

# Capital Heterogeneity and Inequality of Residents' Income

Jingshui Sun<sup>1, a</sup>, Xianmei Wang<sup>2, b</sup>

<sup>1</sup> Zhejiang Gongshang University, Hangzhou, Zhejiang Province, China

<sup>2</sup> Zhejiang Gongshang University, Hangzhou, Zhejiang Province, China <sup>a</sup> hzsunjingshui@163.com, <sup>b</sup>571556345@qg.com

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Abstract. The article puts forward the theoretical hypothesis and expands the Mincer revenue model. And this research makes an empirical study on the relationship between capital heterogeneity and income inequality based on 3109 questionnaires. The results show that: (1) The human capital has a significant positive impact on residents' income. The human capital interacts with household registration and gender, which further expands urban and rural income inequality and gender income inequality. (2) The physical capital has a significant positive impact on residents' income. The interaction between physical capital and household registration further improves the return rate of physical capital. The more physical capital is accumulated, the greater positive impact of human capital on residents' income has. (3) The political capital has a significant positive impact on residents' income. The political capital interacts with household registration and gender, which further improves the return rate of political capital. The more political capital is accumulated, the greater positive impact of human capital on residents' income has. (4) The social capital has a significant positive impact on residents' income. The interaction between social capital and household registration further improves the return rate of social capital. The more social capital is accumulated, the greater positive impacts of human capital, physical capital and political capital on residents' income have. In addition, this research found that the socioeconomic status of the parents has further improved the educational return rate of their offspring, and the interaction between social insurance and household registration has further expanded the income inequality between urban and rural areas. These findings provide important policy implications for us.

# 1. Introduction

Since the reform and opening up, China's economy has continued to grow and residents' income level has essentially increased. However, the degree of China's income distribution inequality has deepened (Storesletten et al., 2014; Li Shi, 2015). Income inequality in China has exceeded the warning line. According to the statistics of the National Bureau of Statistics, the national income Geordie Coefficient was 0.479 in 2003 and reached the maximum in 2008 (0.491). And then it keeps going down, falling to 0.462 in 2015. However, it rises again in the last two years (0.465 and 0.467 in 2016 and 2017). In recent years, with the continuous expansion of income inequality of Chinese residents, social class has been solidified. The intergenerational problem of income inequality and the problem of opportunity equity have become prominent. The heterogeneity of human capital, physical capital, political capital and social capital can affect the income and income distribution directly. It is of great significance for the government to study the relationship between capital heterogeneity and inequality of residents' income so that our government can formulate a scientific and reasonable income distribution policy and finding ways to reduce income inequality.

# 2. Literature review and research hypothesis

Heterogeneity refers to the difference and uniqueness of the object of study. The capital involved in this paper mainly refers to the micro capital owned by the individual. Capital heterogeneity refers to the differences and uniqueness of individual residents in terms of human capital, physical capital,



political capital and social capital. According to the content of capital heterogeneity, this paper mainly carries out literature review and research hypothesis from the following four aspects.

# 2.1 Human capital heterogeneity and residents' income inequality

Human capital is a kind of capital form which is expressed by the knowledge, skills, experience and health that individuals possess (Shultz, 1961). In human capital theory, people attribute the difference in labor income to the difference in human capital. The education level, in-service training and work experience greatly affect individuals' income (Becker, 1964). Some scholars' research results show that the improvement of human capital contributes to the increase of residents' income level (Völlmecke et al., 2016). Alvarez et al. (2018) found that workers with higher skills not only get better rewards in their main occupations, but are also more likely to diversify their income through "employment". The theoretical circles have not the same idea about the definition of the relationship between human capital and income inequality. Research results of Marin et al. (1976) showed that income inequality goes inversely with the average degree of education, which means that for every additional one year of the average education year, the degree of income inequality will drop by 10%. Detollenaere et al. (2018) found that income inequality is related to residents' health status, and the better the health of residents have, the lower the degree of income inequality is. Sequeira et al. (2017) found that human capital is the most important determinant of income inequality, and the human capital greatly increases income inequality. The author believes that if people have high levels of human capital, they will obtain a higher return on income. The human capital heterogeneity has enlarged the degree of income inequality. In addition, even if people have the same level of human capital, they also have different income levels because of the household registration system. Therefore, this paper proposes the following hypothesis: Hypothesis 1: The human capital has a significant positive impact on residents' income. The human capital heterogeneity characteristic variable interacts with household registration and gender, which further expands urban and rural income inequality and gender income inequality.

# 2.2 Physical capital heterogeneity and residents' income inequality

In general, physical capital refers to the form of production materials used to produce goods and services (such as machinery, equipment, factories, transportation facilities, etc.). The physical capital in this paper mainly refers to the physical capital owned by micro-individuals. Most studies have shown that the accumulation of physical capital helps to increase the income level of residents. Shi Lei et al. (2011) found that the per capita net income of farmers is significantly positively correlated with the per capita land area of the family and the per capita productive fixed assets. Zhu Jinxia et al. (2014) found that the possession of housing property has an important income distribution effect and can increase residents' income. In the theoretical world, there are different views on the relationship between physical capital and income inequality. The research results of Shahpari et al. (2014) showed that the accumulation of human capital and physical capital can reduce the Gini index, thus making income distribution more equitable. Guo et al. (2017) found that with the accumulation of physical capital and human capital, the gender wage gap is narrowing. Galor et al. (2004) argued that the gathering of physical capital expands the income gap. The research results of Wan et al. (2005) showed that the physical capital increasingly affects rural residents' income inequality. Gao Lianshui (2011) found that the physical capital and human capital widen the residents' income gap among different rigions. The author believes that in the case of micro-individuals, the more physical capital is accumulated, the more income individuals receive in the process of income distribution, and the physical capital heterogeneity has an important impact on income inequality. In addition, even if people have the same level of physical capital, they also have different income levels because of the household registration system. Therefore, this paper proposes the following hypothesis: Hypothesis 2: Physical capital has a significant positive impact on residents' income. The physical capital heterogeneity characteristic variable interacts with household registration and human capital, which has a significant impact on income inequality.



### 2.3 Political capital heterogeneity and residents' income inequality

Political capital refers to the power, resources, identity provided by political parties, regimes and ideologies, as well as the resulting influence and deterrent power (Bian Yanjie et al., 2002). In response to China's special national conditions, some scholars have defined political capital as a member of the Communist Party of China, a man served in the army, or the political identity of family members (Li Shuang et al., 2008). Most studies have shown that possessing the identity of party member or leader can achieve higher income returns (Bian et al., 2002; Walder, 2002). The level of individual political capital goes uniformly with residents' income (Liu, 2003). Cheng Mingwang et al. (2016) found that the per capita income of a family with a political identity is 19.38% higher than that of non-political identity. Yang Canming et al. (2011) found that the income level of cadres and party members is higher than that of the general staff and non-party members. Some scholars believe that political capital has caused residents' income inequality, but its influence is weakening. Research results of Li Ming et al. (2010) showed that political capital has a significant impact on China's regional income gap, but its influence is decreasing. Zhang Zhan (2013) found that the effect of political capital on personal income is diminishing. The author believes that the more political capital individuals accumulate, the more opportunities to contact with celebrities they have, the wider social network they have, the more social information resources they acquire. And it not only increases opportunities for people to choose, but makes people get higher income. In addition, even if people have the same level of political capital, they also have different income levels because of the household registration system and gender. Therefore, this paper proposes the following hypothesis: Hypothesis 3: Political capital has a significant positive impact on residents' income. The political capital heterogeneity characteristic variable interacts with household registration, gender and human capital, which has a significant impact on income inequality.

#### 2.4 Social capital heterogeneity and residents' income inequality

Social capital, which refers to various characteristics in social structure or social relations, is an intangible resource form (Song et al., 2009). The microscopic social capital is mainly embodied in individual social network (Zhou Yexin, 2013). Most studies have shown that social capital helps raise the income level of residents. Grootaert (1999) argued that social capital is conducive to raising income levels in poor or poor areas. Social capital plays an active role in reducing the incidence of rural poverty, increasing farmers' income and alleviating the vulnerability of rural households (Macchiavello et al., 2015). Higher social capital can achieve higher income returns (Liu Oian, 2017). However, the academic community holds different views on the relationship between social capital and income inequality. Some studies have shown that increasing the level of social capital can reduce the degree of income inequality (Casey, 2005; Roslan et al., 2010; Ram, 2013). However, there are some scholars who hold the opposite view. Zhao et al. (2012) and Zhou Yexin (2012) found that farmers with certain social capital level have higher income than ordinary farmers, and social capital has enlarged the income gap among farmers. Research results of Li Liming et al. (2017) suggested that the level of social capital expands the degree of income inequality among residents. The author believes that the more social capital is accumulated, the higher their income level is. In addition, even if people have the same level of social capital, they also have different income levels because of the household registration system. Therefore, this paper proposes the following hypothesis: Hypothesis 4: Social capital has a significant positive impact on residents' income. The social capital heterogeneity characteristic variable interacts with household registration, human capital and political capital, which has significant impacts on income inequality.

In addition, individual basic characteristics (such as gender, ethnicity, age, family size, household registration, etc.), buying social insurance, regional differences also have important impacts on residents' income (Gustafsson et al., 2000; Ramamurthy et al., 2015). Therefore, this paper proposes the following hypothesis: Hypothesis 5: Individual basic characteristics, social insurance and its interaction with household registration and education year have prominent impacts on income inequality.



Compared with the existing literature, the main innovations of this paper are as follows: Firstly, in the theoretical world, there are many factors which affect residents' income inequality, and their perspectives are different. Existing relevant studies often discuss the impact of a particular capital on residents' income inequality independently. They seldom study the factors that affect income inequality from the perspective of capital heterogeneity. And they rarely consider the effects of the interaction among various capitals on income. This paper defines the connotation of capital heterogeneity, constructs a capital heterogeneity index system, systematically explores the relationship between capital heterogeneity characteristic variables and income inequality, and draws inspiring research conclusions. It provides an empirical basis for the government to formulate scientific and reasonable income distribution policies. Secondly, when the relevant literatures study the relationship between human capital and residents' income inequality, they seldom involve the influence of the interaction between human capital heterogeneity characteristic variables with household registration and gender on the income inequality of residents. It leads to biased conclusions. This paper explores the impacts of human capital heterogeneity variables such as education year, work experience, skills training, health status and their interactions with household registration and gender on income inequality, and draws a different research conclusion. Thirdly, the existing literatures generally select party membership as a proxy indicator of political capital. Considering that the influence of party membership on income is getting smaller and smaller at this stage, this paper selects political identity, job rank, rural cadres and transferred military personnel as the proxy variables of political capital heterogeneity. The agent variables of political capital heterogeneity are more comprehensive and reasonable. In the discussion about the relationship between physical capital heterogeneity and income inequality of residents, this paper refers to the interaction between physical capital heterogeneity characteristic variable and household registration, and the interaction between physical capital heterogeneity characteristic variable and human capital on income inequality of residents, which cannot be referred in the past research.

#### 3. Research design

#### 3.1 Data sources

Since research on socioeconomic status and residents' income inequality involves many dummy variables and subjective evaluation indexes, which cannot be obtained directly from the government statistical yearbook, this paper adopts the method of questionnaire survey to obtain individual micro data. The respondents of this questionnaire are the main members of urban families and rural families. The survey covers 28 provinces in the eastern, central and western regions through random sampling. In the second half of 2017, the research group of the National Social Science Fund project "research on the evaluation system and early warning mechanism of income distribution equity" issued 6,000 questionnaires, collected 5,056 questionnaires, removed samples with incomplete information or abnormal data, and finally obtained 3,109 valid samples.

#### 3.2 Variable description

The explained variable in this model is the logarithm of the individual's monthly after-tax income (expressed by ln(income)). There are two main types about explaining variables. The first is the proxy variables of capital heterogeneity, including the human capital heterogeneity variable, physical capital heterogeneity variable, political capital heterogeneity variable and social capital heterogeneity variable. The second is individual basic characteristic variables and control variables. Drawing on the existing related research, this paper selects health status, education year, work experience and skills training as the proxy indicators of human capital. The physical capital heterogeneity characteristic variables select three proxy indicators, including housing property rights, land and productive fixed assets. The political capital heterogeneity characteristic variables select political identity, job ranks, rural cadres and transferred military as its proxy indicators. The social capital heterogeneity characteristic variables select five proxy indicators, including family gift, communication network fees, frequency of eating outside, members of industry associations or other organizations, trust in



colleagues and friends, and relatives living in the city. This paper selects gender, ethnicity, age, family population, family labor force, individual household registration, and socioeconomic status of parents as individual basic characteristic variables. The control variables, which include social insurance and regional differences, were selected. The symbols, meanings and sample mean values of all variables in the model are shown in Table 1.

Table 1. Variable, symbol meaning and sample mean

Variable	Symbol	Meaning	Sample Mean
Explained variable: Individual monthly after-tax income	In (in some)	Localithm of income	8 22188
Explaining variable:	in(income)	Logarithin of income	0.22100
(1) Gender <sup>a</sup> (dummy variable)	male	Male male=1 or 0	0.58122
(2) Nation <sup>b</sup> (dummy variable)	han	Han =1 or 0	0.97716
(3) Age	age		41.61563
(4) Family population	рор		3.7340
(5) Family labour force	lab		2.25796
(6) Household Registration (dummy variable)	city	Non-agricultural household city=1, otherwise 0	0.59859
(7) The socioeconomic status of parents	fasta	See note (1)	2.29399
2. Capital heterogeneity characteristic variable			
Human capital heterogeneity characteristic variables: (1) Education year	edu		12.9511
(2) Length of service	expe		18.70827
(3) Skills training(dummy variable)	train	Train =1; otherwise, 0	0.37363
(4) Health status(dummy variable)	heal	See note (2)	3.84561
Physical capital heterogeneity characteristic variable: (1) Housing property (dummy variable)	houp	have full title houp=1 or take 0	0.82509
(2) Rural residents:Land	land		5.58543
Productive fixed assets	ass		23965.03
Political capital heterogeneity characteristic variables: (1) Political identity(dummy variable)	poli	is a member of the party poli=1 or take 0	0.10440
(2) Rural residents: rural cadres (dummy variable)	cad	is a village cadre cad=1 or take 0	0.05403
Transferred military (dummy variable)	sold	is a transfer of military personnel sold=1 or take 0	0.03663
(3) Job ranks	post	See note(3)	1.59158
Social capital heterogeneity characteristic variables: (1) Frequency of eating outside	eat	See note(4)	3.10531
(2) Family gift and communication network fees	gift		1064.185
(3) Organization member (dummy variable)	orga	is a member of the organization orga=1 or take 0	0.05403
(4) Degree of trust	trust	See note(5)	3.61917
(5) Rural residents: relatives living in the city (dummy variable)	relat	have relatives settle in the city relat=1 or take 0	0.74837
3. Control variables			
(1) Social insurance(dummy variable)	insu	have social security insu=1 or you take 0	0.73077
(2) Region <sup>e</sup> : East region(dummy variable)	reg2	East region reg2=1or take 0	0.60823
Central region(dummy variable)	regl	Central region reg1=1or take 0	0.31618

Referential standard: a Women; b Minority; c West region.

Note: (1) socioeconomic status (such as property, position, reputation) values 1, 2, 3, 4, 5 (1 indicates the lower level and 5 indicates the upper level). (2) heal: very poor, poor, general, good, very good, take 1, 2, 3, 4, 5 in order. (3)post: no post, base level, middle level and top level shall be 1, 2, 3 and 4. (4)eat: 1 means never, 5 means often. (5) trust: 1 means complete distrust and 5 indicates complete trust.



#### **3.3 Econometric model**

The research about income inequality usually adopts the Mincer (1974) income model. The model mainly examines the impacts of educational level and work experience on workers' income. This paper expands the Mincer income model and uses human capital, physical capital, political capital and social capital heterogeneity characteristic variables as core variables to explore the relationship between capital heterogeneity and income inequality. The extended Mincer revenue model is as follows:

$$ln(income) = \beta_0 + \sum \beta_i \text{individual}_i + \sum \beta_j capitalhete_j$$

$$+ \sum \beta_k \text{interaction}_k + \sum \beta_l \text{control}_1 + \varepsilon$$
(1)

In this formula, ln(income) is the logarithmic form of residents' income (explained variable),  $\beta$  is the regression parameter, *individual* is the basic characteristic variable of the individual, *capitalhete* is the characteristic variable of capital heterogeneity, *interaction* is the interaction term among variables, *control* is the control variable and  $\varepsilon$  is the random error term.

#### 4. Empirical analysis results

Based on the income distribution fairness questionnaire data, the Generalized Least Squares Estimator of the extended Mincer econometric model was performed using the measurement software EViews9.0, and the regression results of Table 2 to Table 4 were obtained.

#### 4.1 Basic characteristics of individuals and residents' income inequality

Model 1 in Table 2 is the basic model, reflecting the impacts of individual basic characteristics on residents' income inequality. The regression results of Model 1-1 show that gender and ethnicity have significant positive impacts on residents' income. Residents' income and age are in an inverted U-shaped relationship. The family population has an essential negative impact on residents' income and the number of household labor has a significant positive impact on the income level of residents. The regression results of Model 1-2 show that the higher socioeconomic status of the parents is, the higher income level of the children is. The interaction between socioeconomic status of the parents and household registration has a significant positive impact on the income level of the offspring, indicating that the socioeconomic status of the parents has further expanded the degree of income inequality between the urban and rural areas. The regression results of Models 1-3 show that the interaction between the socioeconomic status of parents and education year of offspring has a significant positive impact on the income level of status of the parents has further expanded the expanded the educations parents and education year of offspring has a significant positive impact on the income level of residents, indicating that the socioeconomic status of parents and education year of offspring has a significant positive impact on the income level of residents, indicating that the socioeconomic status of parents and education year of offspring has a significant positive impact on the income level of residents, indicating that the socioeconomic status of parents and education year of offspring has a significant positive impact on the income level of residents, indicating that the socioeconomic status of the parents has further expanded the educational returns of offspring. The above conclusions partially support Hypothesis 5.

#### 4.2 Human capital heterogeneity and residents' income inequality

Model 2 in Table 2 reflects the impacts of human capital heterogeneity characteristic variables and their interactions on the inequality of residents' income. The regression results of Model 2-1 show that work experience has a significant positive impact on the income level of residents. The regression results of Model 2-2 show that residents who participated in skills training can earn higher than those who did not participate in skills training. The regression results of Model 2-3 show that the residents' education year has a significant positive impact on residents' income. The interaction between individual education year and household registration has a significant positive impact on residents' income, indicating that there is a momentous difference in the rate of return on education for urban and rural workers. The regression results of Model 2-4 show that the interaction between education year and gender has a significant positive impact on residents' income, indicating that the degree of gender income inequality and there is gender discrimination in the labor market. The mentioned conclusions empirically buttress Hypothesis 1.

Explain- ing variable	Model 1-1 (individual characterist- ics)	Model 1-2 (individual characterist- ics)	Model 1-3 (individual characterist- ics)	Model 2-1 (human capital)	Model 2-2 (human capital)	Model 2-3 (human capital)	Model 2-4 (human capital)
c	6.94598***	6.76699***	6.54521***	6.60279***	6.95939***	5.98538***	5.92211****
male	0.04393***	0.07034***	0.05514***	0.05257***	0.04386***	0.05707***	0.05939***
han	0.03090***	0.05143***	0.07002***	0.02966***	0.04623***	0.07853***	0.07133***
age	0.04510***	0.04557***	0.05630***	0.06049***	0.04301***	0.05255***	0.05496****
age <sup>2</sup>	-0.00055***	-0.00054***	-0.00060***	-0.00055***	-0.00052***	-0.00054***	-0.00056***
pop	-0.06896***	-0.02998***	-0.02639***	-0.06263***	-0.06667***	-0.00804***	-0.02380***
lab	0.04254***	0.02674***	0.01597***	0.03861***	0.04006***	0.01238***	0.01489***
heal	0.07056***	0.05804***	0.04536***	0.06714***	0.06884***	0.03796***	0.03737***
fasta		0.02669***	0.03599***				
fasta*city		0.09876***					
fasta*edu			0.04103***				
expe				0.01566***			
train					0.06342***		
edu						0.04425***	0.05650***
edu*city						0.01014***	
edu*male							0.00083***
insu	0.14933****	0.09812***	0.08401***	0.14220***	0.13622***	0.03970***	0.05541***
reg2	0.14943***	0.15987***	0.12118***	0.15359***	0.14541***	0.11614***	0.10778***
reg1	0.00588***	0.02248***	0.00396***	0.00503***	0.00090***	0.00890***	0.00144***
adj-R <sup>2</sup>	0.99952	0.99668	0.99772	0.99835	0.99906	0.99873	0.99935
F-statistic	640426.9***	77731.54***	104780.0***	171121.6***	298852.3***	204130.9***	396308.0***

Table 2. Regression 1	results about capit	al heterogeneity a	nd residents'	income inequality
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Note: \*\*\*, \*\* and \* respectively signify that the regression coefficients are momentous at the level of 1%, 5% and 10%, the same as below.

#### 4.3 Physical capital heterogeneity and residents' income inequality

Model 3 in Table 3 reflects the impacts of physical capital heterogeneity characteristic variables and their interactions on residents' income inequality. The regression results of Model 3-1 show that the income of residents with complete property rights is significantly higher than that of residents with no complete property rights. The interaction between housing property rights and household registration has a significant positive impact on the income level of residents, indicating that the urban residents who have complete property rights in housing have higher income than rural residents, and the household registration system has further expanded urban and rural income inequality. The regression results of Model 3-2 show that the interaction between housing property rights and education year has a significant positive impact on residents' income, indicating that physical capital has further expanded the impact of education year on residents' income. The regression results of Model 3-3 show that the more land and productive fixed assets are owned by rural residents, the higher their income level is. The above conclusions are consistent with Hypothesis 2.

#### 4.4 Political capital heterogeneity and residents' income inequality

Model 4 in Table 3 reflects the impacts of political capital heterogeneity characteristic variables and their interactions on income inequality among residents. The regression results of Model 4-1 show that the income level of party members is significantly higher than that of non-party members. The regression results of Model 4-2 show that job ranks have a significant positive impact on the income level of residents. The interaction between job ranks and household registration has a significant positive impact on residents' income, indicating that the household registration system further expands the return rate of job rank. The regression results of Model 4-3 show that the interaction between job ranks and gender has a significant positive impact on the income level of residents, indicating that job ranks further expand the degree of gender income inequality. The regression results of Model 4-4 show that the interaction between job ranks and education year has a significant



positive impact on residents' income, which indicates that the longer an individual is educated, the greater effect of job ranks on resident income has. The regression results of Model 4-5 and Model 4-6 show that rural cadres and transferred military personnel have significant positive impacts on the income level of rural residents. The above conclusions verify Hypothesis 3.

Explain-	Model 3-1	Model 3-2	Model 3-3	Model 4-1	Model 4-2	Model 4-3	Model 4-4	Model 4-5	Model 4-6
ing	(physical	(physical	(physical	(political	(political	(political	(political	(political	(political
variable	capital)								
с	6.86603***	6.77795***	6.99625***	6.90105***	7.05388***	7.17487***	6.87588***	6.95310***	6.91708***
male	0.06142***	0.04200***	0.06790***	0.03235***	0.04633***	0.00158***	0.03863***	0.07631***	0.07277***
han	0.05444***	0.05947***	0.18866***	0.04934***	0.06116***	0.03856***	0.07353***	0.00901***	0.00885***
age	0.04077***	0.04756***	0.02229***	0.04330***	0.02969***	0.02791***	0.03820***	0.02471***	0.02593***
age <sup>2</sup>	-0.00048***	-0.00050***	-0.00032***	-0.00053***	-0.00036***	-0.00035***	-0.00040***	-0.00035***	-0.00036***
pop	-0.03242***	-0.03261***	-0.00594***	-0.05909***	-0.03226***	-0.05921***	-0.02696***	-0.00823***	-0.00802***
lab	0.03136***	0.02139***	0.04173***	0.03819***	0.03279***	0.03749***	0.02188***	0.04544***	0.04541***
heal	0.05690***	0.04097***	0.04467***	0.06161***	0.04157***	0.04436***	0.02756***	0.03925***	0.04279***
houp	0.10116***	0.11005***							
houp*city	0.08330***								
houp*edu		0.05375***							
land			0.00238***						
ass			6.48E-07***						
poli				0.09921***					
post					0.06303***	0.14096***	0.19957***		
post*city					0.10219***				
post*male						0.01538***			
post*edu							0.02280***		
cad								0.11680***	
sold									0.09077***
insu	0.09216***	0.07142***	0.06674***	0.06960***	0.05756***	0.08465***	0.05934***	0.06722***	0.06687***
reg2	0.14980***	0.12402***	0.13065***	0.14086***	0.14426***	0.13387***	0.12807***	0.13672***	0.14166***
reg1	0.01336***	0.00957***	0.04644***	0.00525***	0.01068***	0.00342***	0.00769***	0.04845***	0.04957***
adj-R <sup>2</sup>	0.99912	0.99871	0.9941	0.99999	0.99893***	0.99964	0.99905	0.96032	0.94785
F-statistic	270176.5***	184894.0***	15377.47***	30694884***	240637.9***	723453.6***	271100.6***	2201.028***	1656.412***

Table 3. Regression results about capital heterogeneity and residents' income inequality

#### 4.5 Social capital heterogeneity and residents' income inequality

Model 5 in Table 4 reflects the impacts of social capital heterogeneity characteristic variables and their interactions on residents' income inequality. The regression results of Model 5-1 show that the more family gifts and communication network fees they spend, the higher income level of residents is. Compared with rural residents, the more family gifts and communication network fees they spend, the higher income level of urban residents is, and the greater income inequality between urban and rural areas is. The regression results of Model 5-2 show that the interaction between family gift and communication network fees and education year has a significant positive impact on residents' income. The regression results of Model 5-3 and Model 5-4 show that the more family gifts and communication network fees they spend, the greater effects of housing property rights and job ranks on residents' income have. The regression results of Model 5-6 regression results show that the income level of organizational members is significantly higher than that of non-organizational members. The regression results of Model 5-7 show that the higher income level of residents is. The regression results of Model 5-8 show that rural residents they are, the higher income level of residents is. The regression results of Model 5-7 show that the higher rural residents they are, the higher income level of residents is. The regression results of Model 5-8 show that rural residents



who have relatives living in the city have higher incomes level than rural residents who have no relatives living in the city. The above conclusions support the hypothesis 4.

Explain-	Model 5-1 (social capital)	Model 5-2 (social capital)	Model 5-3 (social capital)	Model 5-4 (social capital)	Model 5-5 (social capital)	Model 5-6 (social capital)	Model 5-7 (social capital)	Model 5-8 (social capital)	Model 6 (control variable)
c	7.28186***	7.18885***	7.28767***	7.31292***	6.89401***	6.88103***	6.88157***	6.91935***	6.75979***
male	0.01195***	0.01361***	0.00976***	0.00889***	0.04096***	0.03930***	0.04354***	0.07256***	0.06483****
han	0.00983***	0.01747***	0.00834***	0.01112***	0.01538***	0.03778***	0.03038***	0.04821***	0.04231***
age	0.01540***	0.01891***	0.01531***	0.01464***	0.04390***	0.04522***	0.04558***	0.02427***	0.04441***
age <sup>2</sup>	-0.00020***	-0.00022***	-0.00020***	-0.00019***	-0.00053***	-0.00055***	-0.00055***	-0.00034***	-0.00052***
pop	-0.01821***	-0.01494***	-0.02105***	-0.02186***	-0.06585***	-0.06603***	-0.06862***	-0.00888***	-0.03280***
lab	0.02719***	0.02704***	0.02863***	0.02963***	0.03691***	0.04357***	0.04376***	0.03686***	0.03503***
heal	0.02456***	0.02291***	0.02409***	0.023527***	0.06156***	0.06304***	0.06710***	0.05205***	0.06168***
gift	0.00026***	0.00015***	0.00028***						
gift*city	1.83E-05***								
gift*edu		7.73E-06***							
gift*houp			4.03E-06***						
gift				0.00026***					
gift*post				6.45E-06***					
eat					0.03925***				
orga						0.08916***			
trust							0.01924***		
relat								0.01547***	
insu*city									0.07006***
insu	0.04753***	0.04739***	0.04932***	0.04997***	0.14269***	0.14199***	0.14669***	0.08523***	0.12013***
reg2	0.06884***	0.06840***	0.06597***	0.06847***	0.15014***	0.14386***	0.14529***	0.13673***	0.15980***
regl	0.02359***	0.02331***	0.02162***	0.02281***	0.00580***	0.00102***	0.00128***	0.04506***	0.02546***
adj-R <sup>2</sup>	0.99984	0.99952	0.99889	0.99994	0.99852	0.99018	0.99608	0.99680	0.99973
F-statistic	1628599***	543823.7***	233978.0***	4317394***	191123.4***	26121.91***	71781.16***	31889.29***	974417.3***

Table 4. Regression results about capital heterogeneity and residents' income inequality

# 4.6 Control variables such as social insurance, regional differences and residents' income inequality

Model 6 reflects the impacts of control variables on income inequality among residents. The regression results show that social insurance has a significant positive impact on the income level of residents, indicating that residents with social insurance have higher income than those without social insurance. The interaction between social insurance and household registration has a significant positive impact on the income level of residents, indicating that the income level of urban residents with social insurance is significantly higher than that of rural residents. This further expands urban and rural income inequality. The regression results also show that the income level of residents in the eastern region is much higher than that in the west, and the income level of residents in the central region is slightly higher than that in the west. The above conclusions partially support Hypothesis 5.

#### 5. Research conclusions and policy implications

#### **5.1 Conclusions**

This paper proposes theoretical hypotheses, expands the Mincer income model, studies the relationship between capital heterogeneity and income inequality based on 3109 questionnaire data. The conclusions are as follows.

Conclusion 1: Human capital has a significant positive impact on residents' income. And the interaction between human capital with household registration and gender further exacerbates urban

and rural income inequality and gender income inequality. The results of study show that the more human capital is accumulated, the higher income level of residents is. The results also show that the interaction between human capital heterogeneity characteristic variable and household registration has a significant positive impact on residents' income, revealing that compared with rural residents, the more human capital of urban residents accumulates, the higher their income level is. It shows that there is a significant difference in the return on human capital between urban and rural workers and the household registration system has intensified income inequality between urban and rural areas. The interaction between human capital heterogeneity characteristic variable and gender has a significant positive impact on residents' income. It shows that compared with female residents, the more human capital of male residents accumulates, the higher income level is, indicating that there is gender discrimination in the labor market and the accumulation of human capital expands the degree of gender income inequality.

Conclusion 2: Physical capital has a significant positive impact on residents' income. The interaction between physical capital and household registration further increases the return rate of physical capital. And the more physical capital accumulates, the greater positive impact of human capital on residents' income has. The results show that the more physical capital is accumulated, the higher income level of residents is. The results also show that the interaction between physical capital heterogeneity characteristic variable and household registration has a significant positive impact on the income level of residents, indicating that compared with rural residents, the more the urban residents have accumulated their physical capital, the higher their income level is. The interaction between physical capital and household registration further enlarges the extent of income inequality between urban and rural areas.

Conclusion 3: Political capital has a significant positive impact on residents' income. The interaction between political capital with household registration and gender further increases the return rate of political capital. And the more political capital is accumulated, the greater positive impact of human capital on residents' income has. The results of the study show that the more political capital is accumulated, the higher residents' income level is. The results also show that the interaction between political capital heterogeneity characteristic variable with household registration and gender has a significant positive impact on residents' income, indicating that compared with rural residents and female residents, the more political capital is accumulated, the higher income level of urban residents and male residents is, and the difference in household registration and gender further expands the return rate of political capital has a significant positive impact on residents on residents' income, indicating that the more political capital has a significant positive impact on residents on residents income political capital is accumulated, the higher income level of urban residents and male residents is, and the difference in household registration and gender further expands the return rate of political capital has a significant positive impact on residents' income, indicating that the more political capital has a significant positive impact on residents' income, indicating that the more political capital is accumulated, the greater impact of human capital on residents' income has. In terms of the impact on residents' income, there is a prominent complementarity between political capital and human capital.

Conclusion 4: Social capital has a prominent positive impact on residents' income. The interaction between social capital and household registration further increases the return rate of social capital. And the more social capital is accumulated, the greater positive impact of human capital, physical capital and political capital on residents' income has. The results show that the more social capital is accumulated, the higher residents' income level is. The research results also show that the interaction between social capital heterogeneity characteristic variable and household registration has a significant positive impact on the income level of residents, indicating that compared with rural residents, the more social capital accumulates, the higher the income level of urban residents is, and the greater the income inequality is. The interaction between the social capital heterogeneity characteristic variable and political capital heterogeneity characteristic variable and political capital heterogeneity characteristic between the social capital heterogeneity characteristic variable and political capital heterogeneity characteristic variable and political capital heterogeneity characteristic variable and political capital heterogeneity characteristic variable with numan capital, physical capital and political capital has significant positive impacts on residents' income. It shows that the more social capital is accumulated, the greater positive impact of human capital, physical capital and political capital on residents' income has.

Conclusion 5: The basic characteristics of individuals have a notable impact on the income inequality of the residents. The socioeconomic status of the parents has further improved the educational return rate of offspring. And the interaction between social insurance and household



registration has further expanded the income inequality between urban and rural areas. The results show that the income of female residents is lower than that of male residents. The income of minority residents is lower than that of Han residents. Residents' income and age show an inverted U-shaped relationship. Residents' income level in the eastern region is much higher than that in the west. Residents' income level in the central region is slightly higher than that in the west. The higher the socioeconomic status of parents is, the higher income level of offspring is. Residents buying social insurance have higher income level than those who do not buy social insurance. The interaction between social insurance and household registration has further expanded urban and rural income inequality.

#### 5.2 Policy implications

According to the research results of this paper, the following policy implications are obtained.

First, to promote educational equity, increase public health investment, diversify vocational skills training for workers and increase the accumulation of human capital will be conducive to raising the income level of residents. The results of this study show that the education year, skills training and health status have significant positive impacts on residents' income. On the one hand, in order to raise the income level of residents, the government should ensure that people, especially rural residents, low-income people and vulnerable groups, have equal access to education. On the other hand, the government ought to increase the support of vocational education, provide diversified on-the-job training and skills training for workers to improve their ability to adapt to new technologies and new knowledge. At the same time, increasing public health investment and promoting public health investment in poor areas and rural areas are necessary, which will not only help to improve the health status of residents, but also help to increase the income level of residents and reduce the degree of income inequality.

Second, increasing the accumulation of physical capital and "thawing" the assets of rural residents are conducive to reducing the degree of income inequality between urban and rural areas. The results of this paper show that the income level of residents with full property rights in housing is significantly higher than that of residents with no full property rights. It is recommended that tax cuts or housing credit concessions be given to low-income people for the first time to buy common housing, so as to reduce the pressure on low-income buyers, which is conducive to reducing the degree of income inequality. The results of this paper also show that the interaction between physical capital (like real estate) and household registration has further expanded the degree of income inequality between urban and rural areas, and the land owned by rural residents and productive fixed assets have significant positive impacts on their income level. Therefore, in terms of the physical capital of rural residents, it is recommended to "thaw" the assets of rural residents, relax the use scope of rural housing and land, promote the transfer of rural housing use rights and land management rights. It can increase farmers' property income and land income. It will also help to raise the income level of rural residents, and help to reduce the degree of income inequality between urban and rural areas.

Third, playing the leading role of political capital and preventing the impact of power on income decisions are conducive to raising residents' income level and reducing the degree of income inequality. The results of this paper show that job ranks, rural cadres and transferred military personnel have significant positive impacts on residents' income. Generally speaking, rural cadres, transferred military personnel and leading cadres with certain positions have higher quality and ability, and their income level is higher than that of ordinary residents. Although rural cadres, transferred military personnel, and leading cadres with certain positions account for a small proportion, they often occupy certain resources and political power, which can affect income distribution. Therefore, it is necessary to define the scope of political power reasonably to prevent the expansion and abuse of power, and to prevent the influence of power on income decision. The government should establish a democratic supervision mechanism of income distribution to make their income and burden transparent to society, so as to reduce power corruption and rent-seeking, and reduce the impact of political power on income inequality.



Fourth, giving play to the role of social capital is beneficial to raising residents' income level. The results of this paper show that social capital has a significant positive impact on residents' income. Therefore, the government should give full play to the positive role of industry associations or other economic organizations to create a good environment for resource and information sharing. It can promote the organization members to realize the increment of social capital, and create conditions for residents to raise their income level.

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