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The Total Amount of Social Security for Urban Workers in Foshan Enterprises for Private Enterprises Research on the Impact of Human Resource Cost

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ABSTRACT

Social security expenditure, as a key component of human resource costs in private enterprises, significantly influences operational efficiency and regional economic vitality. This is acutely relevant in the textile industry, given its large labor force, where optimizing these human resource factors directly affects the overall productivity and operational scale of manufacturing centers. This study examines the relationship between the total social security contributions for urban employees and human resource costs in private enterprises in Foshan City from 2010 to 2024. Using regression analysis, a quantitative model is constructed to reveal the impact mechanism. Results indicate a significant positive correlation: a 1% increase in social security contributions leads to a 0.62% rise in labor costs, with a stronger effect in labor-intensive industries. Policy and managerial implications are discussed to support cost optimization and sustainable development. These insights are crucial for guiding the textile industry in balancing necessary workforce investments with the efficiency required for sustainable, long-term operation of manufacturing facilities.

KEYWORDS

total social security of urban workers, private enterprises, human resource cost, regression model, textile industry

INTRODUCTION

In the context of globalization and intensifying market competition, labor costs have become a critical factor influencing the competitiveness and sustainability of private enterprises, especially in the labor-intensive textile industry, where competitive pricing and the operational viability of manufacturing plants are highly

dependent on effective workforce management. Social security contributions, as a statutory and rigid component of labor costs, have drawn increasing attention from both policymakers and enterprise managers.

China has continuously expanded its social security coverage in recent years. By the end of 2023, over 1 billion people were enrolled in basic pension insurance, highlighting the scale and importance of the system. In Foshan, a core manufacturing hub in the Pearl River Delta, private enterprises contribute over 60% of the local GDP and provide more than 70% of employment. Consequently, fluctuations in social security contributions significantly affect their cost structures.

Despite the growing body of literature on labor costs and social security, few studies have focused specifically on the long-term impact of social security expenditure on private enterprises in Foshan. This paper aims to fill this gap by analyzing 15 years of time-series data (2010–2024) and constructing a regression model to quantify the impact of social security contributions on human resource costs. The findings provide empirical support for policy optimization and enterprise cost management, offering a data-driven basis for the textile industry to enhance human resource planning and operational efficiency across its manufacturing facilities.

LITERATURE REVIEW

Extensive research has demonstrated that social security expenditure significantly affects labor costs in private enterprises. Tan and Lin [1] and Song et al. [2] confirm that changes in social security contributions directly influence enterprise cost structures. Li and Wang [3] further suggest that social security fund investments can alleviate financing constraints and reduce agency costs, thereby promoting corporate green innovation. Additionally, a reduction in contribution rates has been shown to stimulate labor demand, particularly among small and medium-sized enterprises. These findings indicate that social security policy adjustments play a crucial role in shaping enterprise behavior, market competitiveness, and regional economic performance.

Regional and micro-level studies have further explored the heterogeneous effects of social security burdens. Xu et al. [4] employ theoretical modeling and micro-level data to show that reductions in social security contributions can mitigate labor cost pressures, improve income distribution, and particularly benefit low-

and middle-income households. At the regional level, empirical evidence from listed companies in Shanghai and Shenzhen indicates that high social security burdens may reduce enterprise investment efficiency. Chen and Tan [5,6] analyze data from 11 Chinese provinces and find that employers tend to suppress wages for low-skilled workers to offset rising contribution costs, whereas high-skilled employees experience simultaneous increases in both wages and social security benefits.

From a policy perspective, Tang and Feng [7] argue that reducing enterprise social security burdens can enhance market vitality and support stable economic growth. Lin and Zeng [8] further contend that effective implementation of such policies may stimulate corporate investment and regional development. Internationally, Alexander et al. [9] find that the U.S. Social Security Annual Income Test reduces elderly employment rates by over 1.2 percentage points due to benefit reductions. Yan et al. [10] identify an inverted U-shaped relationship between contribution rates and firm performance, indicating that both excessively high and low rates can negatively affect enterprise outcomes. Xu et al. [11] show that stricter social security enforcement increases labor costs, prompting firms to adopt automation and accelerate intelligent transformation. Boris et al [12] reveal that post-pandemic, employees in Russia and Kazakhstan place greater emphasis on social security benefits, indicating shifting corporate social responsibility expectations.

Despite the growing body of evidence, three key research gaps remain. First, few studies focus specifically on private enterprises in Foshan, overlooking regional heterogeneity. Second, most existing analyses rely on cross-sectional data, limiting insights into the long-term effects of social security policy changes since 2010. Third, prior quantitative models often lack precision in variable selection and fail to account for the characteristics of manufacturing-intensive cities. This study addresses these limitations by employing 15-year time-series data from Foshan to construct a more accurate and context-specific model.

RESEARCH DESIGN

Data Source and Processing

Core Variable Data-Total Social Security of Urban Workers (SS)

The data from 2010 to 2022 are derived from the 'Foshan Statistical Yearbook' (2011-2023), and the data

from 2023 to 2024 are derived from the annual disclosure notice of the Foshan Municipal Social Insurance Fund Administration. The data are calculated by adding the total income of the four insurance collections of urban employees ' old-age insurance, medical insurance, unemployment insurance and industrial injury insurance, excluding the payment part of government agencies and institutions. Human resource cost (HC) of private enterprises: Based on the private samples in the ' Foshan human resource market wage price and enterprise labor cost information ', the ' per capita labor cost × private enterprise employment number ' is used to measure the employment number data from the Foshan private economic development report.

Control Variable Data

The regional GDP growth rate (GDPG), manufacturing PMI (PMI) and minimum wage standard (WAGE) are selected as control variables. The data are from the official website of Foshan Municipal Bureau of Statistics and the communique of Guangdong Provincial Department of Human Resources and Social Security.

Data Processing

Based on the data of all monetary units, the CPI reduction is carried out with the base period of 2010 to eliminate the impact of inflation; the moving average method is used to complete the individual missing data to ensure the integrity of the time series.

Variable Definition

Economic research variables are shown in Table 1.

Table 1. Economic research variable table

Variable type	variable name	symbol	measurement method
The explanatory variable	private enterprise human resources cost	HC	annual total (billion yuan, by the CPI deflator)
explanatory variables	The total amount of social security for urban workers in enterprises	SS	annual total (100 million yuan, reduced by CPI).
Control variables	Regional GDP growth rate	GDPG	YoY Growth Rate (%)
Control variables	Manufacturing PMI	PMI	Monthly mean (%)
Control variables	Minimum Wage Standard	WAGE	Annual monthly average standard (yuan)

Model Construction

Based on the theory of multiple linear regression, the basic econometric model is constructed : HC Ω = β Ω + β 1 Ω SS + β 2 GDP Ω + β 3 PMI Ω + β Ω WAGE Ω + μ Ω, where β Ω is the constant term, β 1 Ω β is the regression coefficient, μ Ω is the random error term, and t represents the year 2010-2024. Through this model, we test the marginal impact of total social security on labor costs, focusing on the sign and significance of β1.

EMPIRICAL ANALYSIS

Descriptive Statistics

The descriptive statistics of the core variables of Foshan City from 2010 to 2024 are as follows: Table 2 shows:

Table 2. Economic Indicators Observation Table

observed value	mean value	standard deviation	minimum value	maximum value
15	896.4	321.7	387.2	1452.9
15	218.6	94.3	86.5	389.7
15	6.8	1.9	2.3	10.2
15	50.4	1.8	47.1	53.6
15	1862	645	1100	2620

The data show that the cost of human resources and the total amount of social security in private enterprises have shown a steady growth trend, and the proportion of total social security in human costs has increased from 22.4 % in 2010 to 26.8 % in 2024. After the reform of social security collection and management in 2018, the standard deviations of the two indicators have expanded significantly, reflecting the fluctuations brought about by policy shocks.

Correlation Analysis

Pearson correlation coefficient was used to test the linear relationship between variables: The correlation coefficient between total social security (SS) and labor cost (HC) was 0.942 ($p < 0.01$), which was highly

positively correlated; the correlation coefficient between minimum wage standard (WAGE) and HC is 0.876 ($p < 0.01$), which shows the impact of wage rigidity on cost. The correlation coefficient between-GDPG and HC is 0.721 ($p < 0.05$), reflecting the pulling effect of economic growth on labor costs.

Analysis of Regression Results

The OLS method is used for regression estimation, and the results are shown in Table 3 below:

Table 3. Statistical analysis results table

Variables	coefficient	Standard error	t value	P value
Constant term	45.28	21.63	2.09	0.057
SS	0.62	0.08	7.75	0.000*
GDPG	12.35	4.12	3.00	0.011
PMI	8.76	3.24	2.70	0.020
WAGE	0.18	0.06	3.00	0.011
R^2	0.968	-	-	-
F value	89.32	-	-	0.000*

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, the same below.

The regression results show that:

(1) The total amount of social security has a significant positive impact on the human resource cost of private enterprises. At the 1% significance level, for every 100 million yuan increase in the total amount of social security, the human cost will increase by 62 million yuan, which verifies the cost conduction effect of social security expenditure.

(2) Among the control variables, for every 100 yuan increase in the minimum wage standard, the labor cost increases by 1.8 billion yuan, reflecting the superposition effect of wage rigidity and social security expenditure, which is consistent with the research conclusion of Liu Lingling et al. (2015).

(3) Model R 2 reaches 0.968, indicating that the overall fitting degree is good, and the total social security

and control variables jointly explain 96.8 % of the labor cost changes.

Robustness Test

The robustness test was carried out by using the substitution explanatory variable method, and the "total social security" was replaced by the "social security contribution rate of enterprise urban workers." The results showed that the core coefficient was 0.58 ($p < 0.01$), and the R2 was 0.952, which was basically consistent with the conclusion of the original model, confirming that the research results were robust.

CONCLUSIONS AND SUGGESTIONS

Conclusions of the Study

(1) From 2010 to 2024, there is a significant positive correlation between the total amount of social security for urban employees and the cost of human resources in private enterprises in Foshan.Social security expenditure is an important driving factor for the growth of labor costs, and this impact is more prominent in the adjustment period of social security policy (2018,2024).

(2) The marginal impact coefficient of total social security on labor costs is 0.62, which is lower than the national average (0.75), reflecting the inclusive characteristics of Foshan 's social security policy for private enterprises, which is consistent with the fact that the unit rate of pension insurance is lower than that of Guangzhou and other cities.

(3) Labor-intensive enterprises are more impacted by the cost of social security expenditure. After the reform of collection and management in 2018, the labor cost of Foshan textile, catering and other industries increased by more than 30 %, which needs to be focused on.

Policy Recommendations

First, at the government level, it is recommended to establish a dynamic adjustment mechanism for social security premium rates. According to the logic of " expanding the collection and management → lowering the rate, " the unit rate of endowment insurance is gradually reduced from 15 % to 13 % -14 %, to hedge the cost pressure caused by the increase of the base. The phased social security policy is implemented for labor-intensive private enterprises, and social security subsidies are given to innovative private enterprises,

and the proportion of subsidies is linked to R & D investment. To promote the ' social security payment intelligent declaration system ', realize the automatic matching of wages and payment base, and reduce the cost of enterprise compliance.

Second, at the enterprise level, it is recommended to build a flexible employment system. Through the ' full-time + part-time ' mixed employment model, flexible employment for non-core positions is adopted to reduce the proportion of social security expenditure. By drawing on Huawei 's ' talent funnel algorithm ' and other experience, we can improve human efficiency through intelligence to offset the impact of rising social security costs. In addition, we should reasonably increase the proportion of performance pay, realize the accurate matching of social security contribution and employee contribution, and improve the cost performance of salary and welfare.

Research Limitations and Prospects

Due to the limitation of data availability, this paper does not subdivide the differences in industry and enterprise scale. In the future, heterogeneity analysis can be carried out in combination with enterprise survey data. For the textile industry, this would mean integrating data from diverse manufacturing plants to analyze how varying labor structures, machinery, or regional regulations affect overall operational efficiency and productivity. At the same time, the panel data model can be introduced into other cities in the Pearl River Delta as a control group to further enhance the universality of the conclusions.

Author Contributions

Conceptualization –Jianjun Zhang, Ao Zhang, Xingying Liu and Pan Luo; methodology – Jianjun Zhang, Ao Zhang and Pan Luo; investigation – Jianjun Zhang, Ao Zhang, Xingying Liu and Pan Luo; writing-original draft preparation – Jianjun Zhang, Ao Zhang, Xingying Liu and Pan Luo. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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