Digital Ecological Resource Management: A New Way to Achieve Common Prosperity

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Abstract: With the profound impact of the digital economy in various fields, the sustainable management and effective use of ecological resources has become an important issue directly related to people's well-being and the realization of common prosperity. The paper first defines the basic concept of digital economy and common prosperity, and analyzes the internal connection between the two, believing that digital economy provides new ideas and technical means for the sustainable management of ecological resources. On this basis, this paper deeply discusses the application of digital management in ecological resource input, exchange, consumption and protection, and how these applications promote the efficient use of resources and the continuous improvement of the environment, so as to lay the foundation for the realization of common prosperity. The study found that there is a positive relationship between digital economy and ecological common prosperity, that is, the development of digital economy significantly improves the effective utilization rate of ecological resources, thus providing important support for the common prosperity of the society. In addition, the paper also discussed the threshold effect of digital economy on common prosperity, and found that the supporting effect of digital economy has increased significantly after the ecological common prosperity of digital economy reaches a certain level. This paper aims to provide a new perspective and thinking on how to effectively utilize and manage ecological resources and achieve the win-win goal of economic growth and environmental protection in the era of digital economy.

Keywords: digital economy; ecological resources; common prosperity.

1 Introduction

National governance starts with rural revitalization and is based on common prosperity. The party's 20th report profoundly elaborated the modern goal of common prosperity for all the people. The core of this goal is to promote common prosperity in rural areas, and Ecological resources are the key advantage of rural development and the key factor to achieve common prosperity in rural areas. In the context of the profound impact of digital economy on various fields, the sustainable management and effective use of ecological resources is an important issue related to people's well-being and common prosperity.

At present, the academic circle mainly studies from the perspectives of sustainable development of rural ecological resources, the influence of promoting ecological resources on common prosperity, and the promoting role of digital economy between rural revitalization and common

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prosperity.Wang bin [1] (2022) emphasized the innovation of rural ecological products, allocation of ecological elements and construction of guarantee system. Xiao-li Wang [2] (2024) first discussed the value realization of the specific ecological product of forest from the perspective of digital technology. Yan Start of Winter, etc [3] (2009), Lin Yongmin [4] (2024) proposed the mechanism of ecological capital to promote the rational utilization of ecological resources. Luo Mingzhong et al [5] (2023), Wang Zhifeng, et al [6] (2023) use the spatial effect and threshold regression model to test the influence mechanism of digital economy and common prosperity. Xia Jie Chang et al [7] (2021), Luo Zhengren [8] (2023), Yuan Yuyang [9] (2024) recognize the challenges of the digital economy in promoting common prosperity, and propose combining digital economy mitigation. Zheng Shiming et al [10] (2022), Zheng Ruiqiang, et al [11] (2021) proposed that rural live broadcasting under the development of digital economy is an important means.

To sum up, the existing research mainly focuses on the empowerment and protection of ecological resources by digital economy. Especially under the trend of low-carbon environmental protection, scholars gradually turn their focus to the relationship between sustainable development of ecological resources and common prosperity. However, the specific facilitating role of the digital economy in this relationship has not been thoroughly studied. The existing literature pays more attention to rural revitalization and less views common prosperity from the perspective of rural ecological resources. Taking ecological resources as the starting point, this paper discusses how the digital economy can promote common prosperity through the application of digital technology in its management and utilization. It is hoped that the quantitative analysis of the impact of digital economy on ecological common prosperity can provide a scientific basis for policy formulation.

2 Variable Selection, Research Model and Index System Construction

2.1 Variable Selection

The period from 2013 to 2021 was selected as the study period [12], Measure for 30 provinces and autonomous regions in China (Xizang, Hong Kong, Macao and Taiwan were not included in the sample due to insufficient data). In order to objectively present the formation of digital economy and common prosperity index, the time was divided into three time periods: 2013,2014 to 2020 and 2021 to measure the action weight of each index.

Explained variable. The explained variable in this paper is the common prosperity in terms of ecological resources.Learn from the index selection of some scholars [13-14], the investment (green financial index), exchange (carbon financial efficiency), consumption (the relative index of new product sales revenue and energy consumption of industrial enterprises is used to describe the level of green product innovation level of enterprises [15]), protection (environmental pollution degree) of ecological resources as first-level indicators.

Variable being explained,similar to common prosperity, are borrowed from Guo Feng et al [16] (2020), the digital economy is mainly evaluated from three secondary indicators: digital infrastructure construction, digital industry development and digital inclusive finance.

Control variables. The following control variables are selected [17-18]: government policy-supported, measured by the ratio of fiscal expenditure to total GDP; Natural growth rate is used to represent the resource endowment; the added value of the primary industry ; industrial structure, measured by the ratio of the added value of the tertiary industry to the added value of the secondary industry.

2.2 Research Model

The entropy weight method is used to calculate the weights of the levels of the variables, as well as the composite index.The specific calculation process is shown in equation (1) to equation (6).The Spatial Dubin Model(equation (7)) and Linear Regression Model(equation (8)) were used to explore the relationship between digital economy and ecological common prosperity from different angles.Threshold Regression Model is usually used to describe the behavior of the independent variable when the influence of the threshold variable is above or below a particular threshold. As shown in the calculation formula listed in Table equation (9), it is used to study the threshold of digital economy to enable common prosperity.

$$y_{ij} = \frac{x_{ij} - min(x_j)}{max(x_j) - min(x_j)} \ . \tag{1}$$

$$y_{ij} = \frac{max(x_j) - x_{ij}}{max(x_j) - min(x_j)}. \tag{2}$$

$$p_{ij} = \frac{y_{ij}}{\sum_{i=1}^{m} y_{ij}} \ . \tag{3}$$

$$e_j = -\frac{1}{ln\ m} \sum_{i=1}^{m} p_{ij} ln\ p_{ij} \ . \tag{4}$$

$$w_j = \frac{(1 - e_j)}{\sum_{j=1}^{n} (1 - e_j)} \ . \tag{5}$$

$$u_{ij} = \sum_{j=1}^{n} w_j \times y_{ij} \ . \tag{6}$$

$$cp_{it} = \alpha + \beta_1 Wdeg_{it} + \delta_1 deg_{it} + \beta_1 Wdeg_{it} + \delta_2\ controls_{it} + \beta_2 Wcontrols_{it} + \mu_i + \varphi_t + \varepsilon_{it} \ . \tag{7}$$

$$cp_{it} = \alpha + \beta_1 deg_{it} + \sum \beta_{controls}\ controls_{it} + \varepsilon_{it} \ . \tag{8}$$

$$y_{i,j} = \alpha_0 + \alpha_1 x_{i.j} \times I(x_{i.j} \leq \theta) + \alpha_2 x_{i.j} \times I(x_{i.j} > \theta) + \alpha_2 Z_{i.j} + \varepsilon_{i,j} \ . \tag{9}$$

Among them,The min is the lowest value of an index, max is the highest value, m represents the total number of samples, n is the total number of evaluation indexes;cp is the ecological common wealth index, α is the constant term, deg is the digital economy development index, controls is the relevant control variable, W is the spatial weight matrix, the subscript i represents the province, t is the year, and ε is the error term;Where i is the region, j is the year, Z represents a series of control variables, θ is the threshold value to be estimated, $I(\cdot)$ is the schematic function of the threshold, when the conditions in parentheses are met, $I(\cdot)$=1, otherwise,$I(\cdot)$=0

2.3 Construction and Analysis of the Index System

The entropy weight method reveals that in the digital economy, the development of the digital industry is very important, but when focusing on common prosperity, the emphasis shifts towards balancing ecological management, economic growth, and environmental protection through sustainable practices. Digital technology plays a key role in enhancing environmental monitoring, improving resource efficiency, and promoting cleaner production.The digital economy encourages the growth of green finance and innovation, leading to increased consumer interest in green products and supporting the environmental sector. It also facilitates the development of green financial services, directing investments towards environmentally friendly projects and boosting green consumption.Overall, the digital economy is instrumental in advancing the green economy and environmental protection, prioritizing sustainable development and ecological protection measures. This approach supports a harmonious balance between economic development and ecological sustainability, contributing significantly to common prosperity. (Table 1).

Table 1. Index system and index weights of digital economy and common prosperity.

Indicator	Primary Indicator			Secondary Indicator			
	Indicator	Year	Weight %	Indicator	Weight%		
					2013	2014-2020	2021
deg	Digital Infrastructure	2013	45.33	Domain Name Number	15.29	10.45	9.77
				IPV4 Number	10.82	12.12	12.02
		2014-2020	42.53	Internet Access Port Number	4.29	4.76	4.31
				Mobile Phone Penetration Rate	4.38	4.40	5.56
		2021	40.63	Length of Long-distance Optical Cable per Unit Area	10.56	10.81	8.96
	Digital Industry Development	2013	46.74	Number of Informationization Enterprises	15.10	16.59	17.01
				Number of Websites per 100 Enterprises	2.89	1.56	2.12
		2014-2020	48.08	E-commerce Transaction Amount	10.54	11.17	10.73
				Proportion of Enterprises with E-commerce Transaction Activities	4.89	4.04	4.50
		2021	49.61	Software business revenue	13.32	14.73	15.24
	digital inclusive finance	2013	11.26	Digital financial coverage index	4.45	5.14	5.04
		2014-2020	13.10	Digital financial depth of use index	3.48	4.24	4.72
		2021	12.90	Digital financial digitalization level	3.34	3.72	3.13
cp	Green finance	2013	23.53	Green credit	5.50	6.66	8.77
		2014-2020	27.01	Green insurance	4.09	3.58	8.89
				Green securities	5.24	5.04	5.08
		2021	26.53	Green investment	13.93	13.26	5.56
		2013	18.64	/	27.75	23.97	22.41

Carbon finance efficiency	2014-2020	21.39				
	2021	21.01				
Green product innovation	2013	26.42				
	2014-2020	17.83	/	27.65	29.82	31.78
	2021	13.52				
Environmental pollution	2013	31.41	Emission of sulfur dioxide in exhaust gas	5.56	6.61	5.46
	2014-2020	33.77	Generation of general industrial solid waste	3.17	4.19	4.86
	2021	38.94	PM2.5	7.11	6.88	7.20

3 Common Prosperity from The Perspective of Digital Economy Enabling Ecological Environment: Factual Analysis and Empirical Results

3.1 Facts Analysis

The study analyzed the digital economy and common wealth index and observed a positive correlation between them.From 2013 to 2021,the development of the digital economy increased from 0.16 to 0.41, and the level of common prosperity increased from 0.18 to 0.33. In regional pattern, the development level of the digital economy and the level of common prosperity gradually accordance.Regions with better digital economy development pay more and more attention to the protection and correct utilization of ecology in their economic development, such as the development of green finance. This shows that the regions with insufficient development of the digital economy can vigorously develop the digital economy to narrow the gap.

3.2 Empirical Results

3.2.1 Space Panel Model

First, the global Moran Index (Moran's I) was used to verify whether there is a significant spatial auto correlation between the digital economy level and the ecological common prosperity in the 30 provinces in China. While the spatial weight matrix selects the distance weight matrix. From Table 2, the digital economy of Moran 'sI index are significantly greater than 0, and the common rich Moran' sI index in some years, in negative correlation and in some of the four years,the ecological common prosperity space auto correlation effect is weak, the gap between rich and poor still exist and geographically, the economic development level of different regions present reverse spatial correlation.

Table 2. The Global Moran Index of the Digital Economy and Common Prosperity.

	cp		deg	
Year	I	P-Value	I	P-Value
year_2013	0.012	0.096	0.071	0.001
year_2014	0.015	0.067	0.055	0.005
year_2015	0.033	0.185	0.040	0.020

year_2016	-0.016	0.518	0.038	0.024
year_2017	-0.009	0.337	0.048	0.011
year_2018	0.016	0.087	0.045	0.014
year_2019	0.003	0.184	0.051	0.008

Then, analysis of spatial measurement results. First, LM test was passed, indicating that the spatial measurement model is better suitable for describing the data than that without any spatial interaction; then, LR test did not pass significantly, and Wald test passed significantly, finally the spatial Dubin model was selected. Using the spatial Dubin model, the impact of digital economy on ecological common examined under the geographic distance weight matrix. From the results of Table 3, it shows that the digital economy has a significant impact on common prosperity in a single region, and the digital economy in the adjacent region has an impact on the common prosperity of the region. That geographically adjacent areas can influence each other in terms of digital economy development, thus promote the development of common prosperity.

Table 3. Results of the spatial Dubin model testing.

VARIABLES	cp	
deg	0.690***	(4.65)
GovPoliSup	0.00000169	(0.17)
IS	0.000691	(0.58)
VaFI	0.0000068	(1.02)
PGR	-0.000757***	(-3.74)
W×deg	-0.424*	(-2.33)
W×GovPoliSup	-0.000116**	(-3.22)
W×IS	-0.0108	(-1.41)
W×VaFI	-0.0000173	(-0.7)
W×PGR	0.00155	(0.78)
rho	0.564***	(6.45)
Year	Yes	
Province	Yes	
N	240	
R2	0.7405	

Among them, cp refers to the ecological common prosperity index, deg refers to the digital economy index; GovPoliSup refers to Government policy-supported, IS refers to Industrial structure, VaFI refers to the value added of the primary industry, and PGR refers to the natural population growth rate.

3.2.2 Benchmark Linear Regression Test

3.2.2.1 Linear Regression by Least Squares Method (OLS)

After correlation test, Linear regression was then performed. On the whole, in the absence of controlled variables, the linear regression coefficient of digital economy and ecological common prosperity is significantly positive at the level of 1%. For every 1% increase in the digital economy development index, the common prosperity index will increase by 0.689%.

The gradual addition of control variables in the model, the significant negative impact of the natural population growth rate indicates that the saturation of resource endowment will inhibit the ecological common prosperity, indicating that the sustainable development of human beings and ecological environment is still an important issue in today's society.The regression coefficient of government policy-supported is negative, indicating that the development of financial support and ecological common prosperity have not reached a moderate balance.Adding all control variables into the model, the digital economy is still significant at the level of 1%, and the action coefficient decreases, indicating that the explanatory variables and control variables influence each other; the goodness of fit improves. (Table 4).

Table 4. Results of the benchmark regression tests.

	1	2	3	4	5	6
VARIABLES	cp	cp	cp	cp	cp	cp
deg	0.689***	0.668***	0.687***	0.684***	0.694***	0.645***
	-5.94	-5.58	-5.95	-5.81	-6	-5.08
GovPoliSup		0				0
		-0.04				(-0.19)
IS			0			0.002**
			-0.42			-2.08
VaFI				0		0.000*
				-1.43		-1.89
PGR					-0.001***	-0.001***
					(-3.53)	(-3.66)
Constant	0	0.013	0	-0.011	0.002	-0.002
	(-0.01)	(-0.35)	(-0.01)	(-0.33)	-0.05	(-0.04)
Observations	270	246	270	270	270	246
R-squared	0.915	0.909	0.915	0.912	0.916	0.912
Year FE	YES	YES	YES	YES	YES	YES
Province FE	YES	YES	YES	YES	YES	YES

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Among them, cp refers to the ecological common prosperity index, deg refers to the digital economy index; GovPoliSup refers to Government policy-supported, IS refers to Industrial structure, VaFI refers to the value added of the primary industry, and PGR refers to the natural population growth rate

Specific to each indicator (Table 5), the digital economy positively impacts carbon finance efficiency, green product innovation, and environmental improvement. However, its effect on green finance is less pronounced. This is partly because the rapid development of the digital industry might widen the digital divide, limiting access to digital benefits and hindering the growth of green finance.A 1% increase in Digital inclusive finance leads to a 0.208% rise in common prosperity, highlighting the role of digital finance in promoting eco-friendly practices like carbon trading and energy-efficient consumption.The biggest impact of the digital economy is the promotion of energy conservation and the creation of ecological products.A 1% growth in the digital economy enhances green innovation by 0.352%. It also significantly benefits carbon finance efficiency, indicating a more sustainable model of economic development.Digital industrialization, especially through e-commerce and IT, plays a crucial role in increasing green product consumption.The digital economy promotes effective resource and energy management, providing value to environmental protection and oversight to support common prosperity.

Table 5. Benchmark regression models.

	1	2	3	4	5	6	7	8	9	10	11
VARIABLES	cp	cp	GF	CFE	GPI	EP	GF	CFE	GPI	EP	EP
deg	0.645***						0.392	0.103***	0.352***	0.574**	
	-5.08						-1.69	-4.57	-3.33	-2.46	
DI		0.105	0.105	0.007	0.051	0.096					
		-1.15	-0.83	-0.29	-1.13	-0.46					
DInDeve		0.13	-0.207*	0.005	0.199**	0.047					
		(-1.32)	(-1.79)	-0.92	-2.38	-0.4					
DInFinan		0.208***	0.347*	0.069***	-0.003	0.168					0.219**
		-2.25	-1.8	-3	(-0.10)	-1.59					-2.06
GovPoliSup	0	0	0	-0.000**	0	0	0	-0.000***	0	0	0
	(-0.19)	-0.44	-0.59	-2.45	(-1.00)	-0.63	-0.64	(-2.79)	(-0.55)	-0.86	-0.55
IS	0.002**	0.003**	0.007**	0.000***	0	0.002	0.006**	0	0	0.001	0.002
	-2.08	-2.34	-2.42	-2.97	(-0.32)	-0.63	-2.19	-1.65	(-0.44)	-0.27	-0.76
VaFI	0.000*	0.000*	0.000*	0.000***	0	0	0.000**	0.000**	0	0	0
	-1.89	-1.95	-2.05	-4.04	(-0.31)	(-0.07)	-2.05	-2.43	(-0.39)	(-0.38)	-0.03
PGR	-0.001***	-0.001***	-0.002***	0	0	-0.003***	-0.002***	0	0.000**	-0.003***	-0.003***
	(-3.66)	(-3.61)	(-3.11)	(-0.24)	(-0.51)	(-10.48)	(-4.33)	(-0.15)	-2.25	(-12.98)	(-13.44)
Constant	-0.002	0.006	0.003	-0.002	0.02	0.633***	0.038	0.001	-0.059***	0.557***	0.629***
	(-0.04)	-1.31	-0.02	(-0.31)	-0.9	-7.88	-0.39	-0.17	(-3.41)	-6.26	-8.79
Observations	246	246	246	246	246	246	246	246	246	246	246
R-squared	0.912	0.907	0.813	0.927	0.948	0.949	0.81	0.926	0.936	0.952	0.948
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Province FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	246	246	246	246	246	246	246	246	246	246	246

Robust t-statistics in parentheses

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

Among them, the cp refers to the ecological common wealth index, The deg refers to the digital economy index; GF Means the Green finance, The CFE refers to the Carbon financial efficiency, The GPI refers to the Green product innovation, The EP refers to the Environmental pollution, The DI refers to the Digital infrastructure, DInDeve Means the Digital industry development, DInFinan Means the Digital inclusive finance; GovPoliSup Means the Government policy-supported, The IS refers to the Industrial structure, The VaFI refers to the value added of the primary industry, The PGR refers to the natural population growth rate.

3.2.2.3 Endogeneity Test

There may be a reciprocal causation relationship between the digital economy and common prosperity, so use the one-year lead of deg(digital economy) as a surrogate variable.Doing so helps to reduce the impact of endogeneity problems. The result is still true (Table 6).

Table 6. the Endogenicity test.

	1	2	3	4	5	6
VARIABLES	cp	cp	cp	cp	cp	cp
degForward	0.620***	0.610***	0.621***	0.613***	0.621***	0.580***
	-4.98	-4.98	-5.01	-4.71	-4.98	-4.26
GovPoliSup		0				0
		-0.47				-0.21
IS			0.001			0.003**
			-1.1			-2.38
VaFI				0		0
				-0.63		-1.57
PGR					-0.001***	-0.001***
					(-2.81)	(-3.21)
Constant	0.032	0.031	0.03	0.028	0.035	0.022
	-0.89	-0.75	-0.84	-0.8	-0.97	-0.53
Observations	240	240	240	240	240	216
R-squared	0.918	0.918	0.918	0.918	0.919	0.916
Year FE	YES	YES	YES	YES	YES	YES
Province FE	YES	YES	YES	YES	YES	YES

Robust t-statistics in parentheses

Among them, cp refers to the ecological common prosperity index, degForward refers to one-year lead of digital economy index; GovPoliSup refers to Government policy-supported, IS refers to Industrial structure, VaFI refers to the value added of the primary industry, and PGR refers to the natural population growth rate

3.2.3 Threshold Regression Test

In order to test the nonlinear relationship between digital economy and ecological common prosperity, this paper uses the panel threshold model for empirical test and analysis. All variables passed the LLC root-of-unit test. In order to avoid endogenous problems, the one-year lag of common prosperity was selected as the threshold variable,and used Hansen's (1999)[19] Bootstrap method simulated repeated sampling 300 times, which showed that it significantly passed the single-threshold test at the 10% level when common wealth was used as a threshold variable, as shown in Table 7. LR was used to test the authenticity of the threshold effect, and the results are shown in Fig.1. The F value of single threshold test was 17.21 and P-value is 0.09, meaning that the change level of common prosperity has a single threshold effect in the empowerment of common prosperity, with a threshold estimate of 0.1760 and a confidence interval of [0.2067818,0.4223488].

Table 7. Test of the threshold effect of digital economy on ecological common prosperity.

Threshold number	number of thresholds	F-Value	P-Value	Critical		95% confidence interval
				>10%	10%	
cpLag	Single threshold	17.21	0.09		0.176	[0.2067818,0.4223488]
	Double	17.21	0.1		0.176	[0.1451299,0.3709758]
	threshold	10.75	0.3033	0.233		[0.2557414,0.4800558]

Among them, cpLag refers to the one-year lag of ecological common prosperity index.

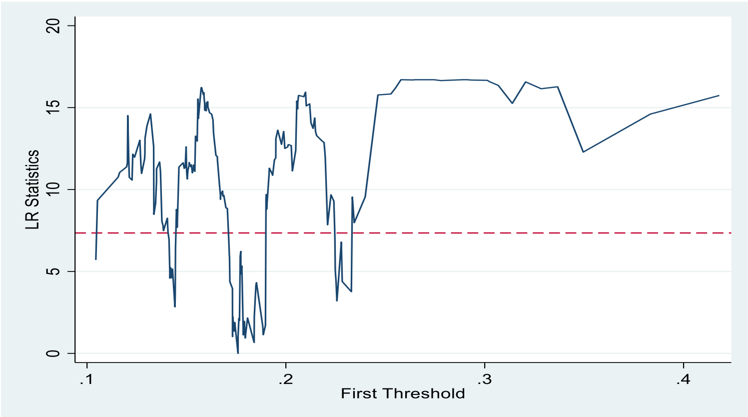

Fig. 1. LR Fig.

After conducting threshold regression model tests, the findings indicated that the impact of the digital economy on common prosperity exhibits a non-linear relationship (Table 8). Specifically, when the common prosperity lag index is below 0.176, the digital economy's contribution to common prosperity is 0.18. However, once this index exceeds 0.176, the contribution increases to 0.31, suggesting a stronger effect of the digital economy on common prosperity beyond a certain threshold.

The digital economy initially boosts ecological sustainability through advances in smart energy management, green transportation, and smart city technologies, enhancing automation and production efficiency. It also supports green finance, providing additional financial backing for environmental protection and sustainable development. As the common prosperity index surpasses a specific threshold, the digital economy's positive impact on ecological common prosperity significantly intensifies. This could be due to the initial achievements in sustainable ecological resource use requiring time to manifest, with the digital economy amplifying these effects over time. Furthermore, the digital economy spurs innovation in green technology and the growth of eco-friendly industries. As common prosperity improves, people's environmental awareness and participation increase, encouraging more individuals and organizations to contribute to ecological prosperity.

Table 8. Results of the threshold regression model.

	1		2
VARIABLES	cp		cp
GovPoliSup	-0.000***		-0.000***
	(-5.18)		(-5.15)
PGR	-0.002***		-0.002***
	(-2.95)		(-3.28)
VaFI	0.000***		0.000***
	(3.39)		(3.27)
IS	0.003		0.002
	(1.27)		(1.09)
<0.1760._cat#c.deg	0.184***	<0.1760._cat#c.deg	0.142**
	(2.89)		(2.21)
>0.1760._cat#c.deg	0.315***	0.176<_cat#c.deg<0.2336	0.258***
	(5.76)		(4.51)
		>0.2336._cat#c.deg	0.368***
			(6.47)
Constant	0.240***		0.249***
	(6.14)		(6.46)
Observations	210		210
Number of Provinceid	30		30
R-squared	0.544		0.564

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Among them, cp refers to the ecological common prosperity index, deg refers to digital economy index; GovPoliSup refers to Government policy-supported, IS refers to Industrial structure, VaFI refers to the value added of the primary industry, and PGR refers to the natural population growth rate

4 Study Conclusions, Limitations and Future Expectations

Our study, leveraging methodologies like entropy weight indices, spatial panel regression, and threshold models, concludes that the digital economy significantly impacts ecological common prosperity, highlighting a positive correlation and regional development alignment. The digital economy boosts ecological resource exchange, consumption, and protection but shows limited impact on investment. Additionally, a spatial interdependency exists among regions, enhancing their ecological and economic development collectively. A notable finding is the threshold effect, where the digital economy's influence on ecological prosperity intensifies as regions achieve higher levels of common prosperity, emphasizing the role of digital advancements in sustainable ecological management.

However, this research is limited by its broad focus on the digital economy's nationwide impact, omitting factors like land use. It also generalizes the digital economy's regional effects without addressing specific disparities.

Looking forward, the integration of the digital economy with ecological resource management is poised to redefine sustainable development. Technological breakthroughs are expected to enable real-time ecological monitoring, improve resource efficiency, and highlight the value of ecological resources through digitalization. This synergy will not only advance ecological protection and restoration but also foster a holistic approach to achieving common prosperity, intertwining economic growth with environmental sustainability and social progress for a better future.

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