

Research on the promotion mechanism and path algorithm optimization of endogenous development ability intelligent measurement using AF method and logistic regression——From the perspective of farmers' income structure in Tibet related areas on the plateau

Qiulin Li, Heyu Zhang, Yan Liu*, Lintong Yu

Sichuan Agricultural University, Chengdu, China

* Corresponding Author Email: 52962408@qq.com

liqiulin0118@163.com

597177725@qq.com

1085189088@qq.com

Abstract. Farmers' income is an important factor restricting the endogenous development capacity of farmers in the post-poverty alleviation era, and few existing studies have been located in Tibet-related areas of the plateau to explore the endogenous development capacity of farmers from the perspective of farmers' income structure. Based on the data related to the endogenous development capacity of poverty-alleviated farmers in Tibet-related areas of the Plateau of Sichuan Province obtained in 2021, an intelligent measurement system for the endogenous development ability of farmers is constructed and measured using the AF method, and the relationship between the income structure of farmers and their endogenous development capacity is analyzed by logistic regression. The results show that operating income, property income and wage income have obvious role in promoting endogenous development capacity, and there is a certain negative correlation between transfer income and farmers' endogenous development capacity; and relevant suggestions for achieving sustainable development and optimizing the endogenous development capacity of farmers in Tibet-related areas of the plateau in the post-poverty alleviation period are proposed.

Keywords: Endogenous development ability; Income structure; Tibet related areas on the plateau; Sustainable development; Promotion mechanism.

1. Introduction

"Fighting poverty is a hard battle that must be won and done well. It is a solemn commitment made by our party to the people of the whole country." Since the 18th CPC National Congress, the CPC Central Committee has led people's organizations of all ethnic groups to implement the largest and strongest battle against poverty in human history. The cause of poverty alleviation in China has been gradually promoted, and remarkable results have been achieved in poverty alleviation. In 2020, the general secretary delivered a speech at the Symposium on the decisive battle against poverty, pointed out that we should take poverty eradication as a new starting point, continue to promote the effective connection between comprehensive poverty eradication and rural revitalization, and pointed out that the endogenous development capacity of some poor people is insufficient." For a long time, Tibet related areas have a wide range of poverty. Tibet related areas include four provinces and 12 autonomous prefectures, and the degree of poverty is deep. Therefore, Tibet related areas are still key areas for poverty alleviation, and still face new poverty problems such as relative poverty, developmental poverty and returning to poverty. Consolidating the achievements of poverty alleviation will become the primary task of anti-poverty work in the new era, The endogenous development ability of poverty alleviation in Tibet related areas is the key to consolidate the achievements of poverty alleviation and link up Rural Revitalization.

Based on the perspective of farmers' income structure in Tibet related areas on the plateau, exploring the mechanism and path of endogenous power improvement in the post epidemic era can enable us to see more clearly the impact of the four types of transfer income, operating income, wage income and property income on the four endogenous development abilities of poverty-stricken farmers: including economic ability, social ability, cultural ability and political ability, so as to provide support for better optimizing farmers' income structure, improving farmers' human capital and improving farmers' living standards.

Based on the previous research on endogenous development ability, from the perspective of Ethnology and Finance, this paper takes low-income farmers in Tibet related areas on the plateau of Sichuan Province as the research object, and uses logistic regression model to study the correlation between farmers' income structure and their endogenous development ability. The first part is the introduction, the second part is the literature review, and the next is the theoretical hypothesis, the fourth part is the research design, the fifth part is the empirical analysis, and finally the conclusion and prospect.

2. Journals reviewed

Scholars at home and abroad have done research on improving the endogenous development ability of poverty alleviation from multiple angles. The continuous increase of farmers' income is very important to curb the return to poverty. However, only pursuing the increase of farmers' total income and ignoring the rationality of income structure can not long promote the improvement of farmers' endogenous development ability in Tibet related areas on the plateau. Yang ting (2016) demonstrated the subjective and objective reasons for spiritual poverty alleviation, emphasized the importance of spiritual poverty alleviation in addition to material poverty alleviation, and proposed that spiritual poverty alleviation should stimulate the endogenous development ability of cadres and people in poor areas at the same time, and the internal factors are the decisive factors. Endogenous development ability refers to the power generated by the subject due to its own initiative in the process of practice, emphasizing that it is generated by the subject independently, Fu Anguo (2020) pointed out in the qualitative research on the mechanism of endogenous development ability to get rid of poverty that the core category of endogenous development ability to get rid of poverty is defined as "the sum of the positive aspects of the three elements of values, self-concept and behavior tendency to get rid of poverty". To sum up, endogenous development capacity refers to the willingness, needs and motivation of low-income people to get rid of poverty and get rich spontaneously. There have been studies on the influencing factors of the endogenous development ability of the people out of poverty, mainly focusing on the two dimensions of social psychology and public policy. On the one hand, the dimension of social psychology focuses on the impact of poor individuals' endogenous factors on their endogenous development ability to get rid of poverty. Cohn (2015), Chenmin (2013) and mendolia (2014) introduced "negative emotional state and pressure" and "(negative) exogenous income shock" based on situational experiments, verified that people facing exogenous shock pressure such as low income level, disaster and unemployment can lead to negative emotional state, and pointed out that poor groups will gradually lose control of emotion and control in the face of poverty. On the other hand, the dimension of public policy focuses on the impact of exogenous institutional factors such as aid and poverty alleviation on the endogenous development ability of poverty alleviation. Kun Yan (2016) actively carried out theoretical innovation on poverty alleviation with Chinese characteristics by absorbing the reasonable part of China's existing theoretical viewpoints, and put forward suggestions on key areas of economic development from the perspective of poverty reduction. Kunyan (2016) made a comparative study on the poverty alleviation situation and poverty alleviation theory and practice of countries around the world, divided developed countries and developing countries into two categories, and made a comparative analysis of international poverty alleviation theory and practice, so as to more clearly and scientifically understand and accelerate the development of poverty alleviation theory and practice in China. Finally, there are scholars' research on the endogenous

development ability of poverty alleviation from the two aspects of comprehensive social psychology and public policy. Rachid Laajajaj (2017) analyzed psychological factors, assumed multiple internal selves including rationality and non bias to measure external self-expression, and studied that the therapeutic effect of the endogenous development ability of the poor to get rid of poverty is affected by the expectation of welfare payment. Daskon C and McGregor A (2012) explored how cultural assets can sustain a poor family in Sri Lanka. The study found that specific cultural traditions and subsequent material output are important incentives to stimulate the desire to get rid of poverty and achieve the goal of livelihood. Cao M(2016) established a complete two-tier linear model based on the existing research framework of Liangshan Yi Autonomous Prefecture to identify the key factors affecting farmers' willingness to poverty. The results of the model show that the scale of workers, the degree of education of workers and the cost of disease are the incentive factors. On the whole, the research on poverty culture and poverty psychology originated in the west, and there have been a large number of theoretical and empirical studies. The research conclusions basically agree that poverty will lead to poverty culture among poor groups, and then reduce their endogenous development ability to get rid of poverty. The dimension of public policy mostly explores the impact of public policies such as social assistance and targeted poverty alleviation on the endogenous development ability of recipients to get rid of poverty from the perspective of welfare dependence.

In addition, many domestic scholars have also discussed the main factors affecting the endogenous development capacity of rural areas through empirical research. Through empirical research on rural areas, Zhang Hui et al. (2017) found that endogenous autonomous organization construction, community industry construction, villagers' dominant position and development play a certain role in promoting rural endogenous development. Wang Lan (2019) based on the field investigation in the south foot area of Daxing'an Mountains and the new endogenous development theory, proposed that the four elements of identity, empowerment, innovation and cooperation are the core driving force to promote rural revitalization and development. Jiang Jianping (2019) believes that in order to realize the endogenous development of rural revitalization, it is necessary to rebuild the rural community and develop agricultural modernization guided by rural modernization, rural characteristics and social quality. In addition, Li Linghan (2020) made an exploratory discovery by using the grounded theory analysis method that the factors affecting rural endogenous development include five core categories: the endogenous development power of village leaders, the large-scale level of village collective industry, the gradient development of technical talents, the platform integration of endogenous development resources and the endogenous development ability of rural villages. It can be seen that domestic and foreign academic circles have conducted in-depth research on the influencing factors of endogenous development ability to get rid of poverty from different angles. The research perspective tends to be diversified, and its rich research results and mature theoretical system have certain reference and reference significance for China's poverty alleviation research.

Although the research contents on improving the endogenous development ability of poverty alleviation at home and abroad are constantly enriched and refined, the levels are continuously deepened, and the perspectives are diversified. However, the research on the endogenous development ability of poverty alleviation is mostly limited to the theoretical level, and few literatures use the method of empirical analysis. On the one hand, most of the previous measurement systems are aimed at regional self-development capabilities and enterprise endogenous development capabilities, few scholars have put forward research based on the endogenous development capabilities of farmers based on the Tibet-related areas of the plateau in the existing literature, Tong Xiang (2017) conducted an in-depth study on the economic self-sufficiency of poor areas in Chongqing, pointing out that the economic level within poor counties is uneven, and the gap with non-poor counties is obvious, and there are still problems such as unreasonable industrial structure, lagging urbanization process, and serious factor outflow; From the perspective of economics, Hou Zhiru, Guo Yuxin, wuBenjian (2019) from the perspective of behavioral economics found that the main cause of the lack of endogenous development ability of poor households is the existence of optimism bias and pessimistic prejudice in poor households, the root cause is the imbalance between intuitive thinking and rational thinking

system, but it has not yet pointed out how to improve the endogenous development ability of poverty alleviation from the perspective of government finance. Most of the areas studied are based on rural towns, and due to objective factors such as the harsh geographical environment of the plateau and the difficulty of obtaining empirical data, there are few studies on the Tibet-related areas of the plateau.

3. Theoretical hypothesis

Based on previous scholars' Analysis on the effect of different income types on Farmers' poverty reduction, this paper makes the following theoretical assumptions based on relevant research.

3.1. operating income helps to stimulate the endogenous development ability of low-income farmers

Zhang Xue et al. (2021) pointed out through empirical research that the continuous increase of operating income can not only help poor families get rid of life and economic pressure, but also help to consolidate the effect of poverty alleviation. For low-income farmers in Tibet related areas on the plateau of Sichuan Province, the Tibet related areas on the plateau of Sichuan Province have their special geographical location and climatic conditions, which give birth to their special landform and other natural conditions. The unique yak, highland barley and other industries on the plateau help to improve their operational income. Therefore, when low-income farmers can reasonably use their industrial characteristics for development planning, they have higher subjective initiative, stronger development willingness and development ability, which will help to stimulate their endogenous development ability. Therefore, this paper makes the following assumption:

H1: operating income helps to stimulate the endogenous development ability of low-income farmers.

3.2. property income helps to stimulate the endogenous development ability of low-income farmers

Property income, also known as asset income, refers to the income generated by capital participating in social production and living activities. Xu Yujiu, Wang Dengbao (2021) pointed out that as an important part of income, property income has its unique economic nature, and its growth is also of great significance to China's current high-quality economic development. Jinlifu and shiyeting (2019) believe that the property income that the state attaches importance to increase year by year is the biggest short board of the four income structures of farmers, but undoubtedly it also becomes the key point and breakthrough of farmers' income increase and life prosperity, laying a solid material foundation for the implementation of the strategy of "Rural Revitalization". For low-income farmers in Tibet related areas on the plateau of Sichuan Province, the increase of property income means that farmers have stronger anti risk ability and can avoid falling into poverty again in the face of external risks. Therefore, this paper puts forward the following assumption:

H2: property income helps to stimulate the endogenous development ability of low-income farmers.

3.3. wage income helps to stimulate the endogenous development ability of low-income farmers

Liu Fang (2017) believes that wage income is the main way to quickly increase farmers' income and promote farmers to get rid of poverty. Luo Chuliang (2021) found that wage income and the income of migrant workers have a significant poverty reduction effect. For low-income farmers in Tibet related areas on the plateau of Sichuan Province, migrant workers generally mean that farmers have certain vocational skills and technical knowledge. Therefore, the higher the wage income, it means that farmers have better skills and knowledge and more comprehensive development ability, which means that low-income farmers can use their own knowledge and skills to actively communicate with the outside world to obtain social support, and effectively rely on their own ability to achieve

stable and full employment and obtain stable income. Therefore, this paper puts forward the following assumption:

H3: wage income helps to stimulate the endogenous development ability of low-income farmers.

3.4. the transfer income inhibits the endogenous development ability of low-income farmers to a certain extent

Chen Qiumin (2020) analyzed that the income structure model of farmers mainly supported by transfer income is endogenous. This "blood transfusion" relief and assistance can not be used as a way for poor people to obtain stable income. To a certain extent, it may also cultivate their "equal dependence" thought. Once the national policy changes, The fluctuation of farmers' income will be greatly affected. Therefore, for low-income farmers in Tibet related areas on the plateau of Sichuan Province, if the proportion of transfer income is too high, it is not conducive to farmers' confidence to get rid of poverty and become rich by themselves and to stimulate their own development ability. Therefore, this paper puts forward the following assumption:

H4: transfer income inhibits the endogenous development ability of low-income farmers to a certain extent.

4. Research design

4.1. source of sample data

This paper analyzes the 469 questionnaire data obtained by the research group in July 2021 in Ruoergai, Hongyuan, Heishui, malkang, Wenchuan and other Plateau Tibetan areas in Sichuan Province. In order to ensure the accuracy and effectiveness of the data, after excluding the vacancy value, 446 questionnaire data are selected for later empirical analysis.

4.2. selection of research methods

This paper uses logistic regression model to study the correlation between farmers' income structure and their endogenous development ability in Tibet related areas of the plateau in Sichuan Province, and uses the farmers' endogenous development ability measured by the previous AF method as the explanatory variable to continue to study the impact of farmers' income structure on their own development.

4.3. selection of Research Indicators

Based on the research of Hu Meng (2019), Guo Jinguang (2018) and other scholars, this paper divides the endogenous development ability into four categories: economic ability, social ability, cultural ability and political ability. Through the comprehensive measurement of the four types of abilities, the index system to measure the endogenous development ability is constructed. With the help of the classification standard of the National Statistical Yearbook, this paper divides the income of farmers in the investigated area into four types: operating income, property income, wage income and transfer income.

4.3.1. Explanatory variables:

Based on the above criteria, we classify the different income types of farmers in the survey area into the above four categories, as follows:

Table 1. classification of income structure

Income structure	Income type	
Transfer income	Government subsidies	Planting subsidy
		Breeding subsidy
		Natural disaster subsidy
		Subsidy for reconstruction of dilapidated buildings
		Education subsidy
	Other subsidies	Medical subsidy
		Ecological subsidy
		Planting income
		Breeding income
		Business income
Operating income		
Property income	Land rent	
Wage income	Collective economic income	
	Income from serving as village cadres	
	Income from migrant labor	

4.3.2. Explained variable:

In the previous research, the research group constructed the endogenous development ability index of farmers by comprehensively measuring the economic ability, social ability, cultural ability and political ability of farmers in Tibet related areas on the plateau of Sichuan Province, with values of 0 and 1. 0 represents endogenous development ability and 1 represents lack of endogenous development ability, which is taken as the explanatory variable.

4.3.3. Control variables:

Table 2. control variables and their assignment

variable	Assignment
Age	Age of head of household
Educational level	Illiterate / semi illiterate = 0 primary school = 6 junior middle school = 9 senior high school / technical secondary school / technical school / vocational high school = 12 junior college = 15 undergraduate = 16
Political outlook	Whether the head of household is a CPC member, yes = 1; Not = 0
Health	Unhealthy = 1 general health = 2 relatively healthy = 3 very healthy = 4 very healthy = 5

4.4. description of sample characteristics

4.4.1. descriptive statistical analysis

Table 3. descriptive statistical analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	446	49.25785	12.15419	18	87
Educational level	446	6.244395	3.238241	0	16
Political outlook	446	0.1434978	0.3509734	0	1
Health	446	3.479821	1.189201	1	5
Operating income	446	16489	40813.21	0	660000
Property income	446	2259.247	9527.626	0	123000
Wage income	446	30329.64	31471.39	0	160000
Transfer income	446	17753.9	47263.46	0	671220

4.4.2. basic characteristics of sample families

4.4.2.1. Analysis of "reaching the standard"

According to relevant national data, the national poverty standard in 2020 is 4000 yuan / year per capita net income and 10000 yuan / year per capita disposable income. According to the income data of 446 sample farmers, the per capita net income of families is about 14440 yuan, which is far beyond the standard line of "reaching the standard" stipulated by the state in that year. However, it is worth noting that among the 446 households, the per capita income of some households is still on the edge of the national poverty standard line. Therefore, the measurement and monitoring of marginal poor households in Tibet related areas on the plateau of Sichuan Province plays an extremely key role in the process of realizing common prosperity.

4.4.2.2. Analysis of Education

Among the surveyed households, 36 heads of households are illiterate / semi illiterate, accounting for 8%, and only 27.3% have received nine-year compulsory education or above, indicating that the education level of low-income farmers in Tibet related areas on the plateau of Sichuan Province is relatively lower than that in other places, the backward education has a great impact on them to completely get rid of poverty, and the educational concept and awareness of farmers are relatively weak, The nine-year compulsory education plays an important role in China's sustainable poverty alleviation and comprehensive realization of common prosperity.

4.4.2.3. Analysis on the causes of poverty in poor households with file and card

Through the analysis of the causes of poverty caused by the households of the investigated poor households with filing cards, it is found that nearly 28% of the households are poor because of lack of labor force, and 27% of the households are still lack of funds. At the same time, coupled with their own development constraints such as disability, serious illness and school burden, they have caused the poor plight of farmers in Tibet related areas on the plateau in the past and hindered their sustainable development.

In the case of single factor, poverty, lack of technology, lack of funds and other factors have become an important reason for farmers' family life difficulties. In relatively poor areas, farmers with low educational and cultural level, lack of funds and skills, and "disabled, sick, old" and other "unemployed and unable to get rid of poverty" are typical groups lacking human capital. In addition, labor migration is recognized as an important means for Chinese farmers to increase their income. The lack of knowledge, skills and human capital formed by poor households due to their low level of education limits the transfer of labor to cities and towns, thus losing an important opportunity to increase their income to get rid of poverty.

In addition, poor households without technical support also fall into poverty because their unstable economic income is difficult to meet the needs of their children's education funds and family basic medical expenses. It can be seen that the shortage of human capital has a deep impact on farmers falling into poverty.

4.4.3. characteristics of farmers' income structure

4.4.3.1. Operating income accounts for a large proportion

Household operating income of rural residents refers to the income obtained by rural residents from production planning and management with their families as production and management units. Family business activities are divided into agriculture, forestry, animal husbandry, fishery, industry, construction, transportation, posts and telecommunications, wholesale and retail trade, catering, social services, culture, education and health and other family businesses. In this study, limited by the industrial development of farmers in the survey area, operating income mainly refers to planting income, breeding income and business income. The average annual operating income of the sample families is 16489 yuan, accounting for 24% of the total income. The unique animal husbandry and

plateau planting in Tibet related areas of Sichuan Province still account for a large part of farmers' income.

4.4.3.2. Property income accounts for a relatively small proportion, and there is more room for improvement

Property income, also known as asset income, refers to the income generated by capital participating in social production and living activities. That is, the income from movable property (such as bank deposits, securities, vehicles, collectibles, etc.) and real property (such as houses, etc.) owned by the family. Including the interest, rent and patent income obtained from the transfer of the right to use the property; Dividend income and property appreciation income obtained from property operation. Based on the characteristics of poor resources of farmers' families in Tibet related areas on the plateau, the property income of farmers in Tibet related areas on the plateau mainly comes from land rent and the income of collective economy in villages and towns. The average annual property income of the sample families is 2259.247 yuan, accounting for only 4%. It can be seen that there is still a large room for the rise of property income. Therefore, the development of village collective economy and farmers' cooperatives can become an effective way to increase farmers' income.

4.4.3.3. Wage income accounts for the largest proportion and is the main source of farmers' income

Wage income refers to all labor remuneration obtained by employees through various channels, including the wages of their main occupation and other labor income obtained from their second occupation, other part-time and temporary labor. Through the employment assistance provided by the government in recent years, the number of farmers in Tibet related areas on the plateau has increased significantly, and the effect of increasing income is remarkable. The average annual wage income of the survey sample families is 30329.64 yuan, accounting for 46%, which is the main source of income for farmers.

4.4.3.4. Transfer income accounts for a large proportion and is unevenly distributed

Transfer income refers to various transfer payments made by the state, units and social organizations to resident families and income transfer among resident families. Among the surveyed peasant households, the per capita annual transfer income of the sample families is 17753.9 yuan, accounting for about 26%, and there is a large gap between the sample families. Some families receive more government subsidies due to their vulnerability of livelihood capital or special circumstances such as natural disasters and serious diseases. But on the whole, at present, farmers in Tibet related areas on the plateau of Sichuan Province are gradually getting rid of the thought of "waiting, relying and wanting" in the past, and are trying to completely get rid of poverty and achieve prosperity through their own hands.

5. Empirical analysis

5.1. Empirical analysis on the internal influencing factors of farmers' income on endogenous development ability

This paper uses Stata software to build a logistic model to analyze the correlation between farmers' income structure and their own endogenous development ability. According to the results:

Table 4. results of logistic regression model between operating income and endogenous development ability

	4-1	4-2	4-3
	pikk30	pikk30	pikk30
Operating income	-0.257*** (0.066)	-0.241*** (0.070)	-0.221*** (0.070)
Age		-0.050*** (0.011)	-0.056*** (0.012)
Educational level		-0.179*** (0.044)	-0.172*** (0.044)
Political outlook		-1.252*** (0.317)	-1.151*** (0.321)
Health			-0.287** (0.121)
_cons	1.889*** (0.197)	5.789*** (0.806)	7.037*** (0.987)
N	446	446	446

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

According to the regression results, when the significance level is 1% without adding any control variables, the estimation coefficient of operating income for endogenous development ability is -0.257. When adding some and all control variables, the significance level remains unchanged, and the estimation coefficient becomes -0.241 and -0.221 respectively, which also indicates that the higher the operating income is, The higher the endogenous development capacity of the corresponding farmers, so the operating income has a positive impact on the endogenous development capacity.

For farmers in Tibet related areas on the plateau of Sichuan Province, their operating income mainly comes from planting potatoes, rape, highland barley and other crops and raising yaks, sheep and other livestock. The higher the operating income, it generally means that farmers have a better plan for future operation and development, and the subjective initiative of farmers to get rid of poverty and become rich is correspondingly stronger, which can stimulate the development momentum of farmers, comprehensively improve the livelihood capital of low-income farmers, optimize the livelihood strategies of low-income farmers, so as to improve the endogenous development ability of farmers.

Table 5. results of logistic regression model between property income and endogenous development ability

	5-1	5-2	5-3
	pikk30	pikk30	pikk30
Property income	-0.539*** (0.099)	-0.529*** (0.106)	-0.524*** (0.107)
Age		-0.042*** (0.011)	-0.049*** (0.012)
Educational level		-0.189*** (0.045)	-0.182*** (0.045)
Political outlook		-1.314*** (0.325)	-1.205*** (0.330)
Health			-0.316*** (0.122)
_cons	1.964*** (0.179)	5.542*** (0.784)	6.974*** (0.988)
N	446	446	446

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

According to the regression results, without adding any control variables, at the significance level of 1%, the regression coefficient of property income is -0.539, indicating that there is an obvious correlation between property income and farmers' endogenous development ability. After adding some and all control variables, the estimation coefficient becomes -0.529 and 0.524 respectively, It shows that property income has a strong incentive effect on Farmers' endogenous development ability.

The sources of property income in the survey area mainly include land rent and village collective economic income. Generally speaking, for relatively affluent farmers, they have relatively abundant family assets and a relatively wider land area. For these farmers, land rent can increase part of their income sources and their lives are relatively rich, According to the survey data, these families generally have a higher level of education and stronger determination to get rid of poverty. On the other hand, the village collective economic income is also an important source of farmers' property income. The village where low-income farmers are located has better collective economic development and more collective economic dividends, which plays a more significant role in improving farmers' quality of life.

Table 6. results of logistic regression model between wage income and endogenous development ability

	6-1	6-2	6-3
	pikk30	pikk30	pikk30
Wage income	-0.295*** (0.077)	-0.245*** (0.078)	-0.243*** (0.079)
Age		-0.043*** (0.011)	-0.050*** (0.012)
Educational level		-0.182*** (0.044)	-0.174*** (0.045)
Political outlook		-1.203*** (0.317)	-1.086*** (0.322)
Health			-0.317*** (0.119)
_cons	2.396*** (0.322)	5.829*** (0.814)	7.251*** (1.000)
N	446	446	446

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The regression results show that the estimated coefficient of wage income before adding the control variable is -0.295 at the significance level of 1%, indicating that the higher the wage income, the higher the endogenous development ability of farmers; After adding the control variable, it can still explain the role of wage income in promoting the endogenous development ability of farmers at the significance level of 1%.

The wage income of farmers in the survey area mainly comes from the income of young people working outside and serving as village cadres. With the increase of the state's employment assistance to Tibet related areas on the plateau, farmers in Tibet related areas on the plateau have more opportunities to go out for employment, and the income from going out to work has gradually become a stable and large source of income among farmers' families. Compared with the traditional planting and breeding industry, going out for employment enables farmers to actively participate in vocational education and skill training, which can better stimulate low-income farmers to improve their own development ability, improve their confidence in achieving comprehensive development through their own resources, prevent poverty and achieve prosperity. Therefore, there is a significant positive correlation between wage income and endogenous development ability of low-income farmers.

Table 7. results of logistic regression model between transfer income and endogenous development ability

	7-1	7-2	7-3
	pikk30	pikk30	pikk30
Transfer income	0.327*** (0.090)	0.317*** (0.098)	0.308*** (0.098)
Age		-0.046*** (0.011)	-0.053*** (0.012)
Educational level		-0.172*** (0.043)	-0.166*** (0.043)
Political outlook		-1.319*** (0.312)	-1.190*** (0.318)
Health			-0.316*** (0.121)
_cons	0.407*** (0.269)	4.136*** (0.781)	5.608*** (0.980)
N	446	446	446

Standard errors in parentheses

p < 0.1, ** p < 0.05, *** p < 0.01

The regression results show that without adding control variables, the estimated coefficient of transfer income at the significance level of 1% is -0.327, indicating that there is a negative correlation between operating income and farmers' endogenous development ability. After adding some and all control variables, there is still a significant negative correlation between operating income and farmers' endogenous development ability.

In the whole process of poverty alleviation in China, the early poverty alleviation policy is "blood transfusion" poverty alleviation, which simply means that the government gives poor households a certain amount of money and material objects for production. Although this "blood transfusion" poverty alleviation method has alleviated the living difficulties of local residents in the short term, it has also encouraged some people to "wait, rely, want" and get something for nothing to a certain extent. With the overall victory in the battle against poverty, the follow-up policies have gradually changed to "hematopoietic poverty alleviation". New assistance policies such as industrial assistance, employment assistance and education assistance require the poverty-stricken households to change their understanding of the current policies and their own ideas, and make certain efforts. The field survey found that most of the farmers receiving more government subsidies are lack of labor force, weak family human capital or low level of education, and low coordination of livelihood capital. For this kind of farmers, the transfer income accounts for a large proportion of their income, the policy dependence is strong, the responsibility and awareness of poverty alleviation are not clear enough, and the livelihood ability of independently relying on themselves to get rid of poverty is low. Therefore, the endogenous development ability of this kind of farmers is relatively low. In addition, the problem of weak willpower will also have a great impact on the endogenous development ability. If farmers lack the ambition to strive for and change their own situation, the lack of ambition will reduce their beliefs and expectations, which will affect the economic decision-making and effort level of farmers and lead to the risk of returning to poverty.

5.2. Robustness Test

In this paper, the logistic model is used to analyze the samples whose head of household is male. After changing the empirical samples, the test results are generally consistent with the logistic model, the symbol of the estimation coefficient is the same, and the significance level is the same. It passes the robustness test.

Table 8. correlation robustness test between farmers' income types and their endogenous development ability

	No control variables are added	Add some control variables	Add all control variables
Operating income	-0.223***	-0.222***	-0.208***
Property income	-0.542***	-0.548***	-0.542***
Wage income	-0.346***	-0.303***	-0.297***
Transfer income	0.348***	0.333***	0.324***
N	314	314	314

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

5.3. Heterogeneity Analysis

Table 9. Grouping Regression Results Of Logistic Model Of Property Income On Farmers' Endogenous Development Ability

Income type	Poor households filing cards			Poor households without filing cards		
	Do not add control variables	Add some control variables	Add all control variables	Do not add control variables	Add some control variables	Add all control variables
Operating income	-0.223** (0.101)	-0.218** (0.108)	-0.203** (0.109)	-0.231** (0.090)	-0.272*** (0.098)	-0.258*** (0.099)
Property income	-0.706*** (0.145)	-0.650*** (0.150)	-0.662*** (0.152)	-0.385*** (0.139)	-0.436*** (0.157)	-0.424*** (0.157)
Wage income	-0.287** (0.123)	-0.242** (0.126)	-0.237** (0.127)	-0.335*** (0.098)	-0.263*** (0.101)	-0.258** (0.102)
Transfer income	0.345** (0.137)	0.311** (0.144)	0.296** (0.147)	0.224** (0.128)	0.324** (0.143)	0.326** (0.144)

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

According to the results of grouping logistic regression, there is no significant difference in the impact of poor households on the endogenous development ability of farmers in terms of operating income, wage income and transfer income. However, it should be noted that in terms of property income, the incentive effect of property income on the development ability of poor household students with filing cards is significantly higher than that on the development ability of poor household students without filing cards. For farmers in Tibet related areas on the plateau of Sichuan Province, most of their property income comes from land rent and village collective economic dividends. In the survey area, most of the poor households with filing and card can give priority to join the village collective economic organizations. Such farmers can get more village collective dividend income and help them increase their property income, so as to further enhance farmers' willingness to get rid of poverty and establish farmers' confidence to get rid of poverty. Generally speaking, the better the development of the village's collective economy means that the village can successfully mobilize the masses, listen to public opinion, gather people's wisdom and run civil affairs, thus laying a solid foundation for the construction of rural governance system and Rural Revitalization with the combination of local autonomy, rule of law and rule of virtue. The correct development and expansion of village collective economy can stimulate the collective support and participation of villagers. Through land transfer income, dividend income and production income, we can help low-income farmers improve their income and stabilize their success in getting rid of poverty. Therefore, the village collective economic

income plays a more significant and long-term role for the former poor households who established files and cards.

6. Policy recommendations

By constructing an intelligent measurement system for the endogenous development capacity of low-income farmers, improving the promotion mechanism of the endogenous development capacity of low-income farmers, and analyzing the regression results of four types of income on the endogenous development capacity of low-income farmers, the following conclusions are drawn: operating income can significantly improve the endogenous development ability of low-income farmers; Property income has a significant effect on the endogenous development ability of low-income farmers, and it has a more obvious effect on the endogenous development ability of poor households; Wage income can obviously promote the endogenous development ability of low-income farmers; There is a certain negative correlation between transfer income and endogenous development ability of low-income farmers, which hinders the stimulation of endogenous development ability of farmers to a certain extent.

At the same time, based on the empirical analysis results, this paper puts forward the following relevant policy suggestions:

6.1. Improve the intelligent measurement system of endogenous development ability of low-income farmers.

The previous measurement systems mostly focused on the research on regional self-development ability and endogenous development ability of enterprises. Few scholars put forward empirical research on Farmers' endogenous development ability in the existing literature. Based on the previous research, this paper divides farmers' endogenous development ability into four categories: economic ability, political ability, social ability and cultural ability. However, with the victory of poverty alleviation in China, the national policy strategy has been inclined to rural revitalization. Therefore, combined with the current situation of farmers in Tibet related areas, constantly improving and building an intelligent measurement system of endogenous development capacity of low-income farmers is of great significance for consolidating the achievements of poverty alleviation and effectively connecting rural revitalization.

6.2. Assist low-income farmers to establish business development plans.

In the survey area, most farmers have not established clear and feasible business development plans for the future, so they can not reasonably integrate the current resources, so as to make rational use of resources, expand development and improve income. Therefore, the local government can adjust measures to local conditions to help farmers establish business development plans suitable for their own advantages, so as to further improve their operating income and promote their endogenous development ability. By carrying out various industrial skills training such as improved agricultural technology management, vigorously carry out the practical training mode of "learning by doing", organize skills training according to the needs of production activities in the region and the ability characteristics of farmers, and adjust the training contents in time according to the different needs of farmers' operation and development. For example, build a long-term mechanism for the production and marketing of agricultural products in Tibet related areas on the plateau, and improve the poverty alleviation ability of new business entities. Strengthen the brand building of characteristic agricultural products, support the certification and registration of green food, organic agricultural products and geographical indications of agricultural products, support the construction of facilities such as storage, preservation and cold chain logistics of agricultural products, continue to organize leading enterprises to effectively connect with relevant governments in combination with emerging financial forms such as supply chain finance and green finance, and promote the standardized development of farmers'

cooperatives in Tibetan areas on the plateau, So as to help farmers better carry out business development.

6.3. Encourage the establishment of village collective economic organizations and other non-governmental organizations to provide new carriers of social capital.

The establishment of village collective economy can not only enjoy the convenient resources brought by the village collective, but also obtain relevant social resources through organizations and help farmers increase their income. In the investigated areas, some villages vigorously developed the village collective economy and combined the collective economy with special poverty alleviation funds, which effectively helped low-income farmers increase their income, achieve sustainable poverty alleviation and reduce the possibility of low-income farmers returning to poverty. In the practice of poverty alleviation, the village collective economy can reduce the operation cost, improve the utilization rate of resources, and play a good supplementary role in the later related work. In addition, a market-oriented benefit sharing mechanism can also be established. In the process of overall operation, we must take farmers as the foundation, take market positioning as the direction, take the endogenous development ability of low-income farmers in the region as the main body, combine local characteristic resources and take the agreed cooperation mode as the carrier, invest in the characteristic industries they operate, and reach an agreement between the government, enterprises and farmers to jointly carry out market-oriented management of characteristic industries, Enjoy equal rights and ultimately benefit sharing. For example, we should give full play to the "leveraging" effect of various poverty alleviation funds, take shares in village collective economic projects with large employment, strong driving force and good poverty alleviation effect in the county with industrial development funds and microfinance funds, and quantify the invested funds into equity according to a certain proportion, so as to ensure that low-income farmers "guarantee the minimum asset income and quantify equity dividends", Increase the functions of "oxygen supply" and "hematopoiesis", and achieve the goal of "regional industrial efficiency and low-income farmers' income". Make full use of village collective economic organizations and other forms of social capital to effectively improve the resource endowment of low-income farmers, stimulate their endogenous development ability, and realize the sustainable economic development of Tibet related areas on the plateau.

6.4. Promote farmers to achieve stable employment and improve their wage income.

The policy planning should be guided by the career development planning of the masses. After vocational education and technical training, strengthen cooperation inside and outside the region, so as to create more external employment opportunities for farmers in Tibet related areas on the plateau; In particular, we should give further play to the role of local industries, promote the transformation of poverty alleviation industries into characteristic industries, link the promotion of industrial development with the revitalization of rural industries, so as to increase the local economic strength and vitality and provide more and more stable employment with the continuous growth of industries. Make use of the cooperation and fixed-point assistance between the East and the west to carry out order training, create targeted labor export opportunities, increase the stability of employment and improve the wage level of migrant workers; In addition, we can also strengthen the communication between low-income farmers in Tibet related areas on the plateau and the outside world by establishing typical ways, and illustrate the necessity of vocational education, skill education and continuous training with practical cases. For example, the government should guide relevant enterprises to make relevant investment in Tibet related areas on the Plateau, establish industrial bases and provide jobs for local low-income farmers, So that they can take care of their families and make money at the same time; Governments at all levels should also vigorously support the production and development of cooperatives and poverty alleviation workshops, encourage the majority of poor households to actively join, continuously improve the economic income of farmers in Tibet related areas on the plateau, and stimulate their endogenous development momentum. Let farmers themselves realize the importance

of independent employment, improve their learning initiative, and fundamentally improve their endogenous development ability.

6.5. Improving the endogenous development capacity of farmers in Tibet related areas on the plateau should be from the perspective of basic materials in the past to capacity-building.

Some farmers have successfully lifted themselves out of poverty by relying on the transfer subsidies given by national or regional policies in the past. However, based on the field visit and investigation, some farmers lack endogenous development ability, still have a certain degree of "wait, rely and want" thought, and rely too much on the traditional material or financial assistance provided by the state or local government. In view of this kind of situation, once the government cuts off the relevant assistance, Farmers face a greater risk of returning to poverty and are easy to fall into poverty again. Therefore, in the post poverty alleviation era, farmers in plateau Tibet related areas need not only policy assistance, but also their own development ability to completely get rid of poverty. To sum up, in order to make farmers get rid of their excessive dependence on regional policies in the past, avoid lazy thoughts such as "wait, rely and want", form an inherent thinking mode and produce intergenerational effects, the policy forms such as direct subsidies in the past should gradually change to capacity-building such as improving farmers' human capital. In the specific practice of poverty alleviation, improving the human capital stock of the poor can not only help low-income farmers out of poverty in Tibet related areas on the plateau, but also enhance the endogenous strength of sustainable development of poor families in Tibet related areas on the plateau and prevent the intergenerational transmission of poverty. First of all, continue to improve the educational conditions and system of Tibet related areas on the plateau and continuously improve their educational development level. Secondly, in view of the late start and weak foundation of cultural infrastructure in Tibet related areas on the plateau, which can not meet the growing cultural needs of people in Tibet related areas on the plateau, special funds should be established to strengthen the construction of cultural infrastructure. Finally, based on health protection, improve the quality of human capital. Low health level is one of the characteristics of the poor population in Tibet related areas on the plateau. Health is still the most basic factor in improving endogenous development ability. Therefore, it is necessary to create a good livable and healthy environment and comprehensively improve the level of medical services. From the perspective of human capital and capacity-building, we should improve the endogenous development capacity of low-income farmers, consolidate the achievements of poverty alleviation and help rural revitalization.

References

- [1] Yang Ting. Carrying out spiritual poverty alleviation to stimulate the endogenous motivation of cadres and masses in poverty-stricken areas [J]. *Creation*, 2016 (04): 40-41.
- [2] Fu Anguo, Zhang Zaisheng, Zheng Jianhong, Yue Tong, Lin Zhaohong, Wu Na, Huang Xiting. Qualitative exploration of endogenous dynamic mechanism of poverty alleviation [J]. *Journal of Psychology*, 2020, 52 (01): 66-81 +86-91.
- [3] Cohn, Alain, Engelmann, Jan, Fehr, Ernst, 等. Evidence for Countercyclical Risk Aversion: An Experiment with Financial Professionals, [J]. *American Economic Review*, 105(2):860-885.
- [4] Chemin M , Laat J D , Haushofer J . Negative Rainfall Shocks Increase Levels of the Stress Hormone Cortisol Among Poor Farmers in Kenya[J]. *SSRN Electronic Journal*, 2013.
- [5] Menolia S . The impact of husband's job loss on partners' mental health[J]. *Mpra Paper*, 2011, 12(2):277-294.
- [6] Kun Yan. *Social Sciences Academic Press and Springer-Verlag Berlin Heidelberg 2016. Chapter 6 Consolidating and Developing the China Model of Poverty Alleviation Pages 201-218*
- [7] Kun Yan. *Social Sciences Academic Press and Springer-Verlag Berlin Heidelberg 2016. Chapter 4 Comparison of International Practices in Poverty Alleviation Pages 125-157*

- [8] Rachid Laajaj. Endogenous time horizon and behavioral poverty trap: Theory and evidence from Mozambique[J]. *Journal of Development Economics*, 2017, 127.
- [9] Daskon C, Mcgregor A. Cultural Capital and Sustainable Livelihoods in Sri Lanka's Rural Villages: Towards Culturally Aware Development[J]. *Journal of Development Studies*, 2012, 48(4): 549-563.
- [10] Cao M, Xu D, Xie F, Liu E, Liu S. The influence factors analysis of households' poverty vulnerability in southwest ethnic areas of China based on the hierarchical linear model: A case study of Liangshan Yi autonomous prefecture[J]. *Applied Geography*. 2016;66:144-52.
- [11] Zhang Hui, Shu Ping, Xu Liang. Study on Construction Mode of Rural Community Based on Endogenous Development[J]. *Modern Urban Research*,2017 (09):72-77.
- [12] Wang Lan. Practice of Rural Revitalization from the Perspective of New Endogenous Development Theory_Taking the Concentrated and Continuous Distressed Area at the Southern Foot of Daxing 'an Mountains as an Example[J]. *Journal of Northwest University of Agriculture and Forestry Science and Technology (Social Science Edition)*, 2020,20 (04):65-74.
- [13] Jiang Jianping, Ge Chenxiao, Zhu Xuechun, Rural Revitalization Logic with Enhancing Rural Endogenous Development Capacity as the Core in New Era[J], *Science of Finance and Economics*,2020 (09):50-63.
- [14] Li Linghan, Factors Affecting Rural Endogenous Development Motivation and Realization Path_Analysis Based on Rooting Theory[J], *Observation and Reflection*,2020 (12):75-85.
- [15] Tong Xiang. Research on Self-generating Ability of Economy in Poverty-stricken Areas of Chongqing[D]. Chongqing University of Industry and Commerce,2017.
- [16] Hou Zhiru, Guo Yuxin, Wu Benjian. Internal Logic of Inadequate Endogenous Motivation of Poor Households from the Perspective of Behavioral Economics[J]. *Journal of Northeast Normal University (Philosophy and Social Sciences Edition)*,2019 (03):170-176.
- [17] Zhang Xue, Wang Yi, Guo Meng, Xing Miaolei. Research on Poverty Prevention Countermeasures of Poverty Alleviation Peasant Households in Danfeng County from the Perspective of Income Structure[J]. *Liaoning Agricultural Science*,2021 (05):22-27.
- [18] Xu Yujiu, Wang Dengbao. Research on the Growth Dilemma of Farmers' Property Income[J]. *Contemporary Rural Finance and Economics*,2021 (07):42-44.
- [19] Jin Lifu, Shi Ye Ting, Bottleneck Restriction and Policy Optimization of Farmers' Property Income Growth in Rural Revitalization Process[J]. *Qinghai Social Sciences*,2019 (03):87-93.
- [20] Liu Fang. Research on Income and Expenditure Structure, Income Level and Credit Activity Trend of Poor Farmers[J]. *Rural Finance Research*,2017 (09):63-68.
- [21] Luo Chuliang, Li Shi, Yue Ximing. Analysis on the Change of Income Gap in China (2013-2018)[J]. *China Social Sciences*,2021 (01):33-54 + 204-205.
- [22] Chen Qiumin. Research on Income Characteristics of Farmers in Southwest Mountain Area and Countermeasures for Increasing Income of Sustainable Poverty Alleviation[D]. Central China Normal University,2020.
- [23] Hu Meng. Study on the Endogenous Development Ability of Peasants in Runya Township, Xiangxi State against Poverty[D]. Huazhong University of Science and Technology,1919.
- [24] Guo Jinguang, Zui Shao Jing, Research on Cultivation of Endogenous Development Ability of Poor Peasants under Participatory Mode[J], *Journal of Overseas Chinese University (Philosophy and Social Sciences Edition)*,2018 (04):117-127.