Achievements of China's Digital Economy Construction: Internet Equality, Population Return and County Economic Growth

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Abstract. Internet equity is a phased achievement that has been achieved to a certain extent in the construction of the digital economy, providing a new and effective approach to solving the problem of county economic growth. Based on the statistical data of *China Household Finance Survey* (CHFS) and *China County Statistical Yearbook* in 2017, this paper uses linear regression empirical method to explore the influence of Internet equity on county economic growth. The results show that Internet equality has a significant role in promoting county economic growth, and population return by Internet equality is also an important regulating variable. Finally, this paper puts forward suggestions attaching to promote county economic growth.

Keywords: Digital Economy Construction; Internet Equality; County Economic

1 Introduction

Today, the focus of Internet functions is shifting from "information equality" to "development equality". Whether it is e-commerce or live broadcasting, whether it is express delivery or instant retail, it is no different from some counties and big cities in China. The floating population has been able to transplant new economic industrial ecology from the city back to the county town. Internet is giving counties the same development rights.

This paper examines the impact of Internet equality on county economic growth in the context of the rapid development of China's digital economy, focusing on how Internet equality affects the return of county population and thus brings heterogeneous effects on economic growth in different regions.

2 Literature review

With the gradual improvement of internet-related infrastructure construction, scholars have re-focused on the impact of the internet on economic growth. Waverman (2001) and Czernich (2011), found that the development of telecommunications and broadband infrastructure can increase a country's economic growth rate[1][2].Wang Y (2020) found the promotion and

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application of the Internet can help the unemployed leading to the return of population[3]. Barro & Sala-i-Martin (1990) found that population migration did not play an important role in explaining economic convergence[4]. Hou Y F(2016) have found that population outflow can also promote the spread of advanced knowledge, technology and ideas through the"Learning by doing" effect[5].

However Internet equality is not completely equal to the popularity of the Internet, the word equal rights is more to emphasize that county cities can have the same right to develop emerging Internet industries as large cities. Therefore, Internet equality is a new market economy function based on the popularization of the Internet.

3 Theoretical analysis

3.1 Internet equality and economic growth

The realization of Internet equality in county cities can significantly lower the threshold for innovation, increase individual innovation channels, and continuously derive emerging Internet industries, thereby stimulating county innovation. Internet equality affects labor supply[6], the value created by relying on the return of population generates capital accumulation for the county economy, thereby promoting the economic growth of the county.

3.2Internet equality, population return and economic growth

Internet in the county to achieve equal rights for workers to provide an external environment, and labor return can directly affect economic growth[7]. So, what role does population return play in the relationship between Internet equality and economic growth, and the relationship between them deserves in-depth discussion[8].

4 Data source and model construction

4.1Data source

The data in this paper mainly comes from the *2017 China Household Finance Survey* (CHFS) and *China County Statistical Yearbook*, In addition, this paper uses *Stata 15* software for data analysis.

4.2Empirical model &Variables

The specific model is as follows：

$$lnGDP_i = \alpha_0 + \alpha_1 Internet_i + \rho controls + \mu_i \quad (1)$$

$$Reflux_i = \alpha_0 + \alpha_1 Internet_i + \gamma controls + \mu_i \quad (2)$$

$$lnGDP_i = \alpha_0 + \alpha_1 Internet_i + \beta_i Reflux_i + \delta controls + \mu_i \quad (3)$$

$$lnGDP_i = \alpha_0 + \alpha_1 Internet_i + \beta_i Reflux_i + \theta_i Internet_i \times Reflux_i + \delta controls + \mu_i \quad (4)$$

Formula (1) represents the direct effect of Internet affirmative action on economic growth; formula (2) represents the impact of Internet affirmative action on population return; Formula (3) and formula (4) respectively explore the mediating effect and regulating effect of population return.Where, in the above formula, GDP_irepresents the per capita GDP of county i, $Internet_i$ represents whether county *i* realizes Internet equality, and $LnReflux_i$ represents the logarithm of the population return in county *i*, $Controls$ represents the relevant control variable.μ_i is the random disturbance term.Main variables and descriptive statistics are shown in **Table 1** and **Table 2:**

Table 1. The variable name and meaning

Variable type	Variable name	Variable symbol	Variable definition
Explained variable	County economic level	LnGDP	The logarithm of the county's real GDP
Explanatory variable	Internet equality	Internet	When the county realizes Internet equality, it is 1, otherwise it is 0
Intermediate variable	Population return	LnRefulx	The logarithm of the number of people returning to the county in the current year
Controlled variables	Population	Lnpop	The logarithm of the registered population
	Educational level	Edu	The ratio of the number of students receiving nine-year compulsory education to the registered population
	infrastructure	Infra	Ratio of Fixed line telephones to registered population (households per 100 persons)
	The proportion of tertiary industry	Industry	Ratio of output value of tertiary industry to gross regional product (%)
	Government financial strength	Govspend	Fiscal expenditure as a share of GDP
	Number of local enterprises	NE	Number of industrial enterprises above designated size
	Agricultural productivity level	Agri	The logarithm of the total power of agricultural machinery

Table 2. Descriptive statistics

Variable	Sample size	Average value	St.D	Min	Max
LnGDP	1284	7.189	1.254	3.698	13.886
Internet	1284	0.348	2.158	0	104
LnRefulx	1284	4.875	0.556	2.708	9.687
Lnpop	1284	11.2981	0.0014	10.8198	13.1224
Edu	1284	0.875	0.2485	0.693	0.9063

Infra	1284	0.345	1.785	0.175	0.552
Industry	1284	0.356	1.245	0.102	0.772
Govspend	1284	0.3075	2.568	0.1052	0.6823
NE	1284	15.1094	2.598	1	43
Agri	1284	3.225	0.557	2.2983	5.9915

5 Empirical results and analysis

A regression analysis was conducted on the comprehensive effect of internet equity on county level economic growth, and the regression results are shown in **Table 3**. From the regression results, it can be seen that the regression coefficient of internet empowerment on county economic growth is significantly positive and the regression coefficient remains significant after adding relevant control variables in column (2). From column (3), it can be seen that internet empowerment has a significant positive impact on population return. However, when the population return variable is added to the regression in column (4), the regression coefficient of this variable is no longer significant. In column (5), it can be seen that the regression coefficients of *LnRefulx* are all positive and significant, indicating that population return plays a more moderating role . Take again the results of column (3), it can be seen that population return will also be directly affected by internet equality. The relationship between the three is shown in **Figure 1**:

Table 3. Regression results

Variables	LnGDP		LnRefulx	LnGDP	
	(1)	(2)	(3)	(4)	(5)
Internet	3.269***	2.466***	4.221***	2.016***	1.876***
	(10.459)	(3.786)	（5.369）	(2.986)	(3.953)
LnRefulx				1.744	1.458**
				(1.226)	(2.726)
Internet×LnRefulx					4.658***
					(4.441)
Lnpop		0.6689*	0.9927**	0.5686	0.7521*
		(2.4206)	(2.7006)	(1.4285)	(2.067)
Edu		2.9531***	3.4131*	1.7552***	3.5144***
		(3.345)	(2.211)	(4.226)	(3.115)
Infra		5.4551*	7.4551	4.5211	5.4778*
		(2.1963)	(1.1963)	(1.1963)	(2.3854)
Industry		5.9687*	4.5523***	7.9687***	5.9687*
		(2.4843)	(4.8843)	(4.4843)	(2.4843)
Govspend		4.769***	3.588	4.769***	2.769**
		(5.4788)	(1.4788)	(5.8775)	(2.671)
NE		0.0739***	0.1253***	0.0623*	0.06875***
		(3.778)	(5.778)	(2.227)	(2.955)

Agri		0.5016*	0.7553	0.5016**	0.4088
		(2.4843)	(1.877)	(2.733)	(1.4843)
Constant		16.997***	26.627***	18.627***	26.447***
		(4.9174)	(5.8896)	(7.3367)	(3.9174)
F statistic	14.988	23.391	33.781	37.25	40.22
Adjusted R^2	0.401	0.571	0.623	0.662	0.6788
N	1248	1248	1248	1248	1248

Note:Inside the parentheses are the t statistic

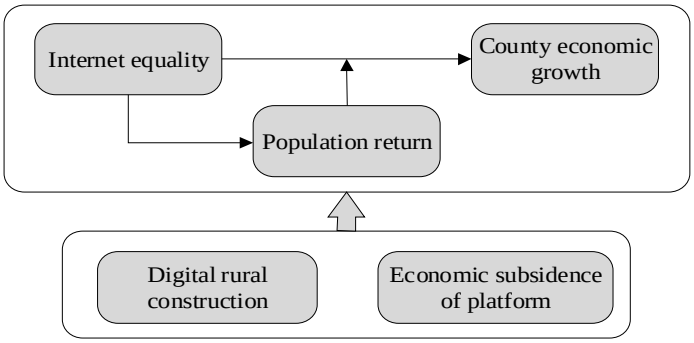

Fig.1. The relationship between Internet equality, population return and county economic growth

6 Conclusions

This paper measures the Internet Equity and empirically analyzes the impact of internet equity on county economic growth by linear regression equation. The results show that Internet equity has a significant effect on county economic growth, and the impact of Internet equity on county economy is affected by population return . Population turn itself will be positively affected by internet equality, so Internet equality will have a long-term cyclical positive impact on county economy growth.

Based on the empirical study of Internet equality, this paper provides the following three policy suggestions for China's county economy:(1) we should pay full attention to the important role of equal access to the internet and the return of population in promoting economic growth at the county level, and speed up the development of digital infrastructure especially in underdeveloped areas . (2) The local government should combine the local characteristic agriculture and the digital economy industry. Giving full play to the role of the front-end of the digital economy, promoting the branding of industries and products in county areas. (3) We should make full use of the regional development policies formulated by the state, continuously highlight the advantages of local products through the use of Internet technologies, actively participate in the construction of the digital economy, break through the market threshold and expand the market scope, form a virtuous circle of factors gathering and talents returning.

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