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Identity, Human Capital and Poverty Reduction Effects: An empirical study based on China Family Panel Studies

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ABSTRACT

Poverty is a common problem worldwide, and governments have been committed to poverty reduction. This study empirically examines the effect of identity on income poverty and multidimensional poverty in rural households. The findings show that identity has a significant negative impact on income and multidimensional poverty, in other words, identity has a significant pro-poor effect on rural households. Based on the 2016 and 2018 Chinese Family Tracking Survey (CFPS) data, the relationship between identity and the poverty-benefiting effect was empirically analyzed. The results show that identity has a significant pro-poor effect, and the results remain significant after adding control variables. The results remain robust after changing the measurement method and the explanatory variables. Heterogeneity analysis showed that the household head's age, gender, education level, and regional factors also influenced the poverty-beneficial effect of identity. The above findings suggest that ensuring the farmers' main status, building a homogeneous identity, and giving full play to its poverty-benefiting effects can better consolidate the results of poverty eradication and promote the overall revitalization of the countryside. At the same time, it is urgent to build a high-quality platform for migrant workers to return to their hometowns for employment and entrepreneurship, focusing on the cultivation of new skills of rural residents, improving their labor productivity, and providing a continuous supply of high-quality human capital for rural revitalization. Examining the effect of identity on poverty and income generation can provide theoretical support and policy suggestions for promoting the equalization of identity between rural and urban residents.

INTRODUCTION

On November 23, 2020, after nine counties in Guizhou province withdrew from the sequence of poor regions, 832 impoverished counties in China were completely removed from poverty list, the national goal of poverty eradication was completed, and the problem of absolute poverty was completely solved in China. It should be noted that eliminating absolute poverty does not mean that the cause of poverty reduction is eradicated. The vulnerability of poverty determines that the people who have just crossed the poverty line and got out of poverty still may return to this state. Therefore, stopping the return to poverty and improving the quality of poverty eradication is related to the consolidation of the results of poverty eradication and the smooth promotion of the rural revitalization strategy. This is determined by the participating subjects in the rural revitalization and the problems existing in the current study. First, most farmers should become the main force of rural revitalization (Zuhui, 2018). The basic premise and condition of rural revitalization are to take farmers as the main body and let them build their good life by themselves (Xuefeng, 2019). Secondly, the sense of integration of individuals into the group and society, the identity transformation and identity after integration are crucial, which determines the behavior and ability of these individuals to engage in various productive activities. Therefore, inequality in identity can largely lead to a lack of endogenous motivation among farmers (Bin & Guisheng, 2019). Having a sense of group belonging and enjoying basic civil rights for poor groups is a top priority for poverty governance and escaping poverty. The absence of rights, while causing marginalization of individual status, increases the likelihood that they will become poor or return to poverty (Basu, 2013). Finally, because of the high consistency of agricultural workers' identity (Shujuan & Xianxiang, 2016), promoting the transformation of farmers' identity is an inevitable development trend of rural agricultural modernization and an important part of solving the "three rural problems" in China. In the longer term, the construction of a long-term mechanism to stop the return to poverty and solve relative poverty should focus on the people's main status, identity transformation, and benefit-sharing. Therefore, examining the effect of identity on poverty and income generation can provide theoretical support and policy suggestions for promoting the equalization of identity between rural and urban residents.

The marginal contributions of this study are mainly in the following aspects: firstly, for the first time, we analyze the poverty-beneficial effect of identity from the perspective of identity, construct an identity index for empirical testing, and provide a systematic explanation of the impact mechanism. Secondly, considering the characteristics of multidimensional poverty of transition poor groups and potential poor groups, this study compares the poverty level measured by multidimensional poverty criteria with the income poverty level. Third, this study empirically tests the poverty-beneficial effect of identity using the China Family Tracking Survey (CFPS) data and conducts a more detailed analysis at the micro-level, providing empirical evidence for achieving identity parity and realizing rural revitalization.

The structure of this study is arranged in the following manner: the second part is the relevant literature analysis and review; the third part is the relevant research design content, including sample data, indicator design, econometric model design, and descriptive statistics of various variables; the fourth part is the empirical study, including robustness analysis, heterogeneity discussion and relevant tests of influence mechanisms; the fifth part contains the main conclusions of this study with related policy recommendations.

1. LITERATURE REVIEW

Poverty is a common problem worldwide, and governments have been committed to poverty reduction. Regarding the definition of poverty, the World Bank gave a systematic interpretation in the World Development Report 2000-2001: poverty is both a phenomenon of low income and low consumption and a disadvantage faced in other areas of the human development process such as health care, education, political and social status, safety and security, which cause the poor groups to suffer from dignity, self-confidence, self-esteem, and power (Sulan & Yan, 2001). This implies that poverty is a multidimensional phenomenon, which provides scholars with new perspectives to study poverty and poverty reduction. For example, Yuan, Guanghua and Qinghua (2013) point out that chronic poverty is an important symptom of the poverty

phenomenon. Therefore, the government and society must provide relevant support to the poor groups regarding medical care, education, and technological capabilities.

Similarly, Wei Zou and Yingfeng Fang (2012) argue that “capacity development” is an effective way to reduce the vulnerability and chronicity of poverty. Guanghua, Fei & Yuan (2014) found that increasing the level of assets can significantly reduce poverty vulnerability. Therefore, the accumulation of assets of poor groups should be promoted, and their efficiency should be improved to reduce poverty and poverty vulnerability. If education, health care, and retirement are included in the category of individual assets, they can produce significant welfare effects (Liu, Chang, & Shaojun, 2015). However, if the minimum living security only exert poverty reduction effects in the current period, they cannot achieve poverty vulnerability reduction in the long run (Xu & Li, 2017).

Meanwhile, the importance of industrial poverty alleviation is gradually highlighted. On the one hand, industrial poverty alleviation can significantly reduce poverty vulnerability; on the other hand, industrial poverty alleviation has played an important role in China’s poverty reduction practice and entrepreneurial poverty reduction. With the deepening of poverty eradication, some deep poverty groups experiencing difficulties in getting out of poverty, the question of stimulating their endogenous motivation for poverty eradication from a multidimensional poverty perspective has become a hot spot of academic concern. The state and government have repeatedly mentioned that guaranteeing farmers’ main status and ensuring the rights of farmers’ group development, identity, and subject status belong to the same category; this issue has also become a new hot spot for scholars to study the poverty issue.

Identity is an important dimension in understanding poverty, poverty governance, and measuring organizational behavior. Early studies of identity took a philosophical, theoretical paradigm. Later in the period, the powerful explanatory power of identity theory led to its widespread use in sociology, psychology, economics, and management. Applications in economics include pioneering studies by Kerlof and Kranton (2000), Sen (1985), and Basu (2013), among others. For example, Sen’s (1985) research suggests that the famine people face does not necessarily stem from a lack of food but rather from the fact that the poor do not have access to this food. Basu (2013) argues that a person’s identity within a group and sense of inclusion in society are so important that they determine the person’s ability to engage in productive activities. This means that if a poor person perceives his/her position as a marginalized one, he/she will tend to give up.

Status is closely related to group level in the group effect, and group level is an important factor affecting the living standard of individuals and regional poverty status (Zou & Fang, 2012). Y. Fang & S. Qinghua (2013) distinguished between income-based inequality and ability-based inequality when examining the welfare of migrant workers. They concluded that income inequality has a significant negative impact on the welfare of those migrant workers with low ability and low income. Therefore, even though there is no difference in income levels, significant differences in identity and other aspects between urban migrant farmers and urban residents create a de facto inequality between them (Chen & Zhang, 2015). The higher the level of urban identity of migrant workers, the higher their willingness to stay in the city (Wang & Li, 2021). The study of Wan Haiyuan and Li Shi (2013) showed that the individual discrimination caused by the household registration system in China has a significant negative impact on the urban-rural income gap.

Meanwhile, different household registration statuses harm residents’ subjective well-being (Li & Zhu, 2014), which may be reflected in differences in education level, age, household registration, and occupational status (Hongmei, 2016; Shi, Fang, & Gao, 2021). This identity inequality is an important causal factor of an imperfect labor market system. It leads to a general dilemma in their occupational identity, forming an “involutional” character with no endogenous motivation and occupational slackness. Further, an imperfect labor market system leads to inefficient labor allocation. As a result, it widens the income gap, which needs to be corrected by improving labor allocation and creating a fairer and more reasonable income distribution system (Li & Zhu, 2018). In a study on a poverty reduction model of participatory community-based integrated development, Junping, Aizhao, & Song (2017) examined poverty alleviation and income distribution effects. It was concluded that such a poverty reduction model is highly sustainable. However, there are significant differences in the effects on farmers’ participation in various productive activities, both at the “group” and “period” levels. At the same time, the key variable of effort does not play an

important role in constructing individual social status. The role of the government is to provide the necessary platform and channels for the disadvantaged groups to change their fate and gradually improve the existing redistribution system.

In contrast, while examining poverty alleviation projects in the western region, Ma Liangchan and Ha Hongying (2017) found that certain constraints on the power of basic poverty alleviation cadres, an insufficient supply of social forces, and the loss of subjective rights and the status of the poor are important reasons for the structural dilemma of poverty alleviation projects. Macro-level studies on income inequality and economic growth, among others, can also help us understand the important link between identity and poverty. For example, Gong, Li, & Lei (2017) show that inequality of opportunity, and inequality of effort have a significant positive effect on economic growth. This means that if poor people cannot get rid of the “identity label of poverty”, inequality of opportunity is inevitable, which fails to improve the living standard of poor people and does not contribute to the quality economic growth of a country.

Identity parity helps improve the effectiveness of one’s behavior and develop common values of life. Thus, the assimilation and equalization of the identity of rural and urban residents, the enhancement of the identity status of rural residents, and the strengthening of their subject status have a positive contribution to solving the poverty problem. They also play an important role in comprehensively promoting the process of rural revitalization, agricultural and rural modernization, and urban-rural integration development. Therefore, analyzing the relationship between identity and rural poverty provide better understanding of the importance of rural residents’ subject status, identity equalization, equal development between urban and rural areas, and put forward valuable policy suggestions in a targeted manner.

2. RESEARCH METHOD

2.1 Data selection

This study mainly uses data from the China Family Tracking Survey (CFPS) in 2016 and 2018 for the main regression analysis. The CFPS database reflects the basic conditions of rural households and individuals comprehensively. Therefore, the sample data provided by the database can effectively measure the status of identity according to the relevant research variables used in the literature. Based on the sample of matched households, the study first eliminated the missing and abnormal data in data processing and finally obtained the sample size of 4487 households per year. This study also performed maximum and minimum normalization for each type of indicator to eliminate the effects of differences in the indicator outline and range of values. In addition, this study also tailored various continuous variables to change the extreme values that fall outside the 1% and 99% quartiles.

2.2 Econometric model design

The following core econometric model was used for this study to investigate the poverty-beneficial effects of identity:

$$y_{it} = \beta_{10} + \beta_{11}Identity_{it} + \beta_{12}X_{it} + \sigma_{it} \quad (1)$$

This model represents the poverty index of rural household i in year t , including the income poverty index, multidimensional poverty index, and poverty status of rural household i in year t under different poverty criteria. In addition, it represents the identity index of rural household i in year t . It shows controls for relevant factors that may affect the poverty status of the household. The household level includes the identity characteristics of the household head (gender, age, marital status, etc.) and the household size, the level of the social network, etc. The regional level refers to the geographical location of rural households divided into three regions: eastern, central, and western (the provinces where they are located are divided according to different geographical locations and the level of the economic and social development status of different regions). It also represents the random error term.

2.3 Variable selection

2.3.1 Explanatory variables (income and multidimensional poverty index)

While income poverty still plays a fundamental role in poverty identification, more and more scholars in recent years have shifted the perspective of poverty to multidimensional poverty, which more accurately describes the nature of poverty (Jiazhi & Sifang, 2017). The multidimensional poverty index (MPI), also known as the A-F poverty index, was proposed by Alkire and Foster (2011). The MPI can reflect the differences and extent of poverty at the individual or household level in different dimensions (Zhang, Yang, & Yuan, 2017). Therefore, this study chose to use both income poverty criteria and multidimensional poverty criteria as the poverty identification criteria.

Regarding income poverty, the absolute poverty criterion selected for this study is derived from the relevant definition of the national poverty line standard, i.e., the per capita net income of rural households. This indicator was adjusted to 3146 yuan per capita in 2016 and 3535 yuan per capita in 2018 according to this poverty line standard in constant 2010 prices (2300 yuan). Multidimensional poverty refers to the setting of multidimensional poverty dimensions and indicators by Yang Yanlin and Fu Chenyu (2019), combined with the CFPS data. This study finally selected six indicators from four dimensions of education level, health level, income level, and living conditions to measure multidimensional poverty. The model and method of measuring multidimensional poverty set by Alkire-Foster were adopted, i.e., more stringent deprivation indicators were used in terms of deprivation thresholds, and the weights were set using the equal-weighting method. According to Shen (2018), the second critical value, $k=1/3$, was selected. A household was considered multidimensional poverty (multipov) when the total score of deprivation indicators multiplied by weights was equal to or more than $1/3$. The meaning of specific indicators is shown in Table 1.

Table 1. Dimensions, indicators, deprivation thresholds, and weights of multidimensional poverty

<i>Dimension</i>	<i>Indicator</i>	<i>Threshold values and assignments</i>	<i>Value weight</i>
Education	Degree of Education	Family members with an education level less than junior high school are considered as educational poverty and are assigned 1	1/4
Health	Self-reported health	If the self-rated health is “poor”, it is considered healthy poverty and is assigned a value of 1	1/8
	Medical insurance	If you have a family member who does not have any health insurance, you give it 1	1/8
Income	Income	Per capita annual income below the poverty line of 2,300 yuan (2010 Price), considered as income poverty, and assigned a value of 1	1/4
The standard of living	Drinking water source	Household drinking water is a natural source of water (pond water, well water, etc.), assigned a value of 1	1/8
	The fuel of life	The cooking fuel is mainly non-clean energy such as firewood, which is assigned a value of 1	1/8

2.3.2 Explanatory variables

2.3.2.1 Identity index

This study examines the issue of identity by referring to the majority of scholars' hierarchical measures (the composite social status scores of the five levels according to the questionnaire in the CFPS database, i.e., the level in which the respondents chose themselves or their families). In addition, other variables were introduced to construct the identity index further to carve out the impact of shifts in identity status. The study of identity influences focused on variables such as income, and human capital elements (literacy, occupation), where occupation was measured by the SIOPS of occupational prestige, the Standard

International Occupational Prestige Scale. The prestige dimension of the economic status measure indicates the level of prestige represented by different occupational categories in the society. Considering the asset factor has a greater impact on identity than income on identity, the choice of the asset factor instead of income is justified. Given the feasibility of the study and the availability of data, this study constructs the identity index with the following indicators. It measures them using the entropy method (the meanings of the specific indicators are shown in Table 2).

Table 2. Construction of identity indicators

<i>Dimension</i>	<i>Indicator</i>	<i>Meanings</i>
EconomicFactors	Assets	Mainly refers to self-use assets, i.e., the value of Consumer durables and the value of the property (¥)
Human capital	Occupation	SIOPS score based on career prestige
	Education level	The values are assigned to 0-7 depending on the education level.
Psychological factors	Social Status	According to the CFPS questionnaire - what is your status? Scoring 1-5
	Income class	According to the CFPS questionnaire - What is your income in your local area? Score 1-5

2.3.2.2 Control variables

In this study, personal characteristics such as age, gender (1 for men and 0 for women), and marital status (1 for married status and 0 for non-married status such as unmarried, cohabiting, divorced, and widowed) of the household head and household characteristics such as social network (communication expenses and the proportion of income accounted for by favor expenses) and household size were selected as control variables. In addition, this study introduces three dummy variables for eastern, central, and western regions to control regional differences in poverty. Eastern region includes: Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, and Guangdong. The central region includes Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, and Hunan. The western region includes Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shaanxi, and Gansu..

The descriptive statistics of the main variables in this study are shown in Table 3.

Table 3. Descriptive statistics of main variables

<i>Variable</i>	<i>Variable Description</i>	<i>Observations</i>	<i>Average value</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
<i>incpov</i>	Income poverty status (poverty is 1, otherwise 0)	9394	0.132	0.338	0	1
<i>multipov</i>	Multidimensional poverty status (poverty is 1, otherwise 0)	9394	0.727	0.446	0	1
<i>finpovn</i>	Inverse index of per capita net income represents the income poverty index	9394	0.165	0.164	0	1
<i>MPI</i>	Rural Family Multidimensional Poverty Composite	9394	0.306	0.137	0	0.74 2
<i>identity</i>	Rural family identity index	9394	0.148	0.104	0	0.91 9
<i>family size</i>	Family size	9394	3.961	1.918	1	10
<i>age</i>	Household head's age	9394	54.048	12.770	24	81
<i>gender</i>	Household head's gender (male 1, female 0)	9394	0.560	0.496	0	1
<i>marriage</i>	Household head's marital status (1 in marriage, 0 in other states)	9394	0.861	0.346	0	1
<i>socnet</i>	Social Network (based on CFPS Questionnaire -- Favorite Spending)	9394	0.043	0.068	0	1
<i>party</i>	Party political status (if a member is 1, otherwise 0)	9394	0.080	0.272	0	1

3. DATA ANALYSIS

First, this section analyzes the baseline regression results to explore the poverty-beneficial effects of identity. Secondly, it conducts robustness tests by replacing the regression model and variables. Thirdly, it conducts fixed-effects regression to discuss the endogeneity issue. And finally, it conducts heterogeneity analysis to separate the micro mechanisms of the poverty-beneficial effects of identity. This study first uses ordinary least squares (OLS) regression to test the effect of the identity index on income poverty and multidimensional poverty.

3.1 Baseline regression

The baseline regression results are shown in Table 4, which examines the relationship between the identity index and income poverty and multidimensional poverty, respectively.

Table 4. Baseline regression results

	<i>finpovn</i>	<i>finpovn</i>	<i>MPI</i>	<i>MPI</i>
	(1)	(2)	(3)	(4)
<i>Identity</i>	-0.1471*** (0.0225)	-0.1348*** (0.0205)	-0.1139*** (0.0170)	-0.1067*** (0.0153)
<i>age</i>		0.0024*** (0.0002)		0.0021*** (0.0001)
<i>gender</i>		-0.0098* (0.0044)		-0.0223*** (0.0035)
<i>marriage</i>		-0.0076 (0.0068)		-0.0155*** (0.0050)
<i>party</i>		-0.0420*** (0.0087)		-0.0557*** (0.0070)
<i>socnet</i>		-0.4400*** (0.0325)		-0.1843*** (0.0216)
<i>familysize</i>		0.0128*** (0.0011)		0.0004 (0.0009)
<i>east</i>		0.1096* (0.0632)		0.0069 (0.0259)
<i>mid</i>		0.1290** (0.0631)		0.0102 (0.0259)
<i>west</i>		0.1592** (0.0631)		0.0367 (0.0258)
<i>Constant term</i>	0.8394*** (0.0034)	0.5555*** (0.0641)	0.3230*** (0.0030)	0.2276*** (0.0272)
<i>N</i>	9394	9394	9394	9394
<i>R²</i>	0.0076	0.0965	0.0075	0.0825

Note: Figures in parentheses are robust standard errors, ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. The control variables in the table include the household head's age, marital status, political affiliation party, and household social network.

The coefficients in models (1) and (3) are negative and significant at the 1% level, indicating that the identity index has a significant negative impact on income poverty and multidimensional poverty, i.e., identity has a significant pro-poor effect on rural households. The coefficients of the identity index in models (2) and (4) are still significantly negative after adding the control variables of household head characteristics and household characteristics, indicating that the household head's gender, marital status, political affiliation, and family social network have significant negative effects on income poverty (*finpovn*) and multidimensional poverty (*MPI*). The regression results are actually consistent with the expectation of this study that male household head, marital status, party membership, and a higher level of the social network

are characteristics that do not make households vulnerable to poverty. Meanwhile, household size significantly affects the poverty level, indicating that larger household size is more likely to deepen household poverty, consistent with the actual situation.

3.2 Robustness tests

In this study, two methods, replacing the model and replacing the explanatory variables, are selected to test the robustness of the empirical results. First, the two-way fixed effects model is selected for re-estimation, and the regression results are shown in Table 5. The findings show that the identity index is still significantly negative at 1%. Specifically, the effect of the identity index on income poverty is somewhat larger than that of multidimensional poverty because higher income can intuitively solve the problem of absolute poverty. In addition, poor groups are more likely to get rid of the poverty label and thus improve their self-identity, while multidimensional poverty contains more complex dimensions and more influencing factors. Therefore, the effect of identity on multidimensional poverty is relatively smaller. Secondly, to further verify the robustness of the regression results, the explanatory variables were replaced with income poverty *incpov* (poverty is 1, otherwise 0). Multidimensional poverty *multipov* (poverty is 1, otherwise 0) and the *Probit* model were selected for the regression. Both *incpov* and *multipov* have a significant poverty-benefiting effect. Moreover, the results remain significant after the inclusion of control variables. Thus, the regression results after replacing the variables also further validate that the baseline regression results of this study are robust.

Table 5. Robustness test results (replacement regression model)

	<i>finpovn</i>	<i>finpovn</i>	<i>MPI</i>	<i>MPI</i>
	(1)	(2)	(3)	(4)
<i>Identity</i>	-0.0335*** (0.0154)	-0.0343*** (0.0153)	-0.0032*** (0.0125)	-0.0029*** (0.0125)
<i>Constant term</i>	0.8164*** (0.0025)	0.7875*** (0.0127)	0.3179*** (0.0019)	0.3088*** (0.0088)
<i>Control variables</i>	No	Yes	No	Yes
N	9394	9394	9394	9394

3.3 Discussion of endogeneity issues

Considering the problem of endogeneity bias caused by omitted variables, this study controls for as many factors affecting rural household income as possible (e.g., the household head's age, marital status, level of the household social network, etc.). However, there are still some unmeasured omitted variables. This study conducted a regression analysis using a fixed-effects model to alleviate some of the endogeneity bias. The results obtained confirm that the findings are still robust (Table 6). The regression results indicate that the previous findings still hold. The identity index has a significant negative effect on income and multidimensional poverty.

Table 6. Fixed effects regression results

	<i>finpovn</i>	<i>finpovn</i>	<i>MPI</i>	<i>MPI</i>
	(1)	(2)	(3)	(4)
<i>Identity</i>	-0.1153*** (0.0202)	-0.1084*** (0.0193)	-0.1205*** (0.0190)	-0.1143*** (0.0171)
<i>Constant term</i>	-0.1445*** (0.0032)	-0.2520*** (0.0113)	0.3246*** (0.0031)	0.2648*** (0.0093)
<i>Control variables</i>	No	Yes	No	Yes
N	8268	8268	8268	8268

3.4 Heterogeneity analysis

The above empirical evidence and analysis show that identity has a significant poverty-benefiting effect. However, considering the differences in the poverty-beneficial effects of identity among different groups, this study conducted heterogeneity analysis through four factors: region, household head's age, gender, and education level. The results are shown in Table 7.

Table 7. Heterogeneity regression results

		<i>finpovn</i>		<i>MPI</i>		<i>Control variables</i>	<i>Sample size</i>
		<i>Identity</i>	<i>Constant term</i>	<i>Identity</i>	<i>Constant term</i>		
(1)	<i>east</i>	-0.1773*** (0.0378)	-0.3826*** (0.0285)	-0.1188*** (0.0281)	0.2148*** (0.0197)	Yes	3132
(2)	<i>mid</i>	-0.0703*** (0.0293)	-0.3078*** (0.0222)	-0.0997*** (0.0268)	0.2403*** (0.0189)	Yes	2806
(3)	<i>west</i>	-0.0826*** (0.0315)	-0.2047*** (0.0170)	-0.0967*** (0.0247)	0.2693*** (0.0157)	Yes	3456
(4)	<i>age <54</i>	-0.1874*** (0.0324)	-0.2265*** (0.0136)	-0.1806*** (0.0252)	0.3260*** (0.0103)	Yes	4626
(5)	<i>Age > 54</i>	-0.0603*** (0.0245)	-0.1183*** (0.0080)	-0.0543*** (0.0197)	0.3965*** (0.0075)	Yes	4482
(6)	<i>male</i>	-0.1271*** (0.0274)	-0.2832*** (0.0168)	-0.1404*** (0.0251)	0.2572*** (0.0137)	Yes	5258
(7)	<i>female</i>	-0.0978*** (0.0274)	-0.2699*** (0.0206)	-0.0765*** (0.0193)	0.2218*** (0.0167)	Yes	4136
(8)	<i>Low level of education</i>	-0.0716*** (0.0276)	-0.1996*** (0.0186)	-0.0563*** (0.0199)	0.3120*** (0.0159)	Yes	3456
(9)	<i>High level of education</i>	-0.1455*** (0.0282)	-0.3085*** (0.0170)	-0.1456*** (0.0228)	0.2457*** (0.0130)	Yes	5938

According to the geographical division above, this study examined the poverty-beneficial effects of identity in the eastern, central, and western regions, respectively. The results did not show significant differences. Specifically, in terms of income poverty, the coefficients of the identity index in the eastern, central, and western regions are -0.1773, -0.0703, and -0.0826, which indicates that the poverty-beneficial effect of identity on income poverty is more obvious in the eastern region because it is relatively economically developed. The income increase of the rural group is larger after the identity increase, and thus the poverty benefit effect is more obvious. In terms of multidimensional poverty, the coefficients of -0.1188, -0.0997, and -0.0967 in the eastern, central, and western regions, respectively, suggest that the beneficial effect of identity on multidimensional poverty is also more pronounced in the east. A plausible explanation is that compared to other regions, the eastern region has less poverty and significantly better infrastructure and social public services, i.e., when examined using multidimensional poverty, the pro-poor effect of identity is also better in the eastern region.

The age of the household head also affects the poverty-beneficial effect of identity to some extent. In this study, regressions were conducted using subsamples above the median (54 years) and below the median to examine the effect of the household head's age on the poverty-beneficial effect of identity. In terms of income poverty, the coefficients of -0.1874 and -0.0603 for the age <54 and age >54 groups indicate that the poverty-beneficial effect of identity on the age <54 group is somewhat more pronounced because the age <54 group has a stronger endogenous motivation to escape poverty. It is more efficient in empowering themselves through learning and identity because this age group is more motivated to escape from poverty and more efficient in empowering themselves through learning. Their identity improves more quickly so that the beneficial effect of identity is relatively obvious. Regarding

multidimensional poverty, the coefficients for the age <54 and age >54 groups are -0.1806 and -0.0543, respectively, and the above explanation for the income poverty results still holds for multidimensional poverty. In addition, another reasonable explanation is that the age >54 group has a serious identity entrenchment due to its older age, which is more evident when multidimensional poverty is used to examine its poverty level. Therefore, regardless of the perspective, the poverty-benefiting effect of identity is more pronounced in the age <54 group.

Gender also affects identity. In terms of income poverty, the coefficients are -0.1271 and -0.0978 for male and female heads of households. However, in terms of multidimensional poverty, the coefficients are -0.1404 and -0.0765 for male and female heads of households. In terms of income poverty and multidimensional poverty, the effect of household poverty benefit is more pronounced for male heads of households with the same identity index. This may be because male heads of households have easier access to skills due to their better position in social production and labor division than female heads of households. Thus, this household characteristic of male heads of households makes the poverty-beneficial effect of identity more pronounced.

Educational attainment is an important factor affecting people's cognitive ability and decision-making level. This study uses regressions on subsamples above the median (1.949) and below the median to test whether there is a difference in the effect of higher or lower education levels on the poverty-beneficial effect of identity. In terms of income poverty, the coefficients for the two groups with lower and higher levels of education were -0.0716 and -0.1455. In terms of multidimensional poverty, the coefficients for the two groups with lower and higher levels of education were -0.0563 and -0.1456. It can be seen that the poverty benefit effect is more pronounced for households with a higher education level of the household head, both in terms of income poverty and multidimensional poverty. Thus, the higher the level of education, the higher the level of identity, and the higher the level of cognition, skills, and self-development; hence, the higher the poverty-benefiting effect.

3.5 Moderating effect of human capital level

In this study, human capital is used as a research variable with moderating effect, and education is used as a proxy variable for human capital. The moderating effect model is set up as follows”

$$y_{it} = \beta_{20} + \beta_{21}Identity_{it} + \beta_{22}edu_{it} + \beta_{23}Identity_{it} * edu_{it} + \beta_{24}X_{it} + \mu_{it} \quad (2)$$

The regression results (Table 8) show that the regression coefficient of the interaction term is significant in model (1), which examines income poverty. However, in model (2), which examines multidimensional poverty, the regression coefficient of the interaction term is not significant. This implies that the level of human capital has a moderating effect between identity and income poverty, i.e., when examining income poverty, the level of human capital has a positive moderating effect on the poverty-beneficial effect of identity, and the higher the level of identity, the stronger the moderating effect.

With the implementation of precise poverty alleviation policies, rural infrastructure has been improved, and embedded industrial poverty alleviation has brought a large number of jobs. Rural laborers with higher human capital levels can fill the jobs and earn corresponding income, so the positive moderating effect of human capital level on the poverty-beneficial effect of identity is obvious when viewed only from the perspective of income poverty. However, the human capital level does not address all dimensions of measuring multidimensional poverty due to its complexity. Thus, the moderating effect of the human capital level on the pro-poor effect of identity is not significant.

Table 8. Moderating effect of human capital level

	<i>finpovn</i>	<i>MPI</i>
	(1)	(2)
<i>Identity</i>	-0.0736*** (0.0196)	-0.0941*** (0.0159)
<i>edu</i>	-0.0084*** (0.0016)	-0.0170*** (0.0013)
<i>edu* Identity</i>	-0.0183** (0.0074)	-0.0059 (0.0060)
<i>Constant term</i>	0.1204*** (0.0059)	0.3883*** (0.0048)
<i>Control variables</i>	Yes	Yes
N	9394	9394

CONCLUSIONS AND RECOMMENDATIONS

Based on data from the China Family Tracking Survey (CFPS), this study empirically examines the effect of identity on income poverty and multidimensional poverty in rural households. The findings show that identity has a significant negative impact on income and multidimensional poverty, i.e., identity has a significant pro-poor effect on rural households. This basic finding still holds after robustness tests and mitigation of endogeneity bias. In addition, heterogeneity analysis shows that differences in factors such as the area where the household is located, the age and gender of the household head, and the education level also have a certain influence on the poverty-beneficial effect of identity.

Based on the above findings, this study proposes the following policy recommendations.

First, it is necessary to ensure the main status of farmers, build a model of democratic governance at the grassroots level, and promote the reconstruction of farmers' identity, so that the identity of "farmers" can be transformed into "residents" and "new professional farmers". The ultimate goal is to equalize the identities of rural and urban areas.

Second, we should coordinate the balanced development of the east, middle and west, improve the carrying capacity of economic development in rural areas, eliminate the gap between urban and rural areas, and promote the equalization of public services. We should continuously improve financial, fiscal, land use, and social security policies suitable for rural industries and promote the integrated development of one, two, and three industries. We should also build a quality platform targeting migrant workers returning to their hometowns for employment and entrepreneurship so that they can be embedded in a variety of new business entities and truly share the benefits of value-added industrial chains.

Third, it is required to strengthen education and vocational skills training for rural residents. Since implementing the precise poverty eradication policy, a large labor gap for new skills has formed in rural areas. New skills are embodied in agricultural business management, cooperative leaders, eco-agriculture, new technologies, and new business models. However, many rural residents cannot transform into new professional farmers due to the lack of new skills, their identity transformation and restructuring have not been fundamentally realized, preventing them from enjoying the dividends brought by rural agricultural modernization. Therefore, it is necessary to focus on cultivating new skills for rural residents, improving their labor productivity, supporting rural entrepreneurs with professional quality among rural residents, and providing a continuous supply of high-quality human capital for rural revitalization.

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