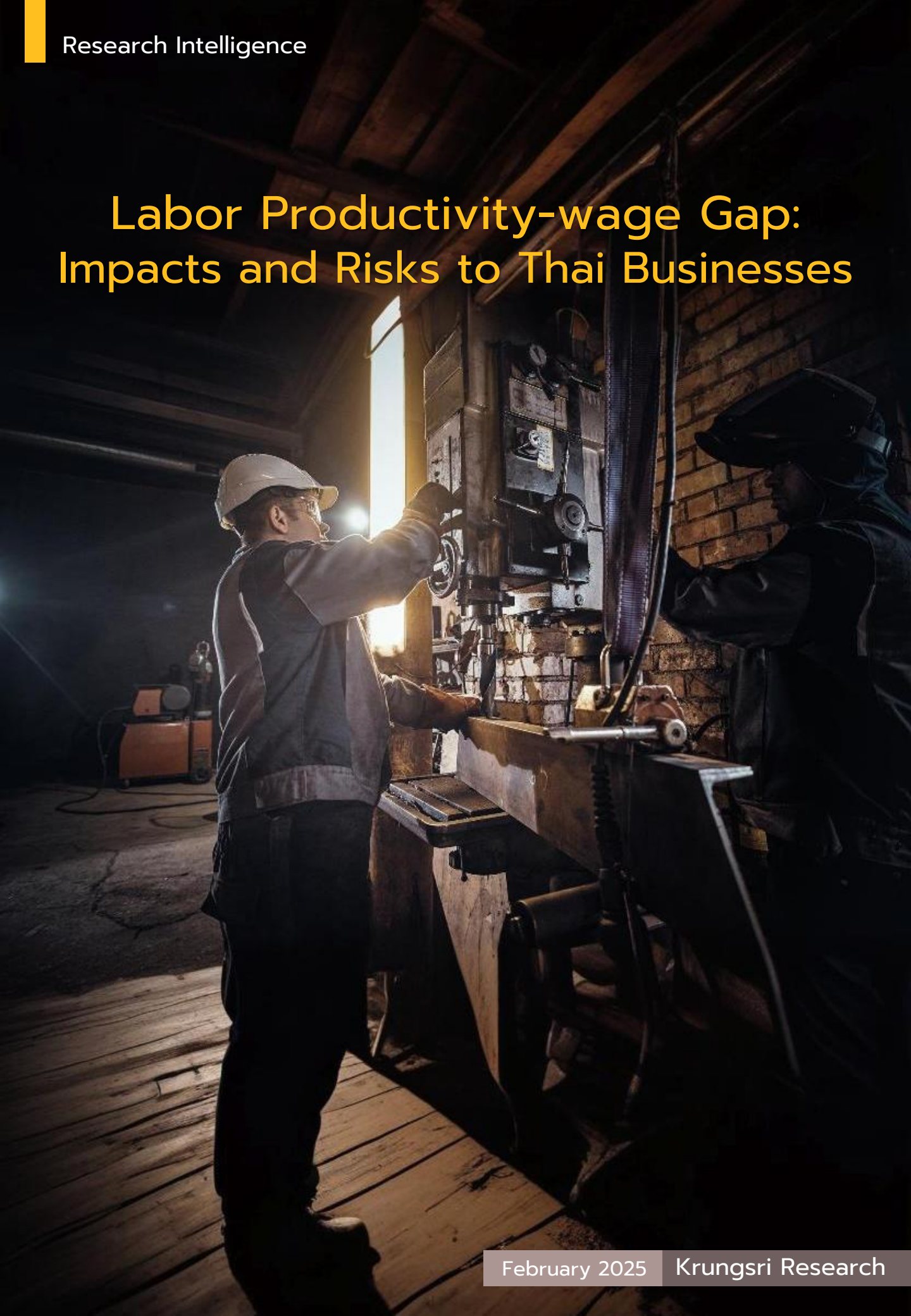
Research Intelligence

Labor Productivity-wage Gap: Impacts and Risks to Thai Businesses



February 2025 Krungsri Research

krungsri Research

A member of MUFG a global financial group

Content

Executive Summary	3
Introduction	4
Minimum Wages in the Past Decade: Overall Impacts on Living Standards and Businesses	5
Thailand's Labor Productivity: Sluggish Recovery After the Pandemic	9
Labor Productivity-wage Gap: A Narrower Gap Signals Weak Competitiveness	11
Labor Productivity-wage Gap: Impacts from the Minimum Wage Hike	15
Krungsri Research View	18
References	20

Subscribe Us

For research subscription, contact

krungsri.research@krungsri.com

Disclaimer

Unless explicitly stated otherwise, this publication and all material therein is under the copyright of Krungsri Research. As such, the reuse, reproduction, or alteration of this text or any part thereof is absolutely prohibited without prior written consent. This report draws on a wide range of well-established and trustworthy sources, but Krungsri Research can make no guarantee of the absolute veracity of the material cited. Moreover, Krungsri Research will not be held responsible for any losses that may occur either directly or indirectly from any use to which this report or the data contained therein may be put. The information, opinions, and judgements expressed in this report are those of Krungsri Research, but this publication does not necessarily reflect the opinions of Bank of Ayudhya Public Company Limited or of any other companies within the same commercial group. This report is an accurate reflection of the thinking and opinions of Krungsri Research as of the day of publication, but we reserve the right to change those opinions without prior notice.

Executive Summary

Amid a sluggish recovery in Thailand's economy after the pandemic, the government's recent minimum wage hike has raised concern among businesses about rising production costs and reduced competitiveness. To address this concern, we identify sectors vulnerable to minimum wage hikes through three indicators, namely wages, labor productivity, and the labor productivity-wage gap. The results show that sectors with near-zero or negative productivity-wage gaps—especially in Electrical Equipment, Vehicles & Transport Equipment, Electronics, Rubber & Plastics, and Textiles & Apparel—are the most at risk, as minimum wage hikes incur direct labor costs while productivity might not be able to keep pace with rising wages, leading to lower profitability.

At the same time, the recent minimum wage hike might have limited positive impacts on improving workers' standard of living when considering the scale of negative impacts on businesses. This might suggest that the government should consider alternative policies (along with minimum wage hikes) to improve workers' standard of living in the long term, such as subsidies for upskilling and reskilling. Moreover, this might urge firms in at-risk sectors to accelerate productivity improvement through R&D, digitalization, or automation to boost operational efficiency and profitability, which will, in turn, help support growth and competitiveness in the longer term.

Supasyn Itthiphatwong

Economist

Supasyn.itthiphatwong@krungsri.com
+662 296 4748

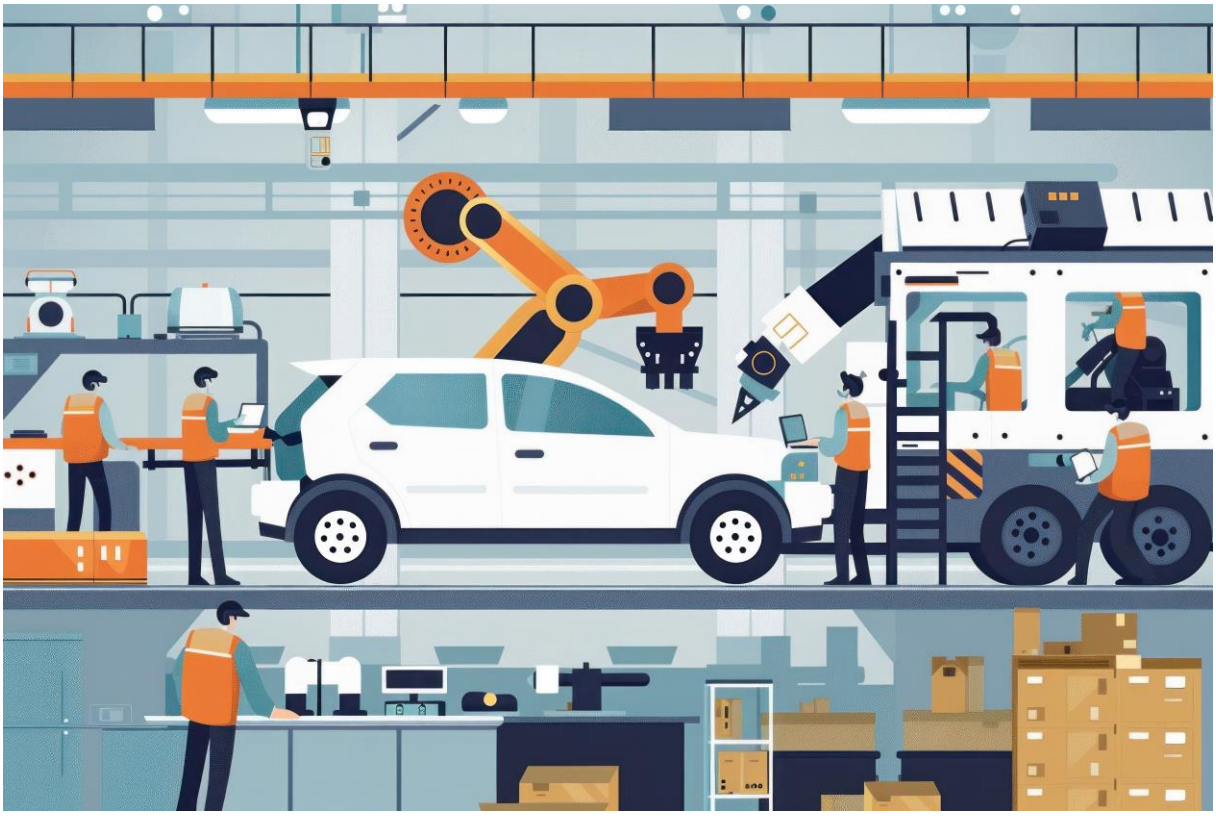


Introduction

After the COVID-19 pandemic, Thailand's economic recovery has been sluggish, with GDP in 2023 still 0.2% below its pre-pandemic level in 2019. This slow rebound is particularly apparent in the GDP of the manufacturing sector, which remains 2.3% below its 2019 level. Additionally, the government's recent minimum wage hike to 337-400 baht per day nationwide might further complicate the recovery, as this increase could affect production costs and Thailand's overall business competitiveness.

In light of these challenges, this study aims to evaluate sectors—based on their structure and evolving dynamics of labor costs—that are likely to continue sustaining growth and profitability, as well as those vulnerable to rising costs, particularly due to wage hikes, by examining three main indicators: wages, labor productivity, and the labor productivity-wage gap (productivity-wage gap). Together, these indicators show how efficiently firms can keep up production levels with rising wages. Moreover, the study seeks to explain possible common factors contributing to both positive and negative productivity-wage gaps.

Accordingly, the study is organized into five sections: (i) minimum wages and real wages in the past decade, (ii) labor productivity, (iii) the labor productivity-wage gap, (iv) impacts of the recent minimum wage hike on the labor productivity-wage gap, and (v) common labor productivity-wage gap determinants and future momentum.





Minimum Wages in the Past Decade: Overall Impacts on Living Standards and Businesses

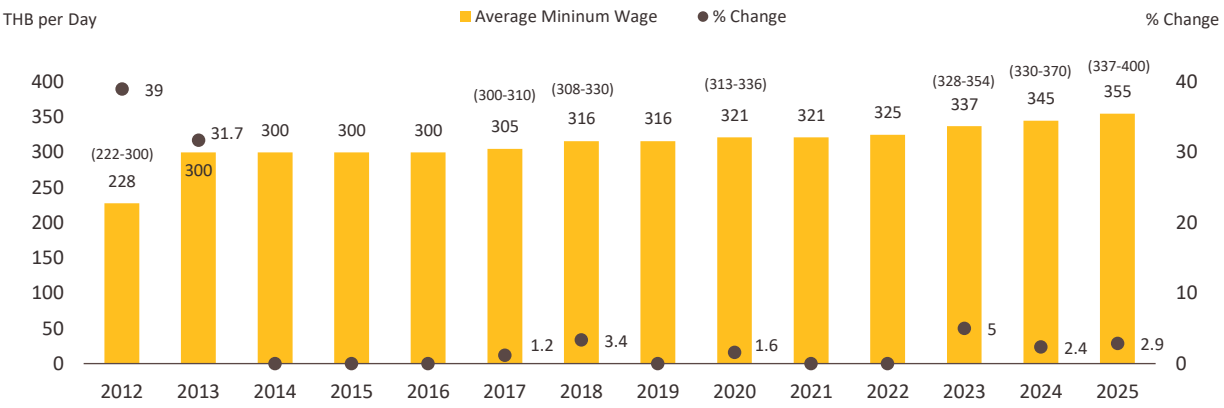
Despite limited wage increases in the past decade, minimum wage hikes have still raised concerns for SMEs.

During 2015-2023, minimum wages (Figure 1) increased by just 1.3% per year, and its growth tracked closely with the inflation rate of 0.9% on average (Figure 2). As a result, real wages grew by only 0.6% during the same period, with growth nearly stagnating after the pandemic (Figure 3). **This suggests that minimum wage adjustments during 2015-2023 had limited impacts on improving workers' real purchasing power or standard of living, unlike the substantial increases during 2012-2013 (30-40% increase on average, as shown in Figure 1).**

Moreover, some sectors saw substantial declines in the average real wage growth after the pandemic, especially in Transportation (-4.4% per year), Electricity, Gas & Water (-2.2%), and Vehicles & Transport Equipment (-2.1%) (Figure 3). These declines in the average real wage growth show rising costs of living outpacing monetary wage increases, which put more financial pressure on workers.

Figure 1

Average Minimum Wages (THB per Day)



Source: MOL (2024)
Note: The minimum wage increase to 400 baht in early 2024 applies only to hotel and accommodation businesses with at least a 4-star rating in specific areas.

Box 1: **What is the Real Wage?**

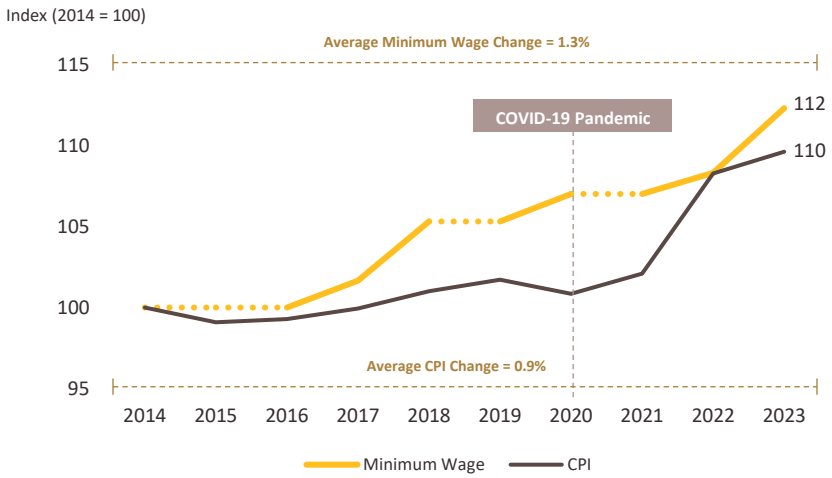
Real Wage is the actual monetary compensation workers receive after accounting for inflation (the growth rate of the Consumer Price Index: CPI) and can be calculated as follows:

$$Real\ wage = \frac{Monetary\ wage}{Consumer\ Price\ Index\ (CPI)}\ X\ 100$$

The real wage reflects workers' real purchasing power and changes in costs of living over time. **Growth in real wages** means workers can afford more, even if the cost of living is rising at that time, **while sluggishness or a decline in real wages** suggests financial difficulties for them. For example, workers earn 15,000 baht per month in the first year (the base year) and the following year. The average consumer price index in the following year is 103. Thus, a real wage equals 14,563 baht per month in the following year compared to 15,000 baht in the base year. This decline in real wages shows that, **despite workers earning the same amount of money, the real value of their income is reduced as they can purchase fewer goods due to higher prices compared to the base year.**

Figure 2

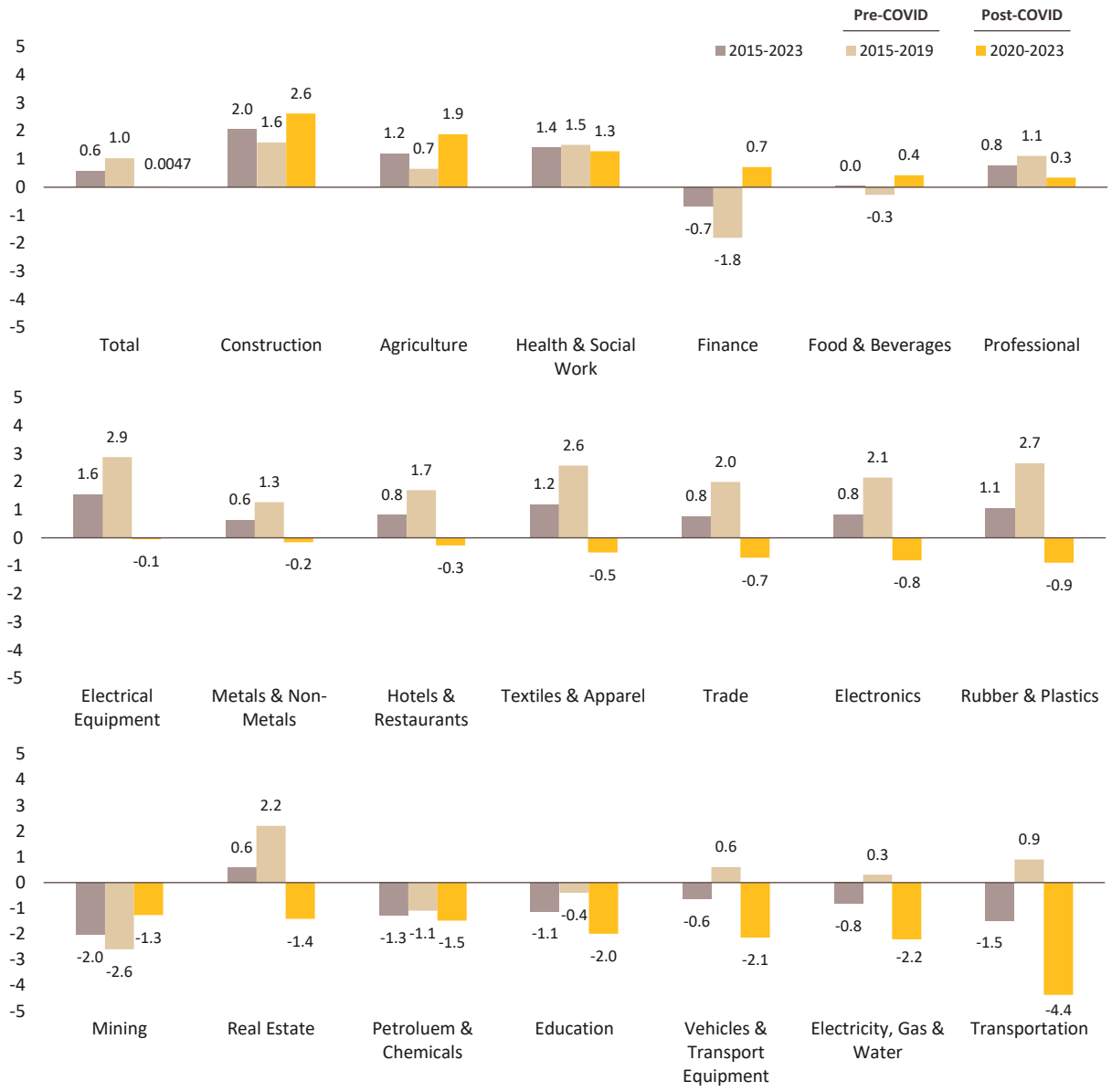
Minimum Wages and Consumer Price Index (CPI)



Source: MOL (2024) and TPSO (2024)

Figure 3

Average Annual Change in Real Wages (%)

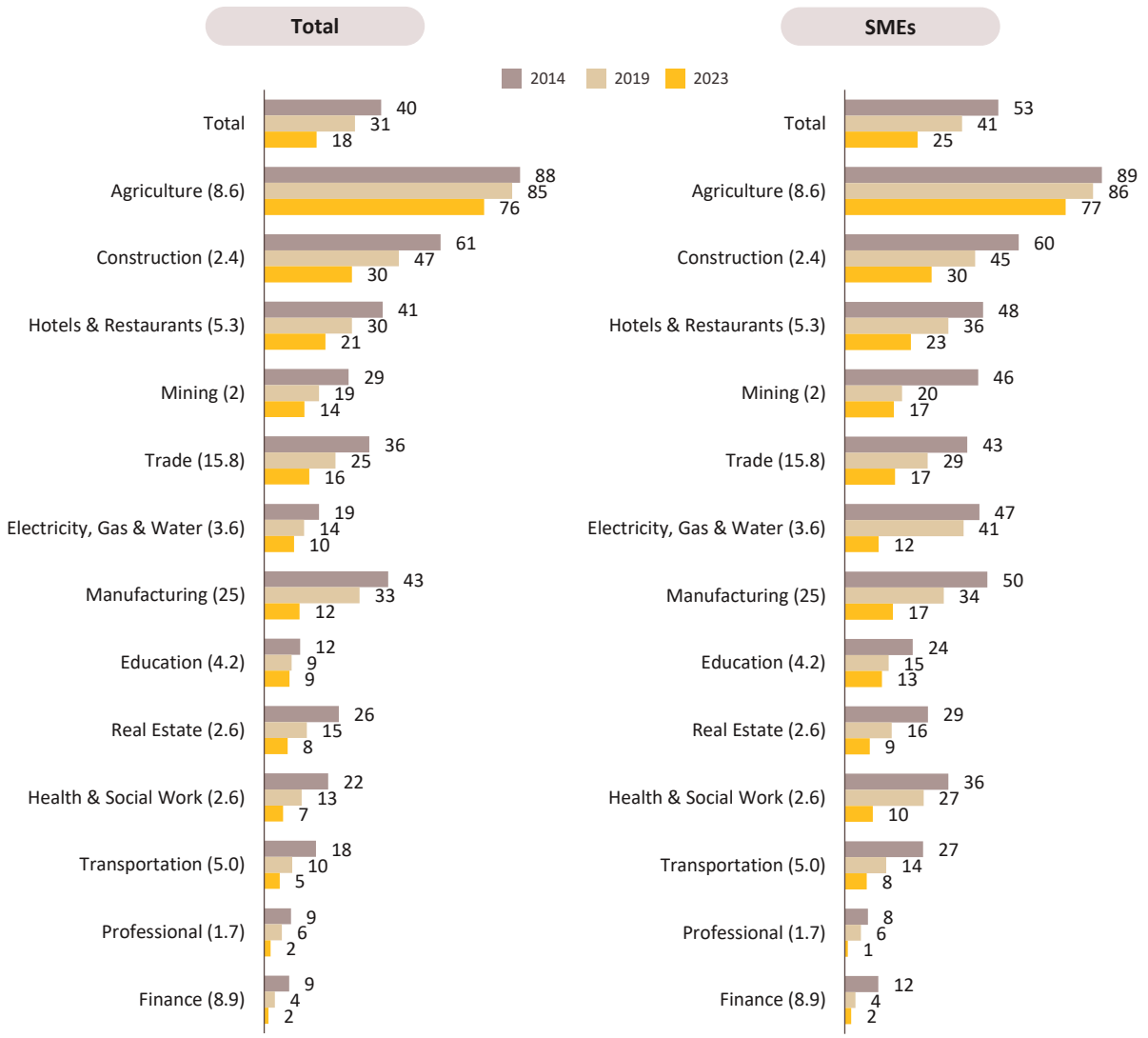


Source: NESDC (2024) and NSO (2023)
Note: Average growth is based on the compound annual growth rate (CAGR) for the specified period shown in the graph.

In early 2024, the government implemented another round of minimum wage hikes, raising daily wages to 330-370 baht per day. Specific increases to 400 baht per day were introduced for hotel and accommodation businesses with at least a 4-star rating in certain areas. On January 1, 2025, the minimum wage was raised nationwide from 330-370 baht per day to 337-400 baht per day. The adjustment accounts for an average rise of 2.9% compared to the 2024 level. Despite the significant decline in the share of minimum-wage workers (those earning less than 355 baht per day) from 40.3% in 2014 to 18.1% in 2023 (Figure 4), **the recent minimum wage hikes continue to put pressure in terms of rising production costs on SMEs, as SMEs in certain sectors still have relatively higher shares of minimum-wage workers in 2023, especially Agriculture** (77%)**, Construction** (30%)**, and Hotels & Restaurants** (23%). These three sectors accounted for a combined 16.4% of GDP and employed approximately 18 million people, or 44.8% of total employment in 2023.

Figure 4

Share of Workers Earning Below the Average Minimum Wage (minimum-wage workers) (%)



Source: NESDC (2024) and NSO (2023)
Note: 1) % Share of sectoral GDP in total GDP for 2023 is shown in parenthesis.
2) The minimum wage threshold for this figure is an average of 355 bath per day.



Thailand's Labor Productivity: Sluggish Recovery After the Pandemic

Thailand's labor productivity has suffered significant setbacks since the pandemic, though signs of recovery have begun to emerge in response to resumed normal activities, especially in the service sectors.

Before the pandemic (2015-2019), Thailand's labor productivity saw a solid average growth of 4.2% per year, as shown in Figure 5**.** This positive trend was particularly apparent in the service sectors, such as Hotels & Restaurants (7.3%), Trade (6.3%), and Finance (5.3%). Only a few sectors showed stagnant or negative growth in labor productivity, such as Real Estate (0.2%), Mining (-1.2%), and Textiles & Apparel (-2%).

However, the pandemic sharply reversed these positive trends, with national labor productivity growth tumbling to -1.6% per year during 2020-2023 (Figure 5). **Labor productivity in most manufacturing sectors declined after the pandemic,** particularly in Rubber & Plastics (-7.8%), Vehicles & Transportation Equipment (-7%), and Petroleum & Chemicals (-5.7%). Meanwhile, **labor productivity growth in the service sectors showed mixed results**, with Finance maintaining its positive trend at 2.4% per year, while Real Estate declined by 10.4%.

Despite declines in labor productivity following the pandemic, several sectors have recently shown some improvement, in line with a recovery in domestic demand—particularly in Hotels & Restaurants, Trade, and Health & Social Work. However, the recovery of labor productivity in some manufacturing sectors remains weak, especially in Rubber & Plastics, Textiles & Apparel, and Vehicles & Transport Equipment.

Box 2: **What is Labor Productivity?**

Labor Productivity is defined as the output produced per unit of labor input. It can be calculated using real GDP for the entire economy or specific sectors divided by total employment or workers in such sectors as follows:

$$Labor\ Productivity = \frac{Real\ GDP}{Total\ employment}$$

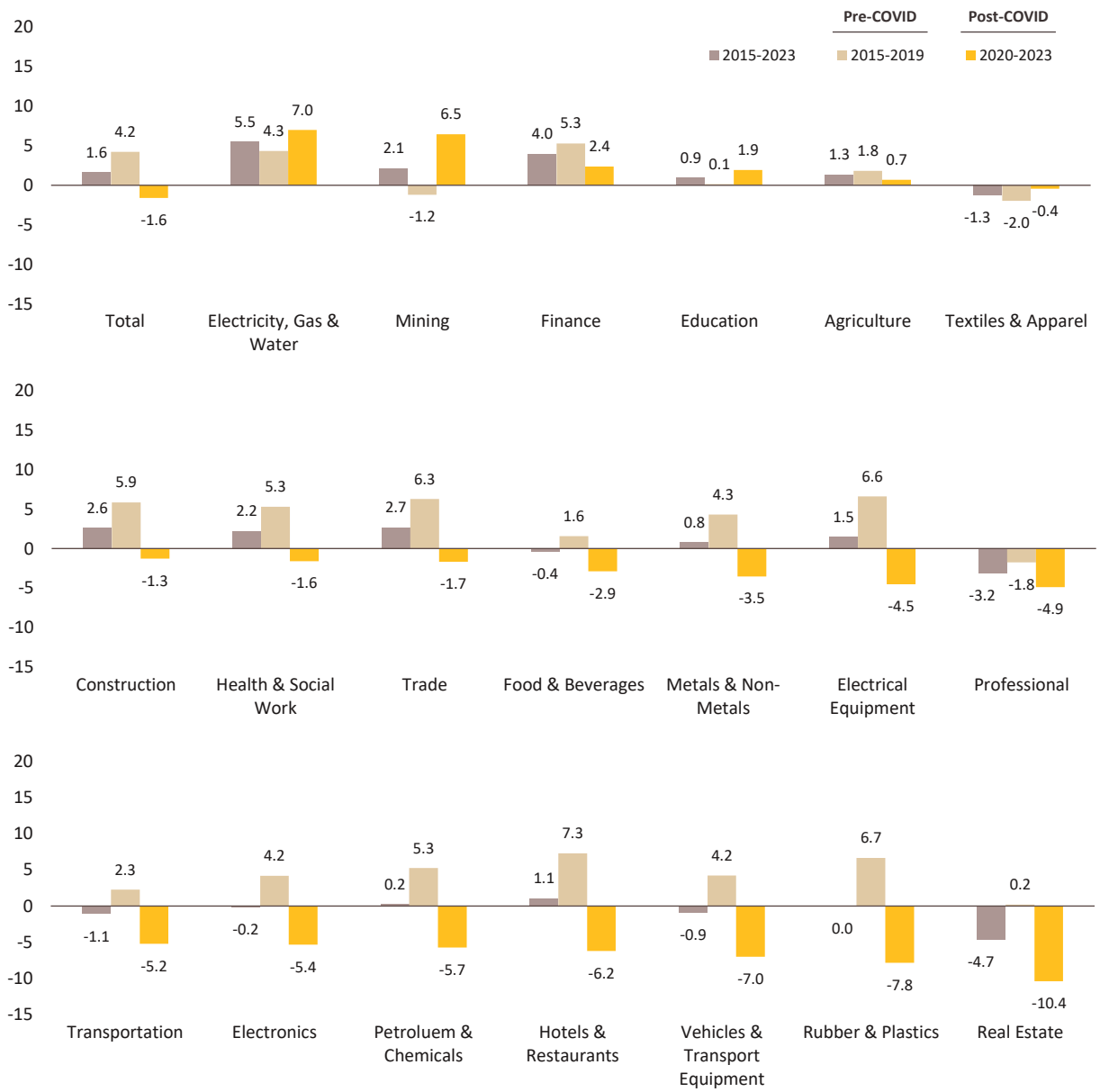
For example, in 2023, if real GDP and employment in the manufacturing sector equal THB 670,375 mn and 12.6 mn people, respectively, labor productivity would be 53,341 baht per worker. This means that, on average, one unit of labor in the manufacturing sector produces goods or products worth 53,341 baht.

Labor productivity can be increased by enhancing worker skills, adopting new technologies, and/or optimizing resource utilization, including physical and human capital. **Thus, higher labor productivity** enables businesses to produce more with the same or fewer resources, leading to better production efficiency and long-term growth.

In the earlier section, we showed that most workers now earn above the minimum wage threshold of 355 baht per day, but SMEs might still risk facing higher costs due to their relatively higher share of minimum-wage workers compared to other businesses. **With the sluggish recovery of labor productivity**, particularly in manufacturing sectors, the new minimum wage hike to 337-400 baht might further raise production costs for businesses with already weak performance and competitiveness. To better understand this, we will explore the differences between labor productivity growth and real wage growth, or the labor productivity-wage gap, in the next two sections. This comparison will help identify which sectors are at risk from minimum wage hikes or which sectors could remain profitable in the next period.

Figure 5

Average Annual Labor Productivity Growth by Sectors (%)



Source: NESDC (2024) and NSO (2023)
Note: Average growth is based on the compound annual growth rate (CAGR) for the specified period shown in the graph.



Labor Productivity-wage Gap: A Narrower Gap Signals Weak Competitiveness

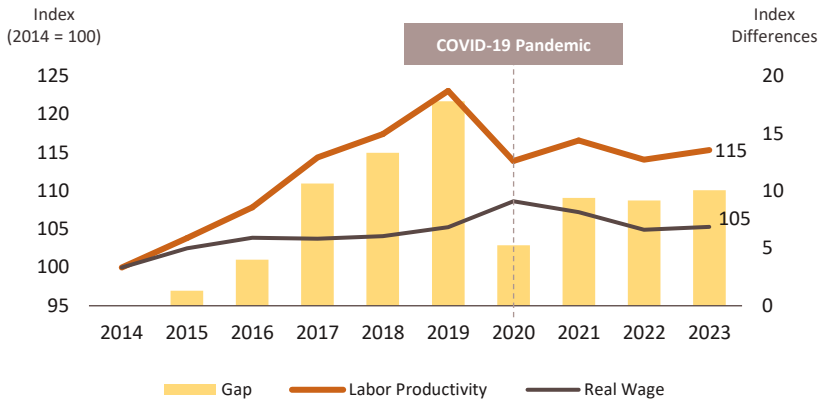
Thailand's productivity-wage gap remained positive but has narrowed since the pandemic, reflecting business difficulties in increasing profitability or investments.

Before the pandemic (2015-2019), Thailand's productivity-wage gap was relatively substantial at an average of 3.2% per year, during which labor productivity grew by 4.2% and outpaced a 1% increase in average real wages (Figure 6)**.** The widening positive productivity-wage gap trend partially reflected the gains from increased efficiency in production at a greater rate than increased costs (i.e., wage paid to employees), which could lead to higher profitability for firms.

However, after the pandemic, Thailand's labor productivity growth fell significantly to -1.6% per year, while real wage growth was nearly zero, resulting in a narrower productivity-wage gap (Figure 6). The reversal in the productivity-wage gap highlights a troubling trend as the narrower gap is driven by declining labor productivity rather than rising wages. In other words, **this signals a loss of Thailand's production efficiency.**

Figure 6

Average Labor Productivity and Real Wage Growth Index



CAGR	2015-2023	Pre-COVID (2015-2019)	Post-COVID (2020-2023)
Labor Productivity	1.6%	4.2%	-1.6%
Real Wage	0.6%	1%	0.005%
Gap	**1%**	**3.2%**	**-1.6%**

Source: NESDC (2024) and NSO (2023)

Box 3: **What is the Labor Productivity-wage gap?**

Labor productivity-wage gap or Productivity-wage gap measures the difference between the growth in real labor productivity and real wages. In this study, we used the compound annual growth rate (CAGR) to measure the growth rate of real labor productivity and real wages as follows:

$$Productivity\ growth = \left[\frac{Productivity_{final}}{Productivity_{begin}}\right]^{\frac{1}{t}} - 1$$

$$Real\ wage\ growth = \left[\frac{Real\ wage_{final}}{Real\ wage_{begin}}\right]^{\frac{1}{t}} - 1$$

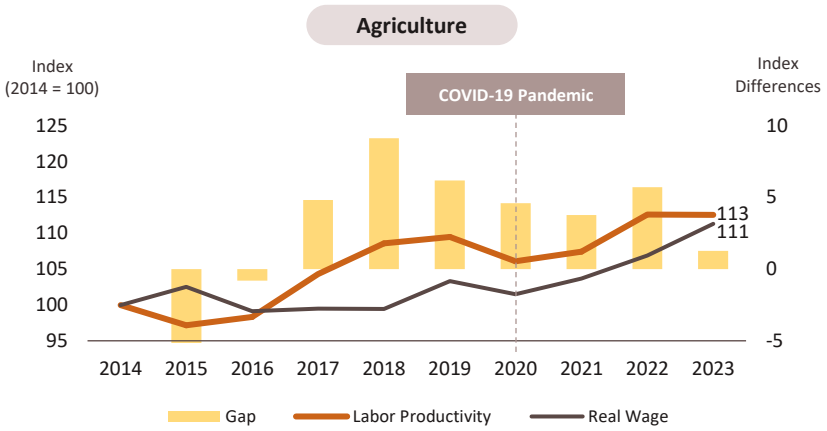
Note that the subscripts "begin" and "final" refer to values of labor productivity or real wage in the base and the final year, and "t" refers to the number of periods between the base and final year. For example, during 2015-2023 (base year = 2014, and t = 2023 minus 2015, or 8 years), productivity in sector X grew by 4% on average, but real wages nearly stalled at 0.5%. This results in a positive productivity-wage gap of 3.5%. This gap reflects whether workers' earnings can keep pace with the value-added workers generate for businesses or the economy.

- **A positive gap** means businesses are efficient in production, as labor costs rise more slowly than output expansion. This allows businesses to achieve **higher profitability and invest in future growth through innovation, labor skills development, and enhanced competitiveness.**
- **A negative gap** means businesses face rising costs that outpace output growth, which could lead to shrinking profit margins and reduced competitiveness.

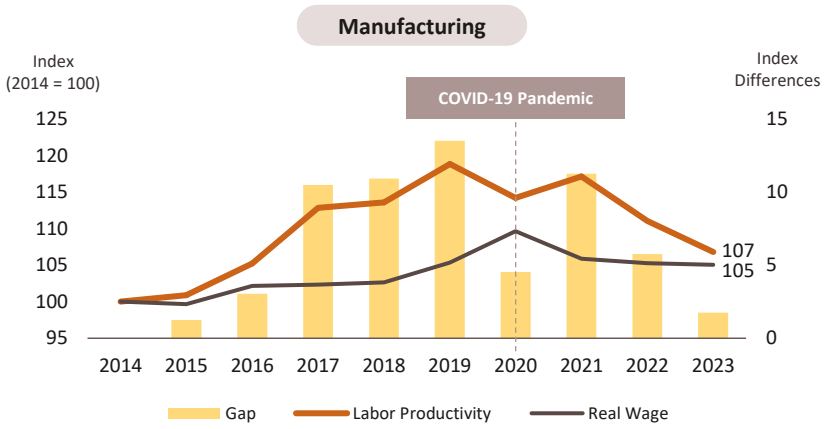
Compared to the overall national trend (Figure 6), major sectors have seen varying changes in the productivity-wage gap since the pandemic (Figure 7). **In agriculture,** the productivity-wage gap has narrowed as the real wage grew faster than productivity. This means that despite agricultural businesses still having lower production costs compared to the value of output workers generate, firms might still face higher production costs in the future if labor productivity fails to improve and real wage growth surpasses productivity growth. Meanwhile, **manufacturing** could experience a negative productivity-wage gap in the next period, as productivity still struggles to improve despite wages stalling after the pandemic. In other words, businesses in the manufacturing sectors might gain less profit or even incur losses.

Figure 7

Labor Productivity-wage Gap in Major Sectors



CAGR	2015-2023	Pre-COVID (2015-2019)	Post-COVID (2020-2023)
Labor Productivity	1.3%	1.8%	0.7%
Real Wage	1.2%	0.7%	1.9%
Gap	**0.1%**	**1.2%**	**-1.2%**

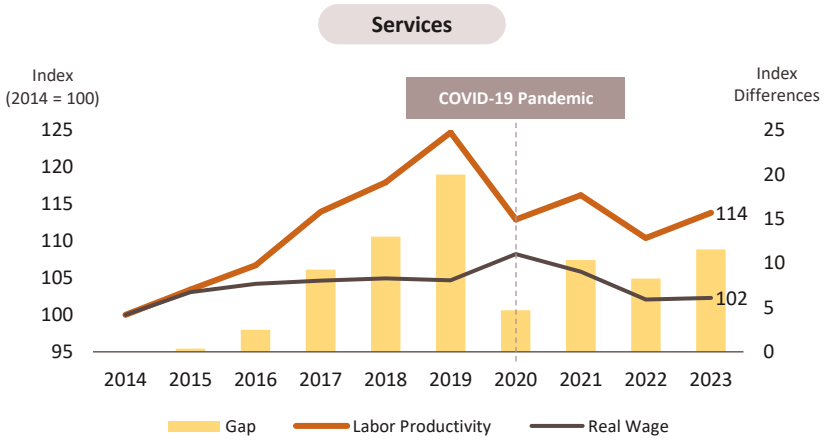


CAGR	2015-2023	Pre-COVID (2015-2019)	Post-COVID (2020-2023)
Labor Productivity	0.7%	3.5%	-2.6%
Real Wage	0.5%	1.0%	-0.1%
Gap	**0.2%**	**2.5%**	**-2.6%**

Source: NESDC (2024) and NSO (2023)

Figure 7 (continue)

Labor Productivity-wage Gap in Major Sectors



CAGR	2015-2023	Pre-COVID (2015-2019)	Post-COVID (2020-2023)
Labor Productivity	**1.4%**	**4.5%**	**-2.3%**
Real Wage	0.3%	0.9%	-0.6%
Gap	**1.2%**	**3.6%**	**-1.7%**

Source: NESDC (2024) and NSO (2023)

In contrast, the **service sectors** have seen a gradual recovery in productivity in recent years (2022-2023), though it remains below the pre-pandemic level (labor productivity in 2023 is about 9% lower than in 2019). Meanwhile, real wages have yet to fully recover, resulting in a positive labor-productivity wage gap. This indicates that businesses in the service sectors still have a cost advantage when comparing the pre-pandemic and post-pandemic periods, as workers are able to generate revenue for firms more than their compensation. Services firms, thus, could still benefit from a positive labor productivity-wage gap, at least in the short term, but the longer term depends on firms' ability to keep up their production (or productivity) with rising wages. **All these differences in productivity-wage gap trends between each major sector highlight the uneven recovery across sectors after the pandemic.**



Labor Productivity-wage Gap: Impacts from the Minimum Wage Hike

Minimum wage hikes raise costs for businesses, but the positive impacts on improving workers' quality of life are limited. Thus, the government should also consider alternative policies to improve workers' living standards.

The labor productivity-wage gap, which partially reflects firms' efficiency, could be influenced by numerous factors, such as labor skills development and competition from foreign companies. One of the major factors that could cause direct changes to the labor productivity-wage gap is government policy, especially increases in the minimum wage. However, the impact of the minimum wage hike might be different when comparing the labor productivity-wage gap at the sub-sectoral level, in addition to the major sectors previously discussed.

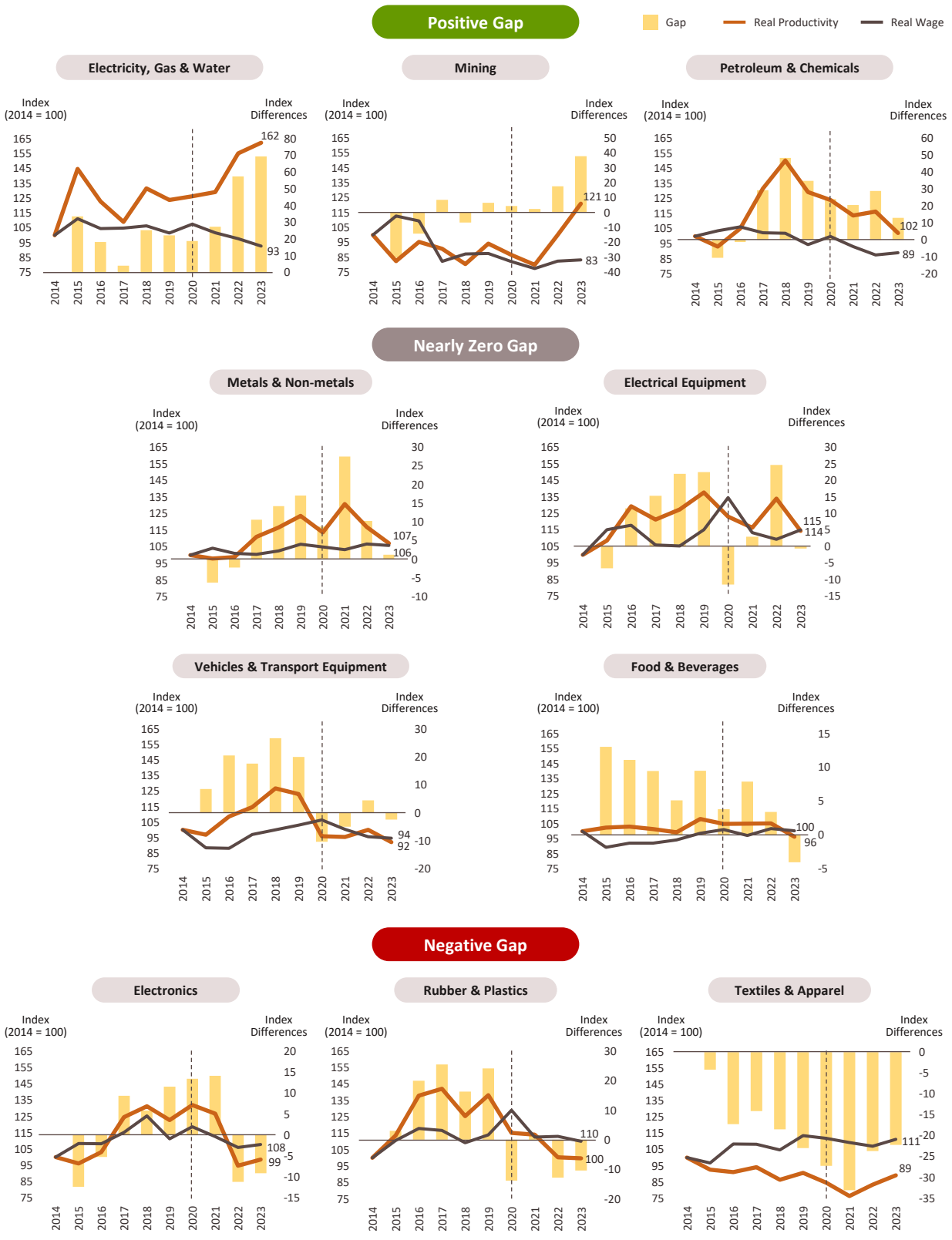
We observed that **most industrial sectors face a significantly narrower productivity-wage gap after the pandemic** (Figure 8). Only Petroleum & Chemicals and Electricity, Gas & Water can maintain the pre-COVID trend. This narrower gap means that firms become less profitable compared to the pre-pandemic period (2015-2019). In contrast, **the service sub-sectors largely maintained a positive productivity-wage gap**, with finance having the largest positive one (Figure 9). In other words, businesses in most service sectors have retained some pre-COVID labor cost advantage while experiencing an overall improvement in labor productivity (after normal activities resumed) and a steady change in real wages. Thus, positive gaps in the service sectors are expected to continue widening in the next period.

Sectors with near-zero or negative productivity-wage gaps are more vulnerable and are likely to face relatively higher impacts from rising production costs after the implementation of the new minimum wage on January 1, 2025. Additionally, labor productivity recovery in such sectors might continue struggling to keep pace with rising wages, potentially leading to reduced profits or even revenue losses for businesses. Manufacturing sectors are the most at-risk, especially Electrical Equipment, Vehicles & Transport Equipment, Electronics, Rubber & Plastics, and Textiles & Apparel. These sectors contributed a combined 7.6% of GDP and employed approximately 2.3 million workers, or 5.7% of the total workforce, in 2023. Meanwhile, service sectors would likely face less severe impacts and maintain a positive productivity-wage gap, as most sectors have gradually recovered after the pandemic.

In summary, minimum wage hikes will affect sectors with near-zero or negative productivity-wage gaps, while the positive impacts on improving workers' standard of living might still be limited (as mentioned in the earlier section). **This suggests that the government should also consider alternative policies to improve workers' living standards, such as subsidies for upskilling and reskilling.** In other words, such policies could help workers earn better pay in the long term and resolve current labor market mismatches to some extent without directly imposing labor costs on businesses.

Figure 8

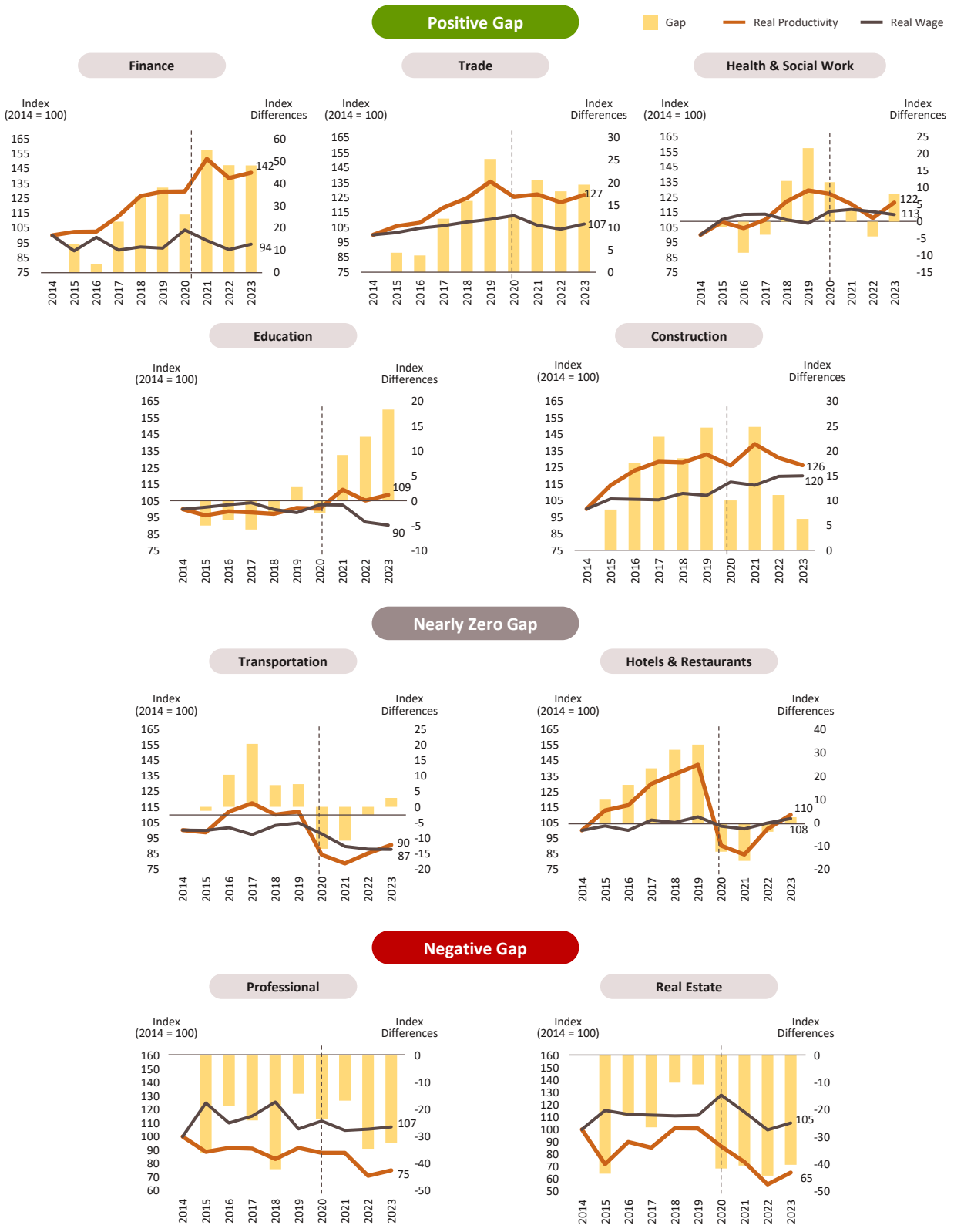
Labor Productivity-wage Gap in Industrial Sectors



Source: NESDC (2024) and NSO (2023)

Figure 9

Labor Productivity-wage Gap in Service Sectors



Source: NESDC (2024) and NSO (2023)



Krungsri Research View

Thailand's productivity-wage gap has narrowed since the pandemic, posing greater risks to Thailand's economic growth in the long term.

Given the stalled real wage growth after the pandemic, the productivity-wage gap reflects factors affecting labor productivity or production efficiency at the sectoral level rather than changes in wages. We identify some key common positive factors determining the productivity-wage gap in the medium to long term as follows:

- **Better Capital-Labor Utilization:** Wider positive gaps might result from enhanced production processes or the adoption of new technologies, which allow businesses to increase or maintain output while reducing or keeping labor inputs constant. The wider gaps, driven by such factors, could help businesses reduce costs and enhance competitiveness in the long term.
- **Labor Skills Development:** Wider positive gaps may arise from labor capabilities. In other words, workers with higher skills can generate more output or revenue for businesses, leading to increased labor productivity and, consequently, a wider gap. This widening gap, driven by such a factor, is most evident in sectors that rely heavily on high-skilled workers, such as Finance and Health & Social Work, in which 67.1% and 61.7% of these sectors' workforces were classified as high-skilled in 2023.
- **Post-pandemic Recovery:** Sectors reliant on face-to-face interactions, such as Hotels & Restaurants, have recovered significantly after the pandemic, as people have resumed their normal activities. In other words, workers in sectors that rely on face-to-face interactions have started returning to their regular work with greater capacities than during the pandemic. This has led to a recovery in labor productivity (revenue generated per worker) and, in turn, to wider positive gaps in the next period.

Meanwhile, the negative factors that might cause labor productivity to recover slowly or slow down, leading to a narrower gap or even a reversal from a positive to a negative one in the medium to long term, are as follows:

- **Weaker Capacity:** If both output and employment decline simultaneously, it could signal that the sector is at risk of long-term deterioration or that it might be unable to adapt to market changes. This could cause a reversal from the current positive gap to a negative one. An example is Mining, which saw declines of -3.4% in real value added and -5.5% in employment during 2015-2023.
- **Foreign Competition:** An influx of cheaper Chinese goods, driven by China's excess supply situation and the US-China trade war, could intensify competition in the domestic market and hinder a slow recovery in post-COVID productivity. From 2020-2023, Chinese imports growth surged in various sectors as Thailand's domestic production stagnated or declined, particularly Vehicles & Transport Equipment (29.1% import growth vs. GDP growth of -1.4%), Electrical Equipment (10.3% import growth vs. GDP growth of 0.8%), Electronics (9.1% import growth vs. GDP growth of -1.1%) and Rubber & Plastics (8.9% import growth vs. GDP growth of 0.1%).

However, structural issues and specific factors in each industry might also play an important role in influencing the productivity-wage gap. In addition, firms that currently enjoy cost-effectiveness (positive productivity-wage gap) from short-term factors, such as post-pandemic sluggish recovery in real wage growth, without investing in future R&D or production process improvement, could experience reduced competitiveness or profit loss in the long term (negative productivity-wage gap). By that time, it might be too late to turn businesses around.

Looking ahead, we expect most manufacturing sectors to continue experiencing either a negative productivity-wage gap (e.g., Textiles & Apparel, Electronics, and Rubber & Plastics) **or a near-zero gap** (e.g., Electrical Equipment, Vehicles & Transport Equipment) due to a combination of common factors mentioned above and specific factors in each industry. Thus, further increases in minimum wages are likely to disproportionately affect these sectors relative to others, especially in terms of risks to profitability, growth, and investment in the future. **However, businesses still have opportunities to improve productivity through R&D and industry transformation,** such as digitalization and/or automation, along with financial support and knowledge sharing from related government agencies.

These challenges reflect that the government should prioritize industry-specific policies and implement alternative policies to improve workers' living standards alongside minimum wage increases, which might yield short-term benefits but might not provide enough momentum to enhance competitiveness in the long run.

References

Ministry of Labour (MOL). (2024). *Minimum Wage*. Retrieved from https://www.mol.go.th/อัตราค่าจ้างขั้นต่ำ

National Statistical Office (NSO). (2023). *The Labor Force Survey 2014-2023* [Unpublished raw data].

Office of the National Economic and Social Development Council (NESDC). (2024). *National Income of Thailand 2023 Chain Volume Measures* [Data file]. Retrieved from https://www.nesdc.go.th/ewt_news.php?nid=15949&filename=ni_page

Trade Policy and Strategy Office (TPSO). (2024). *Consumer Price Index (CPI)* [Database]. Retrieved from https://index.tpso.go.th/cpi

KRUNGSRI RESEARCH

Pimnara Hirankasi, Ph.D.
Head of Research Division and Chief Economist

Macroeconomic Team

Sujit Chaivichayachat
Head of Macroeconomic Research

Wanicha Direkudomsak
Senior Economist

Churailuk Pholsri
Senior Economist (Forecasting)

Thansin Klinthanom
Senior Economist

Krittabhorn Sirichaichingkun
Economist

Supasyn Itthiphatwong
Economist

Analytics & Intelligence Team

Pimnara Hirankasi, Ph.D.
Acting Head of Analytics and Intelligence Research Department

Nathanon Ratanathamwat
Senior Researcher

Narichaya Satafang
Researcher

Parinya Mingsakul
Researcher

Chanatta Thararos
Researcher

MIS and Reporting Team

Thamon Sernsuksakul
Information Analyst

Chirdsak Srichaiton
Information Analyst

Wongsagon Keawuttung
Information Analyst

Industry Team

Taned Mahattanalai
Head of Industry Research

Poonsuk Ninkitsaranont
Senior Analyst (Healthcare, Mobile Operators)

Piyanuch Sathapongpakdee
Senior Analyst (Transport & Logistics)

Thian Thiumsak
Senior Analyst (Energy, Petrochemicals)

Chaiwat Sowcharoensuk
Senior Analyst (Agriculture)

Narin Tunpaiboon
Senior Analyst (Power Generation, Modern Trade, Chemicals, Medical Devices)

Puttachard Lunkam
Senior Analyst (Construction Contractors, Construction Materials, Hotels, Industrial Estate)

Patchara Klinchuanchun
Senior Analyst (Real Estate)

Prapan Leenoi
Analyst (ESG)

Supawat Choksawatpaisan
Analyst (Automobile, Electronics & Electrical Appliances)

Rapeepoom Lapmak
Analyst (Agriculture, Food & Beverages)