

VOL.41
NO.1

MARCH 2026

THAILAND DEVELOPMENT
RESEARCH INSTITUTE

T D R I

QUARTERLY
REVIEW

TOWARD A RESILIENT
AND SUSTAINABLE
MAIZE VALUE CHAIN
IN THAILAND

WORK, RETIREMENT, AND WELL-BEING:
WHAT THAILAND'S PRE-RETIREMENT
WORKERS REALLY WANT



Executive Editor
Srawooth Paitoonpong

Editorial Staff
*Wattana Kanchananit
Pagawan Suriyawan*

Art Director
Kmteam TDRI

The Thailand Development Research Institute Foundation was established in 1984 to conduct policy research and disseminate results to the public and private sectors. TDRI was conceived, created and registered as a non-profit, non-governmental foundation, and is recognized as such by the Royal Thai Government. The Institute does technical and policy analyses to support the formulation of policies with long-term implications for sustaining social and economic development.

CONTENTS

TOWARD A RESILIENT AND SUSTAINABLE MAIZE VALUE CHAIN IN THAILAND

Punpreecha Bhuthong

-PAGE 2

WORK, RETIREMENT, AND WELL-BEING: WHAT THAILAND'S PRE-RETIREMENT WORKERS REALLY WANT

*Savinee Mega
Kanyaphak Ngaosri*

-PAGE 21

TOWARD A RESILIENT AND SUSTAINABLE MAIZE VALUE CHAIN IN THAILAND

*Punpreecha Bhuthong**

ABSTRACT

This article examines the structural dynamics and key challenges within Thailand's maize value chain, a critical input for the feed and livestock industries. It identifies persistent structural constraints, including low productivity relative to global competitors, volatile input-driven production costs, and high climate vulnerability due to reliance on rainfed agriculture. Maize cultivation, particularly in upland areas, also contributes to environmental degradation, notably deforestation and crop residue burning linked to PM2.5 pollution. From a trade perspective, Thailand has become a net importer as domestic supply falls short of rising demand, creating tensions between domestic protection measures and downstream competitiveness. In response, the article proposes a strategic policy realignment across three dimensions: production-side measures to enhance productivity and sustainability; price and cost policies to improve risk management and reduce market distortions; and trade policies to strengthen supply security and align with sustainability standards. These directions aim to support long-term economic resilience while ensuring environmental sustainability in Thailand's agricultural and livestock sectors.

Keywords: feed maize, value chain, raw material security, trade sustainability, PM2.5, agricultural policy



1. BACKGROUND AND RATIONALE

Although Thailand's agricultural sector has long played a vital role in the country's economy and food security, its production structure continues to reflect significant structural challenges. A key issue lies in the persistent imbalance between labor and value creation: a relatively large share of the workforce remains employed in agriculture, while the sector contributes a comparatively small share to national output. Recent data indicate that agriculture accounts for only around 8–9 percent of gross domestic product (GDP), despite employing approximately 30–40 percent of the labor force. This disparity highlights underlying problems of low productivity, slow income growth among farmers, and the economic vulnerability of agricultural households. These challenges are not only economic in nature but are also closely linked to broader issues of social stability and environmental sustainability.

Within this context, feed maize (hereafter referred to as “maize”) emerges as a strategically important crop in Thailand's food system. It serves as a key input for the animal feed industry, which underpins the country's livestock production and meat export sectors. Demand for maize has continued to rise in line with the expansion of the poultry and swine industries. However, domestic production capacity remains insufficient to meet this growing demand, resulting in a significant reliance on imports from neighboring countries, particularly within the framework of ASEAN free trade. To address this gap, the government has implemented a range of

* Punpreecha Bhuthong is Senior Researcher, International Economics and Development Policy, Thailand Development Research Institute (TDRI).

policy measures aimed at stabilizing prices and safeguarding farmers' incomes.

Nevertheless, Thailand's maize value chain faces multifaceted challenges. These include higher production costs relative to neighboring countries, issues related to product quality and post-harvest management, and risks from pests and diseases. Environmental concerns have also become increasingly prominent, particularly those related to deforestation, land use in watershed areas, and the burning of crop residues, which is a major contributor to air pollution—especially particulate matter (PM2.5)—in Thailand. Such challenges not only threaten natural resource sustainability and public health but may also evolve into trade constraints as importing countries place greater emphasis on environmental standards and sustainable production practices.

Against the backdrop of structural economic imbalances, global market volatility, and rising environmental pressures, this article is derived and synthesized from prior research on policy proposals for enhancing the stability and trade competitiveness of field crops (cassava and maize) in Thailand¹. It aims to examine and propose value chain management strategies for maize, with a particular focus on strengthening raw material security and promoting long-term trade sustainability. It adopts a comprehensive value chain perspective—encompassing upstream, midstream, and downstream segments—to analyze both production and trade dimensions. The analysis seeks to identify key mechanisms and policy interventions that can enhance the stability of raw material quantity and quality, reduce vulnerabilities faced by farmers and the animal feed industry, and promote environmentally sustainable production practices. Ultimately, the study aims to strengthen the long-term competitiveness of Thailand's agricultural and livestock sectors, grounded in economic resilience, social inclusiveness, and environmental sustainability.

2. MAIZE VALUE CHAIN IN THAILAND

The maize value chain in Thailand can be broadly divided into three main stages: upstream, midstream, and downstream. Each stage involves different actors with distinct roles and functions, as outlined below (Figure 1).

Upstream

The upstream segment consists of seed producers—both public and private—and maize farmers.

- **Public seed producers:** The Department of Agriculture plays a central role in developing improved maize varieties aimed at increasing yield and enhancing resilience to climatic conditions. Key research institutions include the National Corn and Sorghum Research Center and the Nakhon Sawan Field Crops Research Center.
- **Private seed producers:** The private sector comprises both domestic companies and multinational corporations. These firms focus on developing and distributing high-quality hybrid seeds with superior yield performance. Although such seeds are relatively expensive, they are widely adopted by farmers due to their higher productivity.
- **Maize farmers:** Farmers can be broadly categorized into two groups: (1) those engaged in contract farming arrangements with seed companies, which typically provide inputs, technical support, and guaranteed market access, thereby reducing production and price risks, though often limiting farmers' bargaining power and flexibility; and (2) independent farmers producing maize for the open market, allowing greater autonomy in decision-making but exposing them to higher price volatility, input cost fluctuations, and constraints in accessing quality inputs and support services.

¹ Na Ranong, W., Bhuthong, P., Tunyanut, W., & Pornpoonsawasdi, A. (2025). *Project on policy recommendations for strengthening stability and trade resilience of field crops (cassava and feed maize)*. Trade Policy and Strategy Office, Ministry of Commerce.

Midstream

The midstream segment includes traders, collection centers, and agricultural cooperatives.

- **Traders and collection centers:** These actors serve as intermediaries purchasing maize directly from farmers. Some traders operate informal contract-like systems (locally known as “kiao”²), providing credit to farmers in exchange for forward purchase agreements. In some cases, traders also own drying facilities (silos) or sell maize onward to larger collection centers or feed mills.
- **Agricultural cooperatives and Collectors:** Cooperatives typically purchase maize from their members at slightly higher prices than private traders. However, many collectors face constraints related to management capacity and financial liquidity. As a result, their role is often limited to aggregation before reselling to traders or collection centers.

Downstream

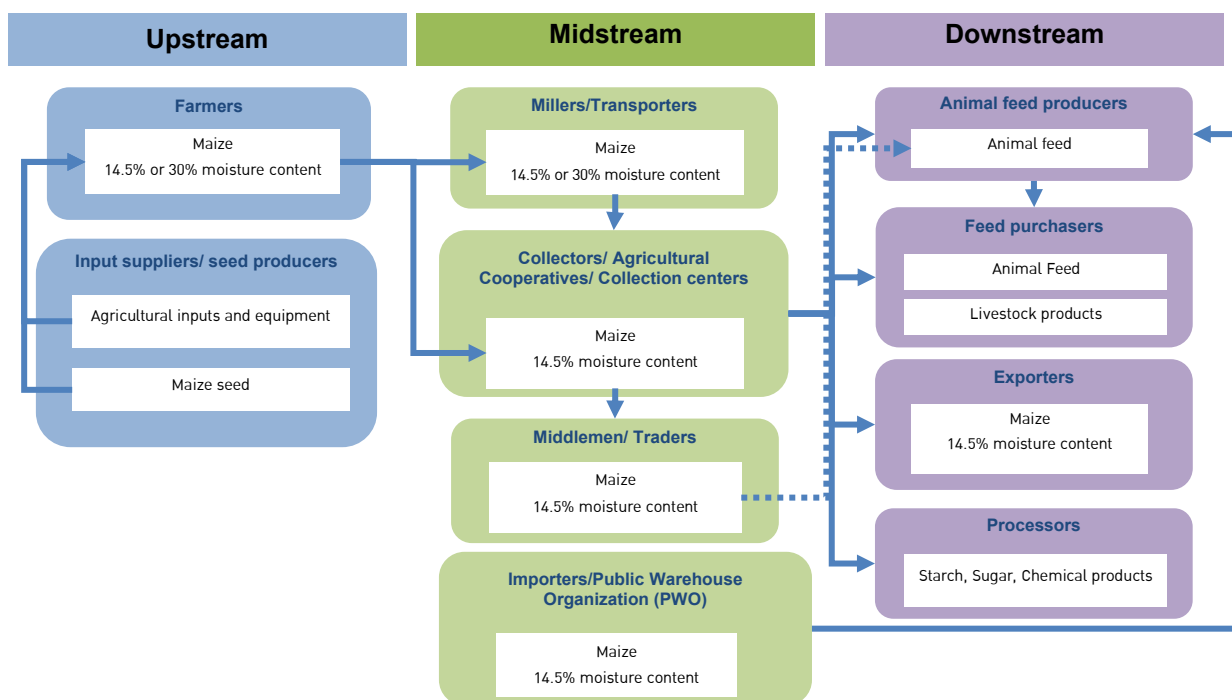
The downstream segment consists primarily of feed mills and exporters.

- **Feed mills:** Feed mills are the largest buyers of maize and play a dominant role in determining procurement standards, such as a maximum moisture content of 14.5 percent and, in some cases, requirements for traceability certification. These mills typically prefer sourcing large volumes from traders or collection centers rather than directly from smallholder farmers.
- **Exporters:** Exporters currently play a relatively minor role compared to feed mills. They generally purchase lower-quality maize that does not meet feed mill standards, often at prices below factory-gate levels. In the past, there were instances where traders imported lower-quality maize from neighboring countries such as Laos and Myanmar and blended it with domestic maize for export. However, the role of maize exports has significantly declined and is now nearly negligible.



² Kiao system (credit-tied arrangement): A traditional informal credit system in which middlemen provide farmers with inputs (e.g., seeds, fertilizers, pesticides) or cash in advance, with the condition that farmers must sell their harvest back to the lender—often at a pre-agreed or discounted price—to repay the debt.

Figure 1
Thailand's Maize Value Chain



Note. Adapted from Nipon Poapongsakorn et al. (2018).

In summary, the Thai maize market is characterized by a relatively small number of large buyers, with the government also playing a role in influencing prices and related policy measures. Feed mills effectively determine procurement prices at the trader level, while traders set purchasing prices for farmers, who largely act as price takers. Farmers often receive prices below benchmark levels when their maize exceeds the standard moisture threshold of 14.5 percent and/or fails to meet quality requirements.

In addition to conventional maize production, there has been increasing support for the cultivation of silage maize as an alternative, particularly in areas with a high concentration of nearby livestock farms. This system allows for multiple production cycles per year and offers greater income stability for farmers, especially when they are organized into groups and receive technical support from the public sector.

3. OVERVIEW OF MAIZE PRODUCTION, TRADE, PRICES, AND COSTS

3.1 Production

Data from the Office of Agricultural Economics indicate that Thailand's cultivated area for maize expanded to a peak of approximately 12 million rai during 1985–1986, before declining steadily to around 6.3 million rai by 2007. Land-use changes toward other cash crops largely drove this contraction. Although there was a slight recovery during 2010–2012, the cultivated area has since fluctuated within the range of 6–7 million rai up to the present (Figure 2).

In terms of production, output declined during 1984–1993 in line with the reduction in cultivated area. However, since 1993, production has shown an upward trend, albeit with some year-to-year volatility. Output reached nearly 5 million tons in 2011–2012, before moderating slightly and stabilizing at around 4–5 million tons in recent years. This suggests that total production has not decreased proportionally with the reduction in cultivated area.

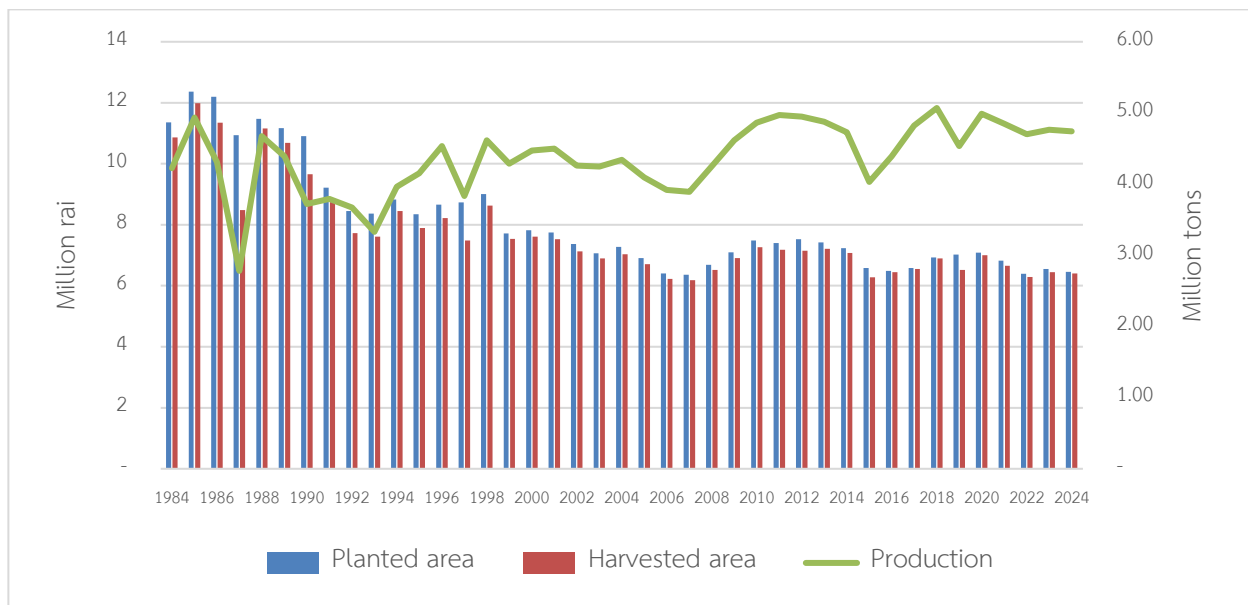
Major production areas for maize in Thailand are concentrated in the Northern, Central, and Northeastern regions. The provinces with the largest cultivated areas include Phetchabun, Nakhon Ratchasima, and Tak (Figure 3).

A key factor underlying this trend is the sustained increase in yield per rai over the long term. Average yield rose from 389 kilograms per rai in 1984 to 748 kilograms per rai in 2024, representing an average annual increase of approximately 1.6% (Figure 4). This improvement reflects gains in productivity driven by the adoption of high-yield hybrid varieties, as well as increased use of fertilizers and agrochemicals. Nevertheless, yields remain highly volatile. More than 97% of cultivated areas are located outside irrigated zones and rely primarily

on rainfall, making production highly vulnerable to droughts, climate variability, as well as pests and diseases. In addition, farmers' income constraints in certain periods have led to reduced production inputs when prices are high, further affecting yield levels from year to year.

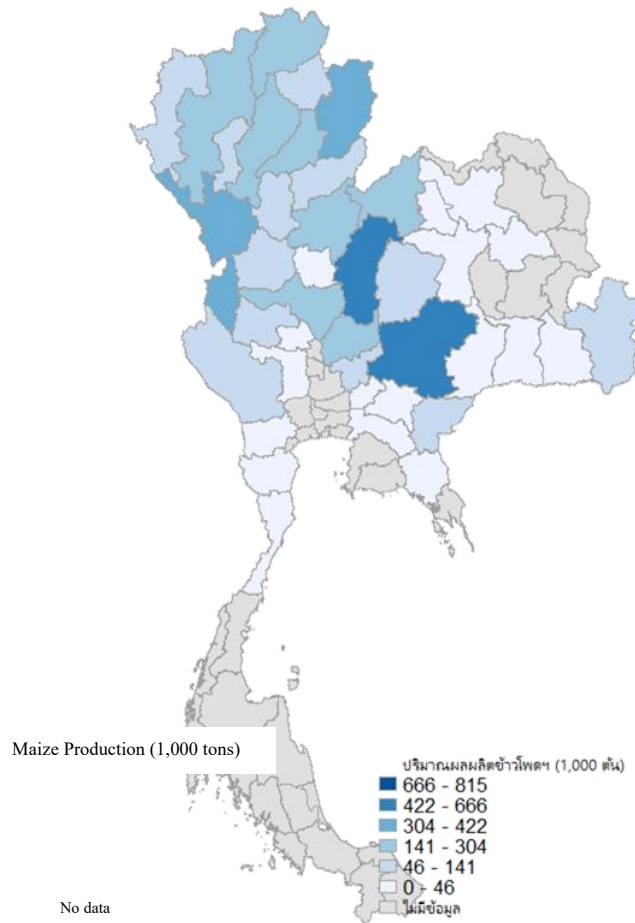
Maize is predominantly cultivated in the first crop cycle (rainy season), which accounts for nearly 90% of the total cultivated area, while the second crop (dry season) represents only about 10% (Figure 5). In terms of water management, the majority of maize (approximately 96.3%) is grown in non-irrigated areas, resulting in a high degree of exposure to weather-related risks. Notably, average yields in irrigated areas are only slightly higher than those in non-irrigated areas.

Figure 2
Planted Area, Harvested Area, and Production of Maize, 1984–2024



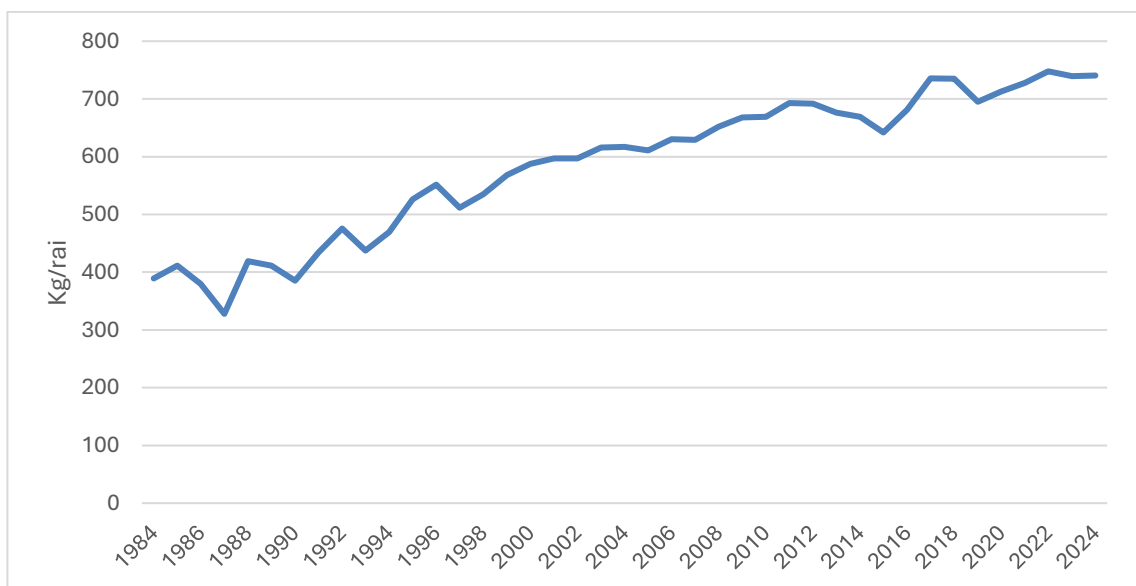
Note. Author's compilation based on data from the Office of Agricultural Economics.

Figure 3
 Maize Production by Province, 2022



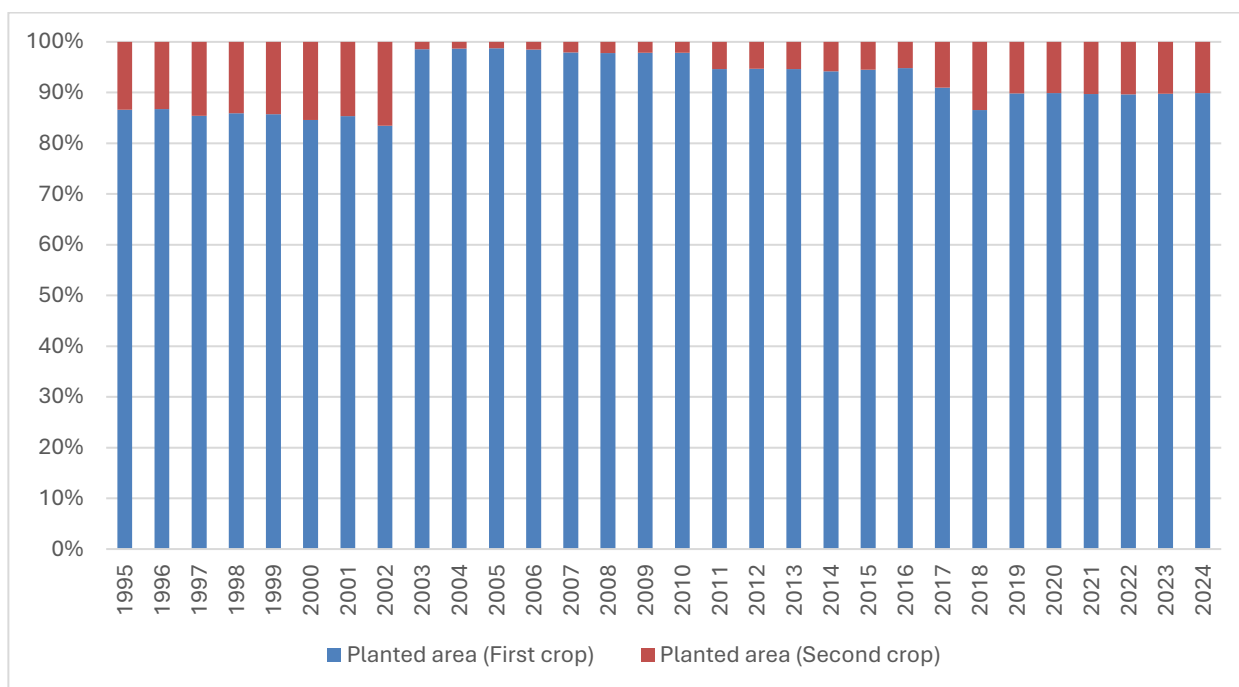
Note. Author's compilation based on data from the Office of Agricultural Economics.

Figure 4
 Average Yield per Rai of Maize in Thailand, 1984–2024



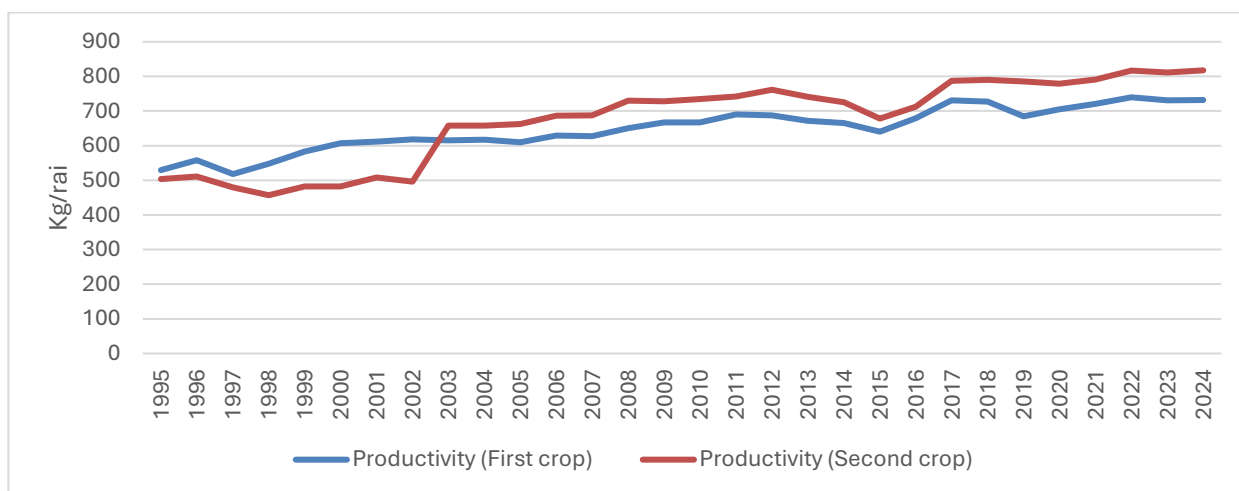
Note. Author's compilation based on data from the Office of Agricultural Economics.

Figure 5
Share of Maize Cultivated Area: First vs. Second Crop, 1995–2024



Note. Author's compilation based on data from the Office of Agricultural Economics.

Figure 6
Maize Productivity: First vs. Second Crop, 1995–2024



Note. Author's compilation based on data from the Office of Agricultural Economics.

3.2 Trade

In the past, maize was one of Thailand's key export crops. However, the continued expansion of the livestock sector and the feed industry has led Thailand to transition into a net importer since 2019, with net imports exceeding 1 million tons annually since 2020.

According to the Thai Feed Mill Association, demand for maize as a primary feed ingredient is

estimated at 8–9 million tons per year, accounting for approximately 50% of total feed inputs. In contrast, domestic production capacity remains limited at around 4–5 million tons annually (Table 1). This supply gap has necessitated increased reliance on imports from neighboring countries under the ASEAN Free Trade Area framework, particularly Myanmar, Cambodia, and Laos, where imports benefit from tariff exemptions.



BOX 1

Maize silage refers to the whole maize plant harvested at the dough stage—typically 80–85 days after planting—when the kernels contain a milky endosperm. The harvested crop, including the maize ear, is then chopped, compacted, and ensiled to preserve its nutritional value through fermentation. As a high-energy forage, maize silage is widely used as a primary feed for dairy and beef cattle, as well as other ruminants.

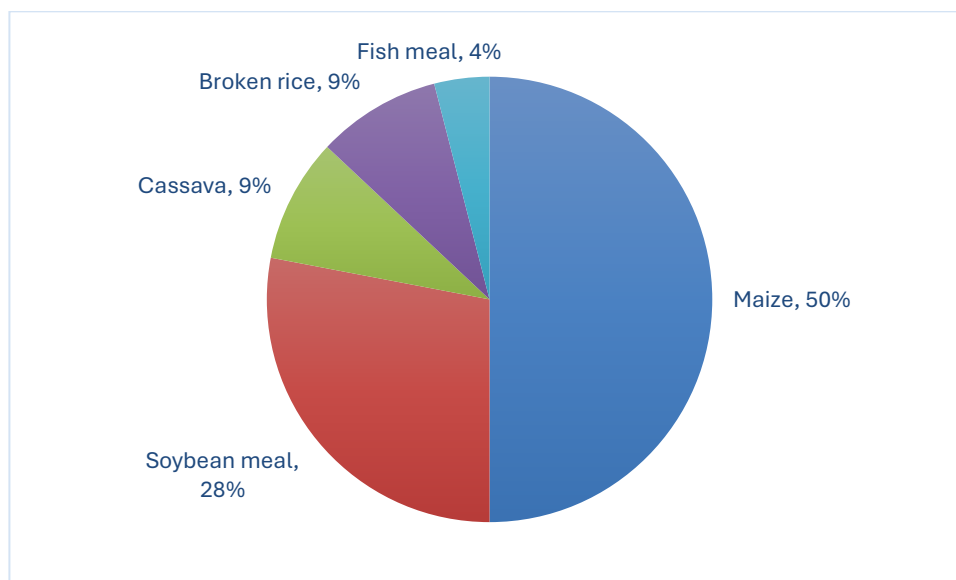
In Thailand, several community enterprises have developed integrated production systems for maize silage, encompassing cultivation, processing, and marketing. These systems often utilize advanced compaction and baling technologies, supported by forward contracting arrangements with feed mills or livestock farms.

A key advantage of silage maize cultivation is its shorter growing cycle compared to grain maize. This allows farmers to achieve up to two cropping cycles per year while avoiding common post-harvest challenges, such as high moisture content and fungal contamination (e.g., aflatoxins) typically associated with dried grain. Consequently, maize silage production represents a promising alternative for farmers located near large -scale livestock hubs or dairy cooperatives, particularly when supported by collective organization and public sector technical assistance.

Nevertheless, importation is subject to significant constraints, including restrictive import windows and high tariff-rate quotas under Thailand's WTO commitments. As a result, feed manufacturers have increasingly turned to substitute feed ingredients. In addition, it is estimated that informal cross-border

imports from neighboring countries may range between 0.8 and 1 million tons per year, enabling feed mills to optimize feed formulations and minimize production costs in response to prevailing raw material prices.

Figure 7
Estimated Share of Feed Ingredient Demand in Thailand, 2023



Note. Thai Feed Mill Association, as cited in Wannawisa and Itsarawadee, 2024.

Table 1
Maize Demand in Thailand

Year	Estimated Domestic Demand (Million tons) ^{1/}	Exports ^{2/}		Imports ^{2/}	
		Quantity (Million tons)	Value (Million tons)	Quantity (Million tons)	Value (Million tons)
2019	8.51	0.002	17.85	0.68	4,772.17
2020	8.34	0.001	6.41	1.59	8,687.96
2021	8.57	0.027	256.79	1.83	12,722.79
2022	8.11	0.001	11.17	1.48	15,022.42
2023	8.44	0.0001	2.41	1.33	15,187.93
2024	8.99	-	-	2.01	19,426.90
Growth (%) ^{3/}	1.36	-63.95	-45.50	1.53	19.56
2025*	9.20	0.0000005	0.22	1.46	14,185.36

Note. Major Agricultural Commodity Situation and Outlook 2026, Office of Agricultural Economics.

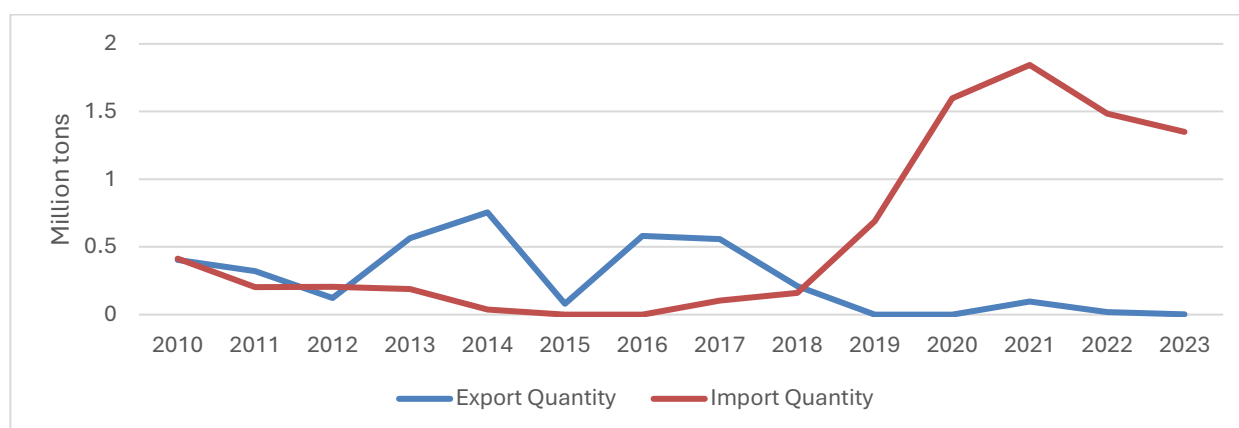
* Estimated

^{1/} Data retrieved from Thai Feed Mill Association

^{2/} Data retrieved from the Customs Department

^{3/} Compound Annual Growth Rate from 2019-2024

Figure 8
Trends in Maize Imports and Exports, 2010–2023



Note. Author's compilation based on data from Foreign Trade Statistics of Thailand, Ministry of Commerce.

Table 2
Thailand's Maize Import by Country, 2024

Rank	Country	Import quantity (tons)	Share (%)	Import value (Million USD)	Share (%)
	World	2,011,433	100.0%	534.0	100.0%
1	Myanmar	1,750,024	87.0%	469.4	87.9%
2	Laos	253,659	12.6%	62.4	11.7%
3	Cambodia	7,750	0.4%	2.2	0.4%

Note. Author's compilation based on data from Foreign Trade Statistics of Thailand, Ministry of Commerce.

Table 3
Thailand's Maize Seed Exports by Country, 2024

Rank	Country	Export quantity (tons)	Share (%)	Export value (Million USD)	Share (%)
	World	27,530	100.0%	85.9	100.0%
1	Pakistan	9,919	36.0%	27.4	31.9%
2	Vietnam	3,937	14.3%	14.0	16.3%
3	Myanmar	4,251	15.4%	11.1	12.9%

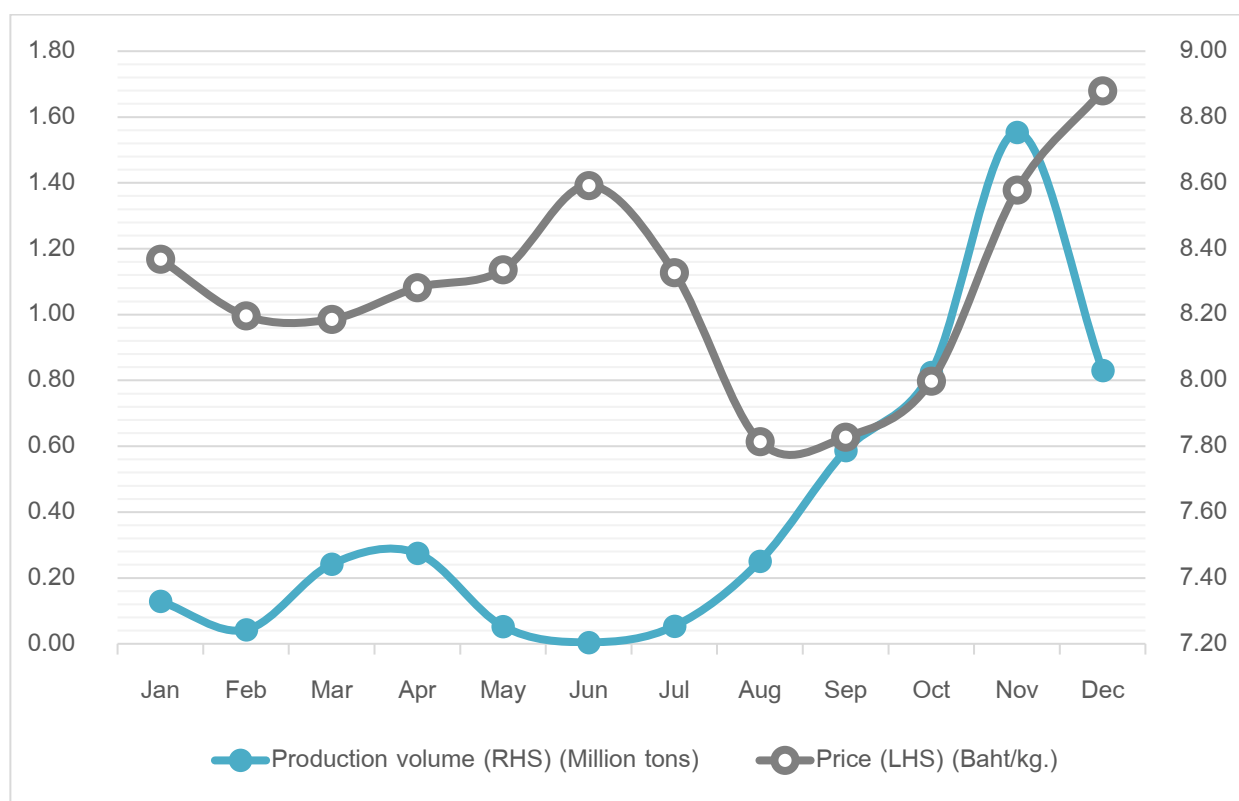
Note. Author's compilation based on data from Foreign Trade Statistics of Thailand, Ministry of Commerce.

3.3 Prices and Production Costs

Maize prices exhibit year-to-year volatility. On average, over the past decade (2015–2024), prices have shown an inverse relationship with the volume

of output entering the market. In particular, market supply typically peaks toward the end of the year (October–December), when the largest quantities of maize are released, contributing to downward pressure on prices (Figure 9).

Figure 9
Seasonal Cycle and Inverse Relationship between Maize Production and Prices in Thailand (2018–2022 Average)



Note. Author's compilation based on data from the Office of Agricultural Economics.

Total cost per rai has shown a steady upward trend. Over the past decade, it increased from 4,526.63 baht per rai in 2015 to 5,342.02 baht per rai in 2024, representing an average annual growth rate of 1.86% (Table 4).

In terms of cost structure, the majority of total costs is attributable to variable costs, which have

increased at an average rate of 2.65% per year. In contrast, fixed costs have declined at an average rate of -2.21% per year. This indicates that the primary cost burden for farmers has increasingly shifted toward variable inputs, such as seeds, fertilizers, and labor.

Table 4
Cost Structure of Maize Production, 2015 and 2024

Item	2015	2024	Growth (%)
1. Variable costs (Baht/rai)	3,659.47	4,632.70	2.65%
2. Fixed costs (Baht/rai)	867.16	709.32	-2.21%
3. Total cost per rai	4,526.63	5,342.02	1.86%
4. Total cost per kilogram (Baht)	7.40	7.28	-0.18%
5. Net return per rai (Baht)	204.13	786.88	16.17%
6. Net return per kilogram (Baht)	0.33	1.07	13.96%

Note. Author's compilation based on data from the Office of Agricultural Economics.

4. KEY GOVERNMENT POLICIES AND MEASURES

The formulation of policy directions and key measures is overseen by the Maize Policy and Management Committee (MPMC), which serves as an integrated mechanism bringing together public agencies, the private sector, and political representatives. The committee comprises representatives from relevant ministries, including the Ministry of Agriculture and Cooperatives, the Ministry of Industry, and the Ministry of Commerce, as well as representatives from parliamentary mechanisms, farmer organizations, and related trade associations. The Minister of Commerce serves as the chair, while the Director-General of the Department of Internal Trade acts as the committee's secretary. The MPMC plays a central role in formulating and overseeing structural-level policies across the entire maize value chain, encompassing production, price setting, and market stabilization, as well as trade measures and import–export management.

The following section presents the key policy measures in each area, including policies on production promotion and regulation, income guarantee and price-setting mechanisms, and international trade policy and the management of feed ingredient imports.

4.1 Production Policies

- **Promotion of maize cultivation in suitable areas:** The Ministry of Agriculture and Cooperatives has implemented the 2024/25 dry-season maize cultivation program, targeting an additional 1 million rai of cultivated area. The initiative aims to reduce import dependence while improving product quality to meet market standards.
- **Support for credit access and production technologies:** The government has introduced an interest rate subsidy scheme for stockpiling, increasing the subsidy from 3% to 4%, alongside credit support for farmer institutions to aggregate output and enhance value addition. These measures are complemented by the promotion of productivity-enhancing technologies aimed at increasing yields per rai, reducing

production costs, and lowering the use of chemical inputs.

- **Environmental measures and PM2.5 mitigation:** The Good Agricultural Practices (GAP) PM2.5 Free program has been implemented to curb crop residue burning by promoting alternative residue management practices, such as mechanical removal and soil incorporation, alongside monitoring and certification mechanisms. In parallel, private sector actors, including large corporations such as Charoen Pokphand Group, have introduced procurement policies that exclude maize sourced from areas linked to burning or deforestation. These measures create market-based incentives for farmers to adopt more sustainable practices, while also increasing pressure to improve traceability and compliance across the supply chain.

4.2 Price and Cost Management Policies

- **Income guarantee scheme (2019–2022/23):** The program set a target price of 8.50 baht/kg (at 14.5% moisture content), with eligibility limited to a maximum of 30 rai per household. Compensation was provided for the price gap when market prices fell below the target level, while no payments were made when market prices exceeded the benchmark. The scheme was discontinued after 2023.
- **Price-setting measures for market stabilization:** The Maize Policy and Management Committee (MPMC) has established indicative procurement price guidelines, such as 7.05 baht/kg (at 30% moisture content) for collectors and 9.80 baht/kg (at 14.5% moisture content) for feed mills. These measures are complemented by interest rate subsidies for stockholding and efforts to expand marketing channels in order to alleviate supply-side pressures.

4.3 Trade and Commercial Policies

- **Domestic maize procurement requirement for wheat imports (3:1 Ratio):** Since 2016, Thailand has implemented a policy requiring

wheat importers to procure domestically produced maize at a ratio of 3:1 (domestic maize to imported wheat) in order to ensure the absorption of domestic output. Temporary relaxations have been granted in certain periods, such as in 2022, in response to the impacts of the Russia–Ukraine War.

- **Market access under trade frameworks and import quotas:** Thailand has liberalized market access under the frameworks of the World Trade Organization (WTO) and the ASEAN Free Trade Area (AFTA). Under its WTO commitments, import quotas are allocated to the Public Warehouse Organization, allowing imports of up to 54,700 tons per year at a tariff rate of 20%. A temporary tariff exemption (0%) was also granted in 2022.
- **Measures to prevent smuggling and regulate the market:** Authorities have strengthened monitoring of imports outside designated time windows and enhanced oversight of trading activities to promote market transparency, reduce price distortions, and maintain domestic market stability.

5. CRITICAL ISSUES AND CHALLENGES

At present, Thailand’s maize production chain is facing complex structural challenges, including low productivity, cost volatility driven by external factors, and increasing pressures from emerging global rules on environmental sustainability and technological standards. This section summarizes the key issues that reflect systemic constraints as well as opportunities for development, in order to provide an overview of the challenges and emerging risks that Thailand faces across multiple dimensions.

5.1 Production and Operational Costs

Thailand’s maize production faces multiple structural challenges. Farmers are increasingly confronted with rising production costs, particularly for chemical fertilizers, seeds, and agrochemicals, whose prices have been highly volatile in response

to global energy crises and supply chain disruptions. Although fertilizer prices have begun to ease since 2022, they remain elevated compared to historical levels. In addition, the sector is experiencing a significant decline in the agricultural labor force over the past decade, alongside a transition toward an aging farming population, with an average age of approximately 62 years. This has led to rising wage costs and growing concerns over the long-term sustainability and generational continuity of agricultural livelihoods.

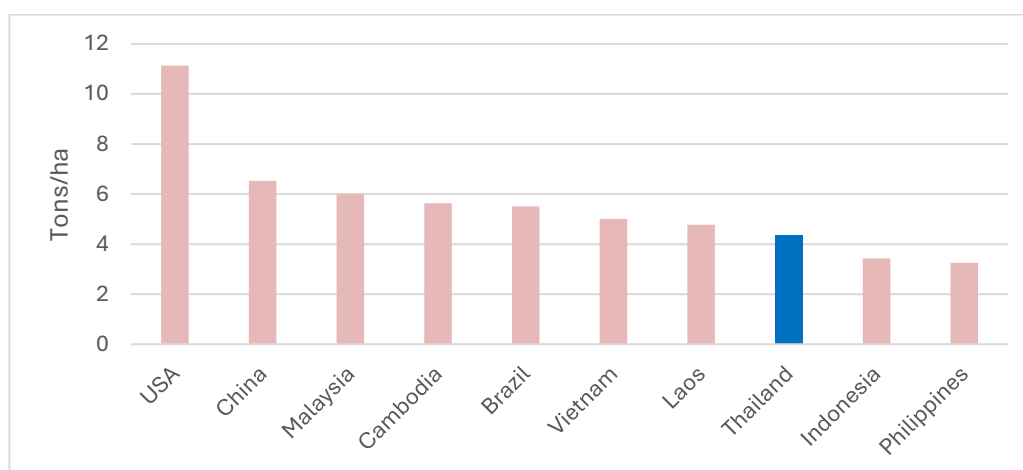
Thailand also faces persistently low yields per rai. This is largely due to the fact that most cultivation areas are located outside irrigated zones and lack efficient water management systems. These constraints are compounded by limitations in seed technology. While Thailand is a regional hub for hybrid seed production, regulatory restrictions and societal concerns have limited the adoption of genetically modified organisms (GMOs), unlike in other major producing countries. As a result, farmers are at a competitive disadvantage and are unable to fully realize potential yields. Notably, under controlled experimental conditions or in suitable areas, Thai seed varieties can achieve yields more than twice the current national average.

Furthermore, maize is often harvested at moisture levels exceeding standard thresholds, which directly affects product quality and the prices received by farmers. This is compounded by the limited effectiveness of large-scale farmer grouping initiatives, which in many cases have not been well aligned with local agro-ecological conditions.

5.2 Trade and Marketing Dynamics

Thailand’s maize market exhibits a price structure that is influenced by global market conditions, yet domestic prices tend to remain higher due to import control measures. Despite government interventions aimed at stabilizing prices, farmers continue to face significant price deductions, particularly due to moisture content. In practice, moisture levels often exceed 20–25%, resulting in price reductions of approximately 1.4% for each additional percentage point of moisture.

Figure 10
Comparison of Maize Yields across Major Producing Countries, 2023/24



Note. Foreign Agricultural Service, USDA.

Moreover, maize production in Thailand is largely concentrated in upland and remote areas—such as Chiang Rai, Nan, Tak, Mae Hong Son, and Phetchabun—where the number of buyers is limited and large purchasers tend to possess strong bargaining power. At the same time, logistical constraints, including poor road conditions during the rainy season and high transportation costs, further increase production costs and reduce farmers’ net income.

Additional concerns relate to a lack of trust in the accuracy and transparency of moisture measurement at collection points, as well as potentially unfair sampling practices, which further exacerbate market inefficiencies and undermine farmer confidence.

5.3 Seed Technology and Innovation

Thailand has made notable progress in hybrid seed development and has recently approved the use of genome editing (GEd), which is not classified as genetically modified organisms (GMOs) under current regulations. Nevertheless, the policy landscape remains fragmented, particularly with respect to GMOs. While Thailand permits the import of GMO-based raw materials—such as soybeans and maize—for processing in the food and feed industries, commercial cultivation remains prohibited.

This regulatory inconsistency places Thai farmers at a structural disadvantage in terms of production costs, yield potential, and technological competitiveness compared to major exporting countries such as the United States and Brazil.

Empirical evidence suggests that the adoption of appropriate biotechnology could significantly enhance productivity, with potential yield increases of more than twofold per rai. However, persistent regulatory uncertainty—particularly in relation to biosafety governance, risk assessment procedures, and legal frameworks—continues to constrain investment and innovation in the sector.

5.4 Geopolitics and International Trade

Global maize markets are increasingly shaped by geopolitical developments, particularly rising trade tensions between the United States and China, as well as the Russia–Ukraine War. China’s strategic efforts to diversify import sources away from the United States toward South America have reshaped global trade flows, with implications for price volatility and supply chain realignment.

In this context, Thailand faces a growing need to strengthen supply chain resilience by diversifying import sources from major exporting countries, including the United States, Brazil, Argentina, and Australia. At the same time, such diversification must be supported by improvements in logistics infrastructure, port capacity, and regulatory frameworks governing input standards and sanitary controls. These measures are essential to ensure that imports from new sources are efficient, safe, and aligned with long-term food and feed security objectives.

5.5 Import Restrictions and Regulatory Measures

The government has implemented tariff and quota measures to protect domestic farmers, including WTO tariff-rate quotas with out-of-quota tariffs as high as 73%, seasonal import restrictions under the ASEAN Free Trade Area (AFTA), and the maize procurement requirement linked to wheat imports (3:1 ratio).

However, these measures continue to exhibit significant loopholes, particularly in the form of informal cross-border trade through natural border areas during periods of high domestic prices or import restrictions. Such practices not only undermine price stability but also give rise to issues such as origin misdeclaration and the circulation of maize contaminated with unsafe levels of fungal toxins that do not meet established safety standards.

5.6 Environmental Sustainability

Maize production is increasingly subject to scrutiny as a major contributor to PM2.5 air pollution, particularly from open-field crop residue burning, and as a sector vulnerable to the impacts of climate change on yields. Looking ahead, this commodity may face growing exposure to non-tariff trade measures, such as the Carbon Border Adjustment Mechanism (CBAM) and the EU Deforestation Regulation, which could generate cascading effects on Thailand's processed chicken export industry.

This underscores the urgent need to develop robust carbon footprint measurement systems and traceability mechanisms across the supply chain to ensure compliance with emerging international standards and to maintain export competitiveness.

5.7 Database Management and Information Systems

The reliability of data on cultivated area and production volumes has become a point of concern among private sector stakeholders. The crop trade association has questioned whether official statistics may underestimate actual production, potentially leading to misaligned import policy decisions for feed inputs. Field observations suggest that actual yields in some areas may reach as high as 1 ton per rai. However, there remains a lack of a systematic and widely accepted framework for data collection and validation across stakeholders.

Strengthening data standards and improving the reliability of agricultural statistics are therefore critical for managing the balance between industrial feed demand and the protection of farmers' incomes.

6. SWOT ANALYSIS

A SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) of Thailand's maize sector yields the following key findings:

Table 5
SWOT Analysis of Thailand's Maize Sector

<p>Strengths</p> <ol style="list-style-type: none"> 1) Strong domestic demand with a well-established market 2) High-quality non-GMO seed production 3) Short cultivation cycle and ease of cultivation 4) Well-developed logistics and trade/export infrastructure 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1) Price volatility and high production costs for farmers 2) Low yields per rai in many areas 3) Issues related to high moisture content and grain quality 4) Upland cultivation often involves burning crop residue, contributing to haze and PM2.5 pollution 5) Many farmers lack formal land tenure, potentially affecting market access
<p>Opportunities</p> <ol style="list-style-type: none"> 1) Growing demand from the animal feed industry 2) Zero-tariff imports under the ASEAN Free Trade Area (AFTA) 3) Imports from non-AFTA sources can help reduce downstream costs and PM2.5 pressures 4) Potential for trade negotiations/FTAs to enhance trade flexibility 5) Opportunities to adopt agricultural technologies to improve yields and reduce costs 	<p>Threats</p> <ol style="list-style-type: none"> 1) Limited cultivation areas and heavy reliance on rainfed agriculture 2) Exposure to natural disasters, pests, and aflatoxin contamination 3) Environmental issues from deforestation and crop residue burning 4) Stricter global environmental standards that may affect livestock and food exports

7. POLICY RECOMMENDATIONS

Policy recommendations for managing the maize value chain to enhance Thailand's feedstock security and trade sustainability are presented as follows:

7.1 Production-Side Policy Recommendations

- While Thailand's private sector has achieved considerable success in research and development of maize seeds for export, there remain limitations in developing varieties suited to the country's diverse agro-ecological conditions. Moreover, domestically produced seeds are constrained by technological limitations relative to genetically modified (GMO) maize, resulting in a widening yield gap. Thailand should therefore consider revisiting its policy stance on genetic technologies, including GMOs, based on scientific evidence and empirical data on human health, environmental safety, and economic impacts. This would enable the country to harness appropriate technologies to enhance productivity and mitigate risks associated with climate change, thereby avoiding lagging behind global agricultural development trends.
 - At the same time, it is essential to strengthen the legal and regulatory framework in line with international standards to ensure that the adoption of such technologies is safe, transparent, and accountable, without undermining consumer confidence or export market access.
- Farmer grouping policies should be recalibrated to better reflect practical realities and operate at an appropriate scale that enhances bargaining power and reduces costs.
 - In this regard, the "Large-Scale Farming" program should be reconsidered and possibly rebranded, as actual land consolidation is often limited. In many cases, government support has focused on providing machinery to farmer groups, but utilization rates are low, and benefits are not always equitably distributed among members, leading to inefficient investment outcomes.
 - One relatively successful model is farmer groups engaged in maize silage production (chopped and fermented maize harvested before full maturity for ruminant feed). This model is particularly suitable for areas near dairy or beef cattle farms, enabling farmers to cultivate maize twice per year. Farmers typically form groups and enter into forward contracts with farms or cooperatives, thereby reducing market and price risks. Government support in providing machinery for chopping, baling, and storage has further enhanced the ability to preserve feed quality during storage prior to sale. In addition, such collective arrangements can facilitate investments in shared irrigation systems, such as drip irrigation and groundwater management, particularly in areas with access to underground water resources.
- In upland areas, alternative crops or economic forestry should be promoted in place of maize cultivation to prevent deforestation and reduce wildfire risks. At the same time, reforestation initiatives linked to carbon credit schemes should be encouraged. Efforts should focus on developing carbon markets with lower verification and transaction costs, enabling participating farmers to generate more stable and reliable income streams.
- The adoption of precision agriculture technologies should be promoted where economically viable. For example, the use of spraying drones can help reduce labor costs, minimize chemical usage, and improve production efficiency, particularly in areas facing labor shortages.

7.2 Price and Cost Policy Recommendations

- Over the past decade, the government has increasingly intervened in Thailand's maize market, effectively becoming an indirect

price setter through import control measures on substitute commodities, particularly wheat. While these interventions have largely succeeded in maintaining domestic maize prices above the target levels set under the income guarantee scheme—resulting in minimal compensation payments to participating farmers in recent years—the 3:1 maize procurement requirement may constrain the growth and competitiveness of downstream industries, which are likely to generate significantly higher value but face limitations in accessing sufficient imported inputs.

- If the policy is to be maintained or extended to maize imports from the United States, consideration should be given to reducing the ratio (e.g., to no more than 2:1) in order to ease constraints on downstream users while still supporting domestic producers.
- In the longer term, price intervention measures, including the income guarantee scheme, should be gradually scaled back. In its previous form, the scheme may also carry the risk of being perceived as a form of export subsidy, potentially leading to future trade disputes.
 - As an alternative, the government could promote crop and price insurance schemes, with partial premium subsidies, to provide risk protection for farmers in a more market-oriented and fiscally sustainable manner.

7.3 Trade Policy Recommendations

- Thailand should consider allowing imports of maize from non-AFTA sources, which may offer advantages in terms of cost and environmental outcomes. Appropriate safeguards and conditions should be designed to mitigate potential impacts on domestic farmers. In addition, the establishment of a transitional income support fund could be considered to assist farmers who choose to shift to alternative crops or occupations during the adjustment period.

- Following the diversification of import sources beyond AFTA, stricter environmental standards should be applied to maize imports from neighboring countries. This would help address transboundary haze and PM2.5 pollution, which impose significant social costs on Thailand, while also aligning domestic policies with emerging global trade trends that increasingly emphasize environmental sustainability.
- The government should strengthen standards and governance for maize moisture measurement to enhance farmer confidence. This includes implementing certified measurement systems, random inspections of equipment, and transparent grievance mechanisms to ensure accountability. Such measures would improve transparency and reduce disputes at procurement points.

REFERENCES

- Achavanuntakul, S., Yamla-or, P., Tanangsanakul, K., Senpan, P., & Klong-akkhara, S. (2013). *Maize supply chain management analysis to support sustainable watershed management in Nan province* [การวิเคราะห์การจัดการห่วงโซ่อุปทานของข้าวโพดอาหารสัตว์เพื่อส่งเสริมการจัดการลุ่มน้ำอย่างยั่งยืนในจังหวัดน่าน]. United Nations Development Programme; United Nations Environment Programme.
- Chaovanapoonphol, Y., & Somyana, W. (2018). Maize production under contract farming system between Lao PDR and Thailand: Returns and benefits for farmers [การผลิตข้าวโพดเลี้ยงสัตว์ในระบบพันธสัญญาระหว่าง สปป.ลาว กับประเทศไทย: ผลตอบแทนและประโยชน์ที่เกษตรกรได้รับ]. *Khon Kaen Agriculture Journal*, 46(6), 1083–1094.
- Erenstein, O., Jaleta, M., Sonder, K., Mottaleb, K., & Prasanna, B. M. (2022). Global maize production, consumption and trade: Trends and R&D implications. *Food Security*, 14(5), 1295–1319. <https://doi.org/10.1007/s12571-022-01288-7>

- Department of Agricultural Extension. Industrial Field Crop Production Promotion Group. (2024). *Feed maize* [ข้าวโพดเลี้ยงสัตว์].
- Kruaduangkham, A. (2014). *Ability of maize production in Thailand for import substitution* [ความสามารถในการผลิตข้าวโพดเลี้ยงสัตว์ของประเทศไทยเพื่อทดแทนการนำเข้า]. [Master's thesis, Chiang Mai University]. Chiang Mai University Digital Collections. <https://cmudc.library.cmu.ac.th/frontend/Info/item/dc:121977>
- Matichon Online. (2024). *Approval of 5 measures to support maize prices: "Pichai" prepares to propose 320 million Baht budget to the Cabinet* [คณะ 5 มาตรการ พยุงราคาข้าวโพดเลี้ยงสัตว์ 'พิชัย' จ่อนำเข้า ครม. งบ 320 ล้าน].
- Myanmar Agrifood Program for Strategy and Analysis. (2024). *Maize residue management in Myanmar* (Myanmar SSP Research Note No. 113). International Food Policy Research Institute. <https://hdl.handle.net/10568/155051>
- Na Ranong, W., Bhuthong, P., Tunyanut, W., & Pornpoonsawasdi, A. (2025). *Project on policy recommendations for strengthening stability and trade resilience of field crops (cassava and maize)* [โครงการจัดทำข้อเสนอเชิงนโยบายการสร้างเสถียรภาพและความเข้มแข็งทางการค้าสินค้าพืชไร่ (มันสำปะหลังและข้าวโพดเลี้ยงสัตว์)]. Trade Policy and Strategy Office, Ministry of Commerce.
- National Bureau of Agricultural Commodity and Food Standards. (2023). *Forecasts warn of further decline in Ukrainian maize production* [คาดการณ์หวั่นผลผลิตข้าวโพดยูเครนลดลงอีก]. Ministry of Agriculture and Cooperatives.
- Office of Agricultural Economics. (2024a). *Situation of important agricultural commodities and trends for 2025* [สถานการณ์สินค้าเกษตรสำคัญและแนวโน้มปี 2568]. Ministry of Agriculture and Cooperatives.
- Office of Agricultural Economics. (2024b). *Thai agricultural economic indicators 2023* [ตัวชี้วัดเศรษฐกิจการเกษตรของไทย ปี 2566]. Ministry of Agriculture and Cooperatives.
- Poapongsakorn, N., Na Ranong, V., Inthavitak, C., Bisoryabut, N., Harakunarak, A., Wichitaksorn, N., Srianant, N., Pantakua, K., Choksamritphon, P., Mongkhonit, S., Tunyut, W., Jantrasiri, U., Rattanasimarnon, P., Yuttasaknukul, P., Tharesang, K., Apiwatanakul, P., & Buakham, K. (2018). *Study on the adaptation of the agricultural sector to support the ASEAN Economic Community (AEC) to enhance Thailand's competitiveness* [โครงการศึกษาแนวทางการปรับตัวของภาคเกษตรเพื่อรองรับการเปิดประชาคมเศรษฐกิจอาเซียนเพื่อยกระดับความสามารถในการแข่งขันของไทย]. National Economic and Social Development Council.
- Poapongsakorn, N., Ratanawaraha, A., Mahathanaseth, I., Jintrawet, A., Kiratikarnkul, S., Boonsiri, K., Srianant, N., Pantakua, K., Viwatwicha, N., & Buranakit, C. (2022). *Research project on the future of small-scale rice and orchard farmers* [โครงการวิจัยอนาคตชาวนา-ชาวสวนรายเล็ก]. National Science and Technology Development Agency.
- Promtee, S., Seerasarn, N., & Kiawwan, B. (2022). Guidelines for promoting feed maize production of farmers in Kabin Buri District, Prachin Buri Province [แนวทางการส่งเสริมการผลิตข้าวโพดเลี้ยงสัตว์ของเกษตรกร ในอำเภอกบินทร์บุรี จังหวัดปราจีนบุรี]. *Journal of Roi Kaensarn Academi*, 7(10), 332–347. <https://so02.tci-thaijo.org/index.php/JRKSA/article/view/255990>
- Pupphavesa, W., Bhuthong, P., Pakinamhang, K., & Ketthong, S. (2016). *Promoting regional economic integration in South-East Asia by addressing NTBs: A case study of maize in Thailand*. Asia Foundation.
- Pupphavesa, W., Bhuthong, P., & Pakinamhang, K. (2024). *Study on guidelines for promoting the potential of trade businesses related to agricultural products: Fruit collectors (Ihong)* [โครงการศึกษาแนวทางส่งเสริมศักยภาพธุรกิจการค้าที่เกี่ยวข้องกับสินค้าเกษตร: ส้มผลไม้]. Trade Policy and Strategy Office.

- Pupphavesa, W., Srisawatsuk, S., Rattanadilok Na Phuket, S., Jaided, P., Chaiwongkiat, D., Tokrisna, R., Sudsawad, S., Srisawatsuk, W., Pholphirul, P., Bhuthong, P., Kerdphol, T., Piyaniran, T., & Pakinumphung, K. (2007). *Study and synthesis of information to determine guidelines for mitigating impacts, preventing problems, and increasing agricultural potential under Free Trade Agreements (FTA)* [โครงการศึกษาและสังเคราะห์ข้อมูลเพื่อกำหนดแนวทางการลดผลกระทบการแก้ไขป้องกันปัญหาและเพื่อเพิ่มศักยภาพด้านการเกษตร ภายใต้ข้อตกลงเขตการค้าเสรี (FTA)]. National Economic and Social Advisory Council.
- Pupphavesa, W., Srisawatsuk, S., Rattanadilok Na Phuket, S., Jaided, P., Chaiwongkiat, D., Tokrisna, R., Sudsawad, S., Chaisrisawatsuk, W., Pholphirul, P., Bhuthong, P., Kerdphol, T., Piyaniran, T., Pakinumnung, K., & Nakcharoen, N. (2009). *Research project on developing Thailand's agricultural competitiveness towards excellence* [โครงการศึกษาวิจัยการพัฒนาศักยภาพในการแข่งขันด้านการเกษตรของประเทศไทยสู่ความเป็นเลิศ]. National Economic and Social Advisory Council.
- Sirimongkonlertkun, N., Kongvee, S., & Yanawongsa, E. (2017). *Study on investment cost and demand-supply chain in maize trading in hilly area of Wawee sub-district, Chiang Rai province* [การศึกษาต้นทุนและห่วงโซ่อุปสงค์-อุปทานการค้าข้าวโพดเลี้ยงสัตว์บนพื้นที่สูง ตำบลลาววี จังหวัดเชียงราย]. Faculty of Engineering, Rajamangala University of Technology Lanna Chiang Rai.
- Sriratana, W., & Hema, I. (2024). *2024 forecast: Thailand's maize imports projected to increase 5.2% in 2024 and almost all maize imports will come from CLM* [คาดไทยนำเข้าข้าวโพดเลี้ยงสัตว์เพิ่มขึ้น 5.2% และนำเข้าจากประเทศ CLM เกือบทั้งหมด]. Kasikorn Research Center. <https://www.kasikornresearch.com/th/analysis/k-econ/economy/Pages/Maize-Import-28-03-2024.aspx>
- Supasri, T., Intra, P., & Sampattagul, S. (2016). Life cycle GHGs and PM10 evaluation of maize cultivation in Mae Chaem District, Chiang Mai [การวิเคราะห์การปล่อยก๊าซเรือนกระจกและฝุ่นละอองขนาดเล็ก จากกิจกรรมการเพาะปลูกข้าวโพดเลี้ยงสัตว์ ในพื้นที่อำเภอแม่แจ่ม จังหวัดเชียงใหม่]. *Engineering Journal*, 23(3), 94–105.
- Teerakul, N., & Kaewmanee, P. (2018). *Guidelines for restructuring production, marketing, and government policies towards sustainability of the maize industry in Thailand* [โครงการแนวทางการปรับโครงสร้างการผลิต การตลาด และนโยบายรัฐบาลสู่ความยั่งยืนของอุตสาหกรรมข้าวโพดเลี้ยงสัตว์ในประเทศไทย]. Chiang Mai University.
- United States Department of Agriculture, Foreign Agricultural Service. (2024). *Surge in India corn consumption shifts regional market dynamics*. <https://www.fas.usda.gov/data/surge-india-corn-consumption-shifts-regional-market-dynamics>
- World Wide Fund for Nature. (2018). *Executive summary: The Study Report Project on Sustainable Consumption and Production of Maize Supply Chain in Thailand* [บทสรุปผู้บริหารโครงการศึกษาสถานการณ์การบริโภค และการผลิตที่ยั่งยืนของห่วงโซ่อุปทานข้าวโพดเลี้ยงสัตว์ของประเทศไทย]. https://wwfasia.awsassets.panda.org/downloads/executive_summary_1.pdf

WORK, RETIREMENT, AND WELL-BEING: WHAT THAILAND'S PRE-RETIREMENT WORKERS REALLY WANT*

*Savinee Mega***
*Kanyaphak Ngaosri****

ABSTRACT

In Thailand, the mandatory retirement age (MRA) in the public sector is governed by law, while private enterprises may set their own retirement age. The public sector enforces an MRA of 60, but private enterprises may set it at 55, aligning with the Social Security Retirement Age and/or following the Labor Protection Act, Article 118/1. While these policies define when employees are expected to retire, they provide little insight into how formal-sector workers themselves prefer to leave the labor force as they approach retirement. Using this study's survey data from 1,573 formal-sector employees in the pre-retirement group (aged 50–60), we find that workers do not anticipate an abrupt retirement at age 60 but instead expect a gradual reduction in work intensity over time. Nearly three-quarters anticipate remaining employed at age 65, primarily in reduced-hour arrangements. About one in four workers expect to work beyond the MRA. The fact that over half of the surveyed samples hold at least a bachelor's degree suggests a potential loss of human capital when retirement is determined by age rather than capability. The public-private divide is stark: public-sector employees expect to retire earlier with stable pension



access, while private-sector workers—particularly those in elementary occupations—face longer expected working lives driven by financial necessity, with only about one-third having provident fund access. These findings point to the need to reform the rigid age-based retirement system, support phased retirement, and tailor policies to reflect the different realities of public and private sector workers.

Keywords: mandatory retirement age, expected retirement age, expected working hours, phased retirement

1. INTRODUCTION

Thailand is facing a significant demographic shift characterized by a rapidly aging population and increasing life expectancy. While the sustainability of public pension funds has sparked frequent debates regarding the statutory retirement age, actual policy reforms have yet to be implemented. In contrast, several ASEAN nations have already adjusted their regulations to reflect longer life expectancies: Singapore increased its retirement age to 64 in 2026, Vietnam is implementing a phased increase to 62 for men by 2028 and 60 for women by 2035, and Myanmar recently moved its threshold to 62

* This article is based on the study “Promoting Happy Aging in ASEAN: Enhancing Health, Security, and Social Participation,” supported by the ASEAN Centre for Active Ageing and Innovation (ACAI), 2026.

** Ms. Savinee Mega is Assistant Professor at Udon Thani Rajabhat University.

*** Mr. Kanyaphak Ngaosri is Researcher, Social Security Policy, Thailand Development Research Institute (TDRI).

(ASEAN, 2023). Thailand, however, maintains a statutory retirement age for the public sector at 60 years old, creating a growing gap between demographic reality and labor market rules. With no reform in sight, the consequences are visible in the labor market. Only 1.36 percent of Thailand's formal-sector employees are aged 65 and over, suggesting that many older workers leave formal employment at or before 60, shifting instead into informal work or self-employment (ASEAN, 2023; ILOSTAT, 2026).

The mandatory retirement age (MRA) in Thailand refers to the statutory retirement age of 60 for civil servants, while private enterprises can set their own retirement thresholds, such as 55, aligning with the Social Security retirement age (the age at which individuals become eligible for full retirement benefits) and/or following the Labor Protection Act, Article 118/1. These policies create a structural barrier, as older workers may be forced out of employment at the age of 55 or 60 despite their willingness to continue working. Aroonjit (2020) notes that under this system, older workers face compounding challenges, including forced retirement, hiring bias, and a lack of flexible work arrangements. Without alternative late-career employment options within the formal sector, individuals are forced into a binary choice between full-time formal work and complete retirement. Consequently, some may shift from the formal sector to the informal sector, which has no social security benefits. This transition from formal to informal work is evident in Thailand's social security data: the number of workers covered by the Social Security Scheme (SSS) drops by 58% between the ages of 50–59 and 60, with nearly one million individuals leaving the formal workforce (National Statistical Office, 2024).

Empirical research in other countries has examined how workers envision their retirement when given more flexible options. Studies using the Health and Retirement Study (HRS) in the United States find that workers, on average, expect to retire at age 64, though 37 percent report they expect to never retire (Gorry & Leganza, 2024). In the Netherlands, stated preference experiments show that when offered gradual retirement options, workers delay full retirement by one year on average compared to full-stop scenarios, though total lifetime

labor supply decreases slightly as workers reduce hours before full exit (Elsayed et al., 2018). Hudomiet et al. (2021) used hypothetical job scenarios to examine how working conditions affect the probability of working past age 70, finding that flexible hours and reduced physical demands significantly increase willingness to continue working.

In Thailand, however, while debate over the retirement age continues, a fundamental question remains insufficiently addressed: what are employees' preferences regarding later-life employment? Existing discussion has concentrated primarily on whether the policy threshold should be adjusted, with far less attention given to whether workers intend to remain employed beyond age 60, the number of hours they expect to work as they age, and the employment arrangements they prefer. Despite the policy relevance of these questions, large-scale empirical evidence on employment preferences among Thailand's formal-sector workforce remains limited. Understanding these preferences, independently of institutional constraints, is essential for designing policies that align with how people want to transition out of work.

This study fills that gap by drawing on a survey of 1,573 formal-sector employees aged 50–60 across four major regions of Thailand. Notably, the survey measures expected retirement age under a hypothetical scenario in which no mandatory retirement age is imposed, asking respondents to factor in their health, financial, family, and social circumstances. This design separates workers' own expectations from institutional constraints, providing a clearer picture of what pre-retirement workers actually want. The study presents a descriptive overview of these expectations regarding retirement age and expected working hours, alongside employment conditions, health status, financial resources, and family circumstances. Ultimately, these patterns are used to draw practical policy implications for the Thai labor market.

2. DATA AND METHOD

The target population consisted of Thai individuals aged 50–60 who were currently employed in the formal sector. This included private-

sector employees, government officials, and state enterprise employees. The age range of 50–60 was selected to capture workers in the immediate pre-retirement phase, when retirement expectations are most likely to influence labor supply decisions (Coppola & Wilke, 2010; Post et al., 2013). The sample size was calculated using Cochran’s formula to determine the requisite sample size. For sample size determination, we used a 95% confidence level, a 2.53% margin of error, and a 50% population proportion. To account for potential non-response or data errors, the target was increased by 5%, resulting in a final dataset of 1,573 valid responses.

This study employed a multi-stage sampling design. First, respondents were allocated proportionally across four regions of Thailand based on the Labor Force Survey (LFS) Q4 2024 (National Statistical Office, 2024). In the second stage, one representative province was selected from each

region—Bangkok Metropolitan Region, Chiang Mai, Khon Kaen, and Songkhla—based on their high concentration of formal-sector employment (Table 1). Within each province, the sample was further distributed across private sector, government, and state enterprise employment to reflect differences in job characteristics, pension coverage, and retirement regulations, following proportions reported in the LFS. Data were collected through face-to-face interviews using a structured questionnaire covering employment characteristics, retirement expectations, health status, and socioeconomic conditions. The questionnaire was pilot tested with 30 respondents to assess clarity and internal consistency. The study protocol was reviewed and approved by the Institute for the Development of Human Research Protections (IHRP), with Certificate of Approval No. IHRP2025090, dated July 4, 2025.

Table 1
Samples by Region and Employment Sectors

Region	Private	Government	State Enterprise	Total
Bangkok Metropolitan	757	156	32	945
Northern (Chiang Mai)	98	68	–	166
Northeastern (Khon Kaen)	156	101	8	265
Southern (Songkhla)	93	98	6	197
Total	1,104	423	46	1,573

Note. Sample proportions estimated from the Labor Force Survey, Q4 2024, NSO.

3. FINDINGS

The following sections trace the pre-retirement experience from the workplace to the retirement horizon—beginning with how employees describe their current employment conditions, then turning to retirement expectations and expected working hours, before examining the health and financial circumstances that shape those expectations.

3.1 The Quality of Employment: Status and Stress

Work characteristics differ substantially across public and private sectors¹ among pre-retirement

employees (Figure 1). Public-sector employees are predominantly white-collar workers, including professionals (47.7%) and military/police (20.3%), whereas private-sector employees are more occupationally diverse, with a larger share of blue-collar workers such as basic laborers (30.8%), technical/support staff (24.3%), and sales/service workers (15.9%). These occupational differences are directly reflected in job demands; private-sector employees report higher levels of heavy physical work (mean = 1.92), consistent with their greater concentration in manual and service roles, while public-sector employees report higher levels of

¹ Public-sector employees encompass civil servants, government agency employees at central and provincial levels, local administration staff, and state enterprise employees. Private-sector employees are defined as workers registered under the Social Security System (SSS), including those in manufacturing, services, and commerce.

concentration demands, communication tasks, and computer-based work, reflecting their predominantly white-collar occupational profile. These patterns suggest sector-specific forms of strain—physical in the private sector and cognitive-administrative in the public sector.

Private-sector employees not only face more physically demanding tasks but also tend to work longer hours and have fewer days off than those in the public sector. On average, public-sector employees receive about 1.86 days off per week, compared with only 1.36 days for private-sector workers. In total weekly hours, the gap remains substantial: private-

sector workers average 47.46 hours per week, compared with 42.5 hours in the public sector (Figure 2).

Notably, 43% of all workers report having only one day off per week, while 3% report having no regular days off at all. In addition, public-sector workers report greater job security, higher job satisfaction, and a stronger ability to save (Figure 3), while work pressure remains similar across sectors. These descriptive patterns suggest that private-sector employees face heavier workloads combined with lower employment stability as they approach retirement.

Figure 1
Work Characteristics by Employment Sector

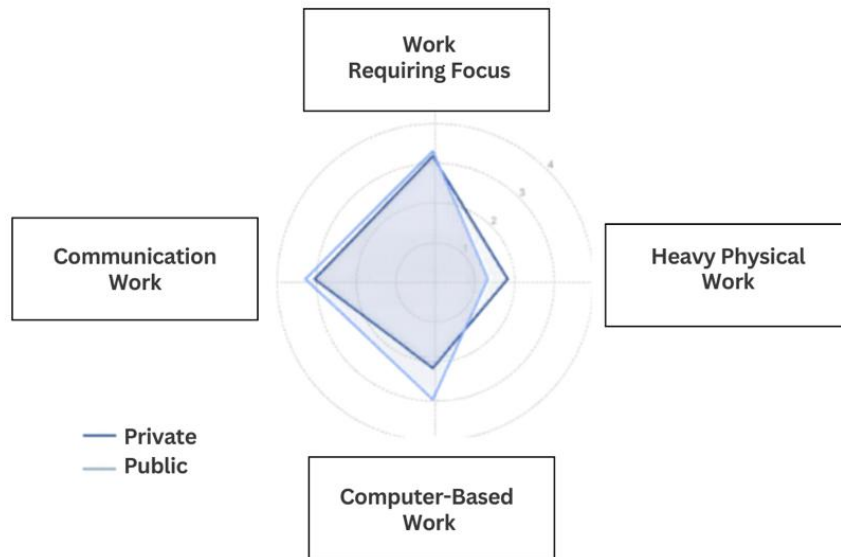


Figure 2
Working Hours and Days Off by Sector

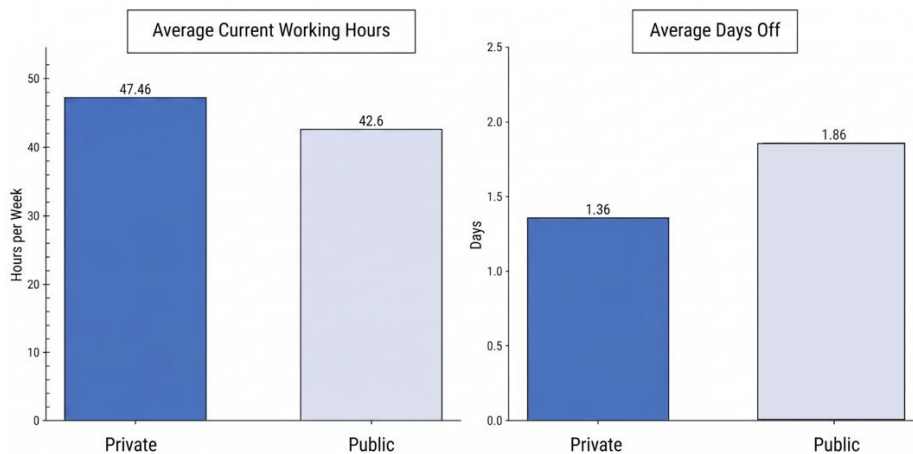
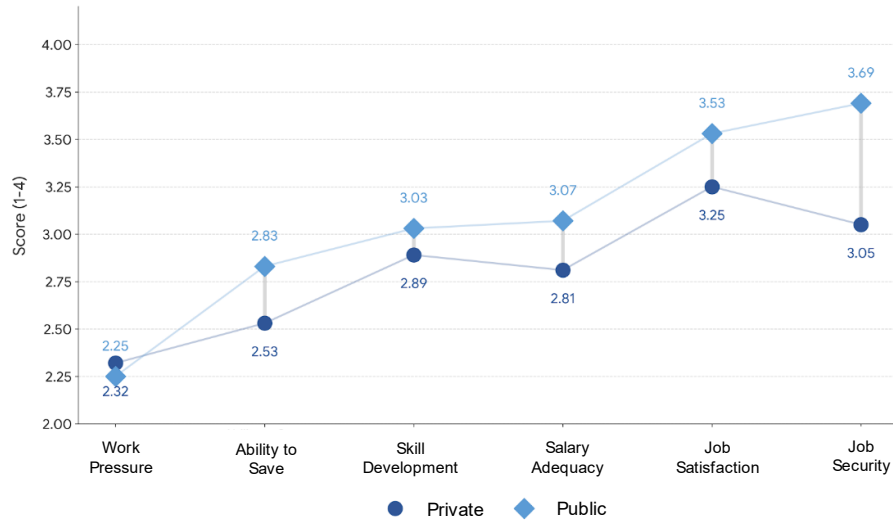


Figure 3
Employment Quality Profile: Private vs. Public Sector

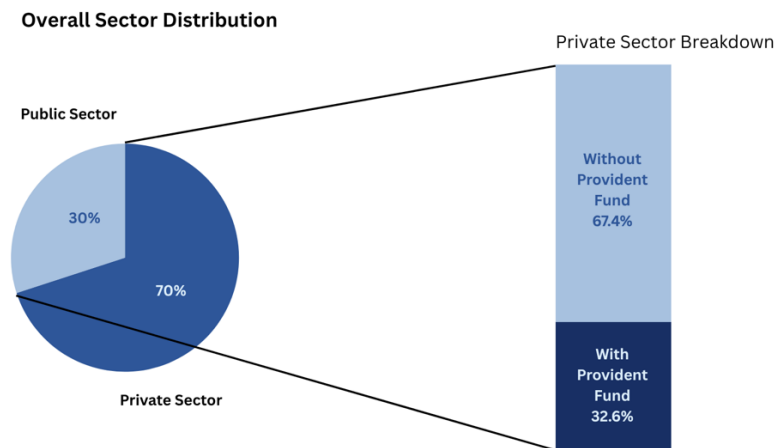


Within the private sector, notable differences also exist, driven largely by unequal access to the provident fund (a retirement savings fund jointly contributed by employers and employees). Figure 4 illustrates the distribution of employees by sector and highlights provident fund coverage among private-sector workers. Overall, 70% of respondents are employed in the private sector, while 30% work in the public sector. Among private-sector employees, only 32.6% report having provident fund coverage, whereas 67.4% do not participate in any provident fund scheme. Looking at those without provident fund coverage, the majority are basic laborers (41.9%), followed by sales/service workers (18.9%)

and technical/support staff (16.3%)—occupational groups typically found in small and medium enterprises where provident fund provision remains voluntary and is less commonly offered.

This indicates that access to formal retirement savings mechanisms remains limited for many private-sector employees. This pattern largely reflects differences in job status, which influence access to such mechanisms. The findings suggest that a substantial share of private-sector workers may face weaker financial preparedness for retirement, particularly when compared with public-sector employees, who typically have access to more structured pension arrangements.

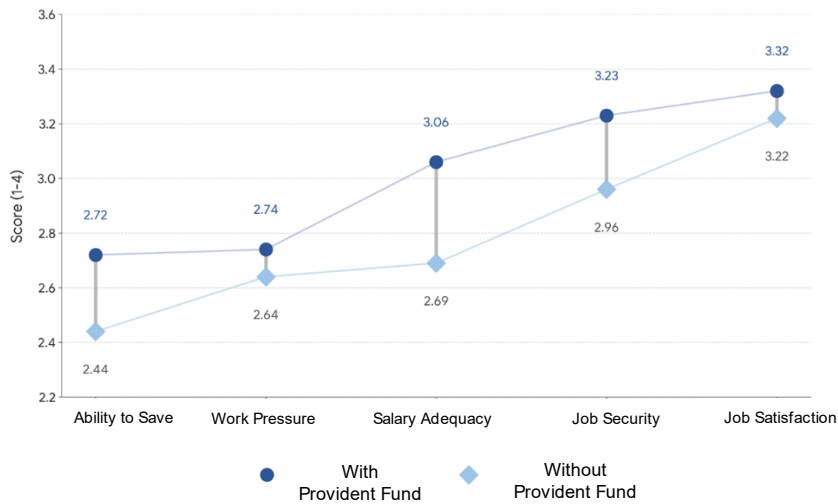
Figure 4
Provident Fund Coverage Among Private Sector Employees



This gap matters as shown in Figure 5. Employees with access to the provident fund report higher salary adequacy (3.06 vs. 2.69), a stronger ability to save (2.72 vs. 2.44), and greater job security (3.23 vs. 2.96), while job satisfaction remains similar across both groups. Overall, employment quality among pre-retirement workers varies by both sector

and benefit coverage. Private-sector employees tend to face greater physical demands, longer hours, and fewer days off, alongside lower job security. Within the private sector, access to a provident fund is also uneven, and those without access report lower salary adequacy, a weaker ability to save, and lower job security compared to those with coverage.

Figure 5
Private Sector Workers by Provident Fund Status

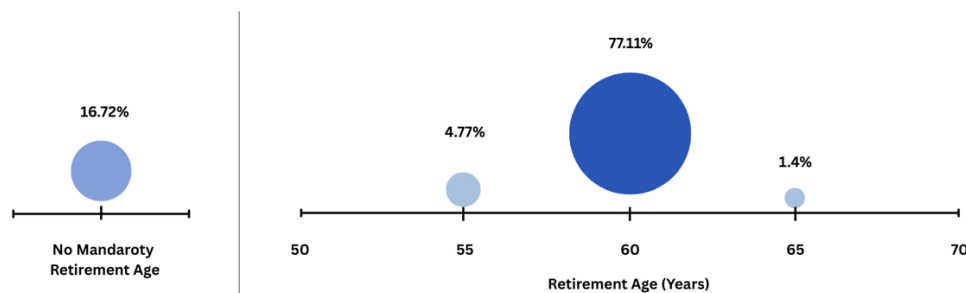


3.2 The Retirement Horizon: Expectations and Transitions

The average expected retirement age—even when measured under a hypothetical scenario in which mandatory retirement rules are removed—is 60.15 years. This tight clustering around age 60 is no coincidence: it reflects the dominance of Thailand's mandatory retirement age of 60, which applies to 77% of surveyed workers (Figure 6). Only small shares of organizations set the threshold at 55 years (4.77%) or 65 years (1.40%), while 16.72% of

respondents report working in organizations with no mandatory retirement age. The persistence of this pattern even under the hypothetical removal of the mandate suggests that workers have deeply internalized the statutory norm, treating it as the socially expected time to stop working rather than an external constraint—consistent with behavioral economics research showing that institutional reference points shape retirement intentions well beyond their formal application (Knoll, 2011; Vermeer et al., 2019).

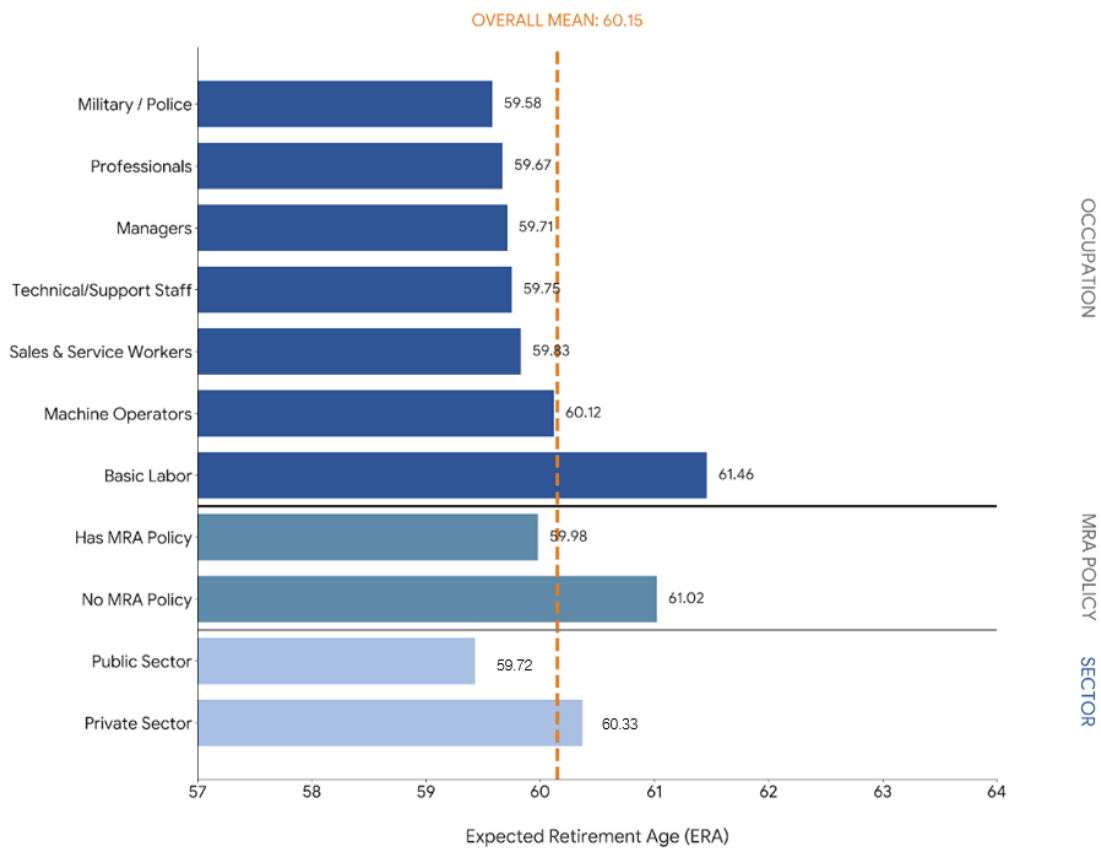
Figure 6
Distribution of Mandatory Retirement Age Policies



Retirement age expectations nonetheless vary across occupational and sectoral groups (Figure 7). Public-sector employees report an ERA of 59.72 years, while elementary/basic labor workers stand out with the highest mean ERA of 61.46 years—

suggesting that workers in lower-income or physically demanding roles anticipate longer working lives, likely driven by financial necessity rather than preference.

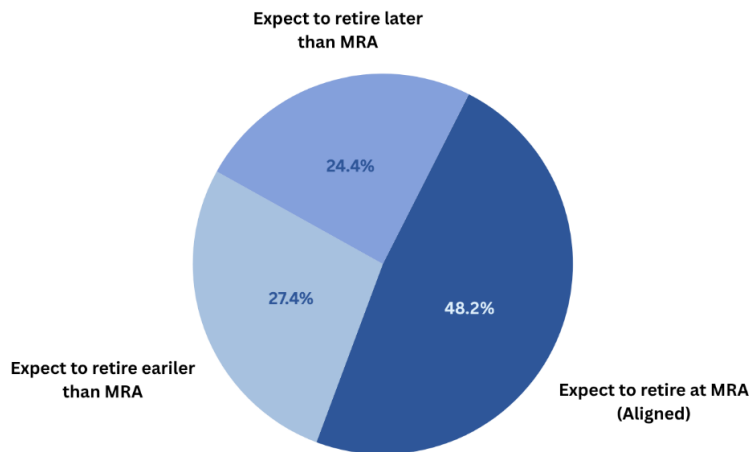
Figure 7
Expected Retirement Age (ERA) by Occupation, MRA Policy, and Sector



While age 60 anchors retirement expectations for the majority, not all workers expect to leave the workforce exactly at the age mandated by their organization. To capture this, the mandatory gap is defined as the difference between a worker’s expected retirement age and the employer’s mandatory retirement age. In this context, a negative value indicates an expectation to retire earlier than the mandate, zero reflects alignment with the policy,

and a positive value indicates an expectation to work beyond the mandatory retirement age. As shown in Figure 8, the largest share of workers expects to retire exactly at the mandatory age, which indicates strong alignment between institutional rules and personal expectations. However, nearly one-quarter of workers (24.4%) expect to remain employed past the mandatory retirement age, highlighting a sizable group whose plans extend beyond institutional limits.

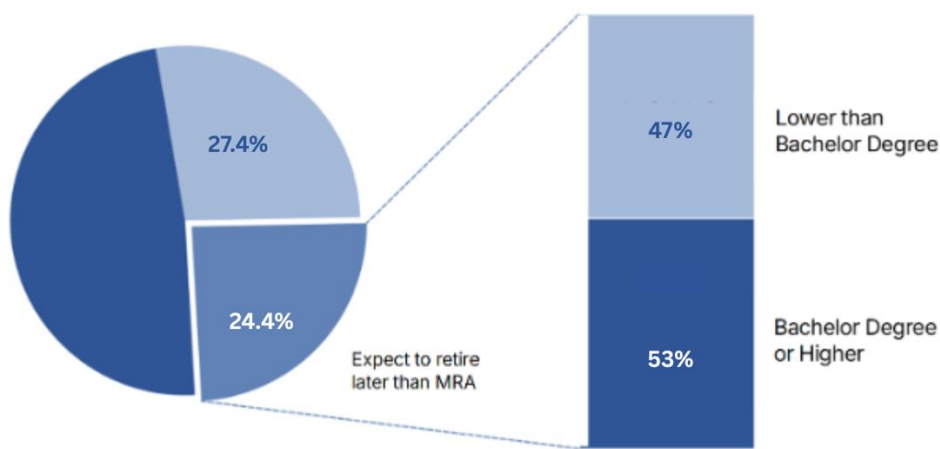
Figure 8
Distribution of The Mandatory Retirement Age Gap



This gap may have implications for Thailand's ageing workforce. The survey results indicate that approximately 53% of respondents hold at least a bachelor's degree (Figure 9). This suggests that a sizeable share of workers approaching mandatory

retirement are relatively well educated. When retirement is determined primarily by age rather than health or productivity, the economy may face potential losses of human capital.

Figure 9
Education of Employees Expecting to Work Beyond MRA

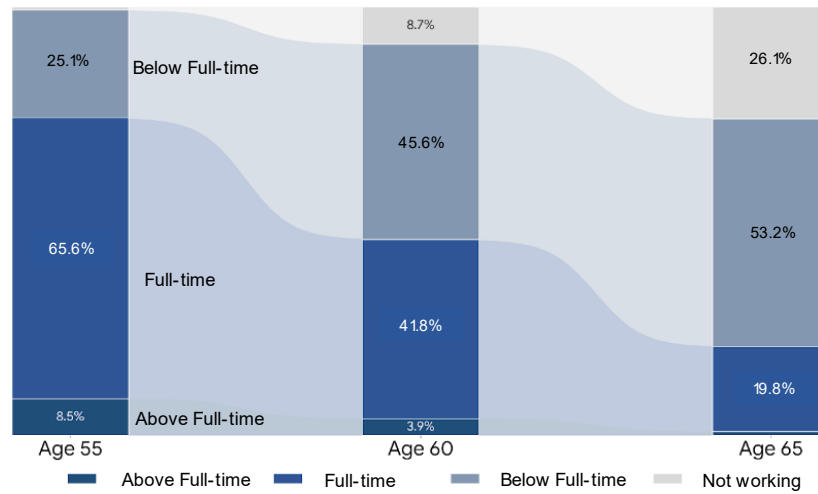


To better understand why they exit the labor force, respondents were asked to identify the primary reasons for retirement. The findings reveal that these drivers differ depending on whether an MRA is enforced. In scenarios where no MRA exists, retirement is most often driven by health reasons (45.6%). In contrast, where an MRA is enforced, retirement is overwhelmingly rule-based; two-thirds of respondents (66.9%) cite "qualification by regulation" as the primary reason for exit. These descriptive patterns suggest that in the absence of a fixed policy, physical and personal capacity

determine the timing of retirement, whereas MRAs shift the focus from an employee's ability to a fixed policy age.

Beyond the age at which workers expect to officially retire, it is crucial to examine the intensity of their continued participation through expected weekly working hours at different ages (55, 60, and 65). At age 55, continued work remains the standard. Nearly 99% of individuals expect to remain economically active, with 65.6% anticipating full-time hours (35–48 hours per week) and another 8.5% expecting to work even more (Figure 10).

Figure 10
Expected Weekly Working Hours at Ages 55, 60, and 65



By age 60, work expectations shift but do not disappear. While the share of those planning to stop rises to 8.7%, over 90% still expect some form of employment. Importantly, this transition is characterized mainly by a reduction in hours rather than a total exit: 45.6% expect to work fewer than full-time, while 41.8% still expect full-time schedules. This suggests that age 60 functions as a turning point toward flexible or partial retirement, rather than a full stop. By age 65, although 26.1%

expect to stop working, nearly three-quarters still anticipate some employment, primarily in reduced-hour arrangements (53.2%). On average, respondents currently work approximately 45.98 hours per week, roughly equivalent to six working days (Figure 11). Expected working hours decline steadily with age—falling to around 39 hours at age 55, 30 hours at age 60, and 18.8 hours by age 65. This pattern suggests a gradual transition rather than an abrupt exit from the workforce.

Figure 11
Average Expected Weekly Working Hours

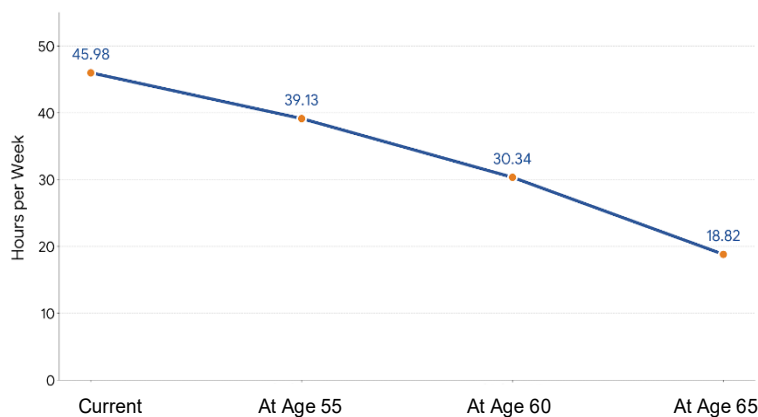


Figure 12 reveals clear differences in expected working hours by mandatory retirement age (MRA) status. Employees subject to an MRA consistently report lower expected weekly working hours at ages 55, 60, and 65, compared to those working in environments without one. The gap is modest at age 55, widens at age 60, and becomes substantial by age

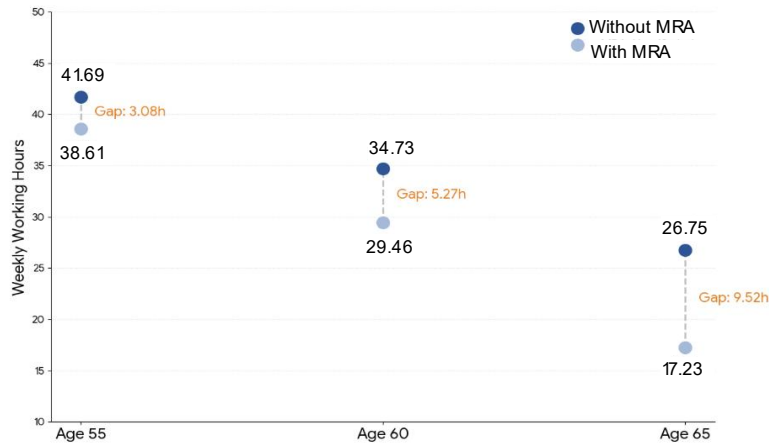
65, indicating that workers in non-MRA environments expect to remain more engaged in their current formal employment at older ages. This pattern is consistent with differences in post-60 plans. Among workers without an MRA, the most common expectation is to continue in their current job (39.9%), followed by freelance or self-employment (34.6%). In contrast,

among workers with an MRA, freelance or self-employment is most common (41.8%).

Ultimately, based on the survey, retirement in Thailand is less a fixed endpoint than a gradual transition—most workers expect to slow down rather

than stop, with expected hours declining steadily as they age. About one in four expect to work beyond the mandated age of 60, and post-retirement plans vary depending on whether an MRA is in place.

Figure 12
Expected Weekly Working Hours by MRA Status



3.3 Assets for a Good Life: Health and Subjective Well-being

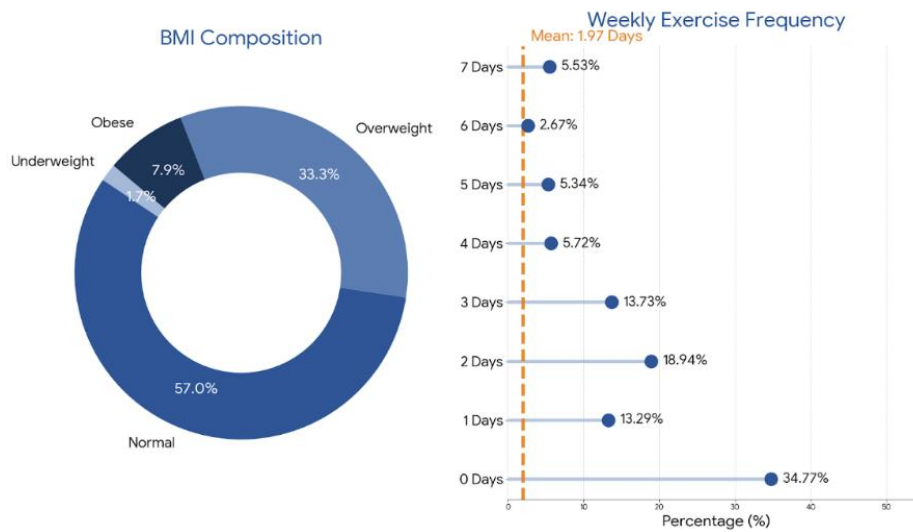
The health profile of workers approaching retirement presents a mixed picture. While 57% of respondents fall within the normal weight range according to the WHO BMI classifications² (Figure 13), exercise habits remain limited—averaging just two days per week, with more than one-third (34.8%) reporting no exercise at all. In addition to BMI and exercise, other work-related health indicators

describe the health status of this pre-retirement group. Currently, 16.53% of respondents report taking more than 12 days of sick leave per year, 9.92% indicate having a health condition that limits their ability to work, and 36.94% report living with at least one chronic illness. Extended sick leave and work-limiting health conditions are descriptively more common among manual and service workers, while chronic illness is observed across all occupational categories.



² WHO classifies adult Body Mass Index (BMI) to categorize underweight, healthy weight, overweight, and obesity based on kg/m². The standard classification is: <18.50 (Underweight), 18.50–24.99 (Normal), 25.00–29.99 (Overweight), and >30.00 (Obesity).

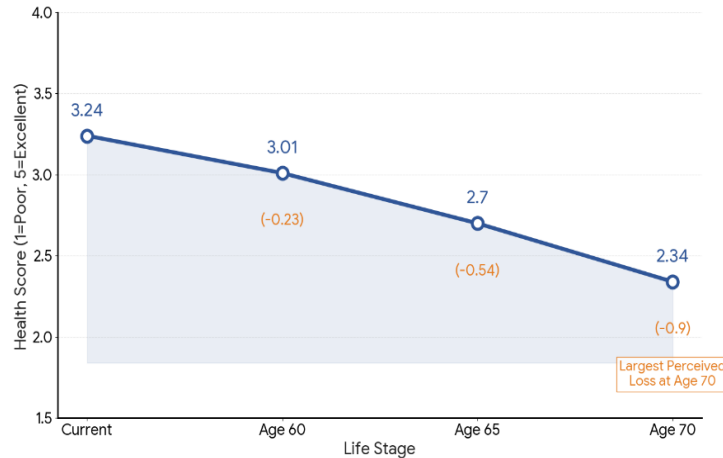
Figure 13
Current Health Indices—BMI and Exercise Frequency



Looking at health expectations across different ages, self-rated health declines as respondents project their health into the future. As shown in Figure 14, the average health rating decreases to 3.01 at age 60,

further to 2.70 at age 65, and to 2.34 by age 70. This pattern shows that respondents expect their health to decline gradually as they age.

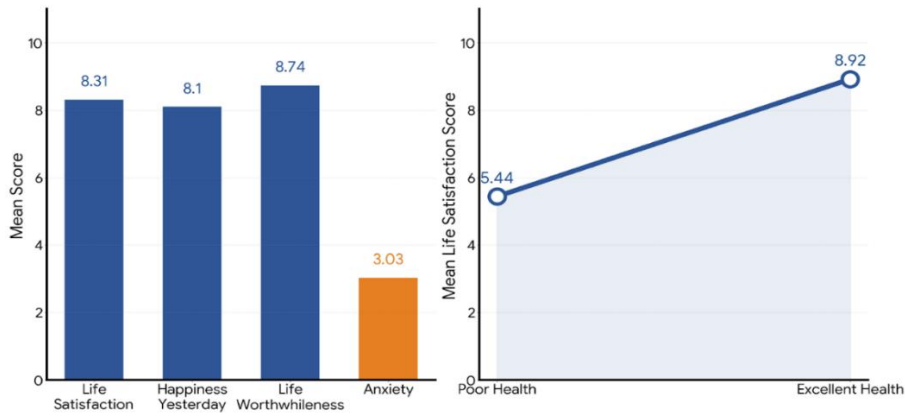
Figure 14
Self-Rated Health Expectations by Age



Shifting from physical health, the focus turns to subjective well-being. Despite physical limitations, overall well-being remains high among respondents (see Figure 15). The average life satisfaction score is 8.31 out of 10, accompanied by strong ratings for happiness (8.1) and the sense that life is worthwhile (8.74). Anxiety levels are comparatively low, with an

average score of 3.03. Moreover, nearly 77% of respondents report high life satisfaction (scores of 8–10), while only 1.4% report low satisfaction. Life satisfaction scores also vary across self-rated health categories, rising steadily from 5.44 among those in poor health to 8.92 among those who rate their health as excellent.

Figure 15
Subjective Well-being

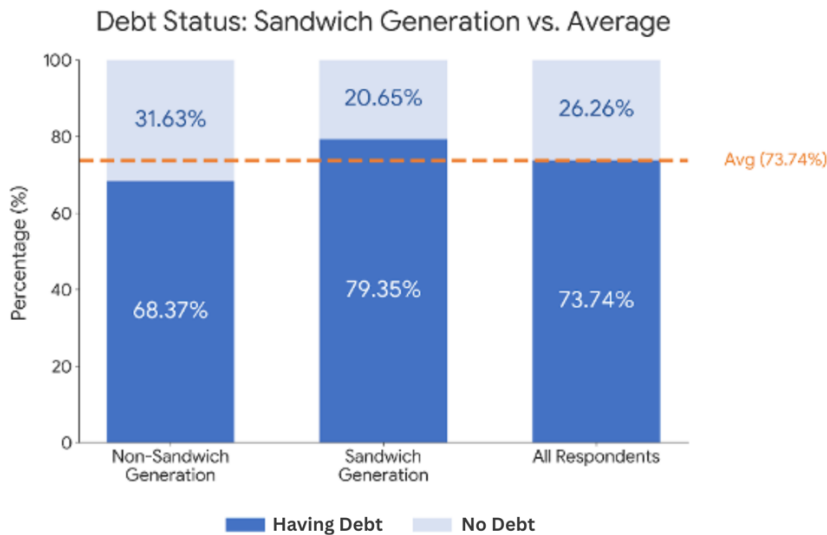


3.4 The Context of Vulnerability: Economic Security and Family Structure

Beyond individual health and well-being, we also observe the broader context of vulnerability—specifically economic security and family structure—as these dynamics may relate to expected retirement decisions. On average, respondents live in households of 3.53 members, reflecting continued

family co-residence rather than solitary living in later life. Nearly half of the respondents are part of the *sandwich generation*, simultaneously supporting both older and younger family members. Financial vulnerability is particularly pronounced among this group. As shown in Figure 16, 79.35% of sandwich-generation workers report having outstanding debt, compared with 68.4% among non-sandwich workers.

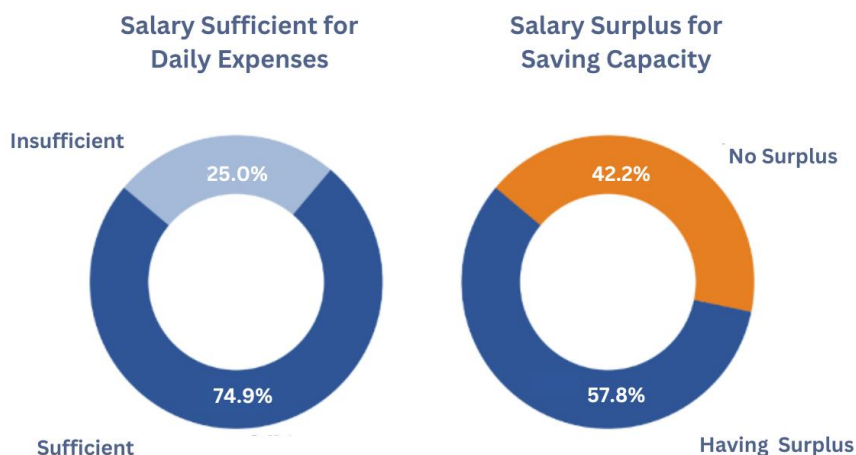
Figure 16
Debt Status



Despite this prevalent debt, most households are still able to manage their immediate needs. About 74.9% of respondents indicate that their salary is sufficient to cover daily expenses (Figure 17).

However, this day-to-day survival does not translate into long-term security. Only 57.8% report having a salary surplus for savings, leaving 42.2% without adequate financial reserves.

Figure 17
Financial Adequacy and Savings Capacity



4. CONCLUSION AND POLICY IMPLICATIONS

The findings from this survey of 1,573 formal-sector workers aged 50–60 reveal that Thailand’s pre-retirement workforce does not envision an abrupt exit at age 60. The majority expect to continue working in some capacity—with weekly hours declining gradually from 46 at present to 39 at age 55, 30 at age 60, and 19 by age 65. Even at age 65, nearly three-quarters still anticipate some form of employment, primarily in reduced-hour arrangements. Yet the mandatory retirement age powerfully shapes these expectations. Nearly half of workers plan to retire at exactly the mandated age. In MRA-enforcing organizations, two-thirds cite “meeting the age requirement” as the primary reason for leaving—not health, not family, not financial readiness. Where no MRA exists, by contrast, health is the dominant driver of retirement.

The MRA does not simply set a legal endpoint; it anchors when workers believe they should stop. The data also reveal that about one in four workers expect to work beyond the MRA, and over half of this group hold at least a bachelor’s degree—suggesting a potential loss of human capital when retirement is determined by age rather than capability. Meanwhile, the public-private divide is stark: public-sector employees expect to retire earlier with stable pension access, while private-sector workers, especially those in elementary occupations and without provident fund coverage, face longer

expected working lives driven by financial necessity. Only 32.6 percent of private-sector employees have access to a provident fund, and those without it report lower salary adequacy, weaker savings capacity, and less job security.

Financial vulnerability is widespread: nearly 80 percent of sandwich-generation workers carry outstanding debt, and over 40 percent of all respondents cannot save beyond covering daily expenses. Post-60 plans further illustrate the MRA’s impact—workers without an MRA most commonly plan to stay in their current job, while those subject to an MRA most commonly plan to shift into freelance or self-employment, effectively moving from protected formal work into less secure arrangements.

These patterns point to several practical policy directions. The current rigid age-based retirement system should be reformed to allow workers who wish to continue beyond the MRA to do so, particularly for private-sector and low-skilled workers who expect to retire later out of financial need. Given that workers clearly prefer a gradual reduction in hours rather than a hard stop, labor regulations should be adjusted to make phased retirement financially viable, including decoupling severance and pension calculations from final reduced wages. The sharp difference between public and private sector conditions suggests that a uniform approach to retirement reform would be inadequate; policies should be tailored to reflect the different pension structures, job demands, and financial

realities each group faces. Finally, with a significant share of workers unable to save and relying on continued employment for basic financial survival, stimulating employer demand for older workers through accessible tax incentives and simplified hiring processes would help ensure that those who need to keep working have the opportunity to do so.

Notwithstanding these findings, please note that this study relies on a cross-sectional survey analyzed using descriptive statistics, which limits causal inference. Future research employing more advanced analytical techniques would provide stronger empirical support for the policy recommendations outlined above.



REFERENCES

- Association of Southeast Asian Nations. (2023). *Old age poverty and active ageing in ASEAN: Trends and opportunities*. <https://asean.org/wp-content/uploads/2024/07/Old-Age-Poverty-and-Active-Ageing-in-ASEAN-Trends-and-Opportunities-250724.pdf>
- Aroonjit, S. (2020). Ageing labor forces: Ageism and social injustice [แรงงานผู้สูงอายุ: อคติช่วงวัยกับความไม่เป็นธรรมทางสังคม]. In Kumhom, R. *Social work and social welfare: unlocking social inequality towards sustainability* (pp. 328-341). https://www.dop.go.th/download/knowledge/th1614859657-600_0.pdf
- Coppola, M., & Wilke, C. B. (2010). How Sensitive are Subjective Retirement Expectations to Increases in the Statutory Retirement Age? The German Case. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1701630>
- Elsayed, A., de Grip, A., Fouarge, D., & Montizaan, R. (2018). Gradual retirement, financial incentives, and labour supply of older workers: Evidence from a stated preference analysis. *Journal of Economic Behavior & Organization*, 150, 277–294.
- Gorry, A., & Leganza, J. M. (2024). *How do life events affect retirement timing? Evidence from expectations data* (TIAA Institute Research Paper Series No. 210). SSRN. <https://doi.org/10.2139/ssrn.4815140>
- Hudomiet, P., Hurd, M. D., Parker, A. M., & Rohwedder, S. (2021). The effects of job characteristics on retirement. *Journal of Pension Economics and Finance*, 20(3), 357–373.
- International Labour Organization. (2026). *Country profiles: Thailand*. ILOSTAT. <https://ilostat.ilo.org/data/country-profiles/tha/>
- Knoll, M. A. Z. (2011). Behavioral and psychological aspects of the retirement decision. *Social Security Bulletin*, 71(4), 15–32.
- National Statistical Office. (2024). *The 2024 survey of the older persons in Thailand*. https://www.nso.go.th/nsoweb/storage/survey_detail/2025/20241209145003_88327.pdf
- Post, C., Schneer, J. A., Reitman, F., & Ogilvie, D. (2013). Pathways to retirement: A career stage analysis of retirement age expectations. *Human Relations*, 66(1), 87–112. <https://doi.org/10.1177/0018726712465657>
- Vermeer, N., van Rooij, M., & van Vuuren, D. (2019). Retirement age preferences: The role of social interactions and anchoring at the statutory retirement age. *De Economist*, 167(4), 307–345.

Thailand Development Research Institute (TDRI)

565 Soi Ramkhamhaeng 39
Wangthonglang, Bangkok 10310 Thailand

Tel: 02-718-5460 ext.474

Fax: 02-718-5461-2

Website: www.tdri.or.th

X.com: @TDRI_thailand

Facebook: @tdri.thailand

TDRI