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How Does the Digital Economy Drive the Optimization and Upgrading of Industrial Structure? The Mediating Effect of Innovation and the Role of Economic Resilience

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Abstract: The digital economy (DE) has become a major driving force behind the optimization and upgrading of industrial structures (ISOU), but research on its driving mechanisms has yet to be verified. To this end, the driving influence of the DE on ISOU is targeted and the role played by economic resilience (ER) and innovation is explored. Based on the panel data of 31 provinces in China from 2011 to 2020, the driving influence of the DE on ISOU is analyzed using a two-way fixed-effects model. This empirical study finds that the DE has a positive driving effect on both industrial structure advancement and rationalization and that the driving effect is still significant after the addition of control variables and the robust-type test with one period of lag. The DE presents regional differences in ISOU, with the driving effect of the DE on the industrial structure advancement in the eastern region having a more significant performance than that in the central and western regions and the driving influence on the rationalization of the industrial structure in the eastern and western regions exceeds that in the central region. The impact of the DE on ISOU has a mediating role through innovation. ER has a moderating role in the process and innovation, as a partial mediator, also has a threshold effect. Finally, based on the research and discussion, conclusions and countermeasure recommendations are presented.

Keywords: digital economy; industrial structure; optimization and upgrading; economic resilience; innovation

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1. Introduction

The global economy has slowed down in the post-epidemic era, and the optimization and upgrading of industrial structures (ISOU) plays an irreplaceable role in promoting the transformation of China's economic development to being low-carbon and green. However, from the perspective of China's industrial development as a whole, there still exists an irrational industrial structure that brings many structural problems to urban and rural development and the regional economic balance [1]. The optimization of China's industrial structure began with the 10th Five-Year Plan, which advocated a high priority for the development of the industrial sector, promoting the effective growth of the industrial manufacturing industry and the country's overall economy through the support of iron and steel production as its main industry, complemented by the development of other heavy-industry support policies. Through the implementation of the Tenth Five-Year Plan, China's industrial structure has been improved and rationalized to a certain extent, but relatively few policies supported the development of material trade and related economic industries, including the food industry, the textile industry, the service industry, etc. At the time, this led to irrationality in China's economic ratios and industrial structure, as well as a mismatch between the daily needs of the people and the country's economic growth rate. In response to the above situation, policies on the optimization and transformation of China's industrial structure have been continuously introduced, such as strengthening the basic

position of the primary industry (agriculture), optimizing the structure of the secondary industry (manufacturing), and accelerating the development of the tertiary industry.

The positive effects of the DE on economic development and ISOU have gained an academic consensus [2]. An analysis conducted using an instrumental variables approach found that a 10 percent increase in broadband penetration increases the annual economic growth rate per capita by 0.9–1.5 percent [3]. According to a study by the United Nations Broadband Commission, it was found that every 10 percent increase in broadband penetration could lead to a 2.5 percent increase in China's GDP. The DE, based on Internet technology, has shown a significant contribution to economic growth; moreover, the significant growth of wages and employment in high-income, high-population, and high-skill regions is closely related to the degree of development of the DE [4]. The main focus in striving to understand the impact of the DE on ISOU is to analyze its mechanisms of action, including the inspiring technological innovation model within the technology-based production sector, the combination of innovative technology and locally applied knowledge to achieve the optimization and upgrading of an enterprise's industrial structure in case of resource scarcity and technological backwardness, and urbanization's support for industrial upgrading through the promotion of technological innovation in the industry [5].

The digital and information industry has developed rapidly due to strong support from the state, providing China with the impetus to develop its tertiary industry and adjust and optimize its industrial structures [6]. Since 2000, the proportion of China's tertiary industry within GDP has been increasing, with the average annual contribution rate exceeding 49%; in 2021, this proportion was 53.3%. With the innovative application of digital technology, a series of emerging digital technologies that rely on the Internet, such as big data, cloud computing, artificial intelligence, etc., have gradually matured and achieved application in various industries. A series of new industrial forms, such as mobile payment, sharing economies, the live broadcasting economy, etc., have appeared and ISOU has entered into a new stage. The DE has become an important driving force for ISOU, as well as the strengthening of economic resilience and the enhancement of high-quality development [7–10]. During the New Crown Epidemic, China's economy continued to grow significantly, supported by the contactless, all-time, and wide-ranging transaction characteristics of e-commerce, demonstrating the positive effect of the digital economy on economic resilience and growth [11,12]. In addition, the innovative capacity of cities and regions is a major driving factor in promoting the transformation and upgrading of industrial structures [13].

While the existing literature focuses on the positive relationship between the digital economy and economic growth, for ISOU, little is known about the role and causality that innovation, and in particular economic resilience, plays in it. One possible research gap is that it is unclear how authorities should leverage the value of the digital economy in order to take advantage of the opportunities offered by digitization and take scientific and effective decisions on ISOU. In order to stay ahead in industrial competition, governments and industrial entities must have a deep understanding of the changes in the economic level and industrial field caused by the digital economy in order to quickly grasp the effects of digitization and translate these new findings into practical countermeasures. In short, there is a consensus on the conclusion that the DE has a positive impact on innovation [14] and, specifically, ISOU; however, the ways in which the DE drives ISOU have yet to be verified. In particular, the roles that the level of innovation and ER play in this regard need to be further examined; to this end, this study addresses the driving impact of the DE on ISOU and explores the roles played by innovation and ER. Specifically, to address the research gaps mentioned above, we study the steps, links, and activation factors required for the digital economy to affect the ISOU. Therefore, the three research questions are as follows:

RQ1. Does the DE have a positive influence on ISOU in China?

RQ2. Does innovation have a mediating effect between DE and ISOU?

RQ3. Does ER moderate the relationship between DE and ISOU?

To answer the above questions, the following sections of this paper are structured as follows: the second section details the theoretical review and research hypotheses; the third section introduces the theoretical model and variable selection; the fourth section describes an analysis of the empirical results and robustness test; the fifth section describes the mechanism analysis; the sixth section is the discussion; and the final section is a summary of the study with recommendations and conclusions.

2. Theoretical Review and Research Hypotheses

2.1. Theoretical Review

At present, there exists an extensive and in-depth focus within academia on the transformation and upgrading of industrial structures and the role of the DE and digitalization in ISOU. ISOU constitutes a transformation of the mode of economic growth on three levels: micro, meso, and macro. The micro level refers to upgrading an enterprise's overall structure or operation mode [15,16]; the meso level refers to the main enterprises within an industry, rising to a higher level and forming a more advanced industrial structure [17,18]; and ISOU at the macro level is the transformation of a country's economic growth mode, which is enacted through the comprehensive upgrading of the internal elements and structure of the mode of social production [19,20]. Strategic, emerging industries, as a new industrial form, are an example of ISOU at the meso and macro levels and have a positive effect on the high-quality development of the economy. ISOU additionally consists of two modes: advancement and rationalization [21]. Industry advancement aims to achieve higher production efficiency through the combined allocation of existing resources and factors [22]. Industry rationalization, on the other hand, strives to achieve a balanced development by optimizing the allocation of industrial structures, integrating the endowment of scientific and technological resources [23]. We will analyze ISOU from the perspectives of both advancement and rationalization.

Digital technologies and resources can help firms improve or build their capacity to cope with dynamic environments, and this digital capability has attracted the interest of scholars and practitioners. Digitization enables companies to effectively improve process efficiency and resource management, which in turn leads to economically and ecologically sustainable performance [24]. For example, in the agricultural supply chain sector, digital technologies such as IoT, blockchain, and big data technologies contribute to industrial optimization and sustainable development by building a data-driven digital supply chain environment that improves economic, social, and environmental performance [25]. The DE provides a platform that fosters innovation. On the one hand, it provides basic support for exchanges and cooperation between cities and regions and makes multiple innovative subjects in different regions work together more closely [26]. On the other hand, the DE gives traditional industries, especially the manufacturing industry, a broader innovation space. The industrial manufacturing industry relies on digital technology to innovate the requirement of digital production and management for a high degree of informatization and intelligence and constantly promote innovation and breakthroughs in production technology and operation technology [27]. With the popularization and application of the Internet and the digital industry in China, new opportunities have arisen for the development of the tertiary industry.

2.2. Research Hypotheses

Within the current global economic slowdown and fluctuating cooperation, the economic development of all countries faces more severe challenges. Therefore, accelerating the strategic adjustment of industrial structure and promoting the release of structural potential is an inevitable choice for China's economic development. China's demographic dividend is gradually disappearing, and the benefits of "structural acceleration", brought about by rapid industrialization, are no longer apparent [28]. In the face of this series of difficulties, accelerating the development of China's DE has become an important means of promoting the transformation and upgrading of the country's economic and industrial

structures. Under the rapid development of the DE, on the one hand, traditional industries have been greatly impacted; relying on the original mode of operation and industrial form has left them unable to adapt to market competition. On the other hand, most traditional industries have co-opted the industrial digital transformation and upgrade; the combination of traditional industry and the DE has become a new development mode [29]. Industry digitalization has created several new industrial forms; for example, the integrated development of new media platforms and online logistics and trade constitutes a new digital economy trade network that diversifies the digital economy and mode of industrial operation, driving ISOU forward [30]. Therefore, this study proposes the following hypothesis:

Hypothesis 1. *The DE has a driving influence on ISOU.*

Innovation is an important driving force for economic growth and structural change, and the DE provides rich soil for innovation. In the era of the DE, innovation not only includes technology but also gives rise to emerging changes in business models, management styles, and other fields [31]. Diversifying innovation in the era of the DE accelerates ISOU; it not only promotes the rise of new industries but also guides the renewal of traditional industries, forming a more complex and diversified industrial structure [32]. Digital economy innovations lead to fundamental changes to industrial structures by increasing productivity and reducing costs [33]. The DE promotes innovation by facilitating the widespread dissemination of knowledge and information among the public through the Internet [34]. At the same time, the extensive use of information technology accelerates the encoding of knowledge and promotes integrated innovation spillovers [35]. The capacity for innovation and regional innovation progress are the fundamental reasons for the existence of economic disparities between regions [36]. Through innovation, low- and medium-technology firms promote regional ISOU by learning from high-technology firms [37]. The DE can promote innovation, which in turn can promote ISOU. Therefore, we propose a second hypothesis:

Hypothesis 2. *The DE's driving influence on ISOU is through innovation.*

ER refers to the ability of an economy to maintain stability and sustainability in the face of external shocks. Holling first introduced the concept of resilience into the field of ecology in 1973 [38]. The concept of "resilience" has also been widely used in economic research. So far, most studies agree that the DE is favorable to economic progress; however, at the same time, it also harbors a series of uncertainties, such as triggering the digital divide [39]. It is clear that the DE has created a powerful shock and that the development of the DE may have differentiated impacts on different regions and industries [40], while ER can play a moderating role in this process. Resilient regions can better adapt to changes in the DE, mitigate adverse impacts, and promote ISOU by utilizing the DE. Such resilience thus helps the economy to maintain relative stability amidst uncertainty and promotes the evolution of industrial structure in a more sustainable direction [41]. Taken together, the DE, innovation, and ER form a multifaceted relationship. The DE serves as the dominant force, ER as the regulator, and innovation as the mediator, and they synergize to promote ISOU. The interactions in this relationship reflect both the profound impact of the DE on ISOU and highlight the key role of ER in this process. Based on the above background, we propose a third hypothesis:

Hypothesis 3. *ER has a moderating role in the DE and ISOU.*

3. Model Setting and Variable Selection

3.1. Benchmark Model

3.1.1. Fixed-Effects Model

In order to avoid the problem of omitted variable bias and endogeneity, this study adopts a fixed-effects model to validate and analyze the driving influence of the DE on ISOU. We established the following model:

$$ind_{i,t} = \beta_0 + \beta_1 dig_{i,t} + \beta x_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \quad (1)$$

where i represents the region; t represents the period; ind represents the level of industrial structure optimization and upgrading, including advancement and rationalization; dig is the level of the DE; x represents a series of control variables; λ_i represents the (i) individual fixed effect μ_t is a fixed time; and $\varepsilon_{i,t}$ represents the stochastic disturbance term.

3.1.2. Mechanistic Model

In order to explore how the DE influences ISOU, we verify it using a moderating-effect test and a mediating-effect model. Among the terms used, $inno_{i,t}$ represents the innovation ability, which is the mediator variable, $res_{i,t}$ represents ER, which is the moderating variable, and $dig_{i,t} * res_{i,t}$ is the interaction term between the DE and the innovation level. The effects of the DE and ER on ISOU are examined by establishing a moderating model, as shown in Equation (2). The mediation-effect model is built to explore the influence of innovation ability in the DE on ISOU, as shown in Equations (3)–(5).

$$ind_{i,t} = a_0 + adig_{i,t} + a_2 res_{i,t} + a_3 dig_{i,t} * res_{i,t} + ax_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \quad (2)$$

$$ind_{i,t} = \beta_0 + \beta_1 dig_{i,t} + \beta x_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \quad (3)$$

$$inno_{i,t} = \beta_0 + \beta_1 dig_{i,t} + \beta x_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \quad (4)$$

$$ind_{i,t} = \beta_0 + \beta_1 dig_{i,t} + \beta_2 inno_{i,t} + \beta x_{i,t} + \lambda_i + \mu_t + \varepsilon_{i,t} \quad (5)$$

3.1.3. Threshold Model

The effects of the DE's innovation ability on ISOU occurs in two intervals to produce impact. Beyond a certain threshold value, the Internet continues to promote the advancement and rationalization of industrial structure. In order to explore the threshold of the effect of innovation ability, we designed the following equation:

$$ind_{i,t} = \beta_1 dig_{i,t} * I(inno_{i,t} \leqq \gamma) + \beta_2 dig_{i,t} * I(inno_{i,t} \geqq \gamma) + \beta x_{i,t} + \mu_i + \varepsilon_{i,t} \quad (6)$$

where $I(\cdot)$ is an indicator function that takes the value of 1 when the corresponding condition is true and vice versa. The other variables are interpreted as above.

3.2. Variable Description

3.2.1. Explained Variables

The advancement and rationalization of industrial structure are indispensable processes that jointly promote ISOU, and they are interrelated and affect one another. This study measures ISOU by constructing two indicators for industrial structure: advancement (adv) and rationalization (rat). This study draws on the measurement method of CH Gan (2011) [1] to process and calculate the data from 31 provinces in China from 2011 to 2020, in which the ratio of the output value of the tertiary industry to that of the secondary industry is used to measure the advancement and rationalization of industrial structure. The rationalization of industrial structure is measured using the inverse of the Thiel index, measured based on the ratio of the number of employees and the output value among the three industries.

3.2.2. Core Explanatory Variables

At present, there are few relevant examples in the literature that involve specific measurements of the DE, and it can be seen through the concept of the DE that the carrier of its development is the Internet. At the same time, digital financial inclusion is also an important element in this regard. Therefore, this study makes use of the China Digital Financial Inclusion Index, which was jointly woven by the Digital Finance Research Centre of Peking University and the Ant Financial Services Group, to measure the index, which is a comprehensive measure of the digital financial coverage, depth of use, and degree of digitalization.

3.2.3. Mechanism Variables

The level of innovation is an important determinant of the quality of a city's economic development. Most of the traditional indicators of innovation levels use the number of patents granted, which has the problem of a single dimension. Therefore, this study adopts the calculation method of the FIND Report on City and Industrial Innovation in China (2017), published by the Fudan Institute of Industrial Development, to measure the innovation level of the region. The specific measurement of ER (res) is more complicated. There is no accepted method; it is mainly measured using a single indicator or a multi-dimensional composite indicator. This study therefore chooses to adopt a simple approach to measuring economic resilience. When cities face external shocks, the diversification of their secondary and tertiary industries can reduce instability and make the economy sustainable. Therefore, this study uses the inverse of the Herfindahl–Hirschman Index (HHI), excluding the primary industry, to measure the level of ER, which is calculated as follows:

$$res_{i,t} = \frac{1}{HHI_{i,t}} = \frac{1}{\sum_{k=1}^{n}(L_{ki}/L_i)^2} \quad (7)$$

where k denotes the kth industry sector, n is the total number of industries, i denotes the region, t denotes time, L_{ki} denotes the number of people employed in industry k in region i, and L_i denotes the total number of people employed in region i.

3.2.4. Control Variables

Per capita GDP (p_gdp): The GDP per capita can be used to measure the level of economic development of a region, as well as to control the possible non-linear effects of ISOU.

Foreign trade dependence (f_dep): The regional foreign trade dependence is measured based on the proportion of total regional import and export trade.

The proportion of fiscal expenditure (p_fexp): This can be measured based on the ratio of local current fiscal expenditure to local current GDP.

The proportion of financial deposit and loan (p_fdloa): This is measured based on the ratio of total loans to total deposits in the local area in the current period.

3.3. Data Sources

This study collected panel data from 31 provinces in China from 2011 to 2020 as the basis of its empirical evidence, and the relevant data were obtained on the degree of digital financial inclusion in China, which was jointly compiled by the Digital Finance Research Centre of Peking University and the Ant Financial Services Group, as well as the *China Statistical Yearbook* and the *China Science and Technology Statistical Yearbook*. The definitions and statistical descriptions of all variables of the econometric model test in this study are described in Table 1. The mean value of the explanatory variable of industrial structure advancement is 1.335095, the minimum value is 0.527055, the maximum value is 5.24401, and the standard deviation is 0.719638. The mean value of industrial structure rationalization is 0.111638, the minimum value is 0.013122, the maximum value is 1.225598, and the standard deviation is 0.132257. The explanatory variable of the digital economy has a mean value of 0.371055, a minimum value of 0.077329, a maximum value of 0.982197,

and a standard deviation of 0.173589. Industrial structure rationalization has a small mean value and a large standard error, which indicates that the rationalization of industrial structure in each region needs to be improved.

Table 1. Definition and statistical description of variables.

Variable	Definition	Mean	SD	Min	Max
adv	Advancing industrial structure	1.335095	0.719638	0.527055	5.24401
rat	Rationalizing industrial structure	0.111638	0.132257	0.013122	1.225598
dig	DE	0.371055	0.173589	0.077329	0.982197
inno	Regional innovation	0.4181438	0.6184179	0.00047	4.5186
f_dep	Foreign trade dependence	0.246938	0.264939	0.007164	1.457694
p_fexp	Proportion of fiscal expenditure	0.283898	0.209987	0.11027	1.379161
p_fdloa	Proportion of financial deposits and loans	3.298413	1.216584	1.517519	8.13103
p_gdp	Gross domestic product	5.56948	2.719076	1.6413	16.48895
res	Regional ER	0.4939638	0.0892629	0.3265623	0.837316

4. Empirical Analysis

4.1. Correlation Test

As shown in Table 2, the absolute value range of the correlation coefficient is roughly located between 0.1 and 0.78 and the correlation coefficient is less than 0.8, thus determining that the model's multicollinearity may be small. The coefficients of the DE and industrial structure advancement and rationalization are 0.496 and 0.483, respectively, showing a positive correlation that is at the 1% significance level. Therefore, it is initially judged that there is a significant correlation between the DE and industrial structure optimization and upgrading. The correlation coefficients of innovation and industrial structure advancement and rationalization are 0.113 and 0.526, respectively; innovation shows a strong correlation with industrial structure rationalization and a weak correlation with industrial structure advancement. Therefore, it is initially judged that there is a relationship between innovation and industrial structure advancement. Similarly, ER shows a strong significant positive correlation with both industrial structure advancement and rationalization, and it is preliminarily judged that there is a relationship between ER and industrial structure advancement and rationalization.

Table 2. Correlation test results.

	Adv	Rat	Dig	f_dep	p_fexp	p_fdloa	p_gdp	Inno	Res
adv	1								
rat	0.485 ***	1							
dig	0.496 ***	0.483 ***	1						
f_dep	0.158 ***	0.601 ***	0.157 ***	1					
p_fexp	0.129 **	−0.212 ***	−0.052	−0.310 ***	1				
p_fdloa	0.782 ***	0.523 ***	0.491 ***	0.310 ***	0.375 ***	1			
p_gdp	0.521 ***	0.720 ***	0.647 ***	0.573 ***	−0.310 ***	0.453 ***	1		
inno	0.113 **	0.526 ***	0.483 ***	0.484 ***	−0.321 ***	0.160 ***	0.586 ***	1	
res	0.900 ***	0.590 ***	0.623 ***	0.337 ***	0.162 ***	0.845 ***	0.664 ***	0.251 ***	1

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

A further covariance test was conducted on the explanatory and control variables; the results of the test are shown in Table 3. The mean VIF is 2.29, which is significantly less than 10, hence, there is no problem of collinearity between the variables.

Table 3. Collinearity test results.

Variable	VIF	1/VIF
p_gdp	3.16	0.316555
p_fdloa	2.31	0.432626
dig	2.2	0.453711
p_fexp	1.9	0.527279
f_dep	1.89	0.529762
Mean VIF	2.29	

4.2. Benchmark Regression

The results of the ordinary panel data regression are shown in Table 4. It can be seen that the level of DE development has a significant positive effect on industrial structure advancement and rationalization. The effect of the DE on industrial structure advancement is 0.953 when the control variables are not added, and the results are still significant after adding the control variables; the coefficient rises to 1.257. The level of the DE has a significant positive effect on industrial structure advancement; this conclusion is consistent with those previously reached [15,16]. Meanwhile, the ratio of fiscal expenditure to GDP per capita also has significant positive effects on industrial structure advancement and rationalization, whereas the ratio of deposits to loans has significant inhibiting effects.

Table 4. Benchmark regression results.

Explanatory Variables	Explained Variables			
	FE		FE	
	Adv	Adv	Rat	Rat
dig	0.953 *	1.257 **	0.686 ***	0.876 ***
	(0.508)	(0.561)	(0.209)	(0.254)
f_dep		−0.0378		−0.00267
		(0.183)		(0.0829)
p_fexp		3.339 ***		0.597 ***
		(0.457)		(0.207)
p_fdloa		−0.0786 **		−0.00988
		(0.0350)		(0.0158)
p_gdp		0.0467 **		0.00407
		(0.0180)		(0.00816)
Observations	310	310	310	310
R-squared	0.685	0.748	0.252	0.279
Number of areas	31	31	31	31

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

4.3. Tests for Regional Heterogeneity

Due to the differences in the levels of development of industrial structure, the DE, and different regions, as well as other realistic conditions in different regions, the ability and level of the transformation and upgrading of the industrial structure in different regions show large disparities. In order to examine the differences in the impact of the level of DE development on the ISOU in different regions, the 31 provinces in China were divided into three regions according to geographic location (east, central, and west), and the results of their heterogeneity are shown in Table 5.

According to the results, it can be seen that the level of DE development has a significantly positive propelling effect on industrial structure advancement in the economically developed regions in the east, but its effect in the central and western regions is not significant. This may be due to the digital divide in China's regional development; only in the more economically developed regions will DE development have a positive propelling effect on industrial structure advancement. On the other hand, in regions with more backward economic development, DE development is not yet able to have an impact on industrial structure advancement for cities with a late start to digitalization. In terms of

the impact of the DE on the rationalization of industrial structure, the performance of the eastern and western regions is more significant, the positive propelling effect in the eastern region is stronger than that of the western region, and the central region does not experience significant effects.

Table 5. Heterogeneity test results.

Explanatory Variables	Explained Variables					
	East		Central		West	
	Adv	Rat	Adv	Rat	Adv	Rat
dig	3.758 ***	1.864 ***	−2.391	0.307	−1.293	0.244 ***
	(0.854)	(0.582)	(2.376)	(0.448)	(0.898)	(0.0863)
f_dep	0.162	0.186	−1.402	−0.324	0.440	0.0289
	(0.262)	(0.179)	(1.105)	(0.208)	(0.360)	(0.0346)
p_fexp	2.116 *	1.155	3.256 *	0.717 **	2.382 ***	0.131 **
	(1.220)	(0.831)	(1.635)	(0.308)	(0.590)	(0.0567)
p_fdloa	0.0912	−0.0943 **	−0.421 ***	−0.0529 *	−0.191 ***	−0.00112
	(0.0660)	(0.0450)	(0.154)	(0.0291)	(0.0404)	(0.00388)
p_gdp	0.0397	−0.0236	−0.0976	−0.00392	−0.00703	0.00777 **
	(0.0280)	(0.0191)	(0.0667)	(0.0126)	(0.0397)	(0.00381)
Observations	110	110	80	80	120	120
R-squared	0.835	0.390	0.849	0.653	0.725	0.664
Number of areas	11	11	8	8	12	12

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

4.4. Robustness Test

In order to verify the reliability of the research results, a robustness test was carried out. Due to the economic cyclicality of the development of the DE, the one-period lag of the data economy was used as an instrumental variable for the original explanatory variables; the results of the test are shown in Table 6. The direction and significance of the DE's influence on the advancement and rationalization of industrial structure are consistent with the benchmark model, proving that the research results of this study are reliable.

Table 6. Robustness test result.

Explanatory Variables	Explained Variables			
	Adv	Adv	Rat	Rat
L.dig	1.949 ***	2.349 ***	1.126 ***	1.303 ***
	(3.24)	(3.72)	(4.25)	(4.25)
f_dep		0.275		−0.039
		(1.43)		(−0.42)
p_fexp		3.195 ***		0.486 **
		(7.44)		(2.33)
p_fdloa		−0.060 *		0.000
		(−1.68)		(0.01)
p_gdp		0.056 ***		0.002
		(3.22)		(0.28)
Constant	0.826 ***	−0.251	−0.066 *	−0.220 **
	(10.14)	(−1.14)	(−1.84)	(−2.06)
Observations	279	279	279	279
R-squared	0.693	0.756	0.278	0.304
Number of areas	31	31	31	31

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

5. Mechanism Analysis

5.1. Mediating Effect

In this study, we follow the analysis of Baron [42] to test the mediation effect; the regression results are shown in Table 7, in which models (1) to (3) present the role played

by the innovation level of the DE on the advancement of industrial structure and models (4) to (6) present the role played by the innovation level of the DE on the rationalization of industrial structure. From models (1) and (4), it can be seen that the DE has a significant positive impact on the advancement and rationalization of industrial structure. Secondly, by testing the relationship between the mediator variable and the dependent variable, it can be seen from models (2) and (5) that the DE has a significant positive impact on the level of innovation. Finally, from models (3) and (6), it can be seen that the coefficient and significance of the DE's influence on industrial structure advancement and rationalization decreased significantly after the innovation level was added as a mediator variable. This phenomenon shows that the innovation level partially mediates the relationship between the DE and the advancement and rationalization of industrial structure.

Table 7. Mediating-effect regression results.

Explanatory Variables	Explained Variables					
	Adv (1)	**Inno (2)**	**Adv (3)**	**Rat (4)**	**Inno (5)**	**Rat (6)**
dig	1.257 **	19.07 ***	1.051 *	0.876 ***	19.07 ***	0.645 **
	(0.561)	(5.821)	(0.570)	(0.254)	(5.821)	(0.250)
inno			0.0108 *			0.0121 ***
			(0.00590)			(0.00258)
f_dep	−0.0378	−8.340 ***	0.0524	−0.00267	−8.340***	0.0981
	(0.183)	(1.899)	(0.189)	(0.0829)	(1.899)	(0.0827)
p_fexp	3.339 ***	14.52 ***	3.182 ***	0.597 ***	14.52 ***	0.421 **
	(0.457)	(4.740)	(0.463)	(0.207)	(4.740)	(0.203)
p_fdloa	−0.0786 **	0.178	−0.0805 **	−0.00988	0.178	−0.0120
	(0.0350)	(0.363)	(0.0348)	(0.0158)	(0.363)	(0.0153)
p_gdp	0.0467 **	1.182 ***	0.0339 *	0.00407	1.182 ***	−0.0102
	(0.0180)	(0.187)	(0.0193)	(0.00816)	(0.187)	(0.00843)
Constant	0.0453	−8.316 ***	0.135	−0.178 *	−8.316 ***	−0.0775
	(0.221)	(2.297)	(0.226)	(0.100)	(2.297)	(0.0989)
Observations	310	310	310	310	310	310
R-squared	0.748	0.677	0.751	0.279	0.677	0.334
Number of areas	31	31	31	31	31	31

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

5.2. Moderation Effect

Based on the previous theoretical analysis of ER as a moderating variable to construct the moderating-effect model, the empirical results are shown in Table 8. From model (1) and model (2), it can be seen that, after adding ER as a moderating variable into the model, both the DE and ER show significant negative effects on industrial structure advancement; however, the interaction term of the two shows a significant positive correlation. This result suggests that the effects of the DE and ER on industrial structure advancement interpenetrate and substitute each other. From model (3) and model (4), it can be seen that both the DE and ER present a significant positive influence on industrial structure rationalization but that the interaction term of the two presents a significant negative correlation. This result shows that the effects of the DE and ER on industrial structure rationalization also interpenetrate and substitute each other. In regions with a higher ER, the impact of the DE on industrial structure rationalization is significantly enhanced and the impact on industrial structure advancement is significantly weakened. Therefore, ER is not simply a moderating aspect in the DE's driving of industrial optimization and upgrading but has an antagonistic role.

Table 8. Moderating-effects test.

Explanatory Variables	Explained Variables			
	Adv (1)	Adv (2)	Rat (3)	Rat (4)
dig × inno	0.232 ***	0.233 ***	−0.0226 **	−0.0410 ***
	(0.0171)	(0.0164)	(0.00906)	(0.00954)
dig	−1.729 ***	−2.430 ***	0.385 ***	1.520 ***
	(0.442)	(0.495)	(0.0847)	(0.288)
res	−0.0401 ***	−0.0382 ***	0.00962 **	0.0153 ***
	(0.00822)	(0.00791)	(0.00436)	(0.00461)
f_dep		−0.606 ***		0.0948
		(0.143)		(0.0834)
p_fexp		1.730 ***		0.965 ***
		(0.371)		(0.216)
p_fdloa		−0.0683 **		−0.0212
		(0.0275)		(0.0160)
p_gdp		0.0188		0.00559
		(0.0139)		(0.00810)
Constant	1.355 ***	1.270 ***	−0.0411	−0.448 ***
	(0.0859)	(0.195)	(0.0375)	(0.114)
Observations	310	310	310	310
R-squared	0.813	0.859	0.236	0.332
Number of areas	31	31	31	31

Note: *** and ** indicate significance at the 1% and 5% levels, respectively.

5.3. Threshold Effect

The innovation level is set as a threshold variable, 500 bootstrap iterations are used to calculate the statistical value of F and the critical threshold value of the innovation level, and the random seed 1234567 is set to achieve the reproducibility of the regression results. The results of the threshold effect are shown in Tables 9 and 10. When the explanatory variable is the rationalization of industrial structure, there is a single-threshold effect with a threshold value of 0.1072. When the explanatory variable is the rationalization of industrial structure, there is a triple-threshold effect between the DE and rationalization, the values of which are 6.3667, 10.7746, and 12.8330, respectively.

Table 9. Threshold-effect test.

Explained Variables	Model	Threshold	F-Value	*p*-Value	1%	5%	10%	95% Confidence Interval
adv	Single	0.1072	39.26	0.0320	47.8205	37.2811	32.0950	[0.0097, 0.1194]
rat	Single	6.3667	63.01	0.0440	121.7493	57.6055	39.7041	[4.9472, 6.6191]
	Double	10.7746	66.63	0.0240	89.3700	59.5191	36.3633	[6.6191, 12.8330]
	Three	12.8330	34.94	0.0620	132.0200	39.9765	27.2437	[5.3027, 13.9832]

Based on the test results in Table 9, the threshold model regression results are derived by regressing the threshold-effect model, as shown in Table 10. When the explanatory variable is industrial structure advancement and the innovation level is below the threshold value of 0.1072, the DE is not significant. Conversely, when the innovation level is above the threshold value of 0.1072, the impact of the DE on industrial structure advancement ranges from negative to positive, with a more significant positive impact. When the explanatory variable is the rationalization of industrial structure, the change in the four intervals shows an inverted "U" shape. When the innovation level is below the threshold value of 6.3667, the DE has a significant positive impact on the rationalization of industrial structure. When the innovation level is located between the threshold values of 6.3667 and 10.7746, the DE has a significant positive impact on the rationalization of industrial structure. When the innovation level is located between the threshold values of 10.7746 and 12.8330, the promotion effect of the DE on the rationalization of industrial structure is the most obvious.

When the innovation level is located above the threshold value of 12.8330, this effect is weakened and the coefficient becomes 0.398, but this is still significantly positive.

Table 10. Threshold-effect regression.

Explanatory Variables	Explained Variables	
	Adv	**Rat**
0.dig	−0.237	0.237 ***
	(0.263)	(0.0717)
1.dig	0.530 *	0.397 **
	(0.310)	(0.162)
2.dig		0.909 **
		(0.341)
3.dig		0.398 ***
		(0.125)
p_gdp	0.0694	−0.0147
	(0.0438)	(0.00909)
f_dep	−0.131	0.0289
	(0.340)	(0.114)
p_fexp	2.481 ***	0.238
	(0.842)	(0.194)
p_fdloa	0.0281	−0.0209
	(0.0721)	(0.0155)
Constant	0.0136	0.0875
	(0.406)	(0.0796)
Observations	310	310
R-squared	0.755	0.525
Number of areas	31	31

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

6. Discussion

Based on the panel data of 31 provinces in China from 2011 to 2020, this study explores and researches the impact and mechanisms of the DE in driving ISOU from the perspectives of innovation and economic resilience.

Firstly, from the empirical test results, the DE has a significant positive driving effect on both industrial structure advancement and rationalization. Because of the existence of regional differences, the 31 provinces in China were divided into three regions according to geographic location (east, central, and west). By examining the differences in the impact of the level of development of the DE in different regions on ISOU, the results show that the DE has a significant positive effect on the industrial structure advancement in the eastern economically developed regions; however, the impact on the central and western regions is not significant. In terms of the impact of the DE on the rationalization of industrial structure, the performance of the eastern and western regions is more significant, the positive propulsion effect of the eastern region is stronger than that of the western region, and the central region does not experience significant effects.

After regressing the data economy with the one-period lag as an instrumental variable, we found that the direction and significance of the DE's impact on the advancement and rationalization of industrial structure are consistent with the benchmark model, which proves that the findings of this study are reliable and robust. After further taking the innovation level as a mediating variable, the test results showed that the coefficient and significance of the DE's influence on industrial structure advancement and rationalization decreased significantly, which indicates that the innovation level partially mediates the relationship between the DE and ISOU.

In addition, we took ER as a moderating variable to construct a moderating-effect model and found that the effects of the DE and ER on the rationalization of industrial structure show interpenetration and mutual substitution. Finally, we took innovation as a threshold variable and found that the DE has a significant threshold effect on promoting

ISOU. Herein, a single-threshold effect for the DE on advancing industrial structure was observed. The threshold value of the innovation level is 0.1072, and exceeding this can better promote the advancement of industrial structure. The impact of the DE on the rationalization of industrial structure is more complicated. In this case, there are four intervals of changes in the level of innovation, which shows an inverted "U" shape.

7. Conclusions and Recommendations

Under the high-speed development of the DE, traditional industries have been massively impacted, with most of them having been transformed and upgraded along with the trend of industrial digitization, which is a new driving force to promote ISOU by combining traditional industries with the DE. It is also the key to the emergence of new developmental pathways for traditional industries in the new era. This study collected panel data from 31 provinces in China from 2011 to 2020; analyzed the effect of the DE on ISOU, as well as regional differences, by using a two-way fixed-effects model; selected ER as the moderating variable and the innovation level as the mediator; and constructed an econometric model to investigate the driving mechanism between the DE and ISOU. The results of this study showed that, firstly, the DE has a significant positive effect on the rationalization and advancement of industrial structure. Secondly, the DE has a significantly positive effect on the advancement of industrial structure in the eastern economically developed regions but not in the central and western regions, where there is a large difference in economic development. The DE has a significant positive propelling effect on the rationalization of industrial structure in the eastern and western regions, with the former being significantly stronger than the latter, yet without a significant effect in the central region. Thirdly, the impact of the DE on the advancement of industrial structure can be realized through innovation, which partly plays a mediating role and has a similar impact on the rationalization of industrial structure. Fourthly, regarding the advancement and rationalization of industrial structure, the DE and ER are mutually penetrative and substituted. In regions with higher ER, the impact of the DE on the rationalization of industrial structure will be significantly strengthened and that of industrial structure advancement will be significantly weakened. Therefore, ER not only plays a synergistic or complementary role in the process of the DE to promote ISOU but it also has an alternative role. Fifth, taking the innovation level as a threshold variable, it was found that there is a significant threshold effect for the DE in promoting ISOU, in which there is a single-threshold effect of the DE on the advancement of industrial structure; the threshold value of the innovation level is 0.1072 and exceeding this threshold value can better promote the advancement of industrial structure; and there are four intervals of changes in the impact on the rationalization of industrial structure. The overall innovation level shows an inverted "U" shape.

Based on the above conclusions, and considering the actual development of China's DE, ER, and innovation level, we propose countermeasures in the following aspects in order to better promote ISOU:

First, adopt differentiated strategies for the development of the DE in different regions. The DE has a significant role in promoting ISOU, and digital industrialization and industrial digitization should be further promoted to bring sustainable momentum in this regard; however, attention needs to be paid to the regional differences in the DE. In the economically developed regions of eastern China, support for the DE can be increased and the development of the DE can be promoted by means of policy guidance and capital investment, which will help to achieve the rationalization and advancement of industrial structure. For the central and western regions, the government and enterprises can strengthen their cooperation. In addition to formulating special policies to promote the development of the DE, it is also necessary to formulate systematic countermeasures in terms of talent, technology, and capital in order to effectively promote ISOU.

Second, focus on the integration of the DE and enterprise innovation. Given the intermediary role of innovation in the DE to promote ISOU, the government needs to play an active role in encouraging enterprises to carry out innovative activities by increasing R&D

funding, optimizing intellectual property protection, enhancing the enthusiasm and initiative of enterprises to participate in high-level innovation, and promoting the construction of an enterprise-centric innovation ecosystem to improve the level of innovation.

Third, comprehensively understand the special role of ER. There are two types of regulating effects of ER in the DE and ISOU: a synergistic effect in promoting the rationalization of industrial structure and a substitution effect in promoting the advancement of industrial structure. Therefore, the government and enterprises need to comprehensively understand the special role of ER in the DE to promote ISOU; they must pay attention to improving the local ER if they aim to utilize the DE in order to promote the rationalization of industrial structure, whereas they need to reduce the local ER if they aim to promote the advancement of industrial structure.

Fourth, pay attention to the implied value of the innovation threshold effect. Regarding the innovation level in the DE to promote ISOU, there is a significant threshold effect. On the whole, the role of the innovation level is positive; when the innovation level exceeds 6.3667, its promotional effect is gradually enhanced. At a level higher than 10.7746, the level of innovation has the most significant promotional effect; however, beyond 12.833, the role of the level of innovation is weakened. Therefore, both the government and enterprises should recognize this implied value of the innovation level and, although it is necessary to increase investments in innovation to improve the innovation level in the face of the status quo of ISOU, it is also necessary to not simply blindly expand investments in innovation all the time but rather to pay attention to the balance between investments in innovation and the returned performance, or else innovation will be unable to play its optimum role in promoting ISOU.

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References

1. Gan, C.H.; Zheng, R.G.; Yu, D.F. An empirical study on the effects of industrial structure on economic growth and fluctuations in China. *Econ. Res. J.* **2011**, *5*, 4–16.
2. Choi, C.; Yi, M.H. The effect of the Internet on economic growth: Evidence from cross-country panel data. *Econ. Lett.* **2009**, *105*, 39–41. [CrossRef]
3. Dolata, U. Technological innovations and sectoral change: Transformative capacity, adaptability, patterns of change: An analytical framework. *Res. Pol.* **2009**, *38*, 1066–1076. [CrossRef]
4. Corredoira, R.A.; McDermott, G.A. Adaptation, bridging and firm upgrading: How non-market institutions and MNCs facilitate knowledge recombination in emerging markets. *J. Int. Bus. Stud.* **2014**, *45*, 699–722. [CrossRef]
5. Michaels, G.; Rauch, F.; Redding, S.J. Urbanization and structural transformation. *Q. J. Econ.* **2012**, *127*, 535–586. [CrossRef]
6. Cha, H.W.; Zou, P.F. The impacts of informatization on industrial structure upgrading in China: Spatial econometric analysis based on province's panel data. *Econ. Rev.* **2017**, *1*, 80–89.
7. Zuo, P.; Chen, J. Digital economy and economic growth from the perspective of high quality development. *Res. Financ. Econ. Issues* **2021**, *9*, 19–27.

8. Shi, Y.; Zhang, T.; Jiang, Y. Digital economy, technological innovation and urban resilience. *Sustainability* **2023**, *15*, 9250. [CrossRef]
9. Tao, Z.; Zhi, Z.; Shangkun, L. Digital Economy, Entrepreneurship, and High Quality Economic Development: Empirical Evidence from Urban China. *J. Manag. World* **2020**, *36*, 65–76.
10. Jing, W.J.; Sun, B.W. Digital economy promotes high-quality economic development: A theoretical analysis framework. *Economist* **2019**, *2*, 66–73.
11. Hou, F. The chance of China's cross border E-commerce in coronavirus pneumonia epidemic. *Reg. Educ. Res. Rev.* **2020**. [CrossRef]
12. Guo, H.; Liu, Y.; Shi, X.; Chen, K.Z. The role of E-commerce in the urban food system under COVID-19: Lessons from China. *China Agric. Econ. Rev.* **2020**, *13*, 436–455. [CrossRef]
13. She, S.; Wang, Q.; Zhang, A. Technological innovation, industrial structure and urban GTFP—Channel test based on national low-carbon city pilots. *Res. Econ. Man.* **2020**, *41*, 44–61.
14. Cui, T.; Wu, Y.; Tong, Y. Exploring ideation and implementation openness in open innovation projects: IT-enabled absorptive capacity perspective. *Inf. Manag.* **2018**, *55*, 576–587. [CrossRef]
15. Jiang, X. Resource reorganization and the growth of the service industry in an interconnected society. *Econ. Res. J.* **2017**, *52*, 4–17.
16. Li, H.J.; Tian, Y.X.; Li, W.J. Mobile internet thinking and traditional business reengineering. *China Ind. Econ.* **2014**, *10*, 135–146.
17. Miyazaki, S.; Idota, H.; Miyoshi, H. Corporate productivity and the stages of ICT development. *Inf. Technol. Manag.* **2012**, *13*, 17–26. [CrossRef]
18. Cardona, M.; Kretschmer, T.; Strobel, T. ICT and productivity: Conclusions from the empirical literature. *Inf. Econ. Pol.* **2013**, *25*, 109–125. [CrossRef]
19. Czernich, N.; Falck, O.; Kretschmer, T.; Woessmann, L. Broadband infrastructure and economic growth. *Econ. J.* **2011**, *121*, 505–532. [CrossRef]
20. Forman, C.; Goldfarb, A.; Greenstein, S. The Internet and local wages: A puzzle. *Am. Econ. Rev.* **2012**, *102*, 556–575. [CrossRef]
21. Ivus, O.; Boland, M. The employment and wage impact of broadband deployment in Canada. *Can. J. Econ.* **2015**, *48*, 1803–1830. [CrossRef]
22. Chao, J. The economic growth and industrial transformation of the special economic zones in the historical context. In *Research Series on the Chinese Dream and China's Development Path*; Springer: Berlin/Heidelberg, Germany, 2019.
23. Zhao, X.; Shang, Y.P.; Song, M. Industrial structure distortion and urban ecological efficiency from the perspective of green entrepreneurial ecosystems. *Socio-Econ. Plan. Sci.* **2020**, *72*, 100757. [CrossRef]
24. Lee, M.-J.; Taewoo, R. Unpacking the sustainable performance in the business ecosystem: Coopetition strategy, open innovation, and digitalization capability. *J. Clean. Prod.* **2023**, *412*, 137433. [CrossRef]
25. Kamble, S.S.; Gunasekaran, A.; Gawankar, S.A. Achieving sustainable performance in a data-driven agriculture supply chain: A review for research and applications. *Int. J. Prod. Econ.* **2020**, *219*, 179–194. [CrossRef]
26. Pan, W.R.; Xie, T.; Wang, Z.; Ma, L. Digital economy: An innovation driver for total factor productivity. *J. Bus. Res.* **2022**, *139*, 303–311. [CrossRef]
27. Ding, Z.F. Research on the mechanism of digital economy driving high-quality economic development: A theoretical analysis framework. *Mod. Econ. Res.* **2020**, *1*, 85–92.
28. Zuo, P.; Jiang, Q.; Chen, J. Internet development, urbanization and the upgrading of China's industrial structure. *J. Quan. Tech. Econ.* **2020**, *37*, 71–91.
29. Li, R.; Rao, J. Wang L Y. The digital economy, enterprise digital transformation, and enterprise innovation. *Manag. Decis. Econ.* **2022**, *43*, 2875–2886. [CrossRef]
30. Zhang, T.; Shi, Z.Z.; Shi, Y.R.; Chen, N.J. Enterprise digital transformation and production efficiency. *Econ. Res.-Issues* **2022**, *35*, 2781–2792.
31. Lee, M.-J.; Roh, T. Digitalization capability and sustainable performance in emerging markets: Mediating roles of in/out-bound open innovation and coopetition strategy. *Manag. Decis.* 2023; *ahead-of-print*.
32. Qi, Y.; Chu, X. Development of the digital economy, transformation of the economic structure and leaping of the middle-income trap. *China Pol. Econ.* **2022**, *5*, 14–39. [CrossRef]
33. Yoo, I.; Yi, C.G. Economic innovation caused by digital transformation and impact on social systems. *Sustainability* **2022**, *14*, 2600. [CrossRef]
34. Arthur, W.B. The structure of invention. *Res. Pol.* **2007**, *36*, 274–287. [CrossRef]
35. Varian, H.R. Computer mediated transactions. *Am. Econ. Rev.* **2010**, *100*, 1–10. [CrossRef]
36. Grossman, G.M.; Helpman, E. Endogenous innovation in the theory of growth. *J. Econ. Pers.* **1994**, *8*, 23–44. [CrossRef]
37. Lahorgue, M.A.; Cunha, N. Introduction of innovations in the industrial structure of a developing region: The case of the porto alegre technopole 'homebrokers' project. *Int. J. Tech. Man.* **2004**, *2*, 191–204. [CrossRef]
38. Holling, C.S. Resilience and stability of ecological systems. *Annu. Rev. Ecol. Syst.* **1973**, *4*, 1–23. [CrossRef]
39. Antonio, A.; Tuffley, D. The gender digital divide in developing countries. *Future Internet* **2014**, *6*, 673–687. [CrossRef]
40. Reynolds, L.; Henderson, D.; Xu, C.; Norris, L. Digitalisation and the foundational economy: A digital opportunity or a digital divide for less-developed regions? *Local Econ.* **2021**, *36*, 451–467. [CrossRef]

41. Zhong, M.; Xu, S.; Zeng, X. Digital economy development and urban economic resilience: Evidence at china's city level. In *Singapore Economic Review*; World Science: London, UK, 2023; pp. 1–29.
42. Baron, R.M.; Kenny, D.A. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *J. Pers. Soc. Psy.* **1986**, *51*, 1173. [CrossRef]