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Research on the Impact of Fintech on Enterprise New Quality Productivity: Based on the Perspective of Digital Transformation

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Abstract

This paper aims to explore how fintech (Fintech) promotes enterprise new productivity (NQP) and its impact on high-quality corporate development. Through regression analysis, the study finds that fintech can significantly enhance enterprise new productivity. It further reveals that fintech promotes innovation and productivity by driving the digital transformation of enterprises and alleviating managerial short-termism. By constructing interaction terms, this paper validates the synergistic effect between fintech and enterprise digital transformation, while also showing that fintech helps reduce managerial focus on short-term returns, thereby supporting the development of long-term strategies and technological innovation. Furthermore, the paper conducts a heterogeneity analysis to explore the differences in fintech adoption across various types of enterprises and regions. The study finds significant differences in the effect of fintech between state-owned and non-state-owned enterprises, as well as notable regional variations, with the most significant impact observed in the eastern regions. Based on these findings, the paper offers policy recommendations, emphasizing that the government should increase support for small and medium-sized enterprises, promote regional differentiated development, and strengthen the regulation and security of fintech applications to drive high-quality enterprise development.

Keywords

Fintech; New Quality Productivity; Digital Transformation.

1. Introduction

With the transformation of the global economic structure and the surge of digitalization, the competitive landscape and development models of enterprises are undergoing profound changes. In this context, traditional productivity theories can no longer fully explain how enterprises enhance their competitiveness in aspects such as innovation-driven development, technological progress, and sustainable growth. As an extension of traditional productivity theory, new quality productivity emphasizes the role of emerging factors such as technological innovation, digital transformation, and green development, and has become an important indicator for measuring the quality of enterprise development. Therefore, understanding and enhancing new quality productivity is of great significance in helping enterprises gain a long-term competitive advantage in the global market.

In parallel with the rise of new quality productivity, fintech has become a key driving force behind the digital transformation and innovation development of enterprises, and is increasingly seen as a new engine for economic growth. By utilizing technologies such as big data, artificial intelligence, and blockchain, fintech breaks the limitations of traditional finance, improving the efficiency of financing, market responsiveness, and management capabilities of enterprises. However, despite the profound impact that fintech has already had in multiple

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fields, there is a lack of systematic theoretical discussions and empirical research on the relationship between fintech and new quality productivity of enterprises.

Existing literature mostly focuses on the impact of fintech on commercial banks, individual consumers, and traditional industries. Few studies explore how fintech, through enhancing the digitalization of enterprises and alleviating management's short-sightedness, can influence the improvement of new quality productivity. Furthermore, while some literature mentions the role of fintech in optimizing enterprise financing and enhancing technological innovation, its specific mechanisms and impacts on overall productivity, especially new quality productivity, have not been sufficiently studied. Therefore, filling this research gap and exploring how fintech drives the improvement of new quality productivity through various paths is of both academic and practical significance.

2. Literature Review and Research Hypotheses

2.1. Literature Review

2.1.1. Fintech Section

Fintech, as technology-driven financial innovation, has become an important force in driving high-quality enterprise development. The Financial Stability Board (FSB) defines fintech as "technology-enabled financial innovation that may create new business models, applications, processes, or products, with significant impacts on financial markets, institutions, and the provision of financial services." This concept emerged due to the limitations in traditional financial industries, such as efficiency, risk control, and user experience. With the advent of the digital age, the demand for faster, more convenient, secure, and intelligent financial services has grown, leading to the rise of fintech, which fills the gaps in the traditional financial service system.

Existing literature on fintech primarily focuses on two main areas: commercial banks and corporate behavior.

In the commercial banking sector, the application of fintech has had a profound impact on bank performance and credit risk management. On the one hand, fintech significantly improves banking performance by alleviating information asymmetry, reducing operating costs, and enhancing service efficiency [1,2]. For example, through the use of big data analytics, artificial intelligence, and blockchain technology, banks can more accurately assess customers' creditworthiness and transaction behavior, thereby optimizing service quality and reducing operational costs. On the other hand, fintech plays an important role in credit risk management [3]. Through intelligent risk management systems and automated processes, banks can more efficiently identify and mitigate risks, thus lowering credit risk. However, the rapid development of fintech has also introduced new risk challenges, especially in the areas of data security and privacy protection. Therefore, strengthening risk management and security measures in fintech has become an urgent issue that needs to be addressed.

At the corporate level, the application of fintech positively promotes corporate technological innovation capability, total factor productivity, and financing efficiency [4]. By utilizing big data analytics and other technologies, fintech helps enterprises deeply explore market trends and consumer preferences, thus enhancing their innovation capacity and market competitiveness [5]. For example, fintech can help enterprises better understand customer demands and guide their innovation strategies and product development. Additionally, fintech can optimize internal processes, improve cooperation and information sharing among enterprises, thereby promoting overall efficiency and synergies within the industry chain. In terms of financing, fintech has changed traditional financing models, providing enterprises with more diversified and flexible financing channels [6]. Through precise credit evaluation and risk pricing, fintech addresses the issues of attribute misalignment, domain misalignment, and stage misalignment

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found in traditional financial services, thereby improving the efficiency and accessibility of corporate financing.

However, the widespread adoption and application of fintech are not without challenges. Despite the significant improvements in efficiency and innovation that fintech can bring, there are also risks, particularly regarding information security and privacy protection [7]. As fintech continues to penetrate various industries, how to balance innovation with security, and how to prevent new financial risks while strengthening digital transformation, has become a pressing issue. Therefore, future research should further explore how to enhance the effectiveness of fintech applications while improving the risk control capabilities of enterprises and financial institutions, ensuring that fintech can drive high-quality enterprise development in a secure and transparent environment.

2.1.2. New Quality Productivity of Enterprises

In the context of an increasingly complex and volatile global economy, the competitive pressures and market environment faced by enterprises are undergoing profound changes. Traditional methods of productivity analysis can no longer adequately explain enterprise performance in areas such as innovation, resource allocation, and sustainable development. Consequently, the concept of new quality productivity has emerged as an important indicator for assessing the comprehensive performance of enterprises in the modern economic environment. Unlike traditional productivity, which focuses on labor, capital, and material resource inputs, new quality productivity places more emphasis on the combined impact of emerging factors such as technological innovation, knowledge accumulation, digital transformation, and green development [8].

The core of new quality productivity lies in how enterprises innovate and optimize in areas such as knowledge, technology, organizational management, digitalization, and sustainable development, in addition to traditional production factors, thus driving overall productivity improvement. Some scholars point out that an enterprise’s technological innovation capability is crucial to new quality productivity. Technological innovation not only enhances production efficiency but also drives the entire industry chain's upgrade and expansion through new product development, improved production processes, and the exploration of new business models. Therefore, technological innovation has become one of the key drivers of new quality productivity.

With the rise of the digital economy, digital transformation has also become increasingly important in improving an enterprise's new quality productivity. Digital transformation is not just a revolution in management models; it is a means for enterprises to comprehensively enhance their innovation capacity and market responsiveness. By applying technologies such as big data, cloud computing, and the Internet of Things (IoT), enterprises can significantly improve operational efficiency, reduce costs, and achieve precise and personalized services in product development, marketing, and supply chain management. This, in turn, enhances overall competitiveness and productivity. The implementation of digital transformation enables enterprises to respond more flexibly to market changes and occupy a favorable position in global competition.

In addition to technological innovation and digital transformation, the efficiency of resource allocation is also closely linked to an enterprise’s new quality productivity [9]. Resource allocation involves not only the use of traditional capital and labor but also the effective utilization of intangible resources such as knowledge, information, and technology [10]. Modern enterprises are able to improve total factor productivity by integrating and optimizing various resources. Specifically, through the rational allocation of resources in the production process, enterprises can maximize the potential and value of different types of resources, effectively enhancing overall productivity. This optimization of resource allocation is not

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limited to physical adjustments but also involves knowledge sharing, cross-department collaboration, and the deep integration of digital technologies.

In conclusion, the enhancement of an enterprise's new quality productivity is the result of the combined effects of multiple factors. Technological innovation, digital transformation, optimization of resource allocation efficiency, and green development are all continuously driving high-quality development of enterprises [11]. As the global economy undergoes digital and green transformations, how enterprises seize these emerging trends and optimize their productivity will determine their position in future competition. Therefore, future research should further explore how to promote the improvement of new quality productivity through policies, management, and technological innovation, ultimately achieving sustainable and high-quality enterprise development.

2.2. Research Hypothesis

In the context of the rapid economic development today, the rapid advancement of financial technology (Fintech) has provided enterprises with new opportunities for growth. Fintech has not only transformed the traditional financial industry but also created a more favorable innovation environment for enterprises by enhancing the efficiency of capital flow, optimizing resource allocation, and increasing information transparency. Specifically, fintech provides direct resource support to enterprises, particularly in areas like capital flow, financing efficiency, and access to market information, all of which directly impact the new quality productivity of enterprises.

Fintech has significantly improved the liquidity of capital and financing efficiency. In regions with high levels of fintech development, enterprises can obtain funding through diversified channels such as internet finance platforms, venture capital, and crowdfunding. This enables enterprises, especially innovative ones, to more easily access funds for technological research and product innovation, thus promoting productivity growth. Compared to traditional financing models, fintech provides more convenient and lower-cost financing options for enterprises, effectively reducing the funding bottlenecks they face during the innovation process.

Additionally, the proliferation and development of fintech have significantly increased market information transparency. With the help of big data analysis, cloud computing, and other technologies, enterprises can obtain more real-time and accurate market intelligence, helping them better understand consumer needs, technological trends, and industry dynamics. The transparency and flow of this information enable enterprises to make more informed strategic decisions, adjust their direction in a timely manner, and reduce short-sightedness and blind decision-making. In this process, fintech not only provides technical support for enterprises but also offers decision-makers more comprehensive and objective information, helping them make more forward-looking innovation decisions, which in turn promotes the long-term sustainable development of enterprises.

The level of fintech development in the region where a listed company is located has a significant impact on the enhancement of the company's new quality productivity. Fintech promotes the innovation capacity of enterprises through its impact on capital flow, resource allocation, and information transparency, and further enhances overall productivity by driving digital transformation, optimizing production and management processes. Therefore, the improvement of fintech development in the region where an enterprise is located will effectively promote the development of its new quality productivity. Based on the above analysis, the following hypothesis is proposed:

Hypothesis 1: The development of financial technology can promote the development of new quality productivity in enterprises.

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FinTech provides a solid foundation for the digital transformation of enterprises by offering precise market information and data analysis tools. Technologies such as big data, artificial intelligence, and cloud computing enable enterprises to access, process, and analyze massive amounts of data in real time, allowing them to scientifically predict and adjust market demand, customer preferences, and production processes. Digital technologies not only optimize traditional business processes but also open up entirely new spaces for innovation. For example, through data analysis, enterprises can more accurately predict market trends and customer needs, improving the precision of product development, reducing unnecessary resource waste, driving technological and product innovation, and further enhancing productivity.

The widespread adoption of FinTech provides enterprises with more digital tools to automate and intelligentize various aspects of management, production, and sales. Intelligent production systems, automated supply chain management, and digital customer service platforms can all effectively improve production efficiency and resource utilization, while reducing errors and delays in manual operations. These technologies not only enhance the precision and accuracy of enterprise operations but also promote investment in innovation and research and development, further driving the development of new quality productivity.

Therefore, the improvement of FinTech in a region not only provides technical support for the digital transformation of enterprises but also creates favorable conditions for efficient management, innovation, research and development, and market expansion. By promoting digital transformation, FinTech can significantly enhance an enterprise's operational efficiency, innovation capabilities, and market competitiveness, thereby effectively promoting the development of its new quality productivity. Based on the above analysis, this paper proposes the following hypothesis:

Hypothesis 2: Financial technology can enhance enterprise new quality productivity by improving the level of digital transformation.

The decision-making behavior of corporate executives plays a crucial role in the long-term development and enhancement of innovation capabilities within an enterprise. However, traditionally, many executives have focused excessively on short-term financial performance, neglecting long-term strategic goals and innovation investments. This has often led to a suppression of innovation vitality and new quality productivity. The emergence of financial technology (FinTech) offers a potential solution to this issue. In regions with advanced FinTech, companies not only gain access to more comprehensive and transparent market information but also utilize digital tools to enhance the rationality and foresight of their decision-making, thereby effectively mitigating short-sighted behavior among executives and promoting innovation and long-term development.

Additionally, the widespread use of FinTech allows corporate executives to gain a deeper understanding and grasp of the risks and potential opportunities in the company's operations. Through digital tools, management can monitor the company's operational status, risk changes, and market environment in real-time, making more informed decisions. For instance, through blockchain technology, companies can ensure the transparency of fund flows and avoid improper short-term financial operations; through artificial intelligence, companies can quickly predict and adjust risks during market fluctuations, reducing impulsive short-term decision-making. These technological tools help management break free from "short-termism," promoting greater investments in long-term strategic planning and innovation, thereby enhancing the company's new quality productivity.

In conclusion, FinTech not only alleviates the short-sightedness of corporate executives but also improves the scientific nature and transparency of decision-making. This enables companies to respond more flexibly to external challenges and market changes. This digital decision-making model allows enterprises to focus more on long-term technological accumulation and

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innovation development, thereby continuously boosting productivity. Based on the above analysis, this paper proposes the following hypothesis:

Hypothesis 3: Financial technology levels can improve new quality productivity in enterprises by mitigating short-sightedness in management decision-making.

3. Research Design

3.1. Data Source and Sample Selection

This study focuses on A-share listed companies in the Shanghai and Shenzhen stock exchanges between 2016 and 2020. The required basic company information, financial data, and industry classification data were sourced from the Wind Financial Terminal. The construction of the new quality productivity index system is based on the basic information of listed companies. Data on the financial technology development level at the municipal or provincial level are obtained from the Tianyancha database, while data on the characteristics of the cities where the listed companies are located come from the China City Statistical Yearbook, CSMAR database, and the CEIC China Economic Database.

To ensure the quality and reliability of the data and research results, the following sample selection criteria were applied based on existing literature: Exclusion of Financial Industry Companies and Special Treatment Companies: Financial industry listed companies, as well as those under special treatment such as ST (Special Treatment), ST* (Risk Warning), and PT (Particular Treatment), were excluded to avoid financial data anomalies affecting the research results. Exclusion of Samples with Missing Data on Key Variables: Observations where key research variables were missing were removed to ensure the completeness of the data. Winsorization of Outliers: To reduce the impact of outliers on the research results, all continuous variables were Winsorized at the 1% and 99% percentile levels. This approach ensures the robustness of the sample, reducing biases and maintaining the integrity of the data used for analysis.

3.2. Model Specification

Based on previous research, this study constructs model (1) to test Hypothesis 1.

$$NQP_{i,t} = \alpha + \beta_1 Fintech_{m,t} + \beta_2 Controls_{i,m,t} + u_i + \mu_t + \varepsilon_{i,t} \quad (1)$$

Where $NQP_{i,t}$: The new quality productivity level of listed company i in year t. It is measured using the company's annual data based on the constructed index system. $Fintech_{m,t}$: The level of financial technology development in the municipality or province m where company i is located in year t. This is measured by the natural logarithm of the number of financial technology companies in the city, plus 1. $Controls_{i,m,t}$: Control variables for company i and its municipality m in year t. These include various company-level and city-level factors that could influence new quality productivity. u_i: Fixed effect for company i, accounting for unobserved company-specific characteristics. μ_t: Fixed effect for year t, controlling for factors common across all companies in a given year. $\varepsilon_{i,t}$: The random error term. The coefficient β_1 of the variable $Fintech_{m,t}$ indicates the impact of the development of financial technology in the company's region on its new quality productivity level. If the coefficient is significantly positive, **Hypothesis 1** is supported.

3.3. Variable Definitions

3.3.1. Dependent Variable: New Quality Productivity of Enterprises

As a comprehensive indicator reflecting the improvement and optimization of enterprise factor quality, this study constructs an enterprise New Quality Productivity evaluation index system that includes three dimensions: New Quality Laborers, New Quality Labor Objects, and New

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Quality Labor Materials. The weight coefficients of the indicators at each level are determined using the entropy method [12]. The construction of the indicator system is as follows:

Firstly, the dimension of New Quality Laborers assesses human capital quality from two perspectives: employees and management. At the employee level, two indicators are used: the proportion of high-quality employees and R&D personnel density. At the management level, two indicators are used to measure the quality of the management team: the digital background of the management team, which is a dummy variable based on the executive's educational background (assigned a value of 1 if the executive's education is related to emerging technology fields, otherwise 0), and CEO functional experience heterogeneity, which is quantified according to the functional background classification standard in the CSMAR database (with nine functional categories in total; the higher the value, the more diverse the CEO's cross-disciplinary management experience).

Secondly, the dimension of New Quality Labor Objects evaluates ecological sustainability and future development potential. The ecological environment is measured using the Environmental Dimension Score from the Huazheng ESG Rating System, while future development potential is measured using two indicators: fixed asset investment intensity and robot application density at the company level. Robot application density is derived from the industry-level data provided by the International Federation of Robotics (IFR) using a micro-decomposition method to obtain company-level data.

Thirdly, the dimension of New Quality Labor Materials evaluates resource input quality, focusing on three categories: technology, green, and digital labor materials. Technology labor materials are measured by the company's innovation capacity. Green labor materials are assessed through two indicators: green technology level and green patent density. Digital labor materials are measured by two indicators: intelligence level, which is quantified by the frequency of intelligent-related keywords in the company's annual report, and digital asset configuration intensity, which is measured by the proportion of intangible assets that contain digital-related keywords in their detailed breakdown.

The specific methods for calculating each indicator are detailed in Table 1.

Table 1. Indicator System for Constructing New Productivity of Listed Companies

Primary Indicator	Secondary Indicator	Tertiary Indicator	Measurement Method
New Quality Laborers	Employee Quality	High-Quality Employees	Percentage of employees with postgraduate education
		Proportion of R&D Personnel	Percentage of employees in R&D
	Management Quality	Management Team's Digital Background	Digital background of the executive team
		CEO's Functional Experience Diversity	CEO's functional experience diversity
New Quality Labor Object	Ecological Environment	Environmental Performance	Huazheng ESG Index
	Future Development	Fixed Asset Proportion	Fixed assets / Total assets
		Smart Machine Penetration Rate	Penetration rate of smart machines in the company
New Quality Labor Material	Technological Labor Material	Innovation Level	Logarithm of the number of patents filed
	Green Labor Material	Green Technology Level	Logarithm of the number of green patents filed
	Intelligent Level	Frequency of Intelligent Terms	Frequency of intelligent-related terms
	Digital Labor Material	Digital Asset Proportion	Digital assets / Intangible assets

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3.3.2. Explanatory Variable: Level of Fintech Development in Prefecture-level Cities

Based on the existing research framework, this study first constructs a fintech keyword system covering technological infrastructure to application scenarios, referencing policy documents such as the "2020 China Fintech and Digital Inclusive Finance Development Report" and the "Fintech Development Plan (2022-2025)." Next, using the advanced search function of the Tianyancha enterprise database, fintech companies with a duration of 2 years or more in each prefecture-level city are identified and filtered based on their business scope. Finally, the number of identified companies is increased by 1 and the logarithm is taken to mitigate the skewness in the data distribution.

3.3.3. Control Variables

To comprehensively control for other factors that may affect the research results, this study sets control variables at both the enterprise and regional levels. At the enterprise level, the following indicators are selected: enterprise size (Size), enterprise age (Age), enterprise growth (Growth), cash flow (Cashflow), return on assets (ROA), board independence (Indep), leverage (LEV), and ownership type (POE). These variables are chosen based on findings from existing literature, as they effectively reflect the fundamental characteristics, operational conditions, and governance level of enterprises. Considering the potential impact of regional heterogeneity, the study also includes control variables at the regional level, such as the level of regional economic development (EconDev) and the level of financial industry development (FinDev). A higher level of regional economic development generally implies a more complete market mechanism and better factor mobility, while the development of the financial industry directly affects the financing environment for enterprises. Therefore, including these regional characteristics in the control variable system helps enhance the robustness of the research results.

3.3.4. Descriptive Statistics

Table 2. Descriptive Statistics

Variable	N	Mean	SD	Min	Median	Max
NQP	9194	0.103	0.0930	0.00400	0.0660	0.492
Fintech	9194	3.567	2.049	0	3.332	8.535
Size	9194	22.27	1.241	18.37	22.13	27.66
EconDev	9194	17.85	0.930	14.58	17.95	19.41
FinDev	9194	1.498	0.662	0.116	1.446	7.450
Age	9194	10.53	6.865	1	9	28
Growth	9194	19.71	137.0	-90.69	10.60	8748
Cashflow	9194	0.0460	0.0690	-0.496	0.0440	0.661
ROA	9194	0.0360	0.0690	-0.912	0.0350	0.482
Indep	9194	0.372	0.0530	0.222	0.333	0.714
Lev	9194	43.09	20.37	0.836	42.49	98.90
POE	9194	0.369	0.483	0	0	1

The table below presents the descriptive statistics for the variables used in this study. The mean of enterprise new productivity (NQP) is 0.103, with a large standard deviation, indicating significant differences in productivity levels across enterprises. The log of the number of fintech companies (Fintech) has a mean of 3.567, showing an uneven distribution of fintech companies across different prefecture-level cities, with certain areas having a higher concentration. The company size (Size) is relatively concentrated, with a mean of 22.27 and a standard deviation of 1.241. The log of regional GDP (EconDev) has a mean of 17.85, reflecting differences in the economic development levels across regions. The mean of financial development level (FinDev) is 1.498, indicating disparities in financial development, with some regions being more

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advanced. Company age (Age) and growth rate (Growth) show variability across companies, with the latter having a larger standard deviation, suggesting significant fluctuations in growth. Cash flow (Cashflow) is generally low, return on assets (ROA) is also low, and the leverage ratio (Lev) is high, reflecting that most companies rely heavily on external financing.

4. Empirical Results Analysis

4.1. Baseline Regression

Table 3. Baseline Regression

	(1)	(2)	(3)
	NQP	NQP	NQP
Fintech	0.0101***	0.0069***	0.0047***
	(10.8003)	(6.3700)	(4.8693)
Size	0.0070***	0.0058***	0.0101***
	(7.4421)	(5.9063)	(10.5196)
Age	-0.0019***	-0.0021***	-0.0010***
	(-12.5288)	(-13.8649)	(-7.1248)
Growth	-0.0000	-0.0000	-0.0000
	(-0.5500)	(-0.5870)	(-1.1324)
Cashflow	-0.0290**	-0.0387***	-0.0138
	(-1.9811)	(-2.6255)	(-1.0288)
ROA	-0.0543***	-0.0413**	0.0083
	(-3.3030)	(-2.4739)	(0.5160)
Indep	0.0647***	0.0643***	0.0545***
	(3.3967)	(3.3914)	(3.1699)
Lev	-0.0002***	-0.0002***	-0.0000
	(-3.9867)	(-2.9562)	(-0.2596)
Poe	-0.0066***	-0.0038*	-0.0004
	(-3.1394)	(-1.7621)	(-0.1999)
EconDev	0.0011	0.0051***	-0.0003
	(0.6333)	(2.8163)	(-0.1693)
FinDev	-0.0004	-0.0003	-0.0010
	(-0.3095)	(-0.1881)	(-0.7352)
_cons	-0.0844**	-0.1308***	-0.1987***
	(-2.4095)	(-3.7246)	(-6.1445)
N	9194	9194	9194
R^2	0.1085	0.1134	0.3271
Year FE	No	Yes	Yes
Industry FE	No	No	Yes

In this regression analysis, the model controls for various factors, including year fixed effects and industry fixed effects, aiming to reveal the impact of different factors on enterprise new productivity (NQP). The level of fintech development in the prefecture-level city where the enterprise is located (Fintech) significantly and positively influences the enterprise's new productivity in all three models. Specifically, the coefficients of Fintech are 0.0101, 0.0069, and 0.0047 across the models, and all are statistically significant ($p < 0.01$). This suggests that as fintech advances, especially at the prefecture-level city, enterprises can gain more technological support, innovation resources, and capital flow, which in turn promotes investment in product development and technological innovation, thus enhancing their new productivity. Fintech provides businesses with convenient financing channels, advanced technological applications,

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and more efficient operational models, which likely work together to improve the enterprises' innovation capacity and production efficiency.

Additionally, company size (Size) has a significant positive effect on new productivity. The coefficients are 0.0070, 0.0058, and 0.0101, and they are significant in all models ($p < 0.01$). Larger companies typically have more resources and capital, enabling them to make broader technological investments and innovations, thus improving their new productivity.

In summary, the level of fintech development in the prefecture-level city where an enterprise is located has a significant positive impact on its new productivity, highlighting the role of fintech development in fostering enterprise innovation. Other factors, such as company size, economic development level, company age, and board independence, also significantly influence the productivity outcomes, providing a comprehensive understanding of the factors that drive enterprise innovation and new productivity.

4.2. Robustness Check

To validate the robustness of the study's conclusions, this paper remeasures the level of fintech development in regions using several alternative indicators. First, we refer to the Digital Inclusive Finance Index compiled by the Peking University Digital Inclusive Finance Research Center [13]. This index is highly authoritative and representative, and it includes two dimensions-"depth of usage" and "breadth of coverage"-that effectively characterize the degree of fintech adoption and application in a region. "Depth of usage" primarily reflects the frequency and scale at which residents use digital financial services, while "breadth of coverage" measures the extent of digital financial service penetration among the regional population. These two indicators provide a comprehensive reflection of the fintech development level in a given area. Secondly, this study constructs a fintech development indicator based on media reports [5]. Specifically, we select keywords such as "fintech," "digital finance," and "mobile payments," combine them with the names of different regions, and count the number of related news articles on the Baidu News platform. This indicator reflects the media attention given to fintech development in different regions, offering insight into the public and social awareness of the region's fintech growth. To ensure the data's reliability, we clean and deduplicate the news data and apply a rolling window method to calculate the annual average, thus minimizing the impact of short-term fluctuations.

Table 4. Robustness Test

	(1)	(2)	(3)	(4)
	NQP	NQP	NQP	NQP
Index_aggregate	0.0001***			
	(3.1240)			
Coverage_breadth		0.0002***		
		(4.9680)		
Digitization_level			0.0001**	
			(2.2924)	
Baidu_Fintech				0.0069***
				(5.6049)
_cons	-0.2078***	-0.2072***	-0.2088***	0.0004
	(-10.1396)	(-10.1438)	(-10.1852)	(0.0430)
N	10827	10827	10827	10866
R^2	0.3249	0.3258	0.3247	0.3159
Controls	Yes	Yes	Yes	Yes
Year/Industry FE	Yes	Yes	Yes	Yes

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The empirical results show that, after adopting these alternative indicators, the level of fintech development (Fintech) continues to have a significantly positive impact on enterprise new productivity (NQP). This result is consistent with the baseline regression and further supports the conclusions of this study.

5. Mechanism Test

Based on the hypotheses presented earlier, this section explores how fintech promotes digital transformation in enterprises and alleviates short-termism in management.

5.1. Fintech's Role in Promoting Digital Transformation of Enterprises

To characterize the level of digital transformation in enterprises, this study uses two key metrics: the number of characters related to "digital transformation" in the company's annual report (Digital) and the proportion of those characters within the entire report (Digital_Ratio). Specifically, we analyze the text content of the annual report, counting keywords, descriptions, and specific action plans related to digital transformation. By calculating the proportion of these characters in the total report, we can directly reflect the importance placed by the company on digital transformation and the extent of its implementation.

According to the regression results, the interaction effect between fintech and digital transformation plays a particularly significant role in driving high-quality development of enterprises. The coefficient of the interaction term is 0.0002, with a t-value of 11.5566, indicating that this interaction effect is statistically highly significant. This result suggests that there is a strong synergistic relationship between fintech and digital transformation. Specifically, fintech not only drives high-quality enterprise development through its own financial service innovations but also closely integrates with the digital transformation process, forming a positive feedback loop that mutually promotes both.

This interaction effect manifests in two key ways: Fintech offers more efficient tools and systems for capital flow, risk management, and technological innovation, enabling smoother transitions during the digital transformation process. This infrastructural support ensures that enterprises can seamlessly adopt digital strategies and utilize financial technologies to facilitate their transformation. Digital transformation broadens the scope and need for fintech, especially in areas such as data-driven innovation and smart decision-making. As enterprises undergo digital transformation, they develop better capabilities to leverage fintech tools for tasks like market analysis, financial management, and risk assessment. This, in turn, promotes the enterprise's capacity for technological innovation, productivity improvement, and market expansion.

5.2. Fintech's Role in Alleviating Managerial Short-Termism

In this study, to measure the degree of managerial short-termism, we use the ratio of short-term investments to the initial total assets as a proxy variable for managerial short-sightedness, referred to as Shortinv. This indicator reflects the extent to which an enterprise allocates funds to short-term financial assets over a certain period, indirectly revealing whether the management tends to prioritize short-term returns at the expense of long-term development. Specifically, short-term investments are calculated as the sum of three financial asset categories: trading financial assets, available-for-sale financial assets (net), and held-to-maturity investments (net). These assets typically reflect the company's investment in highly liquid, short-term financial assets such as stocks and bonds. These assets can often be quickly liquidated, generating immediate financial returns. Therefore, the higher the proportion of these short-term assets, the more likely it is that the management is focused on short-term profits, potentially neglecting long-term strategic investments and technological innovation.

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According to the regression results, the interaction effect between fintech (Fintech) and managerial short-termism (Shortinv) shows a significant negative relationship. Specifically, the coefficient of the interaction term is -0.0106, with a t-value of -3.4800, indicating that this interaction effect is statistically significant and has a negative impact.

This result suggests that higher levels of fintech help alleviate managerial short-termism. Specifically, when the level of fintech increases, top management is more likely to shift their focus from short-term financial performance and immediate returns to decisions with greater strategic significance and long-term value. As a result, fintech enables management to make decisions that are more focused on long-term growth, technological innovation, and strategic investments rather than immediate financial rewards. This is consistent with the observation that fintech's tools and infrastructure reduce the tendency for short-termism and provide more robust support for long-term strategic planning.

Overall, the advancement of fintech helps alleviate managerial short-termism by enabling managers to focus more on the company's long-term development strategy and technological innovation. The negative interaction effect between fintech and managerial short-termism demonstrates the positive role of fintech in improving decision-making quality and promoting sustainable enterprise development. Through this mechanism, fintech enhances the capacity of management to align corporate strategies with long-term goals, fostering a more balanced approach to growth and innovation.

Table 5. Mechanism Test

	(1)	(2)	(3)
	NQP	NQP	NQP
Fintech	0.0019**	0.0021**	0.0049***
	(2.0253)	(2.1734)	(5.1400)
Fintech×Digital	0.0002***		
	(11.5566)		
Fintech×Digital_Ratio		2.4047***	
		(10.0139)	
Fintech×Shortinv			-0.0106***
			(-3.4800)
_cons	-0.2006***	-0.2066***	-0.1989***
	(-6.3154)	(-6.4659)	(-6.1563)
N	9178	9178	9194
R^2	0.3531	0.3451	0.3281
Controls	Yes	Yes	Yes
Year/Industry FE	Yes	Yes	Yes

6. Heterogeneity Analysis

6.1. State-Owned vs. Non-State-Owned Enterprises

According to the regression results, the impact of fintech (Fintech) on high-quality enterprise development (NQP) shows significant differences between state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs). This difference reflects the fundamental distinctions between these two types of enterprises in areas such as fintech adoption, management systems, decision-making processes, and market environments, which ultimately result in divergent effects of fintech on high-quality development.

From the regression results, the coefficient for fintech in state-owned enterprises is -0.0012, with a t-value of -0.9712, indicating that fintech does not have a significant positive impact on high-quality development in SOEs. In contrast, the fintech coefficient for non-state-owned

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enterprises is 0.0082, with a t-value of 5.8153, showing that fintech has a significant positive effect on high-quality development in NSOEs.

The core reason behind this difference likely lies in the management system and decision-making models of the two types of enterprises. State-owned enterprises are often subject to more government intervention and policy constraints, with decision-making processes that tend to be more complex and centralized, resulting in lower decision-making efficiency. In this environment, the innovation and flexibility of fintech are often less effective because strategic decisions in SOEs are more influenced by government policies. This leads to slower adoption of technological innovation and digital transformation, with the enterprises potentially exhibiting inertia in embracing new technologies. On the other hand, non-state-owned enterprises tend to be more agile in decision-making, allowing fintech to more effectively drive innovation, digital transformation, and high-quality development.

6.2. Regional Differences in the Impact of Fintech

According to the regression results, the impact of fintech on high-quality enterprise development (NQP) shows significant regional differences across the Eastern, Central, and Western regions of China. Specifically, fintech has the most significant positive effect on high-quality development in the Eastern region, a negative effect in the Central region, and a moderate positive effect in the Western region, which is weaker compared to the Eastern region.

The impact of fintech on high-quality development presents clear regional disparities. In the economically advanced Eastern China, fintech plays a prominent role in accelerating the development of high-quality enterprises. However, in Central China, where enterprise innovation capability is weaker and digital transformation is lagging, the influence of fintech shows a negative effect, failing to effectively drive enterprises toward high-quality development. In Western China, the impact of fintech on high-quality development is somewhat positive but limited, as the region faces market and technological lag, which weakens its effectiveness. This regional variation reflects differences in economic development levels, innovation capacity, and the progress of digital transformation across different regions in China. These findings provide valuable insights for exploring effective strategies for fintech application in different regions.

Table 6. Heterogeneity Analysis

	(1) State Owned	(2) Non State Owned	(3) Eastern region	(4) Central region	(5) Western region
	NQP	NQP	NQP	NQP	NQP
Fintech	-0.0012	0.0082***	0.0083***	-0.0050**	0.0097***
	(-0.9712)	(5.8153)	(6.7131)	(-2.1085)	(2.9524)
_cons	-0.1768***	-0.3145***	-0.1149***	-0.4562***	-0.1233
	(-4.2720)	(-6.0902)	(-2.5788)	(-5.9414)	(-1.4855)
N	3819	5241	5844	2093	1123
R^2	0.3588	0.3406	0.3345	0.3895	0.4209
Controls	Yes	Yes	Yes	Yes	Yes
Year/Industry FE	Yes	Yes	Yes	Yes	Yes

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7. Research Conclusion and Policy Recommendations

7.1. Research Conclusion

The level of fintech helps improve enterprise new productivity. Regression analysis shows that fintech can significantly promote high-quality enterprise development by optimizing resource allocation, improving operational efficiency, and facilitating technological innovation. This conclusion is supported by analysis across different regions, particularly in the Eastern region, where fintech has the most significant impact on high-quality enterprise development. This indicates that in economically advanced and technology-driven areas, fintech can more effectively promote digital transformation, playing a key role in enhancing enterprise competitiveness and productivity.

Fintech promotes new productivity development by enhancing enterprise digitalization. The regression results of the interaction term show a significant positive interaction effect between fintech and enterprise digital transformation. This suggests that fintech can accelerate the digital transformation process, further enhancing enterprise productivity and innovation capabilities. Moreover, fintech helps alleviate short-termism in management, promoting new productivity development. In particular, the negative relationship between fintech and management short-termism was confirmed in the interaction regression analysis, indicating that fintech plays an active role in reducing short-term investments and mitigating short-sighted behavior in management. By providing more accurate market analysis and risk forecasting tools, fintech helps enterprise management make better strategic plans, avoiding overemphasis on short-term gains at the expense of long-term development.

This study reveals the critical role of fintech in enhancing enterprise new productivity, showing that it promotes high-quality development through facilitating digital transformation and mitigating short-termism in management. The results indicate that the impact of fintech varies according to region, enterprise development stage, and management model, with fintech's role being more pronounced in the Eastern and Western regions. In the Central region, although fintech has potential, its impact is relatively weak due to limitations in digital transformation and innovation capabilities. Therefore, promoting the widespread application of fintech, particularly accelerating the digital transformation of enterprises in the central and western regions, will help enhance overall enterprise competitiveness and promote high-quality regional economic development.

7.2. Policy Recommendations

Based on the empirical research findings, the role of fintech in promoting high-quality enterprise development varies significantly across regions. Accordingly, the following policy recommendations are proposed to address these regional differences.

The government should strengthen support for fintech innovation and application, especially for small and medium-sized enterprises (SMEs). Fintech can provide enterprises with more technical support and resource guarantees, helping them enhance their digital transformation and improve operational efficiency. The government can incentivize enterprises to accelerate fintech adoption through tax reductions, innovation funds, and other policy measures, particularly in regions and enterprises that have not yet fully embraced digital tools. Through policy guidance and financial support, the government can help enterprises overcome technological barriers, driving their comprehensive development in the digital realm, thereby enhancing overall productivity and innovation.

Given the uneven economic development across regions, policies should focus on differentiated support based on regional characteristics. In the Eastern region, where fintech application is relatively mature, the focus should be on supporting deeper technological innovation and industry applications. In the Central and Western regions, although fintech holds substantial

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potential, many enterprises remain in more traditional stages and their digital transformation lags. Therefore, the government should increase investment in fintech infrastructure in these regions and promote the spread of technology and talent cultivation. By promoting fintech adoption, especially in foundational digital transformation efforts, the government can help enterprises in these regions gradually close the gap with the Eastern region, enhancing overall competitiveness.

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