Digital Transformation and Common Prosperity within Enterprises: A Perspective Based on the Micro-Level Labor Income Share

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Abstract: Selecting A-share listed companies in Shanghai and Shenzhen from 2007 to 2020 as the research sample, this study verifies the impact of digital transformation on the internal income distribution of enterprises and its mechanism of action from the perspective of micro-enterprises. The research results show that digital transformation has increased the labor income share of enterprises, promoting common prosperity within the enterprise. This effect can be achieved by improving the level of employment and the wage rate of employees, and is more significant in high-tech enterprises, state-owned enterprises, and enterprises that use underlying technology transformation. Further analysis reveals that digital transformation has a significant effect on increasing the labor income share of employees, but does not significantly affect the labor income share of senior executives. Therefore, digital transformation can narrow the income gap between senior managers and ordinary employees, thereby promoting common prosperity within the enterprise. The degree of income gap reduction is more obvious in non-state-owned enterprises and high-tech enterprises. The study has important reference value for promoting the strategy of common prosperity, the implementation of digital transformation, promoting high-quality economic development and social equity and harmony, and deepening the reform of the income distribution system.

1. Introduction

With the rapid development of the digital economy, digital transformation has become an important driving force for the continuous development of enterprises. Globally, companies are adopting new technologies such as artificial intelligence, blockchain, cloud computing, and big data to improve operational efficiency and enhance market competitiveness. Digital transformation not only changes the business model of enterprises but also profoundly affects the internal income distribution structure of enterprises. In the context of the increasingly severe global wealth gap, China has made the advancement of common prosperity one of the important economic and social development goals. Common prosperity is the combination of efficiency and fairness, which is to "make the cake bigger" while "dividing the cake well." Making the cake bigger requires high-quality economic development, and the key to dividing the cake well lies in narrowing the income gap. Based

on the principles and methods of income distribution, an income distribution system composed of primary distribution, redistribution, and tertiary distribution has been formed. As the main micro-carrier for creating and initially distributing wealth, enterprises play an important role in achieving common prosperity within the enterprise. On the one hand, the total operating income created by enterprises directly affects the total amount of income available for distribution, that is, whether the cake can be made bigger. On the other hand, the proportion of labor income in the total income and the income gap between management and ordinary employees determine the fairness and rationality of income distribution, that is, whether the cake is divided well. How digital transformation affects the realization of common prosperity within the enterprise, that is, whether digital transformation can increase the total operating income of the enterprise, and whether it can improve the labor income share and reduce the income gap between different levels of employees within the enterprise, has become an important issue of concern.

The increasing severity of the wealth gap is mainly due to the expansion of the income gap, and the key to the income gap lies in the decline of the labor income share. Digital transformation is the process by which enterprises utilize new technologies such as artificial intelligence, blockchain, cloud computing, and big data. Scholars have conducted relevant research on the impact of the use of technology on the labor income share. Scholars' views are not unified. Some scholars believe that new technologies will reduce the labor income share. Acemoglu and Restrepo[1] found evidence from the labor market in the United States over the past thirty years that industrial robots empowered by digital technology may lead to more unemployment and lower labor income distribution. Similarly, some Chinese scholars have also found that the widespread use of robots has to some extent replaced the labor demand of enterprises, creating a substitution effect[2], which leads to a decline in the labor income share[3]. However, Acemoglu and Restrepo[4] pointed out that the application of industrial robots may reduce the demand for certain types of labor, but at the same time, it may also promote employment by improving production efficiency and creating new job opportunities.

There are also some scholars with different views, the use of digital technology helps to flatten the organizational structure of enterprises[5], thereby increasing the status and income of ordinary workers, and increasing the labor income share. Artificial intelligence technology, by improving production efficiency, helps to accumulate capital growth. It can increase the demand for non-automated occupations, thereby creating new job opportunities[6].

Although previous studies have explored the impact of technological progress on the labor income share from different angles and levels, the research conclusions have not yet reached a consensus, and the impact of the new round of digital transformation on the use of digital technology is broader and more profound. The changes in the income distribution pattern brought about by this will affect the labor income share, thereby affecting the realization of common prosperity. However, research in this area is still insufficient. Therefore, this paper chooses to study the relationship between digital transformation and common prosperity within the enterprise from the perspective of the impact of digital transformation on the labor income share at the micro-enterprise level.

This paper selects A-share listed companies in Shanghai and Shenzhen as the research sample to analyze the impact of digital transformation on total operating income and labor income share, heterogeneity, and mechanism of action. The potential contribution of this paper lies in enriching the research on the economic consequences of digital transformation and enriching the related research on common prosperity at the micro level. It helps to have a deeper and more comprehensive understanding of the positive role played by digital transformation in the realization of common prosperity.

2. Theoretical Analysis and Research Hypotheses

2.1. Common Prosperity within Enterprises

Common prosperity, as a core economic and social development goal in China, encompasses the high-quality development of the economy and the equitable sharing of its fruits, which is metaphorically described as "making the cake bigger" and "dividing the cake well." Enterprises, as the central participants in the market economy, are both creators of wealth and key agents in the initial distribution of wealth, bearing dual responsibilities towards achieving common prosperity. The concept of common prosperity at the enterprise level is primarily reflected in "making the cake bigger," which means increasing the total operating income. This requires enterprises to enhance financial performance and total operating income through innovative means such as digital transformation, laying a foundation for the distribution of enterprise profits.

Secondly, in terms of "dividing the cake well," it is necessary to narrow the income gap within the enterprise. The focus is on two main aspects: first, the ratio of labor income to capital income, that is, the labor income share; second, the income disparity between managers and ordinary employees. By reforming the income distribution system and adjusting the relationship between efficiency and equity, it is possible to ensure a reasonable income gap and to improve the labor skills of low-income groups, thereby promoting their income growth.

2.2. Research Hypotheses

2.2.1. Digital Transformation and Total Operating Revenue

The impact of digital transformation on income distribution begins with the fundamental question of whether digital transformation can enhance the financial performance and total operating revenue of enterprises. Most scholars have found that digital transformation has a significant positive effect on the financial performance of enterprises, meaning that it can improve their financial outcomes. Specifically, digital transformation revitalizes enterprises by innovating core business processes and key operational links, employing digital management methods, and injecting new vitality into the business, enabling it to respond more agilely to market changes[7] . The use of data technology allows for the real-time sharing of information across all production nodes within an enterprise, enabling seamless integration of upstream and downstream industrial chains, significantly reducing transaction and search costs[8]. Digital transformation leads enterprises towards intelligence and automation; the application of intelligent equipment enhances production efficiency, precision, and operational effectiveness. The application of artificial intelligence can significantly improve production efficiency, promote value creation, and thereby increase labor income. The deployment of intelligent equipment in the production process can significantly enhance production efficiency and reduce the manufacturing cost per unit product [9], encouraging enterprises to expand production scale and create greater economic benefits. Moreover, the penetration of intelligent technology across various industries provides new momentum for industrial development[10]. For instance, once high-tech products like ChatGPT, smart cars, and smart homes are introduced, they quickly win consumer favor, helping enterprises to expand market share, which in turn stimulates the expansion of industry scale and further promotes value creation.

Digital transformation implies adopting an internet mindset to reshape the structure and service framework of enterprises[11] . By building a comprehensive information service platform of "cloud + network + terminal," it stimulates the innovation potential of enterprises, ultimately achieving a significant improvement in enterprise performance. Digital transformation significantly enhances operational efficiency by innovating multiple key internal links of the enterprise, including demand

forecasting, product design, pricing strategy, inventory management, and supply chain operations[12]. Utilizing digital technology for dynamic pricing attracts a broader customer base and reduces inventory backlog. It enhances the flexibility and response speed of supply chain management. In summary, digital transformation can make enterprise decision-making more scientific, products more refined, supply more timely, and sales more precise[13].

In conclusion, the hypothesis of this paper is proposed as follows:

H1: Digitalization can play the role of "making the cake bigger," that is, increasing the total operating revenue of enterprises.

2.2.2. Digital Transformation and Labor Income Share

The labor income share is a critical indicator of the distribution of labor compensation in the primary allocation process, which can be mathematically expressed as the product of the actual wage rate and the scale of labor employment, relative to the total enterprise output. This study, therefore, conducts an analysis from two dimensions: the scale of labor employment and the wage rate of employees. This approach allows for a comprehensive understanding of how digital transformation may influence the distribution of labor income within enterprises.

2.2.2.1. Scale of Labor Employment

Digital transformation has had complex and profound effects on the internal employment landscape of enterprises. It may lead to a reduction in the scale of labor employment within enterprises, as digital technologies drive the automation and intelligentization of physical businesses, making repetitive, low-skill labor positions susceptible to replacement[14] . Enterprises' preference for capital shifts towards digital technologies, reducing dependence on human labor and, consequently, the scale of the workforce. However, digital transformation also stimulates labor creation effects within enterprises, generating more employment opportunities.As traditional enterprises transition to digitalization, advanced digital technologies represented by artificial intelligence are widely applied, promoting the automation and intelligentization of enterprise management and production processes. This transition has given rise to numerous new business forms, products, and service models related to new technologies, thereby increasing the demand for high-skill positions such as design and research and development, optimizing the allocation of human capital within enterprises[15]. Digital transformation not only reduces operational costs and enhances enterprise value[16], but also, due to cost-saving effects, lowers product prices and stimulates consumer demand. Against the backdrop of synchronized growth in enterprise profitability and consumer markets, enterprises tend to expand production scale, triggering an expansion in output scale, and subsequently increasing the demand for low-skill labor [17]. With the continuous emergence of new positions, enterprises increase their labor input in the field of digital technology application, thereby raising the proportion of labor income in the total enterprise revenue.

2.2.2.2. Employee Wage Rate

From the perspective of employee wage rates, digital transformation has also impacted the wage structure of enterprises. The demand for digital technology professionals has surged with digital transformation, which enhances the automation and intelligentization of enterprise operations but may also replace some labor positions. Considering the scarcity of resources, enterprises may increase investment in digital technology, potentially reducing input in other labor-intensive segments, thereby weakening employees' bargaining power in wage negotiations. Enterprises tend to use digital technology to replace the traditional demographic dividend, reducing labor costs. This labor substitution effect puts employees at a disadvantage in wage negotiations when seeking job

opportunities; they may have to accept lower wage conditions to secure employment, ultimately leading to a decrease in the average wage rate within the enterprise.

However, in the current labor market, there is a severe imbalance in the supply and demand for high-skilled talent related to digital technology. On the demand side, as more enterprises engage in digital transformation, the need for high-skilled digital professionals increases sharply. On the supply side, individuals who truly master digital professional skills are extremely scarce[18]. Lu Minfeng[19] points out that in the future, compound talents in financial technology will be key to empowering the real economy with digital technology. The shortage of digital talent has driven up the average wage rate for high-skilled workers. Even if enterprises enhance the digital skills of existing employees through training, this process also strengthens employees' bargaining power, thereby raising the average wage rate. Against the backdrop of higher average wage rates for digital talent, both external recruitment of digital professionals and internal training to improve employees' digital skills will lead to an increase in the average wage rate of enterprise employees, increasing the enterprise's expenditure on the labor factor and thus raising the labor income share. Additionally, enterprises undergoing digital transformation, such as those adopting artificial intelligence technology, generally improve their overall productivity level, enabling them to pay higher wages compared to other enterprises in the same industry[20].

In summary, the following hypothesis is proposed:

H2: Digital transformation enhances the level of employment and the wage rate of employees, thereby increasing the labor income share of enterprises.

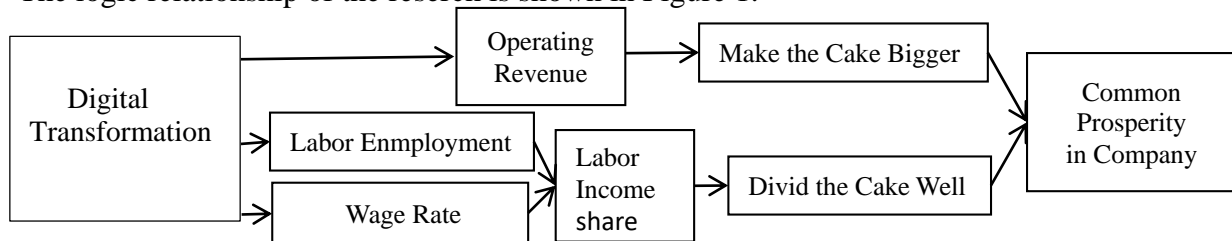The logic relationship of the reserch is shown in Figure 1.

Figure 1: Logic relationship diagram.

3. Research Design

3.1. Research Sample and Data Sources

This paper selects listed companies in China's A-share market from 2007 to 2020 as a long-term data sample and constructs a panel data model for an exhaustive study. The year 2007 is set as the starting point of the research for two reasons: on the one hand, the use of digital tools began to popularize from 2006; on the other hand, in 2006, China's Ministry of Finance issued a new version of the "Enterprise Accounting Standards," stipulating that all listed companies must fully comply with this new standard from January 1, 2007. Choosing this time point as the starting point of the research helps to ensure the consistency and reliability of the financial data used.

To enhance the validity of the data, the following treatments were applied to the sample data: (1) excluding financial enterprises in the industry classification; (2) excluding data of companies that were specially treated (ST and *ST) during the sample period due to abnormal operations; (3) excluding samples with severely missing key data; (4) excluding data outliers, including samples with total operating income less than 0, employee numbers equal to 0, labor income share greater than 1, and less than 0. (5) excluding digital enterprise samples, namely those classified in the C39 category of the computer, communication, and other electronic equipment manufacturing industry. To avoid the interference of extreme data on the empirical results, this paper has performed a winsorization

process on all continuous variables at the 1st and 99th percentiles. After the above treatments, a total of 29,007 sample observations were obtained.

In addition, the micro-level data used in the empirical analysis of this study mainly comes from the CSMAR database and the annual reports publicly disclosed by listed companies. The diversity and authority of these data sources provide a solid data foundation for the research.

3.2. Variable Definition

3.2.1. Dependent Variable

The dependent variables in this study are the total operating income of enterprises and the labor income share of enterprises. The total operating income is used as the dependent variable to verify the role of digital transformation in "making the cake bigger." The labor income share is used to verify the role of digital transformation in "dividing the cake well." Data on total operating income are directly derived from the operating income item in the profit and loss statement of enterprises. The labor income share is calculated by dividing "cash paid to and for employees" by "total operating income." In the test for endogeneity, the labor income share is adjusted using the formula (cash paid to and for employees + change in employee compensation payable) / total operating income. Here, "cash paid to and for employees" is obtained from the cash flow statement of the enterprise, and the initial and final balances of employee compensation payable are derived from the balance sheet. To comprehensively analyze the dynamic changes in enterprise income distribution, this study also incorporates the total operating income and the labor income gap into the analytical framework, as well as distinguishing between the labor income of management and ordinary employees. The ratio of the average compensation of the regulatory layer to that of ordinary employees is used to quantify the pay disparity between management and grassroots employees.

3.2.2. Digital transformation

The analysis of the economic impact of digital transformation is divided into qualitative and quantitative analysis. Some scholars rely on qualitative analysis, as seen in the works of Chen Jian et al. and Xiao Jinghua[21]. However, to accurately assess the effects of digital transformation, a more precise quantitative metric is required to measure the process. The "0-1" dummy variable method proposed by He Fan and Liu Hongxia[22]is simple and direct but fails to fully reflect the degree and depth of transformation, which may lead to biases in the estimation results. This study adopts the research method proposed by Wu Fei et al. in 2021[23], utilizing text analysis techniques to quantify the extent of corporate digital transformation. The specific approach involves initial data collection: employing Python web scraping technology to gather annual reports from all A-share listed companies on the Shanghai and Shenzhen Stock Exchanges. Text data is then extracted from the annual report PDF files and tokenized. Keywords for digital transformation are categorized into two types: underlying technologies and technological applications. Underlying technologies cover four major areas, commonly referred to as "ABCD" (Artificial Intelligence AI, Blockchain, Cloud Computing, Big Data). Technological practice applications focus on the manifestations of these technologies in actual business scenarios, with keywords involving specific practical cases and outcomes. Finally, the frequency of keywords is summarized, and the logarithm of the word count is taken as a proxy indicator to measure digital transformation.

3.2.3. Control variable

To enhance the reliability and precision of the research findings, this paper incorporates a number of control variables into the econometric model. Following the selection of control variables by Pei

Xuan et al.[24]and Fang Mingyue et al.[25], indicators that reflect the financial characteristics and corporate governance features of the enterprises are chosen. The main variables and their detailed definitions are presented in Table 1.

Table 1: Definition of Main Variables.

Type	Name	Variable	Definition
Dependent Variable	Operating Revenue	re	Logarithm of total operating revenue
	Labor Income Share	Lis	Cash paid to and for employees divided by total operating income
		Lis1	(Cash paid to and for employees + End-of-period employee compensation payable - Beginning-of-period employee compensation payable) / Total operating income
Explanatory Variable	Digital Transformation	Dt	See section 3-3-2 for details
Control Variable	Firm Size	Size	Logarithm of total assets at year-end
	Leverage	Lev	Total liabilities at year-end divided by total assets at year-end
	Firm Age	age	Natural logarithm of (current year - year of establishment + 1)
	Board Size	Board	Logarithm of the number of board members
	Independent Director Ratio	Bind	Number of independent directors divided by the total number of board members
	Capital Output Ratio	Ky	Ratio of net fixed assets to operating revenue
	Capital Intensity	Ciy	Ratio of total assets to total operating revenue
	State Ownership	Soe	Equals 1 if the company is state-owned, 0 otherwise
	Firm Growth	growth	(Current year's operating revenue / Previous year's operating revenue) - 1
	Top 10 Shareholders' Ownership Concentration	Top 10	Ownership concentration of the top 10 shareholders
	Separation of Control and Ownership Ratio	Srt	The difference between the control rights and ownership rights held by the actual controller of the listed company

3.3. Constructing the Econometric Model

To explore the impact of digital transformation on corporate income and income distribution, we construct the following econometric model, drawing on existing literature:

$$y_{it} = \alpha_0 + \beta_1 Digi_{it} + \gamma Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it} \tag{1}$$

In this model, y_{it} represents the dependent variable for firm i in year t, which includes financial

performance, total operating income, and labor income share.$Digi_{it}$ denotes the level of digital transformation for firm i in year t. $Controls_{it}$ represents all control variables.μ_t captures the fixed effects of time, λ_t represents the fixed effects of firms, and ε_{it} is the error term.

4. Empirical Analysis

4.1. Descriptive Statistics

Table 2 presents the main results of the descriptive statistics. The mean value of the labor income share (lis) is 0.125, while the mean of Lis1 is 0.126, indicating that on average, over 12% of the total operating income of listed companies in China is allocated to employee compensation. The standard deviations of Lis and Lis1 are 0.09 and 0.092, respectively, suggesting that there is not a significant disparity in the labor income share among the sample firms. The mean value of digital transformation (dt) is 2.4, with a standard deviation of 1.391, indicating a considerable variation in the overall level of digital transformation across different sample firms. Additionally, the average asset-liability ratio of firms is about 43%, demonstrating a reasonable level of debt. The statistical data for the remaining control variables all fall within a reasonable range, indicating that the sample data has good representativeness.

Table 2: Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
lis	29007	.125	.09	.011	.496
lis1	29007	.126	.092	.01	.504
dt	29007	2.4	1.391	0	5.697
top10	29007	.591	.156	.231	.932
srt	29007	.047	.075	0	.286
soe	29007	.409	.492	0	1
roe	29007	.061	.136	-.78	.324
lev	29007	.435	.206	.056	.894
growth	29007	.17	.403	-.555	2.592
age	29007	2.842	.346	1.792	3.526
board	29007	2.146	.198	1.609	2.708
bind	29007	.372	.053	.3	.571
ky	29007	.515	.61	.005	3.726
ciy	29007	2.467	2.05	.383	12.976
size	29007	22.115	1.299	19.746	26.153

4.2. Baseline return

The baseline regression results of the impact of digital transformation on total operating income and labor income share are presented in Table 3. These results are derived using a fixed effects model with individual and year dummies, controlling for a series of control variables. As can be seen from column (1), the regression coefficient of digital transformation on total operating income is 0.004, which is significantly positive at the 1% level. This indicates that digital transformation can promote the increase of total operating income of enterprises, playing the role of "making the cake bigger." From column (2), the regression coefficient of digital transformation on labor income share is 0.002, also significantly positive at the 1% level. This suggests that digital transformation can enhance the labor income share of enterprises, reduce the income distribution gap and inequality within the

enterprise, play the role of "dividing the cake well," and thereby promote the realization of common prosperity within the enterprise.

Table 3: Regression analysis.

	(1)	(2)	(3)
	re	lis	lis1
dt	0.004**	0.002***	0.002***
	(2.167)	(5.562)	(6.147)
top10	-0.010	-0.009***	-0.026***
	(-0.678)	(-2.980)	(-7.834)
srt	0.031	0.003	0.008
	(1.031)	(0.548)	(1.230)
soe	0.006	0.003*	0.003
	(0.757)	(1.855)	(1.638)
roe	0.121***	-0.036***	-0.040***
	(11.808)	(-17.326)	(-17.600)
lev	0.189***	-0.004	-0.002
	(16.184)	(-1.634)	(-0.722)
growth	0.046***	-0.013***	-0.008***
	(14.830)	(-20.909)	(-11.855)
age	0.039*	0.009**	0.013***
	(1.930)	(2.226)	(3.029)
board	-0.006	0.011***	0.010***
	(-0.488)	(4.143)	(3.714)
bind	0.011	-0.010	-0.010
	(0.281)	(-1.335)	(-1.178)
ky	-0.098***	0.017***	0.019***
	(-24.247)	(21.060)	(21.050)
ciy	-0.211***	0.013***	0.014***
	(-185.778)	(56.644)	(54.780)
size	0.922***	-0.021***	-0.018***
	(312.855)	(-34.226)	(-28.466)
_cons	1.440***	0.469***	0.420***
	(17.717)	(28.070)	(23.442)
Id	Yes	Yes	Yes
year	Yes	Yes	Yes
N	29007	29007	29007
R2	0.916	0.343	0.319
F	10798.273	515.110	461.534
***p<0.01,**p<0.05,*p<0.10			

4.3. Endogeneity and Robustness Analysis

4.3.1. Replace variable

To further verify whether the promoting effect of digital transformation on the labor income share is affected by variable measurement errors, this paper adopts the method of replacing variables to re-conduct the regression analysis. Through this approach, we can assess the impact of different variable

measurement methods on the research conclusions, ensuring the robustness and reliability of the study results. For the core explanatory variable of labor income share, it is measured by "Cash paid to and for employees + End-of-period employee compensation payable - Beginning-of-period employee compensation payable" divided by total operating income, abbreviated as Lis1. The regression results are shown in column (3) of Table 3. The regression coefficient of the labor income share Lis1 is 0.002, which is significantly positive at the 1% level, indicating that after replacing the variable, the research results still hold.

4.3.2. Lagged Independent Variables

To address endogeneity concerns, this paper employs the method of lagging explanatory variables for regression analysis. Specifically, we used the degree of digital transformation (dt) lagged by one, two, and three periods as explanatory variables. Under normal circumstances, the digital transformation at periods t-1, t-2, and t-3 is correlated with that at period t, but not directly linked to the random disturbance term at period t. Consequently, this method can effectively address the issue of omitted variables, enhancing the accuracy of regression analysis. Moreover, considering that the labor income share at period t is unlikely to influence the digital transformation at periods t-1, t-2, and t-3, it implies that there is almost no reverse causality between the labor income share and digital transformation. By employing this method, we can to some extent rule out the interference of reverse causality, thereby enhancing the reliability of the regression results.

Table 4: Lagged independent variables.

	(1)	(2)	(3)
	lis	lis	lis
Ldt1	0.001***		
	(3.497)		
ldt2		0.001*	
		(1.715)	
Ldt3			0.001**
			(2.124)
Id	Yes	Yes	Yes
year	Yes	Yes	Yes
N	25366	22305	19415
R2	0.337	0.327	0.334
F	453.585	392.077	360.816
***p<0.01,**p<0.05,*p<0.10			

The results of the regression analysis are presented in Table 4. After mitigating the endogeneity issue, the regression coefficients between digital transformation and labor income share are all significantly positive. This result further confirms the main conclusion of this paper—that digital transformation can significantly promote the increase in the labor income share—indicating that the research findings of this paper are robust and reliable.

4.3.3. Altering the Sample Period

On July 9, 2012, the State Council issued the "Twelfth Five-Year National Strategic Emerging Industry Development Plan," which clearly proposed to seize the opportunities of information technology upgrading and industrial integration development, focusing on breakthroughs in ultra-high-speed fiber optic communication, the Internet of Things, cloud computing, digital virtualization, and other new generations of information technology. In recent years, China has attached great

importance to the development of the digital economy, the development strategy of the digital economy has become increasingly clear, and the pace of enterprise digital transformation has accelerated. Considering that before 2012, the development of new technologies such as the Internet, big data, cloud computing, and artificial intelligence was relatively slow, which may have an impact on the research conclusions. To exclude the interference of this early sample, this paper selected data after 2012 as the research sample for regression analysis. The test results in Table 5 show that after adjusting the sample period, the research conclusion still holds, that is, digital transformation has a significant positive impact on improving the labor income share. By focusing on the sample data after 2012, this paper effectively excludes the interference that the slow development of early technology may bring, further verifying the positive role of digital transformation in increasing the labor income share within enterprises.

Table 5: Altering the sample period.

	(1)	(2)	(3)
	re	lis	lis1
dt	0.007***	0.001**	0.001***
	(3.635)	(2.047)	(3.169)
Id	Yes	Yes	Yes
year	Yes	Yes	Yes
N	22395	22395	22395
R2	0.900	0.325	0.301
F	8178.761	437.781	390.755
***p<0.01,**p<0.05,*p<0.10			

4.4. Heterogeneity Analysis

4.4.1. Technological Attribute Heterogeneity

Enterprises with different technological attributes may experience varying impacts on labor income share during the process of digital transformation. High-tech enterprises, due to their inherent technological advantages and innovation capabilities, can more effectively utilize digital technology to enhance labor productivity and thereby significantly increase the labor income share during digital transformation. In contrast, traditional enterprises or those with lower technological content may face more challenges during digital transformation, and their role in increasing the labor income share is relatively weaker.

High-tech enterprises typically possess strong R&D capabilities and technological accumulation, enabling them to more rapidly absorb and apply the latest digital technologies, such as artificial intelligence, big data analysis, and cloud computing. The application of these technologies not only significantly improves the enterprise's production efficiency and management level but also creates new job positions and business models, attracting more high-skilled talents. The remuneration of these high-skilled talents is generally higher, which directly increases the labor income share. Moreover, high-tech enterprises can better optimize the labor force structure during digital transformation. They improve employees' work efficiency and quality through digital tools and technologies, and also enhance employees' bargaining power by training and development programs to improve their digital skills. As the proportion of high-skilled employees within the enterprise increases, the overall labor income share also rises.

Therefore, this paper categorizes the samples into high-tech and non-high-tech enterprises to verify the differences in the impact of digital transformation on the labor income share between the two

types of enterprises. The regression results are shown in Table 6. In both types of enterprises, the regression coefficient of digital transformation on labor income share is significantly positive at the 1% level. However, the regression coefficient of high-tech enterprises is relatively higher, indicating that digital transformation in high-tech enterprises has a stronger positive impact on the labor income share.

Table 6: Technological Attribute Heterogeneity.

	non -high -tech	high -tech	non -high -tech	high -tech
	(1)	(2)	(3)	(4)
	lis	lis	lis1	lis1
dt	0.0013**	0.0016***	0.0017***	0.0021***
	(2.4762)	(3.9322)	(3.0758)	(4.6704)
Id	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes
N	14937	14070	14937	14070
R2	0.349	0.386	0.321	0.360
F	271.386	295.326	239.088	264.367
***p<0.01,**p<0.05,*p<0.10				

4.4.2. Ownership Attribute Heterogeneity

In China, state-owned enterprises (SOEs) and non-state-owned enterprises have different social responsibilities and objective functions, which may lead to different income distribution effects during the digital transformation process. Therefore, this paper distinguishes between state-owned and non-state-owned enterprises in the research sample to examine the impact of digital transformation on the labor income share under different ownership systems. The regression results are shown in columns (1) and (2) of Table 7. The results show that the regression coefficients of digital transformation on the labor income share for both state-owned and non-state-owned enterprises are significantly positive, indicating that digital transformation in both types of enterprises can enhance the labor income share, optimize the distribution pattern, and promote the realization of common prosperity within the enterprise. Compared to non-state-owned enterprises, the regression coefficient for state-owned enterprises is higher, suggesting that this promoting effect is more pronounced in state-owned enterprises.

Table 7: Ownership Attribute Heterogeneity.

	non -state -owned	state -owned
	(1)	(2)
	lis	lis
dt	0.0016***	0.0019***
	(3.5032)	(3.8019)
Id	Yes	Yes
year	Yes	Yes
N	17144	11863
R2	0.339	0.368
F	301.476	249.383

4.4.3. Digital Technology Heterogeneity

The process of corporate digital transformation involves leveraging new technologies to digitize

production, operation, and management activities. Following Wu et al. (2021), digital transformation is divided into two aspects: underlying technology application and technological application in practice (da). The underlying technologies are categorized into artificial intelligence (ai), blockchain (bc, cloud computing (cc), and big data (bd). The application of underlying technologies and technological practice may have different impacts on a company's income distribution. Moreover, the application of different technologies within the underlying layer during digital transformation may also have varying emphases on the impact on the enterprise's labor income share. Artificial intelligence and big data tend to create high-skill positions, thereby increasing the labor income share; whereas blockchain and cloud computing indirectly promote the enhancement of the labor income share by improving efficiency and reducing costs. Based on this, this paper distinguishes between artificial intelligence (ai), blockchain (bc), cloud computing (cc), big data (bd), and technological application in practice (da) to verify the impact of different types of digital transformation on the labor income share. The regression results are shown in Table 8. The regression results show that the regression coefficients of different types of digital transformation on the labor income share are all significantly positive at the 1% level. Compared to technological application in practice (da), the regression coefficients of underlying technology applications on the labor income share are larger, indicating that the impact of underlying technology applications on the labor income share is greater.

Table 8: Digital Technology Heterogeneity.

	(1)	(2)	(3)	(4)	(5)
	lis	lis	lis	lis	lis
ai	0.006***				
	(10.006)				
bd		0.006***			
		(10.006)			
cc			0.005***		
			(9.252)		
bc				0.007***	
				(5.031)	
da					0.002***
					(4.402)
Id	Yes	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes	Yes
N	29007	29007	29007	29007	29007
R2	0.345	0.345	0.344	0.343	0.343
F	519.154	519.154	518.306	514.781	514.434
***p<0.01,**p<0.05,*p<0.10					

4.5. Mechanism Analysis

4.5.1. Employment Level

This study uses the logarithm of the total number of employees (staff) to measure the level of employment. The regression results shown in columns (1) and (2) of Table 9 indicate that digital transformation significantly increases the number of employees by creating new job opportunities, thereby significantly raising the labor income shre. The reason is that as enterprises adopt new technologies such as artificial intelligence, blockchain, cloud computing, and big data, they not only enhance operational efficiency but also give rise to a series of emerging career paths. The application

of these new technologies promotes the increase of high-skill positions, which helps to improve the overall labor income share. Moreover, digital transformation also reduces the operating costs of enterprises and enhances their profitability, which in turn increases the demand for labor. With the expansion of enterprise scale and the improvement of production efficiency, more low-skill labor is also absorbed, effectively increasing the total labor income.

Therefore, digital transformation significantly raises the labor income share by increasing job opportunities, especially the number of high-skill positions. This effect is not only reflected in the direct increase of high-paying positions but also indirectly increases job opportunities for low-skill labor by expanding enterprise scale and improving production efficiency, thereby having a positive impact on the labor income share.

Table 9: Mechanism Analysis.

	Employment level		Employee salary rate	
	(1)	(2)	(3)	(4)
	staff	lis	lnw	lis
dt	0.008**	0.002***	0.009***	0.002***
	(2.164)	(5.127)	(3.583)	(5.101)
staff		0.035***		
		(60.827)		
lnw				0.018***
				(23.141)
Id	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes
N	29007	29007	29007	29007
R2	0.474	0.426	0.501	0.356
F	891.089	704.560	991.565	526.196
***p<0.01,**p<0.05,*p<0.10				

4.5.2. Employee Wage Rate

During the process of digital transformation, the supply and demand in the market have driven up the wage rate for high-skill talent, which in turn increases the labor income share. For ordinary employees, skills are also enhanced to adapt to the needs of digital transformation, thereby increasing the average wage. Therefore, digital transformation can increase the labor income share by raising the wage rate of employees. The employee wage rate (lnw) is measured by dividing the compensation paid to employees by the logarithm of the total number of enterprise employees. The regression results shown in columns (3) and (4) of Table 9 indicate that digital transformation significantly increases the employee wage rate, which in turn raises the labor income share. This confirms that digitalization can enhance the labor income share by increasing the wage rate of employees.

5. Further Analysis

5.1. The Impact of Corporate Digital Transformation on Different Types of Labor Income Shares

Digital transformation is conducive to enhancing the labor income share within enterprises. However, will digital transformation have an impact on different types of labor income shares? The application of digital technology, on the one hand, will enable grassroots employees to improve their skills, and on the other hand, it will generate more demand for high-end technical talents. This will

require enterprises to pay more labor remuneration, thereby affecting the internal distribution structure of the enterprise. To verify this issue, this paper classifies the types of labor employees into management and ordinary employees, and then distinguishes the income share of management (gls) and the income share of ordinary employees (nls). The management refers to the company's directors, supervisors, and senior management personnel. The labor income share of the management is the total annual salary of directors, supervisors, and senior management personnel (excluding independent directors and supervisors) divided by the total operating income. The labor share of ordinary employees is the current period's employee compensation payable minus the total annual salary of directors, supervisors, and senior management personnel divided by the total operating income. The regression results are shown in Table 10. Column (1) shows that digital transformation has a significant promotional effect on the income share of ordinary employees, while the effect on the income share of management is not obvious. Columns (2) and (3) distinguish between state-owned and non-state-owned enterprises; digital transformation in both state-owned and non-state-owned enterprises can improve the income share of ordinary employees, with non-state-owned enterprises being more obvious. The impact of digital transformation on the labor income share of management is not obvious whether in state-owned enterprises or non-state-owned enterprises which are shown in Columns (4)-(6). These results indicate that digital transformation helps to improve the labor income share of ordinary employees within the enterprise, improve the internal income distribution pattern of the enterprise, and thus help to promote the common prosperity within the enterprise.

Table 10: Different Types of Labor Income Shares.

	Full sample	non -state - owned	state - owned	Full sample	non -state - owned	state - owned
	(1)	(2)	(3)	(4)	(5)	(6)
	nls	nls	nls	gls	gls	gls
dt	0.0023***	0.0023***	0.0017***	0.0000	-0.0000	0.0000
	(6.3057)	(4.6954)	(3.3241)	(1.1476)	(-0.5622)	(1.5815)
Id	Yes	Yes	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes	Yes	Yes
N	29007	17144	11863	29007	17144	11863
R2	0.304	0.303	0.333	0.379	0.403	0.311
F	431.370	255.213	213.981	602.509	397.047	192.651
***p<0.01,**p<0.05,*p<0.10						

5.2. The Impact of Digital Transformation on the Compensation Gap between Executives and Ordinary Employees

To delve deeper into the impact of digital transformation on the income distribution gap between different groups within enterprises, we use the ratio of the average compensation of management to the average compensation of employees (gap) to measure the income disparity between management and ordinary employees. The average compensation of management is calculated as the total annual compensation of directors, supervisors, and senior management personnel divided by the size of the management team. The size of the management team is the total number of directors, supervisors, and senior executives minus the number of independent directors and those who do not receive compensation. The average compensation for ordinary employees is the total employee compensation minus the total annual compensation of directors, supervisors, and senior management personnel, then divided by the total number of employees minus the total number of directors, supervisors, and senior executives. The results of the regression analysis are presented in Table 11. Column (1)

indicates that digital transformation can significantly narrow the income gap between executives and employees, thereby promoting common prosperity within the enterprise. The regression results distinguishing between state-owned and non-state-owned enterprises are shown in columns (2) and (3). In non-state-owned enterprises, digital transformation can significantly reduce the gap between executives and ordinary employees, while in state-owned enterprises, the impact of digital transformation on the income gap is not significant. Further distinguishing between high-tech and non-high-tech enterprises, the results are shown in columns (4) and (5), where digital transformation significantly reduces the income gap in both types of enterprises, with a more pronounced negative effect in high-tech enterprises.

These findings suggest that digital transformation not only improves the overall performance of enterprises but also contributes to common prosperity within the enterprise by improving the income distribution pattern and narrowing the compensation gap between management and ordinary employees. By enhancing the compensation of ordinary employees, digital transformation helps to create a fairer and more harmonious working environment, thereby increasing employee satisfaction and corporate cohesion.

Table 11: Compensation Gap between Executives and Ordinary Employees.

	Full sample	non -state - owned	state -owned	high -tech	non -high -tech
	(1)	(2)	(3)	(4)	(5)
	gap	gap	gap	gap	gap
dt	-0.061**	-0.151***	0.060*	-0.088***	-0.055
	(-2.560)	(-4.425)	(1.836)	(-2.620)	(-1.588)
Id	Yes	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes	Yes
N	29007	17144	11863	14937	14070
R2	0.043	0.051	0.038	0.038	0.040
F	44.207	31.903	17.086	20.147	19.748
***p<0.01,**p<0.05,*p<0.10					

6. Conclusions

In conclusion, this paper, from the perspective of labor income share, selects Chinese A-share listed companies as research samples to explore the impact of digital transformation on common prosperity within enterprises. The main research findings are as follows: First, digital transformation significantly enhances the total operating income and labor income share of enterprises, promoting common prosperity within the enterprise. The mechanism by which digital transformation affects the labor income share is mainly through increasing the level of employment and improving the wage rate of employees. Second, the impact of digital transformation on the labor income share exhibits heterogeneity in terms of technological attributes, ownership attributes, and different digital technologies. This positive impact is more pronounced in high-tech enterprises, non-state-owned enterprises, and samples applying underlying technologies. Third, in further analysis, by distinguishing between the income share of management and ordinary employees, it is found that digitalization has a significant positive effect on the income share of ordinary employees, while the impact on the income share of management is not obvious. Additionally, digital transformation helps to reduce the income gap between management and ordinary employees, which is of great significance for achieving a deeper level of common prosperity.

Based on the above research conclusions, the following insights are provided:

First, promote digital transformation and skills training. Governments should introduce policy measures to encourage and support enterprises, especially high-tech and non-state-owned enterprises, in digital transformation, while also strengthening digital skills training for employees to enhance their employability and labor income share.

Second, optimize the income distribution mechanism. Enterprises are encouraged to improve the labor income share of ordinary employees through digital transformation, narrow the income gap between management and ordinary employees, and promote common prosperity within the enterprise.

Third, regulation and guidance. Regulatory authorities should pay close attention to the changes in the labor market that may occur during the process of digital transformation, ensuring that digital transformation benefits a broader group of employees, and provide guidance to help enterprises formulate reasonable compensation and welfare policies during the process of digital transformation.

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