

Does Industrial Policy Increase Labor Income Share?

-- Empirical Evidence from Local Five-Year Plans

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Abstract: Since the reform and opening-up, our national economy has achieved tremendous success. However, addressing the issue of declining labor income share is an urgent requirement for achieving high-quality economic development in China. This study empirically examines the impact of industrial policies on the labor income share using data from all A-share listed companies from 2001 to 2020. It offers a certain direction on how to enhance labor income shares: the government could intensify the implementation of industrial policies to further increase the labor income shares of enterprises. The research findings demonstrate that industrial policies significantly promote an increase in labor income shares, with firm performance playing a positive mediating role in the impact of industrial policies. Furthermore, by conducting heterogeneity analysis, this study concludes that the influence of industrial policies on labor income shares in non-state-owned enterprises is notably higher than in state-owned ones. This might be due to the more challenging financing constraints and other conditions faced by non-state-owned enterprises compared to state-owned ones, suggesting that the effectiveness of industrial policies in increasing labor income shares is more pronounced in non-state-owned enterprises. These conclusions can serve as a theoretical basis for China's industrial policy formulation.

Keywords: Industrial policy, Labor income share, Firm performance, Heterogeneity.

1. Introduction

Industrial policy refers to a country's strategic measures aimed at adjusting its industrial structure and organization in response to the state of national economic development, thereby enhancing the development level of various industries. In China, the practice of industrial policy dates back to the establishment of the People's Republic of China, wherein the nation implemented planned economic methods to drive industrialization. The central focus on industrialization within policies emerged around the time of the Self-Strengthening Movement, during which the Qing government formulated specific industrial policies. However, the actual term "industrial policy" didn't surface until the Seventh Five-Year Plan. At that point, the Chinese State Council, drawing insights from Japan's industrial policy research, introduced the term 'industrial policy,' considering it a more market-oriented approach rather than a traditional planned model. Although the explicit concept of industrial policy emerged relatively late, China began executing industrial policies as early as the 1970s.

China's industrial policy framework has evolved into a multi-layered, unified, and diverse model. At the top level are national policies, represented by the "Five-Year Plans" and the "Catalogue for the Adjustment of Industrial Structure." The intermediate layer encompasses specific development plans issued by various departments, while the lowest level includes regional industrial policy documents. The "Five-Year Plans," as the top-level design of the industrial policy system, provide clear guidance for various industries in China. Reviewing previous plans, the Sixth Five-Year Plan primarily focused on agricultural development, the Seventh on infrastructure-related industries, and the Eighth on the electronics industry and real estate. During the Ninth Five-Year Plan, emphasis was placed on the petrochemical and

automotive industries. Market-oriented development was highlighted starting from the Fifteenth Plan. The Eleventh Five-Year Plan particularly witnessed qualitative improvements in China's equipment manufacturing. The Twelfth Five-Year Plan transitioned development models, primarily supporting sustainable industries, while the Thirteenth Five-Year Plan focused more on strategic emerging industries. The Fourteenth Five-Year Plan aims to construct a modern industrial system. This evolution highlights how industrial policy aligns with the economic structure at different stages of economic development.

Historically, industrial policy significantly contributed to China's economic development. However, alongside rapid economic growth, there has been an increasingly noticeable decline in labor income shares. Labor income share refers to the proportion of labor in the initial distribution of a national economy's income, including profits and production taxes levied by the government. Since the 1980s, global labor income shares have gradually declined, a trend also seen in China. Labor income share reduction is not a favorable scenario for both the nation and society. On the one hand, decreased remuneration for workers hampers consumer spending, hindering the advancement of the national economy. On the other hand, declining incomes for laborers contribute to widening the income gap between labor and capital, intensifying severe social polarization and fostering discontent, leading to societal instability. The 19th National Congress of the Communist Party of China explicitly highlighted the importance of enhancing residents' income while pursuing economic growth. To achieve the goal of increasing labor income share, continuous reforms in income distribution systems are imperative, alongside efforts to enhance labor productivity and raise wages. The ongoing issue of substantial income inequality in China poses a pressing challenge to the nation's quest for balanced

economic expansion and societal harmony. In exploring the initial distribution of national income, it becomes imperative to delve into the intricate dynamics between labor and capital, the fundamental pillars of production. Notably, wage-related labor income stands as the primary revenue source for the majority of households across China. Hence, a comprehensive examination of the nuances surrounding shifts in labor income within the country's intricate tapestry of economic activities, alongside an analysis of their underlying determinants, assumes paramount significance. Such an investigation is instrumental not only in deciphering the existing disparities in income distribution but also in safeguarding social cohesion and fostering a climate conducive to sustained economic growth.

From historical developments, it is evident that industrial policies have significantly contributed to China's economic progress. However, despite the rapid economic growth, there has been a noticeable decline in the share of labor income. The 19th National Congress of the Communist Party of China explicitly emphasized the goal of enhancing labor compensation while improving labor productivity. Hence, continuous deepening of reforms in income distribution systems is necessary to achieve the objective of increasing the share of labor income. Current research on industrial policies encompasses two aspects: effectiveness and implementation pathways.

Regarding the study of effectiveness: Early empirical research on the efficacy of industrial policies came from Krueger and Tuncer [1], revealing that companies affected by industrial policies exhibited higher productivity compared to those unaffected. Additionally, Wang Yuzhen [2] investigated whether China's rare earth policy achieved the expected outcomes. Studies by Shao Min et al. [3] indicated that excessive government subsidies tend to restrain firms' productivity. Furthermore, Feng Haihong et al. [4] argued that tax incentives positively stimulate firms' R&D investments. Despite varying assessments of the implementation effects of industrial policies, one undeniable fact emerges: industrial policies serve as a complement to market economies.

In terms of exploring the influence pathways: Regarding investments, Li Wenjing et al. [5] found that private enterprises primarily expand their investments through bank credit support under industrial policies. Fu Rong et al. [6] elucidated that these policies enhance investment opportunities by strengthening enterprises' investment choice rights. Concerning financing, Zhao Qing et al. [7] highlighted the substantial enhancement in corporate performance due to long-term industrial policies. Che Jiali et al. [8] explained how industrial policies alleviate firms' financing constraints through information and resource effects. In the realm of corporate innovation, Yu Minggui et al. [9] analyzed the Central 'Five-Year Plan,' concluding that industrial policies promote technological innovation in enterprises through taxation, subsidies, and market competition mechanisms. Zhang Yan et al. [10] examined the promotion effects of industrial policies on both the quantity and quality of innovation. Furthermore, Liu Tingting et al. [11] discovered that industrial policies significantly enhance corporate performance and studied other impacts of industrial policies on enterprise behavior.

Regarding studies on the share of labor income, Chen Yufeng et al. [12] suggest that monopoly profits could also lead to a short-term decline in the share of labor income. Wen

Yanbing et al. [13] indicate that market competition can generate a bias towards technology, thereby resulting in capital deepening and a reduction in the share of labor income. Therefore, there is a need to utilize policy interventions to guide market biases and improve institutional environments. Research by Luo Changyuan et al. [14] demonstrates that within private enterprises, financing constraints significantly reduce the share of labor income. Additionally, Yan Manhua et al. [15] concluded that financing constraints are negatively correlated with the share of labor income in enterprises.

The existing literature has primarily focused on examining the impact of industrial policies on production efficiency such as enterprise investment, financing, and performance, neglecting its influence on income distribution. Based on this premise, this study empirically examines the effects and specific mechanisms by which industrial policies affect the share of labor income, utilizing the three Five-Year Plans from the Eleventh to the Thirteenth during the period. The contributions of this study are threefold: Firstly, employing listed companies from 2001 to 2020 as the research subject, this paper explores the impact of industrial policies on the share of labor income from a micro-level enterprise perspective, enriching the content of research on industrial policy effects and income distribution effects. Secondly, through empirical testing, this study establishes that industrial policies can enhance the share of labor income in enterprises by improving company performance, offering a theoretical foundation for the formulation and execution of industrial policies through transmission mechanisms. Thirdly, via heterogeneous testing, this paper concludes that industrial policies exert a stronger promotion effect on the share of labor income in non-state-owned enterprises compared to state-owned ones, primarily by enhancing company performance, thereby providing theoretical grounds for further enhancing policy guidance in our country.

2. Assumptions Underlying the Study

2.1. Impact of industrial policy on labor income shares

The direct effects of industrial policies on the share of labor income stem from alleviating enterprise financing constraints and curbing the increase in enterprise Total Factor Productivity (TFP). Yan Manhua et al. [15] concluded that enterprise financing constraints are a significant factor limiting the growth of the share of labor income. Che Jiali et al. [8] explained the alleviation of enterprise financing constraints due to industrial policies from the perspectives of signal effects and resource effects.

On one hand, the signal effect of industrial policies refers to their ability to transmit positive signals to the capital market, encouraging external investment in enterprises, increasing their investment opportunities, and thereby relieving financing constraints. The resource effect of industrial policies implies that by relaxing market access and investment controls, enterprises find it easier to enter the capital market and acquire credit financing.

Moreover, enterprises often assisted by fiscal policies can establish relationships with the government, enjoying 'state-owned' benefits, thus reducing their financing constraints. Bai Nan et al. [16] indicated that government subsidies can increase the share of labor income by curbing enterprise TFP and enhancing labor rights protection mechanisms. The

impact of government subsidies on enterprise TFP demonstrates an inverted "U" shape: subsidies have a promoting effect on enterprise TFP when below a certain threshold; however, surpassing a specific value leads to inhibitory effects.

Due to the limited bargaining power of labor in China, an increase in TFP significantly reduces the share of labor income in enterprises. Therefore, industrial policies can enhance the share of labor income by increasing government subsidies to reduce TFP, consequently raising the share of labor income. Thus, the hypothesis is proposed as follows:

$$H_1 = \text{Industrial policies increase the share of labor income in enterprises}$$

2.2. Intermediation effects of firm performance

In China, studies by Liu Tingting et al. [11] have already proven that industrial policies significantly enhance company performance. From the perspective of government subsidies, these subsidies provide enterprises with certain cash flows. Through these cash flows, companies can expand their scale, achieve economies of scale, and consequently improve company performance.

Viewing from the aspect of tax incentives, enhancing company performance occurs by reducing production costs and increasing consumers' actual income. From the standpoint of credit support, industrial policies expand enterprises' credit capacity, enabling them to obtain more long-term liabilities. Wang Kemin et al. [17] demonstrated that long-term liabilities notably elevate the investment levels of enterprises, further enhancing their performance.

Considering market competition, industrial policies relax entry controls directly, thereby intensifying market competition. In highly competitive markets, enterprises strive harder to improve company performance for better survival chances. Regarding the innovation mechanism, innovation serves as the source of economic growth. Industrial policies incentivize continuous innovation through regulations, hence enhancing enterprise performance.

The impact of improved company performance on the share of labor income can be analyzed from two perspectives: Firstly, under a performance-based wage payment system, enhanced company performance directly raises workers' wages. With other production factors remaining constant, the proportion of labor income share increases. Secondly, improved company performance allows enterprises to choose higher-skilled talents, ultimately improving the employment structure and consequently leading to an overall increase in the share of labor income.

Therefore, Hypothesis 2 is proposed:

$$H_2 = \text{Firm performance plays a positive intermediary role in the process of industrial policy increasing the share of labor income}$$

3. Research Design

3.1. Measurement modeling

Benchmarking regression modeling:

$$LS_{i,t} = \beta_{0i,t} + \beta_1 IP_{i,t} + \beta_3 Z_{i,t} + u_i + \varepsilon_{i,t} \quad (1)$$

Mediated recursive modeling:

$$ROA_{i,t} = \beta_{0i,t} + \beta_1 IP_{i,t} + \beta_3 Z_{i,t} + u_i + \varepsilon_{i,t} \quad (2)$$

$$LS_{i,t} = \beta_{0i,t} + \beta_1 IP_{i,t} + \beta_2 ROA_{i,t} + \beta_3 Z_{i,t} + u_i + \varepsilon_{i,t} \quad (3)$$

where i represents firms, t represents years, Z represents all control variables, u_i represents individual effects, and $\varepsilon_{i,t}$ represents residuals.

3.2. Variable Measurement and Indicator Description

This paper constructs the indicators of industrial policy and labor income share by referring to the practice of Liu Tingting [11] and others as well as the existing literature, and selecting appropriate measurement indicators. At the same time, based on the reference to the existing research, this paper selects the variables that may have an impact on the labor income share, such as enterprise size, enterprise gearing ratio (Lev), enterprise capital intensity (Cap), enterprise age (Age) and enterprise fixed asset ratio (Far), etc., as other control variables.

3.3. Data sources and descriptive statistics

This study selects all A-share listed companies from 2001 to 2020 as the research objects. It excludes newly listed companies (with severely lacking data) and companies with less than 20 years of accounting years, conducting right-censoring. The final sample comprises 1,025 listed companies, totaling 20,161 company-year observations. Financial data for all companies are sourced from the Guotai An (CSMAR) database, while information regarding the ownership nature of companies originates from the Center for China Economic Research (CCER) database. Data on industrial policies are obtained from the China National Research Data Center (CNRDS). Descriptive statistics and regression results presented below are all based on the processed sample data.

4. Empirical Analysis

4.1. Basic regression analysis

The regression results based on equation (1) are presented in Table 2. In this table, Column (1) represents the model without any control variables, while Column (2) includes all control variables. From the data in the table, it is evident that in the absence of control variables, the coefficient of industrial policies is greater than zero and significantly so at the 1 % level. This indicates that industrial policies have the ability to increase the share of labor income, thereby confirming hypothesis H_1 . Additionally, the results also indicate that an increase in the asset-liability ratio and bank credit, i.e., long-term liabilities, significantly promotes the increase in the share of labor income.

Table 1. Variable definitions and descriptions

Variable name	Variable Definition	Description of variables
IP	Industrial policy	Dummy variable, affected by industrial policy 1 if affected by industrial policy; 0 otherwise
LS	Labor income shares	Employee compensation payable/gross operating income
ROA	Corporate performance	Net profit/total assets
Size	Enterprise size	Logarithm of total business assets
Lev	Gearing ratio	Logarithm of total liabilities at end of period/total assets at end of period
Cap	Capital intensity	Total assets/gross operating income*100%
Age	Age of business	2020 minus the time the business went public plus one
Far	Fixed asset ratio	Fixed assets at end of period/total assets at end of period
Ttm	Operating profit margin	Operating profit/total operating revenue
Tat	Total asset turnover	Operating income/average total assets
Tr	Effective income tax rates	(Income tax expense - deferred income tax expense) / Profit before tax
Fcr	Cash-flow ratio	Net increase in cash/total assets at end of period
Bl	Banking credits	Long-term liabilities/total assets
Exp	Area openness to the outside world	Regional exports/regional GDP

Table 2. Base regression results

Variant	(1)	(2)
	LS	LS
IP control variable	0.0044*** (9.57)	0.0013*** (3.18) YES
_CONS	0.0196*** (65.97)	-0.1322* (-1.88)
Individual effects	Control	Control
Observations	20161	16282

4.2. Regression results on the mediating effect of firm performance

Table 3 illustrates the regression outcomes based on equations (2) and (3), examining the intermediary effects on company performance. Column (1), gauges the impact of industrial policies on company performance, revealing a coefficient notably greater than zero. This signifies that industrial policies significantly elevate the level of company performance.

Moving to Column (2), evaluates the influence of industrial policies on the share of labor income while controlling for company performance. At this juncture, the coefficient of industrial policies remains significantly positive, accompanied by a company performance coefficient also significantly greater than zero. This observation indicates a pivotal mediating role of company performance, validating hypothesis H₂.

Table 3. Intermediation test regression results

Variant	(1)	(2)
	ROA	LS
IP	0.0060*** (6.12)	0.0012*** (2.93)
ROA control variable	YES	0.025*** (7.02) YES
_CONS	0.2116 (1.33)	-0.1399* (-2.02)
Individual effects	Control	Control
Observations	16240	16130

4.3. Grouping test based on heterogeneity in the nature of property rights

This study divided the sample into two groups based on ownership type: state-owned enterprises and non-state-owned enterprises. Regression analyses were conducted separately for each group, and the results are presented in Table 4. Reviewing the table's outcomes, the coefficient for industrial policies in Column (1) is 0.0039, while in Column (4) it reaches 0.0055. This indicates a more pronounced direct promotional effect of industrial policies on labor income within non-state-owned enterprises. This could be due to a potentially greater impact of industrial policies on alleviating financing constraints for non-state-owned enterprises

compared to state-owned ones, resulting in a more significant effect.

Comparing Columns (2) and (5), it's evident that industrial policies have a stronger effect on enhancing performance in non-state-owned enterprises. Both Columns (3) and (6) exhibit significant company performance, implying that during the implementation of industrial policies, company performance partially serves as an intermediary. Moreover, this intermediary role is more pronounced in non-state-owned enterprises compared to state-owned ones. This suggests that within non-state-owned enterprises, industrial policies primarily enhance the share of labor income by further improving company performance.

Table 4. Heterogeneity regression results

Variant	State-owned enterprise			Non-state enterprise		
	LS (1)	ROA (2)	LS (3)	LS (4)	ROA (5)	LS (6)
IP	0.0039*** (8.90)	0.0050*** (5.24)	0.0007* (1.80)	0.0055*** (3.42)	0.0149*** (4.71)	0.0019 (1.31)
ROA			0.0176*** (4.25)			0.0370*** (4.92)
Control variable	NO	YES	YES	NO	NO	YES
Individual effects	Control	Control	Control	Control	Control	Control
Observations	15212	12176	12101	4892	4901	3957

4.4. Robustness test

To test the robustness of the empirical findings in this study, a substitution was considered for the explained variable by replacing the added value of enterprises with the cash income obtained from goods and services provided by enterprises,

denoted as LS2, instead of the previously used total operating revenue. Subsequently, a regression analysis was performed on the revised dataset. The regression results, as shown in Table 5, ultimately align with the conclusions drawn in the preceding text.

Table 5. Robustness test results

variable	LS2	LS2	ROA	LS2
IP	0.0045*** (9.66)	0.0019*** (4.04)	0.0060*** (6.12)	0.0017*** (3.58)
ROA				0.0299*** (7.60)
Control variable	NO	YES	YES	YES
Individual effects	Control	Control	Control	Control
Observations	19989	16253	16240	16102

5. Conclusion

Industry policies have remained a cornerstone of a nation's economic development in the past, and present, and will continue to be so in the future. Although some developing countries previously attempted to utilize industrial policies to catch up and met with failure, this cannot dismiss the fact that the United States, Germany, and France pursued industrial policies to catch up with the UK, and Japan, along with the Four Asian Tigers, successfully transitioned from low-income and middle-income economies to high-income economies. Consequently, against the backdrop of China's

continuous economic slowdown and the severe international situation, stabilizing employment and increasing the share of labor income through industrial policies have become pivotal issues domestically. This article, through empirical analysis utilizing five-year plans and data from listed companies, draws the following conclusions: Firstly, empirical evidence from local government-issued five-year plan data demonstrates that industrial policies have a significantly positive impact on the labor income share of enterprises. This impact primarily occurs by conveying information to the external environment and providing various resources to alleviate corporate financing constraints, thereby expanding

companies' loan capabilities and further increasing their labor income share. Secondly, corporate performance acts as an intermediary in the process of industrial policy impacting the labor income share. The policy operates through direct and indirect interventions, affecting five mechanisms of corporate performance. Enhanced corporate performance directly increases performance-based wages and improves employment structures, ultimately boosting the labor income share. Lastly, heterogeneity analysis reveals that the positive impact of industrial policies on the labor income share is higher in non-state-owned enterprises than in state-owned ones. This might be attributed to the larger financing constraints faced by non-state-owned enterprises compared to state-owned ones, hence, the effects of industrial policies and corporate performance on increasing the labor income share are more pronounced in non-state-owned enterprises. These findings highlight that industrial policies are beneficial in increasing the proportion of labor income in the initial distribution.

Based on these conclusions, this paper puts forward the following policy recommendations: Firstly, the country needs to enhance the construction of financial market systems and build a more comprehensive and inclusive financial system to ease the financing difficulties faced by numerous domestic enterprises. It is evident that a company's ability to access external financing is a crucial component in increasing the labor income share. The government can enhance the labor income share by constructing a comprehensive financial system that improves enterprises' access to external financing. Finally, in the implementation of industrial policies, particularly those involving subsidy policies, precision targeting and scientific evaluation of subsidies are necessary. More subsidies do not necessarily yield better results; instead, appropriate and targeted subsidies tailored to different stages of enterprise development and nature are essential, avoiding a one-size-fits-all approach. Additionally, as government subsidies affect resource allocation, improper subsidies can lead to misallocation of resources; hence, the government must evaluate subsidy policies reasonably and scientifically.

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