood capital of various poverty alleviation households in Shaanxi, Gansu and Ningxia

From the perspective of various types of capital, in terms of physical capital, the poor grade [0, 0.0032], a total of 39 households, accounting for 0.89%, the general grade [0.0033, 0.0070], a total of 272 households, accounting for 6.18%, good grade [0.0071, 0.0113], a total of 83 households, accounting for 1.89%, excellent grade [0.0114, 0.0145], a total of 4007 households, accounting for 91.05%, the average score of the material capital of the poverty alleviation households in Shaanxi, Gansu and Ningxia is 0.0139, in an excellent grade, and most of the poverty alleviation households. The social capital of 3227 households is in the excellent grade, indicating that the material resource endowment of the poverty alleviation households in Shaanxi, Gansu and Ningxia is high; in terms of natural capital, the poor grade [0.0035, 0.0489], a total of 3227 households, accounting for 73.32%, the general grade [0.0490, 0.1477], a total of 975 households, accounting for 22.15%, good grade [0.1478, 0.3700], a total of 187 households, accounting for 4.25%, excellent grade [0.3701, 0.5371], a total of 12 households, accounting for 0.27%, the natural capital of poverty alleviation households in Shaanxi, Gansu and Ningxia. The average score is 0.0478, which is in the poor grade. The natural capital of most poverty alleviation households is in the poor grade and the general grade, indicating that the natural resource endowment of the poor households in Shaanxi, Gansu and Ningxia is low; in terms of financial capital, the poor grade [0, 0.0455], a total of 863 households, accounting for 19.61%, general grade [0.0456, 0.1005], a total of 3336 households, accounting for 75.8%, good grade [0.1006, 0.1282], a total of 195 households, accounting for 4.43%, excellent grade [0.1283, 0.1863], a total of 7 households, accounting for 0.16%, the average score of financial capital of poverty alleviation households in Shaanxi, Gansu and Ningxia is 0.0780, which is in the general grade, and the financial capital of most poverty alleviation households is in the poor grade and general grade, indicating that the financial resource endowment of the poverty alleviation households in Shaanxi, Gansu and Ningxia is low. In terms of human capital, the poor grade [0.0011, 0.0236], a total of 915 households, accounting for 20.79%, the general grade [0.0237, 0.0390], a total of 1811 households, accounting for 41.15%, the good grade [0.0391, 0.0671], a total of 1673 households, accounting for 38.01%, excellent grade [0.0672, 0.0933], a total of 2 households, accounting for 0.05%, the average human capital score of the poverty alleviation households in Shaanxi, Gansu and Ningxia is 0.0340, which is in the general grade, and the human capital of most poverty alleviation households is in the general grade and good grade, indicating that the human resource endowment of the poverty alleviation households in Shaanxi, Gansu and Ningxia is average; in terms of social capital, the poor grade [0, 0.0260], a total of 1823 households, accounting for 41.42%, the general grade [0.0261, 0.0431], a total of 1402 households, accounting for 31.86%, good grade [0.0432, 0.0613], a total of 762 households, accounting for 17.31%, excellent grade [0.0614, 0.1015], a total of 414 households, accounting for 9.41%, Shaanxi-Gansu. The average score of social capital of poverty alleviation households in Ningxia is 0.0341, which is in the general level. The social capital of most of the poverty alleviation households is in the poor grade and the general grade, indicating that the social resource endowment of the poverty alleviation households in Shaanxi, Gansu and Ningxia is low. The average scores of various types of livelihood capital are shown in Fig. 2.



**Fig. 2.** The average score of various types of livelihood capital of poverty alleviation households in Shaanxi, Gansu and Ningxia

Judging from the three provinces of Shaanxi, Gansu and Ningxia, the average score of livelihood capital of poverty alleviation households in Shaanxi Province is 0.1024, the average score of livelihood capital of poverty alleviation households in Gansu Province is 0.2017, and the average score of livelihood capital of poverty alleviation households in Ningxia Hui Autonomous Region is 0.2464. In the classification of the livelihood capital of the poverty alleviation households in Shaanxi, Gansu and Ningxia, the average score of the livelihood capital of the poverty alleviation households in Shaanxi Province is at the poor level, and the average score of the livelihood capital of the poverty alleviation households in Gansu Province and Ningxia Hui Autonomous Region is at the general level. In terms of physical capital, the average physical capital score of poverty alleviation households in Shaanxi Province is 0.0144, the average physical capital score of poverty alleviation households in Gansu Province is 0.0136, and the average physical capital score of poverty alleviation households in Ningxia Hui Autonomous Region is 0.0145. In terms of capital classification, the average physical capital scores of poverty alleviation households in Shaanxi Province, Gansu Province and Ningxia Hui Autonomous Region have excellent grades. In terms of natural capital, the average score of the natural capital of poverty alleviation households in Shaanxi Province is 0.0164, the average score of the natural capital of poverty alleviation households in Gansu Province is 0.0367, and the average score of the natural capital of poverty alleviation households in Ningxia Hui Autonomous Region is 0.0843. In terms of capital classification, the average score of natural capital of poverty alleviation households in Shaanxi and Gansu provinces is in the poor grade, and the average natural capital score of poverty alleviation households in Ningxia Hui Autonomous Region is in the general grade. In terms of the financial capital, the average score of the financial capital of poverty alleviation households in Shaanxi Province is 0.0177, the average score of financial capital of poverty alleviation households in Gansu Province is 0.0784, and the average score of financial capital



**Fig. 3.** The average score of various types of livelihood capital in the three provinces of Shaanxi, Gansu and Ningxia

of poverty alleviation households in Ningxia Hui Autonomous Region is 0.0895. In terms of capital classification, the average financial capital score of poverty alleviation households in Shaanxi Province is in the weak financial capital, and the average financial capital score of poverty alleviation households in Gansu Province and Ningxia Hui Autonomous Region is in the general level. In terms of human capital, the average human capital score of poverty alleviation households in Shaanxi Province is 0.0365, the average human capital score of poverty alleviation households in Gansu Province is 0.0358, and the average human capital score of poverty alleviation households in Ningxia Hui Autonomous Region is 0.0288. In terms of capital classification, the average human capital score of poverty alleviation households in Shaanxi Province, Gansu Province and Ningxia Hui Autonomous Region is at the general level. In terms of social capital, the average social capital score of poverty alleviation households in Shaanxi Province is 0.0175, the average social capital score of poverty alleviation households in Gansu Province is 0.0372, and the average social capital score of poverty alleviation households in Ningxia Hui Autonomous Region is 0.0293. In the classification of capital, the average social capital score of poverty alleviation households in Shaanxi Province is in the poor grade, and the average social capital score of poverty alleviation households in Gansu Province and Ningxia Hui Autonomous Region is in the general grade. The average scores of various types of livelihood capital in the three provinces of Shaanxi, Gansu and Ningxia are shown in Fig. 3.

Judging from the distribution of various types of personnel in Shaanxi, Gansu and Ningxia, among the 242 sample households in Shaanxi Province, 211 households are in the poor grade, accounting for 87.19%, 31 households are in the general grade, accounting for 12.81%, and none sample households are in the good grade and the excellent



grade. In terms of physical capital of sample households in Shaanxi Province, 8 households are in the good grade, accounting for 3.31%, 234 households are in the excellent grade, accounting for 96.69%, and no sample households are in the poor grade and the general grade. In terms of natural capital of sample households in Shaanxi Province, all sample households are in the poor grade, accounting for 100%. In terms of financial capital of the sample households in Shaanxi Province, 210 households were in the poor grade, accounting for 86.78%, 32 households were in the poor grade, accounting for 13.22%, and no sample households were in the good grade and the excellent grade. In terms of human capital of sample households in Shaanxi Province, 30 households are in the poor grade, accounting for 12.4%, 105 households are in the general grade, accounting for 43.39%, 107 households are in the good grade, accounting for 44.21%, and no sample households are in the excellent grade. In terms of social capital of sample households in Shaanxi Province, 214 households are in the poor grade, accounting for 88.43%, 23 households are in the general grade, accounting for 9.5%, 5 households are in the good grade, accounting for 2.07%, and no sample households are in the excellent grade.

Among the livelihood capital of 3027 sample households in Gansu Province, 688 households are in the poor grade, accounting for 22.73%, 2182 households are in the general grade, accounting for 72.08%, 100 households are in the good grade, accounting for 3.3%, and 57 households are in the extreme grade. Good grade, accounting for 1.88%. In terms of physical capital of sample households in Gansu Province, 39 households are in the poor grade, accounting for 1.29%, 270 households are in the general grade, accounting for 8.92%, 66 households are in the good grade, accounting for 2.18%, and 2652 households are in the excellent grade, accounting for 87.61%. In terms of natural capital of sample households in Gansu Province, 2,419 households are in poor grade, accounting for 79.91%, 546 households are in general grade, accounting for 18.04%, 62 households are in good grade, accounting for 2.05%, and no sample households are in excellent grade. In terms of financial capital of the sample households in Gansu Province, 564 households are in the poor grade, accounting for 18.63%, 2463 households are in the general grade, accounting for 81.37%, and no sample households are in the good grade and excellent grade. In terms of human capital of sample households in Gansu Province, 538 households are in poor grade, accounting for 17.77%, 1113 households are in general grade, accounting for 36.77%, 1374 households are in good grade, accounting for 45.39%, and 2 households are in excellent grade, accounting for 0.07%. In terms of social capital of sample households in Gansu Province, 1079 households are in the poor grade, accounting for 35.65%, 975 households are in the general grade, accounting for 32.21%, 600 households are in the good grade, accounting for 19.82%, and 373 households are in the excellent grade, accounting for 12.32%.

Among the livelihood capital of 1132 sample households in Ningxia Hui Autonomous Region, 68 households are in poor grade, accounting for 6.01%, 886 households are in general grade, accounting for 78.27%, 150 households are in good grade, accounting for 13.25%, and 28 households are in good grade. Excellent grade, accounting for 2.47%. In terms of physical capital of sample households in Ningxia Hui Autonomous Region, 2 households are in the general grade, accounting for 0.18%, 9 households are in the good grade, accounting for 0.8%, 1121 households are in the

excellent grade, accounting for 99.03%, and no sample households are in the poor grade. Grade. In terms of natural capital of sample households in Ningxia Hui Autonomous Region, 566 households are in poor grade, accounting for 50%, 429 households are in general grade, accounting for 37.9%, 125 households are in good grade, accounting for 11.04%, and 12 households are in excellent grade, accounting for 1.06%. In terms of financial capital of sample households in Ningxia Hui Autonomous Region, 89 households are in poor grade, accounting for 7.86%, 841 households are in general grade, accounting for 74.29%, 195 households are in good grade, accounting for 17.23%, and 7 households are in excellent grade, accounting for 0.62%. In terms of human capital of sample households in Ningxia Hui Autonomous Region, 347 households are in the poor grade, accounting for 30.65%, 593 households are in the general grade, accounting for 52.39%, 192 households are in the good grade, accounting for 16.96%, and no sample households are in the excellent grade. In terms of social capital of sample households in Ningxia Hui Autonomous Region, 530 households are in the poor grade, accounting for 46.82%, 404 households are in the general grade, accounting for 35.69%, 157 households are in the good grade, accounting for 13.87%, and 41 households are in the excellent grade, accounting for 3.62%. According to the above statistical results of various types of personnel in Shaanxi, Gansu and Ningxia, this paper makes a table on the distribution of livelihood capital of poverty alleviation households in Shaanxi, Gansu and Ningxia. See Table 3 for details.

**Table 3.** Distribution of Livelihood Capital of Poverty Alleviation Households in The Three Provinces of Shaanxi, Gansu and Ningxia

	Grade	Shaanxi	Gansu	Ningxia
Livelihood Capital	Poor	211 (87.19%)	688 (22.73%)	68 (6.01%)
	General	31 (12.81%)	2182 (72.08%)	886 (78.27%)
	Good	/	100 (3.3%)	150 (13.25%)
	Excellent	/	57 (1.88%)	28 (2.47%)
Physical Capital	Poor	/	39 (1.29%)	/
	General	/	270 (8.92%)	2 (0.18%)
	Good	8 (3.31%)	66 (2.18%)	9 (0.8%)
	Excellent	234 (96.69%)	2652 (87.61%)	1121 (99.03%)

(continued)

**Table 3.** (continued)

	Grade	Shaanxi	Gansu	Ningxia
Natural Capital	Poor	242 (100%)	2419 (79.91%)	566 (50%)
	General	/	546 (18.04%)	429 (37.9%)
	Good	/	62 (2.05%)	125 (11.04%)
	Excellent	/	/	12 (1.06%)
Financial Capital	Poor	210 (86.78%)	564 (18.63%)	89 (7.86%)
	General	32 (13.22%)	2463 (81.37%)	841 (74.29%)
	Good	/	/	195 (17.23%)
	Excellent	/	/	7 (0.62%)
Human Capital	Poor	30 (12.4%)	538 (17.77%)	347 (30.65%)
	General	105 (43.39%)	1113 (36.77%)	593 (52.39%)
	Good	107 (44.21%)	1374 (45.39%)	192 (16.96%)
	Excellent	/	2 (0.07%)	/
Social Capital	Poor	214 (88.43%)	1079 (35.65%)	530 (46.82%)
	General	23 (9.5%)	975 (32.21%)	404 (35.69%)
	Good	5 (2.07%)	600 (19.82%)	157 (13.87%)
	Excellent	/	373 (12.32%)	41 (3.62%)

On the whole, the livelihood capital of poverty alleviation households in Shaanxi, Gansu and Ningxia is still at a relatively low level. Among them, the livelihood capital of poverty alleviation households in Ningxia Hui Autonomous Region is the best among the three provinces, and the livelihood of poverty alleviation households in Shaanxi Province is the best among the three provinces. Difference. Among the various types of

livelihood capital, the financial capital and natural capital owned by the poverty alleviation households in the three provinces are relatively rich in various types of capital, while the physical capital ownership is relatively lacking. The material capital, natural capital and financial capital of the poverty alleviation households in Ningxia Hui Autonomous Region are the largest among the three provinces, and the human capital and social capital of the poverty alleviation households in Gansu Province are the largest among the three provinces.

## 4 Conclusions

This paper uses the entropy method to evaluate the livelihood capital of the poverty alleviation households in Shaanxi, Gansu and Ningxia. The details are as follows: The livelihood capital of the poverty alleviation households in Shaanxi, Gansu and Ningxia is still at a relatively low level. Among them, is the livelihood of the poverty alleviation households in the Ningxia Hui Autonomous Region The capital situation is the best among the three provinces, and the livelihood situation of the poverty alleviation households in Shaanxi Province is the worst among the three provinces. Among the various types of subsistence capital owned by the poverty alleviation households in the three provinces, financial capital and natural capital are relatively abundant, while physical capital is relatively scarce. The lack of physical capital will affect the comfort and convenience of life of poverty alleviation households on the one hand, and the efficiency of their production and labor, especially the convenience of water resources. Helpful. The poverty alleviation households in Ningxia Hui Autonomous Region have the largest amount of material capital, natural capital and financial capital among the three provinces, and the poverty alleviation households in Gansu Province have the largest amount of human capital and social capital among the three provinces.

## References

1. DFID. Sustainable livelihoods guidance sheets[M]. London: Department for International Development, 1999.
2. Huang Zhigang, Li Jie, Wang Jing. Optimization Effect Analysis of Farmers' Livelihood Capital Combination on Income in Poor Areas——Based on 778 Farmer Household Survey Data in Shaanxi[J]. Journal of Agrotechnical Economics, 2021(07): 79–91.
3. Lin Jing, Liao Wenmei, Huang Huajin, Wang Jiawei. Will the policy of completely stopping commercial logging of natural forests affect the livelihood capital of forest farmers? [J]. Forestry Economy, 2021, 43(10): 5–20.
4. Wu Lijuan, Li Ding. Research on the Influence of Financial Capital on Farmers' Income Increase under the Background of Targeted Poverty Alleviation——Based on the Perspective of Internal Income Stratification and Regional Differences [J]. Journal of Agrotechnical Economics, 2019(02): 61–72.
5. Cui Yalan, Lv Dehong. The Impact of Livelihood Capital on the Default of Loans for Targeted Poverty Alleviation of Poor Farmers and Its Sequence [J]. Financial Theory & Practice, 2018(10): 38–44.

6. Wang Guohong. The Influence of Human Capital Accumulation and Out-migration Employment on the Income of Rural Residents in Minority Areas——An Empirical Study Based on the Data of the 2013–2015 Major Survey in Minority Areas [J]. *Ethno-National Studies*, 2018(03): 27–41+123–124.
7. Liu Hongbin, Wang Jianhao. The Impact of Social Capital on Migrant Workers' Urban Integration in the Pearl River Delta Region [J]. *Jiangxi Social Sciences*, 2016, 36(12): 200–207.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

