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Study on the Impact of Internet Embedding on the Happiness of Rural Residents—Based on the Mediating Perspective of Willingness to Pay for Environmental Remediation

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Abstract: *The report of the 20th Party Congress proposes that the people's aspirations for a better life should be realised continuously. Based on the survey data of 'Double Hundred and Double Thousand' in Jiangxi Province in 2023, the article analyses the key roles of Internet embeddedness and willingness to pay for rural environmental remediation in enhancing rural residents' sense of well-being. It is found that both have significant positive impacts on rural residents' well-being, with differences by education level and whether or not village planning is carried out. The mechanism analysis reveals that the embedding of the Internet not only stimulates the positive willingness to pay for environmental remediation of rural residents, but also substantially improves the well-being index of rural residents by optimising the rural environment. Therefore, the government and relevant departments should increase investment in rural Internet infrastructure construction, improve rural residents' Internet literacy, and at the same time encourage and guide them to participate in environmental remediation, so as to jointly promote the sustainable development of rural areas and the enhancement of residents' well-being.*

Keywords: *internet embedding, environmental improvement, rural residents' well-being, digital countryside*

1. Introduction

Happiness is the common pursuit of all humankind. The report of the Twentieth Party Congress emphasises the goal of achieving common prosperity while enhancing the people's sense of access, happiness and security. Actively promoting the comprehensive development of digital rural areas and promoting the comprehensive revitalisation of the countryside with the power of information technology can effectively tap the potential of information technology to boost rural construction, thereby improving the modernisation of agriculture and rural areas. As an important indicator of information technology, the Internet plays a crucial role in social development. According to the 2023 Statistical Report on the Development Status of China's Internet Network as of June 2023, the number of Internet users in China has reached 1.079 billion, of which rural residents accounted for 27.9%. The embedding of the Internet has not only reshaped the traditional mode of agricultural production, but also provided rural residents with a brand new platform for information acquisition and communication. At the same time, environmental problems, as a global issue, are particularly prominent in rural areas, and environmental improvement has become a key factor in improving the quality of life of rural residents. The Internet platform provides rural residents with more knowledge and information about environmental issues, which motivates them to participate in environmental governance. In addition, the Internet provides residents with new ways to participate in environmental governance. Does Internet embedding improve rural residents' well-being? Does Internet embedding have an impact on willingness to pay for rural environmental remediation? Exploring this topic is crucial for Internet penetration, optimisation of the rural environment and enhancement of rural residents' sense of well-being, and also provides guiding insights for the state and relevant authorities in strengthening rural network facilities, upgrading rural living conditions, and promoting harmonious rural livability and industrial development.

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2. Literature review

2.1. Research on the impact of the Internet on the well-being of rural residents

A study of the relevant literature found that scholars have different views on the impact of Internet embedding on the well-being of rural residents. A part of scholars believe that the Internet plays a facilitating role in the enhancement of rural residents' sense of well-being. The Internet provides more channels for information acquisition, social interaction platforms, and entertainment and leisure methods, thus enriching the life content of rural residents and improving the quality of life [1]. Among them, rural residents who use the Internet can obtain a higher sense of happiness than those who do not use the Internet[2]. And Internet use can improve rural residents' happiness by enhancing class identity [6]. Another group of scholars believe that over-reliance on online communication may diminish their willingness and frequency to engage in real-life social activities, which in turn adversely affects their social interactions, interpersonal relationships, and overall well-being [6]. The Internet also tends to immerse people in the virtual world, which can contribute to feelings of loneliness and anxiety[3].

2.2. Study of the Internet's influence on willingness to pay for rural environmental remediation

Rural environmental improvement is an important part of China's rural revitalisation strategy, which aims to improve the living environment of rural residents and enhance the overall appearance of rural areas. In recent years, the Chinese Government has taken a series of measures to promote rural environmental improvement, and has achieved remarkable results. But it still faces some challenges in the process. For example, the problems of insufficient and uneven environmental improvement, as well as the low motivation of rural residents to participate in it, exist. The mass media play a crucial role in shaping and improving people's environmental behaviour and environmental values. Through the two mechanisms of information dissemination and social mobilisation, mass media can effectively raise public awareness of environmental issues, stimulate environmental action, and promote the popularisation and deepening of environmental protection concepts[4], and the Internet, as an important part of mass media, plays an active role in promoting farmers' willingness to enhance environmental protection and improve waste classification behaviour. By providing a platform for information disclosure and convenient communication channels, the Internet promotes the popularisation of environmental protection knowledge and the enhancement of environmental protection awareness, thus helping to improve farmers' environmental protection participation and practice [5].

2.3. Research reviews

Having read and analysed the existing literature, a large number of studies have focused on a multifaceted exploration of the relationship between the Internet and well-being, however there are a number of gap areas. First, although numerous studies have focused on the role of Internet use on farmers‘ happiness, there are relatively few topics that use willingness to pay for rural environmental governance as an entry point to study how the Internet affects rural residents’happiness. Second, willingness to pay for rural environmental governance is crucial to enhancing rural residents' happiness, but there is currently insufficient academic discussion on this topic. Furthermore, little literature has explored rural Internet embeddedness, willingness to pay for environmental remediation and residents' happiness in the same dimension. In contrast to the existing literature, this paper not only explores the happiness of rural residents, but also further explores the willingness to pay for rural environmental remediation of rural residents who use the Internet. At the same time, the article analyses Internet embeddedness, willingness to pay for environmental remediation and rural residents‘sense of well-being within the same dimension, and conducts in-depth analyses from both theoretical and empirical perspectives, in order to reveal the specific roles of Internet embeddedness and willingness to pay for environmental remediation in influencing rural residents’sense of well-being.

3. Theoretical analyses and research hypotheses

3.1. Internet use and rural residents' sense of well-being

Digital countryside is an important breakthrough for comprehensively promoting the strategy of rural revitalisation, and is also an important part of building a digital China. The development of Internet technology has brought about profound changes and broad development prospects for the three

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rural areas. Although some scholars have suggested that Internet use may lead to social isolation of rural residents in real life and reduce face-to-face social activities, thus affecting their social relationships and sense of well-being [6]; the Internet provides a large amount of information, but too much information may lead to rural residents feeling stressed and disturbed, and it is difficult to sift out the valuable content from it, which affects the quality of their life and sense of well-being[7]. However, on the whole, Internet use has enhanced rural residents' sense of social participation and political participation, enabling them to participate more actively in social and political activities and express their opinions and needs, which has a positive effect on enhancing their social status and sense of well-being [7-8]; the application of Internet technology has promoted the development of the rural economy, and has provided rural residents with new employment and entrepreneurial opportunities. Through e-commerce and teleworking, rural residents are able to increase their income and improve their economic situation, thus increasing their sense of well-being [7-8]. Based on the above analysis, the first hypothesis of this paper is proposed:

H1: Internet embedding can improve rural residents' happiness

3.2. Internet use and willingness to pay for rural environmental remediation

The Internet, as a powerful information dissemination platform, is not only a channel for rural residents to acquire knowledge and entertainment, but also an important tool to promote environmental awareness and promote green lifestyles [5]. Through online educational resources and information sharing, rural residents' environmental awareness has been enhanced, thus increasing their willingness to pay for environmental remediation [9]. And for residents who often use the Internet to browse information, the large amount of environmental pollution information spread online induces emotional resonance and crisis awareness, forming a positive environmental attitude[5]. The Internet has enriched the knowledge of rural residents in environmental protection, formed the awareness of environmental protection, which in turn improves the willingness to pay for rural environmental remediation. Based on the above analysis, the second hypothesis of this paper is proposed:

H2: Internet embedding has a facilitating effect on the willingness to pay for rural environmental remediation

3.3. The role of willingness to pay for rural environmental remediation in the influence of Internet use on rural residents' well-being

The Internet provides a platform that enables rural residents to access information and knowledge about environmental remediation more easily. This access to information increases their awareness of environmental issues and may enhance their willingness to pay for environmental remediation. Residents learn about the benefits of environmental remediation, such as improved sanitation and quality of life, through the Internet, which may motivate them to be more willing to contribute to such projects. When production and living environments are improved, it will promote rural residents' sense of well-being. In summary, both Internet use and willingness to pay for rural environmental improvement play a role in rural residents‘ sense of well-being and willingness to pay for rural environmental improvement has a contributing role in the influence of the Internet on rural residents’ sense of well-being. Accordingly, the third hypothesis of this paper is proposed:

H3: The Internet enhances rural residents' happiness by increasing willingness to pay for rural environmental remediation.

4. Research design

4.1. Data sources

This paper is based on the micro-survey data of "Double hundred and double thousand" in Jiangxi Province in 2023, which covers 11 cities and 24 counties in Jiangxi Province, aiming to reflect the basic situation of agriculture, rural areas and farmers in Jiangxi Province through population, economy, society and other aspects. The questionnaire is divided into six parts: peasant household characteristics, industrial prosperity, ecological livable, rural style civilization, effective governance and prosperity. The survey method is the combination of stratified sampling and random sampling. Firstly, according to the regional distribution, one county (district) with good development and one with poor development is selected from east Jiangxi, West Jiangxi, South Jiangxi and North Jiangxi according to

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the economic development situation. Then select 3 townships (towns) according to the level of economic development and grain production; Then select 1-3 villages in each township; Finally, 10-20 farmers were selected by random sampling method in each village, and paper questionnaire records and one-to-one household or field interviews were adopted. After eliminating incomplete information and outliers in the questionnaires, a total of 2153 samples were retained for empirical analysis.

4.2. Model setup

4.2.1. Multivariate ordered probit model

The dependent variable of this paper is rural residents' happiness, which is an ordered discrete variable. For this reason, the author refers to the study of Li Ze et al [10] and constructs the econometric model as follows:

$$\text{Happiness} = \alpha_1 + \beta_1 \text{Internet} + \beta_2 \text{Controls} + \varepsilon_1 \tag{1}$$

$$\text{Environment} = \alpha_2 + \beta_2 \text{Internet} + \beta_2 \text{Controls} + \varepsilon_2 \tag{2}$$

$$\text{Happiness} = \alpha_3 + \gamma_1 \text{Internet} + \gamma_2 \text{Environment} + \gamma_3 \text{Controls} + \varepsilon_3 \tag{3}$$

In equations (1) to (3): Happiness is rural residents' sense of well-being, Internet is Internet embeddedness, Environment is willingness to pay for the rural environment, control is control variables such as individual characteristics and village characteristics, αis a constant term, βand γare coefficients of the variables, and εis a random error term

4.2.2. Mediating effect model

In order to test the mediating effect of the willingness to pay for rural environmental remediation in the Internet embedded in the impact of rural residents' well-being. The article draws on the mediation effect test model improved by Jiang Ting [11] (2022) for research and analysis, and the measurement model is set as follows:

$$\text{Happiness}_i = \alpha_0 + \alpha_1 \text{Internet}_i + \alpha_x \text{Controls} + \varepsilon_i \tag{4}$$

$$\text{Environment}_i = \beta_0 + \beta_1 \text{Internet}_i + \beta_x \text{Controls}_i + \mu_i \tag{5}$$

$$\text{Happiness}_i = y_0 + y_1 \text{Internet}_i + y_2 \text{Environment}_i + y_x \text{Controls}_i + \varepsilon_i \tag{6}$$

Eq. (4) to Eq. (6) where Happinessi is rural residents' happiness, Interneti is Internet embeddedness, Environmenti is willingness to pay for rural environmental remediation, Controlsi is a control variable, and εi is a random disturbance term.

4.3. Variable Setting

4.3.1. Dependent variable

The dependent variable of the article is rural residents' happiness. Considering that rural residents' happiness is an ordered discrete variable, and combining with the relevant questions in the questionnaire of “Two Hundred and Two Thousand”, the answer to the question ’Do you think you are happy? The answer uses 1-5 points to judge the happiness of the respondents, 1 point represents the lowest happiness, 5 points represents the highest happiness, the larger the value of rural residents the stronger the happiness.

4.3.2. Core Independent Variables

The core independent variables of the article are Internet embedding and willingness to pay for rural environmental improvement. In the questionnaire, ‘Do you own a smartphone?’ and ‘Does your home have a smartphone?’ were selected. And ‘Does your home have broadband?’ and ‘Does your home have broadband?’ in the questionnaire. If both are yes, the value is 1, otherwise it is 0. The willingness to pay for rural environmental remediation is selected from the questionnaire of ‘Double Hundred and Double Thousand’, which is ‘Is your family willing to pay a certain amount of rubbish disposal costs?’ question to indicate. According to the value of 1-5 from low to high to judge the willingness to pay, the larger the value, the stronger the willingness to pay.

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4.3.3. Control Variables

Considering that rural residents' happiness is also affected by other factors, combined with the relevant practices of existing studies, the control variables are divided into individual characteristics and village characteristics. Variable definitions and assignments are shown in Table 1.

Table 1: Variable assignment and descriptive statistics

form		variable name	Variable Definition and Assignment	mean value	relief
implicit variable		Well-being of the rural population	Do you feel happy in your life? (1 = very unhappy, 2 = relatively unhappy, 3 = average, 4 = relatively happy, 5 = very happy)	3.956	0.862
independent variable		Internet Embedding	Do you own a smartphone? (1=yes, 0=no); A yes to both is defined as using a mobile phone to access the internet	0.830	0.376
		Farmers' willingness to pay for environmental remediation	Are you willing to pay a certain amount of money for waste disposal? (1 = very reluctant, 2 = somewhat reluctant, 3 = average, 4 = somewhat willing, 5 = very willing)	3.782	1.126
control variable	individual characteristic	Sex	Male = 1, Female = 0	0.802	0.399
		Age	Actual age (years)	57.76	12.11
		Educational level	1=no schooling, 2=elementary school, 3=junior high school, 4=high school (junior college), 5=college and above	2.907	1.007
		Marital status	1=Unmarried, 2=Married, 3=Widowed, 4=Divorced, 5=Other	2.049	0.360
		Party membership	Yes = 1, No = 0	0.315	0.465
	Village Characteristics	Village Planning	Has the village prepared a village plan? (Yes = 1, No = 0)	0.733	0.443
		Hygiene	How do you feel about the sanitation situation in this village? (1 = very poor, 2 = poor, 3 = fair, 4 = good, 5 = very good)	4.070	0.715
		Ecological Environment	How do you feel about the ecological environment of this village? (1=very bad, 2=worse, 3=fair, 4=better, 5=very good)	4.138	0.723

5. Empirical results and analyses

5.1. Baseline regression analysis

In order to ensure the reasonable and reliable selection of variables, the multicollinearity test was carried out before the reference regression. The results show that the mean VIF of all variables is 1.40, which is far less than 10, indicating that there is no multicollinearity problem between variables. This paper explores the impact of Internet embedment and payment intention for rural environmental remediation on the well-being of rural residents, and measures the payment intention for rural environmental remediation as the intermediary effect variable. Table 2 reports the regression results of Oprobit. Among them, column (1) and (2) only consider the univariate relationship between Internet embeddedness, the willingness to pay for rural environmental remediation and the happiness of rural residents. In column (3), the core independent variables Internet embedment and the willingness to pay for rural environmental remediation are also added, and the regression results show that the two have a significant positive correlation with the well-being of rural residents, which is significant at the level of 1%. The possible explanation is that the Internet increases the social interaction and contact of rural residents, and provides rural residents with a wider range of information access channels. So that they can keep abreast of market dynamics, learn new technologies, environmental protection knowledge, thereby improving the quality of life and happiness of rural residents. While enjoying the convenience and fun brought by the Internet, rural residents can also improve their living environment and social environment by participating in environmental remediation and other practical actions, so as to further enhance their happiness. Column (4) and column (5) add individual characteristics and village characteristics to the base hill of the core independent variable respectively, and the results both show that Internet embedment and the willingness to pay for rural environmental renovation have significant

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positive effects on the well-being of rural residents at the level of 1% and 5% respectively.

Table 2: Impact of internet embedding, farmers' willingness to pay for environmental remediation on rural residents' well-being

variable name	Model 1	Model 2	Model 2	Model 3	Model 4
Internet Embedding	0.170*** (3.45)		0.149*** (3.04)	0.113** (2.13)	0.111** (2.11)
Farmers' willingness to pay for environmental remediation		0.110*** (6.76)	0.107*** (6.56)	0.105*** (6.46)	0.087*** (5.30)
Gender				-0.016 (-0.33)	-0.031 (-0.64)
Age				0.004* (1.93)	0.005** (2.43)
Literacy				0.090*** (3.92)	0.090*** (3.97)
Marital status				-0.100* (-1.95)	-0.098* (-1.92)
Party membership				0.105** (2.45)	0.088** (2.07)
Village Planning					0.093** (2.20)
Hygiene					0.062* (1.69)
Ecological Environment					0.109*** (3.00)
Observations	2,153	2,153	2,153	2,153	2,153
R-squared	0.006	0.021	0.025	0.043	0.064

5.2. Analysis of mediation effect test

From the above analysis, it can be seen that both Internet embedment and the willingness to pay for rural environmental remediation are conducive to the improvement of rural residents' happiness, thus further verifying whether rural residents' use of the Internet can improve their happiness through the willingness to pay for rural environmental remediation. According to model (1) in Table 3, Internet embedment has a significant positive correlation with the happiness of rural residents. The possible explanation is that the Internet increases the social contact and contacts of rural residents, provides rural residents with a wider range of information access channels, enables them to timely understand the market dynamics, learn new technologies, environmental protection knowledge, and thus improves the quality of life and happiness of rural residents. It can be seen from model (2) that the Internet embeddings have a significant impact on the willingness to pay for rural environmental remediation. The possible explanation is that the Internet broadens the information horizon of rural residents, enabling them to easily access successful cases and long-term benefits of environmental remediation, and enhancing their awareness and sense of responsibility for environmental protection. Meanwhile, the convenience of online payment channels reduces the threshold for participation. Stimulate their enthusiasm to contribute economic power to improve the living environment; According to model (3), it can be seen that the willingness to pay for rural environmental remediation plays a partial mediating role in the image of rural residents' happiness from Internet embedment. The possible explanation is that Internet embedment promotes rural residents' understanding and cognition of information related to environmental remediation, thus stimulating rural residents' attention to environmental remediation and willingness to pay. And the effectiveness of environmental remediation further enhanced their happiness.

In order to enhance the robustness and reliability of the test results, we further validated them using Bootstrap method. After 1,000 times of repeated sampling, the results obtained are detailed in Table 3. where the confidence interval for the indirect effect is (0.00004, 0.02669), an interval that does not contain zero, thus providing strong evidence that willingness to pay for rural environmental remediation does play a mediating role in the impact of Internet embedding on rural residents' well-being.

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Table 3: Tests for mediating effects of willingness to pay for rural environmental remediation

	Model (1)	Model (2)	Model (3)
Variables	Rural Residents' Happiness	Willingness to Pay for Rural Environmental Improvement	Rural residents' sense of well-being
Internet Embedding	0.125**	0.143**	0.112**
	(0.0529)	(0.0697)	(0.0526)
Willingness to Pay for Rural Environmental Improvement			0.0908***
			(0.0163)
Control Variables	containment		
Bootstrap Inspection	(0.00004 ,0.02669)		
Percentage of intermediary effects	9.6%		
Observations	2,153	2,153	2,153
R-squared	0.048	0.031	0.062

5.3. Endogeneity test analysis

Although the article has controlled for as many variables as possible that may affect rural residents‘ happiness, respondents’ self-selection behaviours may still be influenced by their personal emotional preferences, which may lead to endogeneity problems and thus estimation bias. To ensure the scientific validity and reliability of the study, we adopt the Propensity Score Matching (PSM) method proposed by Rosembaum for sample estimation. Specifically, we set rural residents who use the Internet as the experimental group and rural residents who do not use the Internet as the control group. By applying various methods such as proximity matching, radius matching and kernel matching, it is found that the average treatment effects of all three matching methods show a positive effect at the 1% significance level according to the regression results in Table 4. This finding further confirms that rural residents who use the Internet have higher willingness to pay for environmental remediation and happiness, thus reinforcing the conclusions of the article. With this approach, we effectively reduce the impact of endogeneity issues on the findings, making the conclusions more robust and reliable.

Table 4: PSM regression results

Matching Method	Experimental group	Control group	Mean treatment effect	Standard Error	T-value
Before Matching	3.985	3.815	0.170***	0.049	3.45
Near neighbour matching (1:5)	3.985	3.756	0.230***	0.093	2.45
Radius Matching (0.01)	3.985	3.791	0.1937***	0.092	2.11
Kernel Matching	3.985	3.799	0.186 ***	0.084	2.20

5.4. Robustness test

When measuring Internet embeddedness, the article was originally based on only two indicators, whether farmers have smartphones and whether they have broadband, which is a relatively simple and direct research method, but also slightly one-dimensional. In order to improve the reliability of the study, the article further adopts the more comprehensive indicator of the degree of network information access to conduct a robustness test of Internet embeddedness. Through the regression results in Table 5, we find that rural residents' use of the Internet for information query has a positive impact on their well-being at the 10% significance level. This finding provides a more in-depth perspective and helps to understand the impact of Internet embedding on rural residents' well-being in a more comprehensive way.

Willingness to pay for rural environmental remediation is examined with the help of the questionnaire question on sewage treatment, ‘Are you willing to pay a certain amount of money for a village sewage treatment unit?’ Robustness tests were conducted to determine the strength of rural residents' willingness to pay using a scale of 1-5 for responses. The regression results in Table 5 show that willingness to pay for sewage treatment installations significantly and positively affects rural residents' well-being at the 1% level, which further confirms the robustness of the article's findings.

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Table 5: Regression results with replacement of core explanatory variables

Variable Name	Well-being of the rural population			
Network Information Query	0.0695*** (0.0163)	0.0343* (0.0188)		
Willingness to Pay for Sewage Treatment			0.145*** (0.0201)	0.123*** (0.0205)
Other control variables	No	Yes	No	Yes
Observations	2,153	2,153	2,153	2,153
Pseudo R-squared	0.0035	0.0287	0.0099	0.0297

5.5. Heterogeneity analysis

5.5.1. Village differences

There are certain differences in geographical environment, economic development level, social structure and village planning of different villages. Based on the differences in village planning, this paper makes an in-depth analysis of the impact of Internet use on the happiness of rural residents. As shown in Table 6, the regression results show that the influence of Internet use on the well-being of rural residents with village planning is significantly positively correlated at the level of 10%, while that of rural residents without village planning is not significant. It may be due to the lack of forward-looking and systematic Internet infrastructure construction in villages without planning, as well as inadequate coverage of Internet services, resulting in rural residents in these areas unable to enjoy high-quality Internet services. In contrast, the planned villages have complete Internet infrastructure, which can ensure the reasonable layout and construction of Internet infrastructure, thus improving the Internet access rate and connection speed of the whole village, and improving the experience of rural residents using the Internet and their happiness.

The willingness to pay for rural environmental improvement also has a certain impact on the happiness of rural residents in different villages. The effect of willingness to pay for environmental remediation on the well-being of rural residents with and without village planning is positively significant at the 1% level. This may be due to the fact that through village planning, publicity and education on environmental protection and sustainable development can be strengthened to increase residents' awareness of environmental issues and enhance their support and willingness to pay for environmental remediation projects, thus improving the village environment to gain a stronger sense of well-being. Villages without planning may lead to irrational allocation of resources, exacerbation of environmental problems and disruption of ecological balance. However, farmers are able to improve the environment by paying a certain amount of money for environmental remediation, which in turn increases the willingness to pay for environmental remediation.

Table 6: Heterogeneity analysis of village planning

Village Planning	YES	NO	YES	NO
Internet Embedding	0.151 (0.119)	0.138* (0.0833)		
Willingness to Pay for Rural Environmental Improvement			0.145*** (0.0358)	0.110*** (0.0267)
Observations	575	1,578	575	1,578
Other control variables	yes	yes	yes	yes
Pseudo R2	0.0232	0.0279	0.0232	0.0279

5.5.2. Educational level

According to the regression results in Table 7, it can be seen that for rural residents with no education and those with only primary education, the happiness they feel from using the Internet shows a significant positive effect at the 10 per cent and 5 per cent confidence levels, respectively. However, for rural residents with primary, secondary and higher education, there is no significant relationship between their use of the Internet and their happiness. This may be due to the fact that rural residents with primary school and lower education levels have a smaller scope of activities, and the Internet enables them to reach out to a wider world, keep in touch with their distant relatives, enhance their social ties, and also enrich their material and spiritual dimensions, thus increasing their sense of well-being.

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The effect of willingness to pay for environmental remediation on the sense of well-being of rural residents with primary and junior high school education are both positive and significant at the 1% level, the effect of willingness to pay for environmental remediation on the sense of well-being of rural residents with high school education and above is negatively correlated at the 5% level, and it is insignificant for those who have not been to school, which is probably due to the fact that the rural residents with higher educational attainment have a higher demand for the effect of environmental remediation. However, when the reality of environmental remediation measures fails to meet their expectation level, it may lead to lower well-being, even if they are willing to pay for environmental remediation. Rural residents with primary and lower secondary education mostly live in rural areas, so environmental remediation is of direct relevance to them, and improving the environment is equivalent to improving their livelihoods, which may enhance their sense of well-being.

Table 7: Heterogeneity analysis of educational attainment

Literacy	Never attended school	Primary School	Junior High School	High School and above	Never attended school	Primary School	Junior High School	High School and above
Internet Embedded	0.922* (0.473)	0.149** (0.073)	-0.227 (0.269)	0.164 (0.928)				
Internet Embedded					-0.171 (0.135)	0.132*** (0.0224)	0.281*** (0.107)	-0.651** (0.259)
Observations	58	1,961	105	29	58	1,961	105	29
Other Control Variables	yes	yes	yes	yes	yes	yes	yes	yes
Pseudo R2	0.1426	0.0297	0.0874	0.1454	0.1426	0.0297	0.0874	0.1454

6. Conclusion and Countermeasure Insights

6.1. Research Conclusion

Based on the micro-survey data of "double hundred and double thousand" in Jiangxi Province in 2023, this paper uses the multiple ordered probit model and the intermediary effect model to empiricously study the impact of Internet embedment and the willingness to pay for rural environmental improvement on the well-being of rural residents, and draws the following conclusions:

First, Internet embedding helps to improve rural residents' sense of well-being. Internet embedding significantly improves the happiness of villages with planning and less educated rural residents, but it does not have a significant effect on the happiness of villages without planning and more educated rural residents; second, rural residents' willingness to pay for environmental remediation improves under the influence of the Internet, which improves the rural ecological environment and human settlements, and strengthens their sense of well-being. The willingness to pay for rural environmental remediation has a significant effect on the well-being of rural residents with lower education levels. Third, both Internet embedding and willingness to pay for environmental remediation can enhance rural residents‘ sense of well-being, and willingness to pay for rural environmental remediation has a facilitating role in the effect of Internet embedding on rural residents’ sense of well-being. After controlling for individual characteristics, village characteristics and other factors, the willingness to pay for rural environmental remediation plays a partly mediating role in the relationship between the Internet's influence on rural residents' sense of well-being, and its percentage is 9.6%.

6.2. Suggestions for countermeasures

Let the people live a happy life is ‘the country's greatness’, based on the findings of this paper puts forward the following policy recommendations:

1) Strengthen the construction and popularization of rural Internet infrastructure. Increase investment in Internet infrastructure construction in rural areas, especially for unplanned villages, to ensure full coverage of Internet services, improve Internet penetration and application capacity, strengthen Internet infrastructure construction in rural areas, and improve network coverage and quality. Internet skills training will be carried out to improve rural residents' Internet use ability and information literacy. Promote Internet applications suitable for rural residents, such as online education, telemedicine, e-commerce, etc.

2) Encourage rural residents to participate in environmental remediation and strengthen their

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willingness to pay. Raising awareness of the importance of environmental remediation among rural residents through education and information campaigns. Establish a public participation mechanism to encourage residents to participate in the decision-making and supervision process of environmental remediation, set up an environmental remediation fund to encourage residents to participate in environmental remediation through donations, volunteer services, etc., and give certain policy preferences or rewards to rural residents who actively participate in environmental remediation and pay for it, forming a positive incentive mechanism.

3) Promote the combination of rural environmental remediation and Internet technology. The use of Internet technology for environmental monitoring and data collection to improve the accuracy of environmental remediation. Through the online platform to publicize the environmental improvement results, improve the satisfaction and happiness of residents. Develop mobile applications related to rural environmental remediation to facilitate residents' participation and supervision.

4) Formulate differentiated policies, target different groups with precise policies, and establish long-term monitoring and evaluation mechanisms. In view of the differences in the impact of Internet embeddedness and the willingness to pay for environmental remediation on rural residents with different characteristics, the government should formulate differentiated policies. For rural residents with low education level, focus on strengthening Internet education and skills training; For villages that have not been planned, resources will be prioritized for Internet infrastructure construction and environmental remediation planning. Establish a long-term monitoring and evaluation mechanism for rural residents' happiness and willingness to pay for environmental remediation, collect data regularly, analyze the impact of Internet embedment and environmental remediation on rural residents' happiness, and timely adjust and optimize policies and measures to ensure the effectiveness of policy implementation.

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