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Price Distortions in Capital Markets and Corporate Employment—A Theoretical and Empirical Analysis Based on Microdata

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ABSTRACT

Employment, as the cornerstone of societal well-being, is a critical economic issue that concerns the immediate interests of the general public and the broader national development. However, existing research has generally overlooked the significant role that factor input prices play in the employment process of enterprise employees. Therefore, based on data from the China Industrial Enterprises Database, this paper focuses on examining the impact of capital price distortions on enterprise employee employment. The study finds that capital price distortions suppress firms' labor demand and reduce their spending on employee training, which is detrimental to both employment and the improvement of employee quality. In terms of the transmission mechanism, capital price distortions increase firms' returns on capital, thereby generating a substitution effect of capital for labor, and suppress labor demand by reducing firms' production efficiency. In terms of firm heterogeneity, the negative impact of capital price distortions on employee employment is more pronounced in capital-intensive firms, firms not receiving government subsidies, large-scale firms, state-owned enterprises, and export-oriented firms. These findings indicate that national policies prioritizing the improvement of factor market price determination mechanisms and employment training subsidies are of great significance for promoting labor employment and reducing fluctuations in the labor market.

Keywords: Corporate Employment; Capital Price Distortion; Capital Returns; Corporate Productivity

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1. Introduction

Employment is a vital means of safeguarding the immediate interests of the people and achieving the goal of common prosperity. However, due to the complex and volatile global economic landscape and domestic economic restructuring, China's labor market challenges have become increasingly prominent in recent years[1,2]. Consequently, the Central Committee of the Communist Party of China and the State Council have maintained a high level of attention on employment issues across major policies. The *Opinions on Promoting Stable Employment in the Current and Coming Periods* issued by the State Council in December 2018 emphasized the need to comprehensively utilize fiscal and tax policies to promote stable employment in Chinese enterprises. The 14th Five-Year Plan (2021–2025) also explicitly put forward the major strategy of "upholding employment as a priority." In October 2022, the report of the 20th National Congress of the Communist Party of China stated that employment is the most fundamental aspect of people's livelihoods, and called for strengthening employment-first policies, improving employment promotion mechanisms, and promoting high-quality and full employment. In December 2023, the Chinese Central Economic Work Conference noted that more policies should be introduced to stabilize expectations, growth, and employment, with a stronger emphasis on the employment-first orientation to ensure stable employment for key groups. Taken together, these developments indicate that, against the backdrop of China's ongoing economic restructuring and the unstable international environment, safeguarding employment for the population has become an extremely important strategic task.

From the perspective of factor markets on the supply side, for a long time, the Chinese government has played a dominant role in the allocation and pricing of factors of production as part of market-oriented reforms, driven by strategic objectives to guide economic development and stabilize the economy. Furthermore, in an effort to develop local economies and expand fiscal revenue, there has been regulation and intervention in the allocation of factors of production. This has resulted in barriers to factor mobility, price rigidity and differentiation, as well as artificially suppressed prices[3,4]. Regarding the capital market, although interest rate liberalization in China's financial sector began relatively early, the formal implementation of a floating interest rate system only started in November 2014—a relatively short time ago. Credit lending decisions in the financial sector are largely subject to administrative intervention by local government departments, which in turn leads to distortions in capital prices[5,6]. From a microeconomic perspective, corporate investment behavior generates productive capital, which determines the level of actual output; however, the cost of capital investment has a significant impact on corporate investment decisions[7,8].

However, traditional economic models mechanically assume that firms react to these distorted costs with perfect rationality, overlooking how non-market pricing fundamentally alters the cognitive and psychological environment of corporate decision-makers. From a behavioral economics perspective, artificially suppressed capital prices create a highly salient incentive structure that triggers managerial myopia and present bias. Since human cognitive capacity is a scarce resource, managers operating under bounded rationality in a distorted market environment tend to prioritize rapid, capital-intensive expansion over optimizing internal operational efficiency or managing human resources[9]. The result of this decision-making bias is that, driven by distorted incentives, firms are more inclined to substitute labor with cheap capital, thereby significantly weakening their willingness to expand labor demand[10]. So, how exactly do distorted capital prices affect employment in Chinese firms under the constraints of bounded rationality? What are the underlying behavioral mechanisms? This paper will explore these questions in depth.

Currently, scholars have conducted research from various perspectives on the factors influencing employment among employees in Chinese enterprises. First, regarding the relationship between international trade and employment, studies have shown that trade liberalization[11–13], the scale of firm exports[14–16], tariff policy uncertainty[17] and the opening of the service sector[18] are all significant factors affecting employee employment. Second, with the rapid development of information technology in recent years, scholars have focused on examining the employment effects of artificial intelligence, robotics applications, and the digital economy. Acemoglu and Restrepo[19], based on empirical analyses of robot application data in the United States, demonstrated that the use of robots reduces both employment and wage levels among enterprise employees. Cai et al.[20] em-

ployed a multilevel regression model and found that digital living significantly increased an individual's probability of employment; furthermore, in cities with good air quality, the level of urban digital economic development played a more significant role in promoting individual employment quality. Chen and Xiong [21] utilized 2013–2022 interprovincial panel data from China and employed a two-factor fixed-effects model to test their hypotheses. Their findings indicated that the digital economy had a positive impact on employment quality, though this effect varied across regions. Chen and Chen [22] utilized panel data from the China Household Panel Survey (2010, 2014, 2016, 2018, 2020, 2022) and found that internet usage promoted income growth among Chinese residents by fostering non-agricultural employment. Finally, some scholars have also explored the relationship between government subsidies [23], housing price changes [24], environmental regulations [25], social security contributions [26], and the agglomeration of data factors [27] and corporate employee employment. Their research found that increases in government subsidies and social security contributions had a positive effect on employment, while rising housing prices and stricter environmental regulations hindered the expansion of employment. Regarding the impact of capital price distortions, scholars have conducted in-depth analyses of their economic effects, focusing primarily on three aspects: the relationship between capital price distortions and economic output, corporate exports, and productivity. Based on firm-level microdata from China, Zhang et al. [28] found that the current degree of capital distortion was far greater than that in the labor market, and that this distortion was holding back manufacturing output. Regarding the impact on corporate export behavior, research by Wang et al. [29] found that a low degree of labor price distortion can significantly promote the upgrading of export product quality; however, as the degree of distortion increased, its positive effect on product quality diminished and might even hinder such upgrades. Dai [30] conducted an empirical analysis using data from China's high-tech industry from 1995 to 2013 and found that distortions in factor markets negatively impact the technological complexity of China's high-tech product exports through distortion-induced returns, Research and Development (R&D) suppression, technological lock-in, and human capital effects. Furthermore, regarding the impact on total factor productivity (TFP), scholars have conducted extensive research with largely consistent conclusions. It is generally acknowledged that factor price distortions inhibit the growth of China's TFP and result in significant efficiency losses [31–33].

Overall, while the aforementioned factors can explain corporate employment from their respective perspectives, they unfortunately overlook the crucial role that factor input prices play in the employment process. Furthermore, few studies have explored the underlying mechanisms through which capital price distortions affect corporate employment. Therefore, this paper examines the relationship between capital price distortions and corporate employment from both theoretical and empirical perspectives. Compared with existing research, the contributions of this paper are primarily focused on the following two aspects. On the one hand, moving beyond the traditional macro-neoclassical approach that views capital-labor substitution as a frictionless, rational optimization process, this paper introduces a micro-behavioral perspective grounded in bounded rationality. We theoretically formalize how non-market capital pricing fundamentally alters the cognitive and psychological environment of firm managers. On the other hand, this paper systematically analyzes the impact of capital price distortions on firm employment and provides an in-depth examination of the underlying mechanisms, thereby enriching the empirical research on the relationship between capital price distortions and firm employment.

2. Theoretical Analysis and Research Hypotheses

2.1. Theoretical Analysis of Factors Affecting Corporate Employment

This paper presents a micro-behavioral theoretical framework. By formalizing behavioral parameters as the objective function of a firm, we explicitly model the interaction between capital price distortions and managers' cognitive biases, thereby providing a more robust micro foundation for the employment crowding-out effect.

Consider a firm utilizing capital (K) and labor (L) to produce output Y according to a standard production function $Y = f(K, L)$. In a perfectly rational neoclassical market, the firm maximizes standard profit: $\pi = P \cdot f(K, L) - r^* K - wL$, where P is the output price, w is the wage, and r^* is the equilibrium market interest rate. However,

in a transition economy with administrative interventions, the actual cost of capital faced by the firm is distorted and subsidized, denoted as r^d (where $r^d < r^*$), the degree of capital price distortion can be defined as $\tau = r^* - r_d > 0$. Under a pure neoclassical framework, the firm would simply equate the marginal product of capital to r_d. Yet, we argue that managers are boundedly rational. The availability of artificially cheap capital T presents a highly salient stimulus. Driven by current biases and the desire to expand corporate capital, managers derive an additional subjective or psychological utility from successfully securing low-interest loans and expanding capital scale—a proxy for administrative capability and short-term signaling. We formalize this by introducing a behavioral parameter θ ($\theta > 0$), which captures the manager's myopic overreaction or salience bias toward distorted capital. The behavioral manager's utility function U is thus modeled as the sum of standard economic profit and the subjective psychological rent derived from capital distortion: $U(K, L) = [P \cdot f(K, L) - r_d K - wL] + \theta \cdot \tau \cdot K$. Solving for the manager's First-Order Conditions (FOCs) yields: $\frac{\partial U}{\partial L} = P \cdot f_L(K, L) - w = 0 \Rightarrow P \cdot f_L(K, L) = w$, $\frac{\partial U}{\partial K} = P \cdot f_K(K, L) - r_d + \theta\tau = 0 \Rightarrow P \cdot f_K(K, L) = r_d - \theta\tau = r^* - (1 + \theta)\tau$, this reveals a profound insight into managerial behavior: the effective cost of capital as perceived by short-sighted managers is significantly lower than the already distorted actual cost. The behavioral parameter θ amplifies the distortion. Consequently, managers excessively substitute labor (L) with capital (K). This cognitive bias leads companies to rely excessively on cheap capital, which in turn encourages them to substitute capital for labor on a large scale, creating a substitution effect on the labor factor and thereby hindering the growth of their workforce [34].

Furthermore, because GDP has long served as a key performance indicator for the Chinese government, local governments are more inclined to select production projects that can rapidly stimulate regional economic growth in the short term, offer stable returns, and carry relatively low investment risks. They further require local financial institutions to lend funds to relevant enterprises at rates below market levels [35]. Consequently, capital price distortions make it difficult for some innovative enterprises to secure financing, leaving them without sufficient funds for R&D investment. Given the high risks associated with R&D, this dampens enterprises' incentives for technological innovation, thereby hindering improvements in production efficiency [36,37]. At the same time, as the degree of factor price distortion increases, it exacerbates the distortion of factor price signals. The market is unable to achieve the optimal allocation of factor resources based on these signals, resulting in inefficiency in the use of factors such as capital, which in turn further reduces firms' production efficiency [38]. Consequently, firms are compelled to reduce their production scale and, inevitably, cut back on employee hiring. Furthermore, in the long run, declining productivity will severely undermine firms' market competitiveness, making it difficult for them to secure a larger market share. This hinders the conduct of their production activities and ultimately reduces the number of employees they hire [39]. Consequently, this paper proposes the following hypotheses:

H1. *Capital price distortion will suppress firms' labor demand, thereby hindering an increase in the number of employees.*

H2. *Capital price distortions can influence firm employment by affecting firms' rates of return on capital and productivity; specifically, there exist mechanisms whereby capital price distortions affect firm employment through increased returns on capital and reduced productivity.*

2.2. An Analysis of Firm Heterogeneity in the Impact of Capital Price Distortions on Employee Employment

The presence of enterprises with diverse ownership structures in transition economies is a potential manifestation of institutional arrangements, and there is a significant relationship between public employment and firm type [31]. The firm-level heterogeneity fundamentally arises because managers operating under different institutional and resource environments develop varying "reference points" and "loss aversion" tendencies [40]. Firms with distinct ownership structures, sizes, or competitive positions face asymmetric survival pressures and budget constraints, which systematically alter how managers cognitively perceive and react to distorted capital signals. First, because capital-intensive firms require greater capital inputs compared to labor-intensive firms, and as theoretical analysis indicates, the return-on-capital effect is a key mechanism through which capital price distortions influence firm employment. Consequently, capital price distortions provide capital-intensive firms with greater profit margins and significantly reduce their incentive

to increase hiring, leading to a more pronounced inhibitory effect on employment among employees of capital-intensive firms that require greater capital investment[41]. Second, compared to firms that do not receive government subsidies, subsidized firms have more funds available for production activities and labor input, and thus often exhibit stronger hiring intentions. Consequently, this may to some extent offset the inhibitory effect of capital price distortions on employee employment[42]. Third, compared to small-scale enterprises, larger enterprises have more robust internal structures, higher production output, and greater demand for employees. This makes them more inclined to hire, resulting in their employment being less affected by capital price distortions. Furthermore, compared to non-state-owned enterprises, state-owned enterprises are more likely to benefit from preferential policies. Non-state-owned enterprises, however, face financial discrimination and receive less financial support from the financial system. Consequently, capital price distortions are more pronounced in state-owned enterprises than in non-state-owned enterprises, making the inhibitory effect of capital price distortions on employee employment in state-owned enterprises more pronounced. Finally, compared to non-exporting enterprises, exporting enterprises face greater market competition pressures, have less stable employment environments, and are significantly affected by corporate profits, leading to greater impacts of capital price distortions on their employees' employment. Consequently, this paper proposes the following hypothesis:

H3. *The impact of capital price distortions on enterprise employees' employment exhibits significant firm-level heterogeneity.*

Compared to labor-intensive firms, capital price distortions have a more pronounced inhibitory effect on employee employment in capital-intensive firms; compared to firms receiving government subsidies, employee employment in firms without subsidies is more susceptible to the impact of capital price distortions; compared to large-scale firms, the impact of capital price distortions on employee employment is more significant in small-scale firms; compared to non-state-owned enterprises, capital price distortions have a more pronounced inhibitory effect on employee employment in state-owned enterprises; and compared to non-exporting firms, capital price distortions have a greater impact on employee employment in exporting firms. The mechanism through which capital price distortions affect employee employment is illustrated in **Figure 1**.

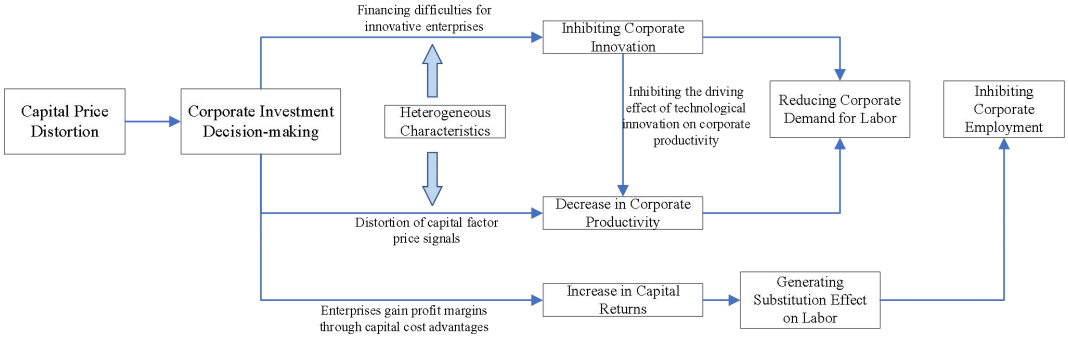

Figure 1. The Impact of Capital Price Distortions on Employee Employment Incentives.

3. Research Design and Data Sources

To test the aforementioned theoretical hypotheses, this section constructs an econometric model based on firm-level microdata and explains the selection of variables and data sources.

3.1. Specification of the Econometric Model

This paper examines the impact of capital price distortions on employee employment from the perspective of individual firms and explores the potential micro-level mechanisms underlying this effect. To this end, the empirical econometric model constructed is as follows:

$$employ_{idjt} = \beta_{10} + \beta_{11} factork_{idjt} + \sum c_n X_{n,\,idjt} + \nu_t + \lambda_i + \varepsilon_{idjt} \quad (1)$$

$$Middle_{idjt} = \beta_{20} + \beta_{21} factork_{idjt} + \sum c_n X_{n,\,idjt} + \nu_t + \lambda_i + \varepsilon_{idjt} \quad (2)$$

$$employ_{idjt} = \beta_{30} + \beta_{31} factork_{idjt} + \beta_{32} Middle_{idjt} + \sum c_n X_{n,\,idjt} + \nu_t + \lambda_i + \varepsilon_{idjt} \quad (3)$$

Here, $employ_{idjt}$ represents employment in enterprises; specifically, it is the logarithm of the number of employees in enterprise *i* in the *j*th industry of the *d*th province in year *t*; $factork_{idjt}$ represents capital price distortion; $Middle_{idjt}$ represents the mediating variable, which includes the firm's rate of return on capital and productivity; $X_{n,idjt}$ represents the control variables, which include firm-specific characteristics such as profits, government subsidies, and wage levels; ν_t and λ_i represent the fixed effects for time and the firm, respectively; *n* represents the number of control variables; $\mathcal{E}_{idjt}$ represents the random error term.

3.2. Variable Selection

- **Explanatory Variables**

Capital Price Distortion Variable. Based on existing research, scholars have predominantly employed production function methods, nonparametric methods, and marketization process index methods to measure the degree of factor price distortion[43,44]. Considering that, compared to nonparametric methods and marketization process index methods, the production function method can measure the degree of price distortion for each factor, this paper will adopt the production function method to estimate the degree of capital price distortion and explore its impact on corporate new product innovation. Furthermore, given that the C–D production function has a simple structure, it allows for a more direct estimation of output elasticity, and has been repeatedly validated by extensive theoretical and empirical research—resulting in relatively small estimation errors for marginal output[45]—this study measures the degree of capital price distortion under the C–D production function framework:

$$Y\_add_{it} = A_{it}K_{it}^{\alpha}L_{it}^{\beta} \tag{4}$$

Where Y_add represents a firm's industrial value added; *A* denotes total factor productivity; *K* and *L* represent capital and labor inputs in the firm's production activities, respectively. The formula for measuring capital price distortion can thus be expressed as:

$$factork_{it} = MPK_{it}/r_{it} = \alpha Y_{it}/r_{it}K_{it} \tag{5}$$

Here, *factork* represents the degree of capital price distortion faced by the firm; the firm's capital input *K* is expressed as the annual average net fixed assets; *MPK* represents the marginal product of capital. Furthermore, to account for differences in interest rates among enterprises of various ownership types while avoiding unrealistically low interest rates, we calculate the interest rate indicator following the approach of Liu et al.[5]. Specifically, the one-year loan interest rate published by the People's Bank of China is used to measure capital market prices (if interest rates are adjusted, the daily average rates are weighted to derive the annual average rate).

- **Dependent Variables**

Enterprise employment variables. This study adopts the average number of employees (*employ*) as a proxy for enterprise employment. In the robustness analysis, this study also uses the ratio of the number of employees to firm size (*employ/r*) and firms' expenditures on employee vocational training (*train*) as proxy variables for firm employment. This further examines the impact of capital price distortions on the proportion of firm employment and employee training, thereby ensuring the robustness of the study.

- **Mediating Variables**

Theoretical analysis suggests that capital price distortions can affect firm capital returns and productivity, which in turn influence firm employment. Therefore, the mediating variables in this study primarily include firm capital returns (*RC*) and total factor productivity (*TFP*). In measuring the rate of return on capital, this study defines the rate of return on capital *RC* as the ratio of the sum of equity returns and social returns to capital input. In other words, we include net production taxes in capital returns, expressed as: $RC_{it} = (Y\_add_{it} - \omega_{it}L_{it})/K_{it}$. Here, Y_add represents a firm's industrial value added; *K* and *L* represent capital and labor inputs in the firm's production activities, respectively; ω represents the firm's average wage level. To measure firm productivity, we use the Cobb–Douglas production function, with the logarithmic equation as follows:

$$ln\ Y\_add_{it} = \alpha_L \cdot ln\ L_{it} + \alpha_K \cdot ln\ K_{it} + \underbrace{ln\ A_{it}}_{ln\ TFP} \tag{6}$$

Equation (6) is estimated using the Olley–Pakes (OP) method, with the residuals defined as the estimated values of *lnTFP* and productivity calculated as the natural logarithm of *TFP*.

- **Control Variables**

This study also controls for firm-level characteristics, specifically: firm subsidies (*subsidy_dum*) are represented

by a binary variable, assigned a value of 1 if the firm receives government funding and 0 otherwise; firm size (*lnsize*) is measured by the logarithm of firm sales; firm wage levels (*lnwage*) are measured by the ratio of total worker wages to the number of workers; firm tax level (*lntax*), represented by the logarithm of the firm's annual tax payment; firm age (age), calculated as the difference between the year of firm registration and the sample year, reflecting the firm's duration of operation; export intensity (*export_inten*), represented by the ratio of the firm's export value to total profits; Whether a firm exports (*ex_dum*) is represented by a binary variable: 1 if the firm exports products, 0 otherwise; firm ownership type (*state_dum*) is a binary variable: 1 if the firm is state-owned, 0 otherwise. Additionally, since a firm's operating profit may also influence employment, firm profit level (*lnprofit*) is controlled for.

3.3. Endogeneity Issues

This study aims to analyze the impact of capital price distortions on firm employment, but the robustness of the findings may be compromised by endogeneity issues. Since both the capital price distortions faced by firms and firm employment are firm-level variables in this study, and since firm capital and output data are used to measure capital price distortions, these distortions may be endogenous, potentially leading to endogenous bias in the estimation results. Given that omitted variables constitute another source of endogeneity, although this study controls for firm-specific characteristics and time-invariant factors affecting firm employment by using panel data and controlling for firm-specific and time-invariant fixed effects, changes in firm employment may still be influenced by other factors. We adopt the generalized method of moments (GMM) framework using higher-order moments, following Lewbel [46]. Specifically, we use the "cube of [(capital price distortion − mean of capital price distortion)]" as an instrumental variable (IV) for "capital price distortion." The advantage of this approach is that it does not increase or decrease the number of variables in the model, while satisfying the requirement that the residuals are independent of the dependent variable and correlated with the endogenous variable. In transition economies, price distortions are not normally distributed. They exhibit severe institutional skewness driven by macro-level policy shocks and credit rationing. While the absolute level of distortion (the first moment) may correlate with unobserved firm characteristics like political connections, the cubic term captures extreme, asymmetric tail shocks at the macro-institutional level. This design naturally satisfies the exclusion restriction. Boundedly rational managers make myopic employment decisions based on the direct, observed cost of capital. They lack the cognitive bandwidth to observe or react to the macroeconomic statistical skewness (the third moment) of the entire market. Therefore, this extreme macro-level skewness only influences employment indirectly by shifting the actual magnitude of the capital distortion faced by the firm. It remains strictly orthogonal to the firm's local employment decision error term.

3.4. Data Sources

The data used in this study are drawn from the Annual Survey of Industrial Enterprises (ASIE) conducted by the National Bureau of Statistics of China. As a key micro-level dataset for China, the China Enterprise Database has been widely utilized in industrial development research. Furthermore, since this study aims to examine the impact of capital price distortion on firm employment, and given that the database contains partial data gaps for calculating firm capital price distortion after 2007, and that the proxy variable for current firm productivity—new investment—requires the calculation of the difference between capital stock in two consecutive years, this implies a lack of new investment data for the initial year, 1998. Consequently, this paper ultimately employs the micro-level enterprise data from 1999 to 2007 in the database to conduct an empirical analysis of the relationship between capital price distortions and enterprise employment. Although the data from the China Enterprise Database (1999–2007) used to study the impact of capital price distortions on enterprise employment is relatively early, the policy context and characteristics of economic transformation during this period ensure that it remains of significant practical relevance. The study period encompasses a critical phase of China's economic transition, involving major events such as state-owned enterprise reform, accession to the World Trade Organization (WTO), and the advancement of marketization, providing an important window for effectively assessing the "employment effects" of capital price distortions. Furthermore, capital prices are subject to significant government intervention, leading to long-term deviations from market equilibrium. This distortion shares similarities

with the factor allocation challenges currently faced by developing countries. Consequently, the research value of this paper lies in revealing the "market logic of employee employment"—specifically, the fundamental mechanism by which capital price distortions suppress employee employment by affecting corporate capital returns and production efficiency. This framework retains significant explanatory power for understanding and analyzing current factor allocation and employment issues. The descriptive statistics for the main variables are shown in **Table 1**.

Table 1. Descriptive Statistics of Variables.

Variable	Variable Description	Sample Size	Mean	Standard Deviation
lnemploy	Logarithm of the number of employees	2,304,486	4.710	1.190
lntrain	Logarithm of corporate training expenditures	526,546	−1.872	1.296
lnfactork	Logarithm of capital price distortion	2,156,075	2.149	1.537
lnRC	Corporate return on capital	2,184,988	1.233	1.590
lnTFP	Corporate productivity	2,171,225	−4.873	1.161
subsidy_dum	Government subsidies	3,052,305	0.207	0.405
lnsize	Corporate size	2,247,060	9.945	1.483
lnwage	Corporate wage levels	2,291,660	2.629	0.760
lnprofit	Corporate profit levels	1,684,967	6.606	2.027
lntax	Corporate tax levels	1,102,052	−5.106	1.509
age	Corporate age	3,052,305	14.063	55.256
export_inten	Export intensity	431,328	119.761	1,433.033
ex_dum	Corporate exports	3,052,305	0.389	0.488
state_dum	Corporate type	3,052,305	0.159	0.444

4. Empirical Analysis

Based on the research design outlined above, this section presents the results of benchmark regression, mechanism testing, and heterogeneity analysis in sequence to test the hypotheses.

4.1. Baseline Model

Based on the econometric Equation (1), **Table 2** presents the estimation results regarding the effect of capital price distortion on firm employment. Specifically, Model (1) is a simple Ordinary Least Squares (OLS) regression of capital price distortion on firm employment that does not control for region, year, and industry fixed effects. The regression results indicate that capital price distortion has a negative impact on firm employment; Models (2) and (3) are OLS regressions based on Model (1), with Model (2) adding only firm-specific variables and Model (3) controlling for firm-specific variables as well as region, year, and industry fixed effects, respectively. The regression results remain significantly negative, and the absolute values of the coefficients have increased significantly. This indicates that failing to account for firm-level variables and fixed effects for region, year, and industry tends to underestimate the impact of capital price distortions on firm employment, and also suggests that the selection of control variables in this study is effective; Models (4) and (5) present the regression results using random-effects (RE) and fixed-effects (FE) models, respectively. Both results show that the coefficient of the effect of capital price distortion on firm employment is significantly negative at the 1% level, indicating that as the degree of capital price distortion faced by firms increases, it will suppress labor demand, thereby hindering the growth of firm employment. This validates the conclusion of Hypothesis 1 in this study. At the same time, the F-test strongly rejects the null hypothesis, indicating that the fixed-effects (FE) model outperforms the OLS regression. The Hausman test, which compares the fixed-effects model with the random-effects model, supports the use of the fixed-effects model, suggesting that, without considering endogeneity issues, estimation using the fixed-effects (FE) model is more effective. Model (6) presents the regression results using the Instrumental Variables Generalized Method of Moments (IV GMM) model, which accounts for endogeneity. The Kleibergen-Paap rk LM statistic strongly rejects the under-identification hypothesis ($p < 0.01$). Regarding instrument relevance, the Kleibergen-Paap rk Wald F-statistic is 140,000. This value substantially exceeds the rigorous Stock-Yogo critical value of 16.38, definitively ruling out any weak instrument concerns and proving that our macro-institutional cubic instrument is highly correlated with capital price distortions. The results show that the estimated coefficient for the effect of capital price distortion on firm employment is

−0.0710, which is significantly higher than the results from the fixed-effects regression. This suggests that failing to account for endogeneity tends to underestimate the impact of capital price distortion on firm employment. Therefore, in the following sections, this paper primarily uses the estimation results from the Instrumental Variables Generalized Method of Moments (IV GMM) model, with the results from the fixed-effects (FE) model serving as a reference.

Table 2. Baseline Model.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
	OLS	OLS	OLS	RE	FE	IV GMM
	lnemploy	lnemploy	lnemploy	lnemploy	lnemploy	lnemploy
lnfactork	−0.0926***	−0.0897***	−0.0193***	−0.0551***	−0.0193***	−0.0710***
	(−178.53)	(−72.69)	(−11.24)	(−37.81)	(−11.24)	(−14.15)
subsidy_dum		0.2849	−0.0880	0.0526	−0.0880	0.3331
		(1.43)	(−0.39)	(0.23)	(−0.39)	(1.08)
lnsize		0.6792***	0.4449***	0.5712***	0.4449***	0.6822***
		(304.26)	(101.73)	(194.46)	(101.73)	(173.18)
lnwage		−0.5032***	−0.2615***	−0.2952***	−0.2615***	−0.4680***
		(−188.61)	(−56.96)	(−71.94)	(−56.96)	(−91.79)
lnprofit		−0.0044**	0.0006	−0.0014	0.0006	−0.0062**
		(−2.47)	(0.39)	(−0.90)	(0.39)	(−2.27)
lntax		−0.0142***	0.0011	−0.0042***	0.0011	−0.0133***
		(−9.02)	(0.86)	(−3.49)	(0.86)	(−5.88)
age		0.0018***	0.0001***	0.0005***	0.0001***	0.0017***
		(29.53)	(3.92)	(5.63)	(3.92)	(6.54)
export_inten		0.0000***	−0.0000	0.0000	−0.0000	0.0000***
		(5.86)	(−0.37)	(0.72)	(−0.37)	(3.56)
ex_dum		0.0789**	0.0365	−0.0183	0.0365	0.0730
		(2.47)	(0.91)	(−0.41)	(0.91)	(0.92)
state_dum		0.5773***	0.1541***	0.3411***	0.1541***	0.5360***
		(72.71)	(12.35)	(20.78)	(12.35)	(21.79)
Firm			YES	YES	YES	YES
Year			YES	YES	YES	YES
Constant term	4.9387***	−0.4811***	1.2985***	0.1420***	1.2985***	−0.4957***
	(3,624.77)	(−13.91)	(22.83)	(2.77)	(22.83)	(−5.90)
R^2	0.0148	0.6187	0.3076		0.3076	0.6222
N	2,115,509	273,296	273,296	273,296	273,296	273,296
F	31,873.81	44,350.30	1,001.59		1,001.59	

Note: *** and ** indicate that the results pass the 1% and 5% significance tests, respectively; the F-test estimate is 27.12, and the Hausman test estimate is 174,548.42, both of which pass the significance test at the 1% level; the Kleibergen-Paap rk Wald F-statistic is 140,000; the values in parentheses following the coefficients are *t*-values; the same applies to the table below.

Regarding the impact of firm characteristics on employment, the coefficient for government subsidies on firm employment is significantly negative. That is, firms that do not receive government subsidies employ more workers than those that do. This may be because firms receiving subsidies tend to be small and medium-sized enterprises (SMEs) or start-ups, whereas firms that do not receive subsidies are often more established large enterprises with larger hiring scales. The coefficient for firm size is positive and passes the significance test, indicating that larger firms are more likely to hire employees. Larger firms generally have more well-established internal structures, higher production output, and greater demand for employees. The coefficients for the impact of wages on employee employment are all negative and significant at the 1% level, indicating that an increase in employee wages may reduce employment levels. Some studies on the employment effects of Chinese enterprises have reached similar conclusions [47,48]. The reason may be that higher wage levels lead to increased operational costs; to maintain their profit margins, enterprises consequently reduce their willingness to expand hiring. An increase in the tax rate has a significant positive impact on employee employment. Firm age has a positive effect on employee employment; this may be because firms with longer development cycles tend to expand in scale, thereby enhancing their ability to hire employees, which in turn generates a positive impact on employment. Furthermore, similar to the findings of Chen et al. [14], the regression coefficient for firm exports on employee employment is significantly positive. This result may stem from the fact that, compared to non-exporting firms, exporting firms have a higher likelihood of generating substantial profits, thereby possessing greater capacity to create and sustain jobs, which in turn yields a stronger employment effect. The coefficient for the variable indicating

whether a firm is state-owned is positive, suggesting that state-owned enterprises have a stronger employment effect than non-state-owned enterprises. This may be because state-owned enterprises have significant advantages in financing and face fewer capital constraints, thereby providing greater incentives to increase hiring efforts.

4.2. Robustness Tests

As indicated by the regression results of the baseline model, capital price distortion has a negative impact on firm employment. To verify the robustness of this result, this section conducts robustness tests by substituting the dependent variable, changing the estimation method, and incorporating a one-period lag.

As shown in **Table 3**, first, the estimation results of Models (1) and (2) are obtained by substituting the dependent variable. In this study, the 10-year loan interest rate is used to calculate the degree of capital price distortion (*lnfaktork r*), and the regression results are consistent with the baseline results. This indicates that the conclusions of this study are robust.

Table 3. Robustness Tests.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
	FE	IV GMM	Heckman	Heckman	FE	IV GMM
	lnemploy	lnemploy	innov_dum	lnemploy	lnemploy	lnemploy
lnfactork			−0.0520***	−0.1691***	−0.0255***	−0.0710***
			(−14.00)	(−48.86)	(−17.92)	(−14.15)
lnfactork r	−0.0193***	−0.0710***				
	(−11.24)	(−14.15)				
Control variables	YES	YES	YES	YES	YES	YES
Firm	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Mills lambda				−0.0169***		
				(−2.81)		
Constant term	1.2928***	−0.5165***	−2.4309***	−0.6616***	0.2277***	−0.4957***
	(22.71)	(−6.16)	(−57.11)	(−17.51)	(4.89)	(−5.90)
R^2	0.3076	0.6222				0.6222
N	273,296	273,296	215,691	215,691	221,626	273,296
F	1,001.59					

Note: *** indicates significance at the 1% level. Due to space constraints in the table, the estimated results for the control variables are not included here; the same applies below.

Second, given the heterogeneity in firm production—not all firms generate output from new products—we define a dummy variable '*innov_dum*' to measure whether a firm produces new products. We then conduct a regression using the Heckman two-stage model to replace the baseline estimation method, examining the impact of capital price distortion on the employment effects of innovative firms. Given that in the selection equation of the Heckman two-stage model, at least one variable must not appear in the treatment equation—i.e., the variable influences a firm's innovation choice but has no significant bias effect on innovation output—this study follows the approach of Wang and Wei [49] by using the first-order lag of firm innovation choice (*innov_lag*) as an instrumental variable that affects a firm's innovation choice but does not affect current-period innovation output. The regression results are shown in **Table 3**, Models (3) and (4). Specifically, the estimation results from Model (3) indicate that in the first-stage selection equation regression, the coefficient of capital price distortion on whether a firm produces new products is significantly negative; Furthermore, in Model (4), in the second-stage decision equation regression, the coefficient of capital price distortion on firm employment is also significantly negative. At the same time, the Mills lambda coefficient is −0.0169 and is significant at the 1% level, indicating that the use of the Heckman two-stage model for regression is appropriate. Furthermore, the coefficient indicates that capital price distortion reduces firms' propensity for R&D and innovation, which is detrimental to the growth of employment in innovative firms. This is consistent with the results of the baseline regression, suggesting that the conclusions of this paper are robust.

Finally, since the impact of capital price distortion on firm employment may exhibit a certain degree of lag, this study further conducts a regression using the first-order lag of capital price distortion. The regression results are shown in Equations (5) and (6) of **Table 3**. The results indicate that

the coefficient of the first-order lag of capital price distortion on firm employment remains negative and passes the significance test at the 1% level, further demonstrating the robustness of the study's conclusions.

4.3. Analysis of the Mechanism of Impact

Theoretical analysis suggests that capital price distortions can influence firm employment through their effects on firms' rates of return on capital and productivity. Therefore, this paper uses the econometric Equations (1)–(3) to test, via a mediation model, the roles of firms' rates of return on capital and productivity in the impact of capital price distortions on firm employment. The regression results are presented in **Tables 4** and **5**.

Specifically, Model (4) in **Table 4** presents the estimated results of the impact of capital price distortion on firm employment; Model (5) presents the estimated results of the impact of capital price distortion on firm capital returns; and Model (6) presents the estimated results obtained by adding the capital return variable *lnRC* to Model (4). The results indicate that capital price distortion has a positive effect on a firm's rate of return on capital, while an increase in the rate of return on capital has a negative effect on firm employment. This suggests the existence of a capital return mechanism through which capital price distortion affects firm employment. Furthermore, the results of the mediation effect test (Sobel test) for Models (4), (5), and (6) show that the test statistic for the mediating variable *lnRC* is −32.77 and is significant at the 1% level, indicating the presence of a mediation effect of increased return on capital.

Table 4. Analysis of the Mechanism of Return on Capital.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
	FE	FE	FE	IV GMM	IV GMM	IV GMM
	lnemploy	lnRC	lnemploy	lnemploy	lnRC	lnemploy
lnfactork	−0.0193***	0.6581***	0.1168***	−0.0710***	0.8589***	0.4559***
	(−11.24)	(171.28)	(41.18)	(−14.15)	(114.42)	(22.13)
lnRC			−0.2070***			−0.6142***
			(−56.64)			(−34.21)
Control variables	YES	YES	YES	YES	YES	YES
Firm	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Constant term	3.4295***	−4.9754***	2.4608***	−0.4957***	−1.4386***	−1.4697***
	(10.52)	(−13.94)	(7.73)	(−5.90)	(−17.55)	(−15.61)
R^2	0.3076	0.6747	0.3507	0.6222	0.7959	0.7045
N	273,296	272,753	272,406	273,296	272,753	272,406
F	1,001.59	4,346.49	1,121.47			

Note: *** indicates significance at the 1% level.

Table 5. Analysis of the Productivity Mechanism.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
	FE	FE	FE	IV GMM	IV GMM	IV GMM
	lnemploy	lnTFP	lnemploy	lnemploy	lnTFP	lnemploy
lnfactork	−0.0193***	−0.5760***	0.1306***	−0.0710***	−0.4324***	0.2449***
	(−11.24)	(−208.40)	(33.22)	(−14.15)	(−87.00)	(15.02)
lnTFP			0.2604***			0.7311***
			(44.02)			(29.54)
Control variables	YES	YES	YES	YES	YES	YES
Firm	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Constant term	3.4295***	−0.8942***	3.6861***	−0.4957***	0.6959***	−1.0394***
	(10.52)	(−3.60)	(11.58)	(−5.90)	(16.26)	(−11.34)
R^2	0.3076	0.8048	0.3348	0.6222	0.8497	0.6557
N	273,296	273,681	273,234	273,296	273,681	273,234
F	1,001.59	10,620.57	1,018.09			

Note: *** indicates significance at the 1% level.

Table 5 presents the estimation results for the effect of capital price distortion on firm employment in Model (4), the effect on firm productivity in Model (5), and the results of adding firm productivity (*lnTFP*) to Model (4) in Model (6).

The results show that the estimated coefficient for the effect of capital price distortion on firm productivity is −0.4324, which is significantly negative at the 1% level. This indicates that capital price distortion inhibits the growth of total factor productivity (*TFP*) and leads to significant efficiency losses, consistent with the findings of Liu et al. [50]. Meanwhile, the estimated coefficient of firm productivity (*lnTFP*) on firm employment is 0.7311, and it passes the significance test. In summary, this indicates that capital price distortion can affect firm employment by suppressing improvements in firm productivity. Additionally, the results of the mediation effect test (Sobel test) for Equations (4)–(6) show that the test statistic for the mediating variable *lnTFP* is −27.97 and is significant at the 1% level, indicating the presence of a mediating effect of reduced firm productivity. Thus, the conclusion regarding Hypothesis 2 of this paper has been validated.

4.4. Comparative Analysis of Labor-Intensive and Capital-Intensive Firms

This study classifies firms into two categories: labor-intensive and capital-intensive. We focus on analyzing the differing effects of capital price distortions on employment in these two types of firms. The regression results are shown in **Table 6**.

Table 6. Comparative Analysis of Labor-Intensive and Capital-Intensive Firms.

	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
	Labor-Intensive	**Capital-Intensive**	**Labor-Intensive**	**Capital-Intensive**	**Labor-Intensive**	**Capital-Intensive**
	FE	**FE**	**FE**	**FE**	**FE**	**FE**
	lnRC	**lnRC**	**lnTFP**	**lnTFP**	**lnemploy**	**lnemploy**
lnfactork	0.6885***	0.5131***	−0.5656***	−0.6740***	−0.0246***	−0.0465***
	(164.78)	(51.08)	(−187.44)	(−88.36)	(−14.05)	(−12.06)
Control variables	YES	YES	YES	YES	YES	YES
Firm	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Constant term	−3.0885***	−3.7583***	0.0749***	−1.1054***	1.2927***	1.1761***
	(−79.61)	(−26.27)	(2.98)	(−14.07)	(32.98)	(10.25)
R^2	0.7032	0.5923	0.8087	0.8291	0.3329	0.3198
N	212,495	60,258	212,812	60,869	212,812	60,484
F	3,981.25		8,907.28		962.20	
	Model (7)	**Model (8)**	**Model (9)**	**Model (10)**	**Model (11)**	**Model (12)**
	Labor-Intensive	**Capital-Intensive**	**Labor-Intensive**	**Capital-Intensive**	**Labor-Intensive**	**Capital-Intensive**
	IV GMM	**IV GMM**	**IV GMM**	**IV GMM**	**IV GMM**	**IV GMM**
	lnRC	**lnRC**	**lnTFP**	**lnTFP**	**lnemploy**	**lnemploy**
lnfactork	0.8754***	0.8175***	−0.4281***	−0.4660***	−0.0714***	−0.1445***
	(112.87)	(39.81)	(−76.84)	(−41.08)	(−14.56)	(−12.55)
Control variables	YES	YES	YES	YES	YES	YES
Firm	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Constant term	−1.4369***	−1.3775***	0.5970***	0.3890***	−1.3607***	−1.0967***
	(−53.74)	(−14.47)	(34.93)	(7.30)	(−46.62)	(−11.42)
R^2	0.8010	0.7742	0.8323	0.8659	0.6445	0.7550
N	212,495	60,258	212,812	60,869	212,812	60,484

Note: *** indicates significance at the 1% level.

Specifically, as a control, Models (1) through (6) present the regression results of capital price distortion on labor-intensive and capital-intensive enterprises based on fixed-effects (FE) models; Models (7) through (12) present the regression results of capital price distortion on labor-intensive and capital-intensive enterprises based on instrumental variable generalized method of moments (IV GMM) models. The results from Models (7) and (8) indicate that the estimated coefficients for the impact of capital price distortion on the return on capital for labor-intensive and capital-intensive firms are 0.8754 and 0.8175, respectively; the results from Models (9) and (10) indicate that the estimated coefficients for the impact of capital price distortion on the productivity of these two types of firms are −0.4281 and −0.4660, respectively. This indicates that, relative to labor-intensive firms, capital price distortions have a greater impact on the return on capital and productivity of capital-intensive firms. Furthermore, the results from Models (11)

and (12) show that the estimated coefficients of capital price distortions on employee employment for labor-intensive and capital-intensive firms are −0.0714 and −0.1445, respectively. In summary, this indicates that, compared to labor-intensive firms, capital price distortions more significantly increase the rate of return on capital for capital-intensive firms and significantly reduce their productivity. Consequently, capital price distortions have a more pronounced dampening effect on employment in capital-intensive firms, resulting in greater employment losses.

4.5. Analysis of Heterogeneity across Firm Characteristics

Given the significant differences among firms in terms of government subsidies received, the results of fixed-effects (FE) model regressions were obtained by incorporating capital price distortions, as well as interaction terms for firm subsidies, firm size, ownership type (whether the firm is state-owned), and export status—specifically *lnfactork_sub*, *lnfactork_size*, *lnfactork_st*, and *lnfactork_ex*—into Models (1) through (4). Models (5) through (8) present the corresponding Instrumental Variables Generalized Method of Moments (IV GMM) regression results. The regression results are presented in **Table 7**. The regression results from Models (5) and (6) indicate that the interaction terms *lnfactork_sub* and *lnfactork_size* are both significantly negative. This indicates that, compared to firms receiving government subsidies, employees of firms without subsidies are more susceptible to the impact of capital price distortion, and that capital price distortion exerts a stronger suppressing effect on employment in small-scale firms. The regression results from Models (7) and (8) show that the interaction terms *lnfactork_st* and *lnfactork_ex* are respectively significantly positive and significantly negative. This indicates that, compared to non-state-owned enterprises, capital price distortions have a more pronounced negative impact on employment in state-owned enterprises; and compared to non-exporting firms, capital price distortions have a greater impact on employment in exporting firms. Thus, the conclusion of Hypothesis 3 in this paper is supported.

Table 7. Analysis of Heterogeneity in Other Firm Characteristics.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)
	FE	FE	FE	FE	IV GMM	IV GMM	IV GMM	IV GMM
	lnemploy	lnemploy	lnemploy	lnemploy	lnemploy	lnemploy	lnemploy	lnemploy
lnfactork	−0.0187***	0.4122***	−0.0202***	−0.0262**	−0.0647***	0.9829***	−0.0788***	0.7141***
	(−10.77)	(12.30)	(−11.70)	(−2.16)	(−11.77)	(6.77)	(−15.58)	(2.75)
lnfactork_sub	−0.0137***				−0.0478***			
	(−7.41)				(−9.71)			
lnfactork_size		−0.0369***				−0.1030***		
		(−11.91)				(−7.87)		
lnfactork_st			0.0278***				0.1853***	
			(5.01)				(20.78)	
lnfactork_ex				0.0069				−0.7916***
				(0.58)				(−3.09)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Firm	YES	YES	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES	YES	YES
Constant term	1.2756***	3.4407***	1.3089***	1.3343***	−0.4372***	−1.1428***	−0.5311***	−0.4287***
	(33.03)	(33.64)	(23.05)	(33.90)	(−15.11)	(−3.18)	(−6.31)	(−13.64)
R^2	0.3195	0.1820	0.3065	0.3076	0.6286	0.5590	0.6187	0.6130
N	267,308	176,138	273,296	273,296	267,308	176,138	273,296	273,296
F	1,103.83	397.07	991.64	1,001.75				

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

5. Discussion

The results of the baseline model indicate that capital price distortions have a significant negative impact on firm-level employment. From a behavioral economics perspective, the parameter θ—representing managerial cognitive bias—introduced in the theoretical section of this paper provides a micro foundation for this finding: in transition economies, signals of cheap capital are highly prominent. Driven by short-term interests, managers overreact to capital price distortions (i.e., $\theta > 0$), leading them to perceive the effective cost of capital as significantly lower than the actual distorted cost. Consequently, they tend to substitute capital for labor. This core conclusion holds consistently across ro-

bustness tests, including those involving different dependent variables, the Heckman two-stage model, and the inclusion of a one-period lag.

Mechanism analysis indicates that capital price distortions suppress firm employment through two channels: first, by increasing the firm's return on capital, and second, by reducing the firm's production efficiency. In a distorted financial environment where capital is artificially underpriced, the "rent-seeking incentive" often overrides the "innovation incentive." In such a distorted environment, managers with limited rationality divert their scarce cognitive resources from operational optimization and human resource development to non-productive rent-seeking activities in order to secure cheap credit. This behavioral shift leads to continuous growth in corporate asset size, yet stagnation in core competitiveness. Furthermore, distorted capital prices lead to distorted factor price signals. A firm's long-term reliance on cheap capital weakens its motivation for R&D and innovation (results from Heckman's two-stage model indicate that distortion reduces firms' propensity to innovate), thereby trapping them in a cycle of low production efficiency. Declining productivity forces firms to scale back production, which in turn reduces labor demand.

Heterogeneity analysis reveals that the employment-suppressing effects of capital price distortions are more pronounced in capital-intensive, non-subsidized, small-scale, state-owned, and export-oriented firms. First, managers of capital-intensive firms exhibit greater sensitivity to capital price signals (as evidenced by higher capital elasticity in their production functions), resulting in larger θ parameter values and a stronger subjective distortion amplification effect. Second, unsubsidized firms lack external resource buffers; their managers exhibit stronger loss aversion to changes in cost signals and are forced to respond to the competitive disadvantages caused by distortions through layoffs. Third, small-scale firms have imperfect internal governance structures, with managers exhibiting more pronounced short-sighted behavior and being more strongly "attracted" by cheap capital signals, resulting in greater employment volatility. Fourth, state-owned enterprises have close institutional ties with local governments and are more likely to obtain low-cost credit; their managers tend to demonstrate performance through rapid asset expansion, leading to a more aggressive substitution of labor with capital. Finally, export-oriented enterprises face competitive pressures in international markets and experience significant profit fluctuations; their managers are more sensitive to cost signals, resulting in more pronounced capital substitution behavior under distorted conditions.

6. Conclusions

Public employment is a critical economic issue that concerns raising income expectations, stimulating domestic demand, and improving social welfare in China. To this end, this paper examines the impact of capital price distortions on firm employment and their underlying mechanisms using data from the China Industrial Enterprise Database, and conducts an in-depth analysis of the heterogeneity in how capital price distortions affect firm employment.

The study finds that as the degree of capital price distortion increases, it suppresses firms' labor demand, thereby hindering the growth of employee headcount. Mechanism analysis reveals that capital price distortion affects employee employment through both the capital return mechanism and the productivity mechanism: specifically, capital price distortion increases firms' capital returns, generating a substitution effect of capital for labor, while simultaneously reducing firms' productivity, thereby suppressing labor demand. Further analysis reveals that, compared to labor-intensive firms, capital price distortions are more conducive to increasing the rate of return on capital in capital-intensive firms, and their suppressing effect on employee employment is also more pronounced; the negative impact of capital price distortions on employee employment is more significant for firms receiving government subsidies, export-oriented firms, and large-scale enterprises; there are also notable differences in the employment effects of capital price distortions across firms with different ownership structures, with the suppressing effect on employee employment in state-owned enterprises being stronger than in non-state-owned enterprises.

Based on the above conclusions, this paper offers the following three policy implications:

First, our research indicates that distortions in the price of capital can trap firms in a "capital expansion" trap. Therefore, the government should shift the focus of performance evaluations from Gross Domestic Product (GDP) growth to employment elasticity or technology-driven innovation. At

the same time, it should design differentiated credit rules: for firms applying for low-interest loans, a mandatory requirement should be imposed that a certain percentage of the incremental loan amount must be used for new hiring or skills training. Furthermore, the performance evaluation of state-owned enterprises should expand beyond merely assessing investment scale to include metrics on employment contributions per unit of capital.

Second, we recommend implementing specific tax credits linked to the labor-to-capital ratio or performance-based vocational training subsidies, particularly for capital-intensive industries and large-scale enterprises. These measures would effectively lower the "perceived cost" of labor, providing a behavioral counterbalance to the significant lure of underpriced capital and encouraging firms to maintain a balanced factor input structure.

Third, given that enterprises not receiving government subsidies, small-scale enterprises, and export-oriented enterprises face more severe employment shocks due to capital price distortions, a targeted employment support mechanism should be established. Such enterprises that meet certain employment thresholds should be granted preferential credit rates and social insurance subsidies, while simultaneously receiving targeted skills training aligned with industrial upgrading needs.

Author Contributions

Conceptualization, W.W. (Wenbo Wang); methodology, J.Z. and W.W. (Wenbo Wang); software, J.Z. and W.W. (Wenbo Wang); validation, W.W. (Wenbo Wang); resources, W.W. (Wentao Wang); data curation, W.W. (Wenbo Wang); writing—original draft preparation, W.W. (Wenbo Wang); writing—review and editing, J.Z. and W.W. (Wenbo Wang); visualization, Z.J.; supervision, Z.J., W.W. (Wentao Wang) and X.L.; project administration, J.Z., W.W. (Wentao Wang) and X.L.; funding acquisition, W.W. (Wentao Wang). All authors have read and agreed to the published version of the manuscript.

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