

Graduate Outcomes of Agricultural TVET in Malaysia

by Dr. Sarena Che Omar and Anis Farhana Amran





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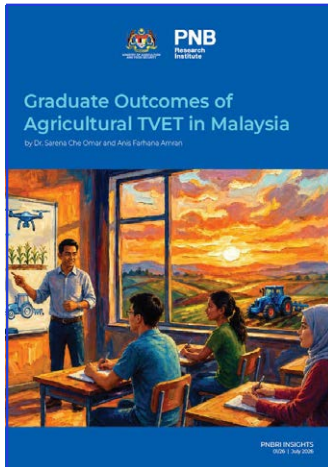
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Table of Contents

Acknowledgements	7
Executive Summary	8
Background	8
Key Findings	9
Policy Directions	10

1. Introduction **12**

1.1 Background Context	12
1.2 Scope and Objectives	12
1.3 State of Agricultural Labour in Malaysia	13
1.3.1 Evolving Economic Landscape	13
1.3.2 Shifting Labour Market Landscape	14
1.3.3 Increasing Reliance on Foreign Labour	15
1.3.4 Relatively Low Wage Levels in the Agriculture Sector	16
1.3.5 Ageing Demographics among Agriculture Workers	17
1.3.6 Stagnating Labour Productivity	18
1.3.7 Summary: Labour Market Challenges and the Skills Imperative	19
1.4 Agricultural TVET in Malaysia	20
1.4.1 TVET in General	20
1.4.2 TVET in Agriculture	21
1.4.3 The State of Agricultural TVET in Malaysia	22

2. Methodology **25**

2.1 Data Source and Coverage	25
2.2 Sample Scope	27
2.3 Analytical Approach	28
2.4 Limitations	28

3. Results: The Profile of KPKM AgriTVET Graduates **29**

3.1 Spatial Distribution of Graduates by Home State	29
3.2 Relative Spatial Concentration of AgriTVET Participation by Home State	31
3.3 Economic Context of AgriTVET Participation by State	33
3.4 Localisation and Graduate Mobility	38
3.5 Discussion and Policy Implications: Typology of State-Level Participation and Strategic Priorities	39

4. Results: The Labour Market Outcomes of KPKM AgriTVET Graduates **42**

4.1 Employment Rate	42
4.1.1 Significance of Graduate Employment Rates (GER) in the Agriculture Sector	42
4.1.2 Gradual Improvement in GER from a Low Base	43
4.1.3 Relative Positioning of KPKM AgriTVET Within the Broader Graduate Landscape	43

4.2 Employment Structure in Agriculture: Paid Employment and Self-Employment	44
4.2.1 Distinct Features of Agriculture: Paid Employment and Self-Employment	44
4.2.2 Prevalence of Self-Employment Among Agriculture Graduates in Malaysia	43
4.2.3 Entrepreneurship and Self-Employment Pathways	47
4.3 Differences within Agricultural TVET: Qualification Levels and Programme Tracks	49
4.3.1 Relative Performance of KPKM and Non-KPKM Providers	49
4.3.2 Programme-Level Differences: The Outstandong of Sijil Veterinar Malaysia	50
4.4 Quality of Employment	52
4.4.1 Job-Skill Match	52
4.4.2 Income Outcomes	55
4.5 Discussion and Policy Implications: Aligning KPKM AgriTVET with Sector Realities	56

5. Results: Job-Field Alignment Within KPKM AgriTVET Graduates 61

5.1 A Stable but Limited Level of Job-Field Alignment	61
5.2 Modest Income Incentives for Agricultural Alignment	63
5.3 Agropreneurship: Aligned but Under-Scaled	64
5.4 Discussion and Policy Implications: Incentives-Constrained Job-Field Alignment	67

6. Integrated Discussion and Policy Directions 68

Reference List 71

Glossary 74

Anything that's physically moving atoms, like cooking food or farming, anything that's physical, those jobs will exist for a much longer time. But anything that is digital, which is just someone at a computer doing something, AI is going to take over those jobs like lightning.

Elon Musk (2025)¹

¹ Quoted in Griffiths, "Elon Musk: AI Is a 'Supersonic Tsunami' That Will Upend the Workforce".

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The authors remain solely responsible for the contents and findings of this paper, and they are not the opinion of PNBRI nor PNB.

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Executive Summary

This report is the outcome of a collaboration between the PNB Research Institute (PNBRI) and the Ministry of Agriculture and Food Security (KPKM). The partnership enabled PNBRI to access national agri-food data for research and policy analysis aimed at strengthening Malaysia's agricultural and food security landscape.

The study focuses on agricultural Technical and Vocational Education and Training (TVET) which is a key strategic area identified in the KPKM Strategic Plan 2025-2030 under Pillar 3: Strengthening a Competitive Talent Pool.

The study is guided by three objectives:

1. **To profile KPKM's agricultural TVET graduates** according to their socio-demographic characteristics, including geographic distribution;
2. **To assess these graduates' labour-market outcomes** according to their employment status, job relevance, and income as indicators of the economic returns to education and training; and
3. **To examine job-field alignment**, specifically whether graduates of KPKM's agricultural TVET programmes are employed in agriculture-related occupations.

Background

Malaysia's agricultural workforce has been steadily contracting, with agriculture's share of total employment declining from 40% in 1980 to 9% in 2024. The sector is also ageing, with one in every two agricultural workers aged 40 and above, indicating weak youth participation. Furthermore, agriculture has become increasingly reliant on foreign labour, with the number of foreign agricultural workers more than doubling, from about 250,000 in 2000 to 530,000 in 2024. At the same time, wage levels and productivity growth in agriculture remain relatively weak compared to other sectors, limiting income prospects for workers. Taken together, these trends point to structural challenges within the agricultural labour market, including low job attractiveness, limited skills upgrading, and weak workforce renewal.

Strengthening skills development is therefore critical to revitalising the sector and supporting Malaysia's food security goals. In this context, agricultural TVET plays a key role in equipping workers with the technical, adaptive, and entrepreneurial capabilities required in a modern agriculture and food economy. Toward this end, KPKM has stepped in since 2002 to directly provide TVET-based training and certify its graduates, through the TVET programme at KPKM, hereafter referred to as "KPKM AgriTVET".

Under KPKM, AgriTVET provision is organised into four main programme tracks:

1. Program Latihan Kemahiran Pertanian Kebangsaan (PLKPK) (National Agricultural Skills Training Programme), which comprises ten sub-fields and offers qualifications ranging from Sijil Kemahiran Malaysia (SKM) (Malaysian Skills Certificate) to Diploma-level certifications;
2. Sijil Pertanian (Agriculture Certificate), administered by the Department of Agriculture (DOA);
3. Sijil Veterinar Malaysia (Malaysian Veterinary Certificate), administered by the Department of Veterinary Services (DVS); and
4. Sijil Perikanan (Fisheries Certificate), offered by the Department of Fisheries (DOF).

Key Findings

Structural Context and Participation Patterns

The KPKM AgriTVET participation exhibits a clearly differentiated pattern across states. A group of primary participation states, including **Kedah, Sabah, and Sarawak**, consistently records both large graduate numbers and above-average relative participation, and are broadly aligned with their agricultural economic base. A second group, including **Kelantan, Terengganu, and Perlis**, displays high relative participation despite smaller absolute numbers, indicating a stronger role for AgriTVET within their local TVET systems. In contrast, several states with sizeable agricultural sectors, most notably **Johor, Perak, and Pahang**, show lower-than-expected participation in both absolute and relative terms.

These patterns suggest that AgriTVET participation reflects differentiated state-level dynamics rather than a uniform national pattern, highlighting the need for a more targeted, state-specific approach to programme planning. In particular, this includes [strengthening programme alignment and diversification in high-participation states](#), [sustaining niche and context-specific pathways in secondary states](#), and [addressing participation gaps in under-represented states with clear agricultural potential](#).

Labour Market Outcomes and Graduate Behaviour

Labour market outcomes for KPKM AgriTVET reflect the structure of employment within the agricultural sector. **The employment rate has increased** from 60.6% in 2018 to 76.0% in 2024, but remains below the overall TVET average (95.0%). At the same time, **KPKM AgriTVET records a higher share of self-employment** (34.1% vs. 24.3%), indicating that agricultural career pathways rely more on enterprise-based work than formal employment. Nevertheless, among the self-employed, **the share engaged in entrepreneurship has declined significantly**, from 64.6% in 2020 to 32.1% in 2024, pointing to challenges in initiating and sustaining agricultural enterprises.

Most graduates, particularly at MQF Level 3, are appropriately matched to their skill levels, with relatively low rates of skill underemployment (around 10-20% across major certificate programmes), suggesting the training is generally aligned with labour market requirements.

However, outcomes at higher qualification levels are weaker. **Nearly two-thirds of diploma graduates are skill-underemployed**, indicating limited skill utilisation and weaker returns to higher-level qualifications within KPKM AgriTVET. This may reduce incentives for progression and points to gaps in alignment with higher-value roles within the sector.

These patterns suggest that while AgriTVET supports entry into decent agricultural work, improving outcomes will depend not only on programme design, but on [strengthening the broader ecosystem that supports transitions into sustainable enterprise, as well as enhancing progression into more productive segments of the agricultural economy.](#)

Job-field Alignment

Job-field alignment patterns indicate that **a stable share of KPKM AgriTVET graduates, slightly over one-third, continue to enter the agriculture sector. These graduates tend to earn marginally higher incomes than peers working in other sectors.**

Among those pursuing self-employment, **agropreneurs generally earn more than gig workers and family workers, and in most years record higher median incomes than entrepreneurs in other sectors.** However, these income advantages are modest and fluctuate considerably, with premiums turning negative in some years.

As a result, **while agriculture offers some positive returns, they remain too limited and uncertain to anchor graduates' career decisions.** In the absence of stronger and more predictable income prospects, graduates may continue to shift towards alternative forms of work, including gig-based employment.

These patterns highlight [the importance of strengthening the broader support ecosystem for agropreneurship, so that agricultural pathways become more viable and competitive as early-career options.](#)

Additionally, for future research work, it is worth conducting longer-term monitoring of these KPKM AgriTVET graduates. This is because while early years may suggest some form of income instability, long-term agropreneurs may be better off than gig-workers.

Policy Directions

Improving KPKM AgriTVET programmes requires strengthening an ecosystem that enables graduates to start and sustain agricultural enterprises. Key policy directions include:

Policy Direction 1: Targeted State-Specific Expansion of KPKM AgriTVET Provision

AgriTVET provision should be expanded in a targeted, state-specific manner, with a focus on diversifying programmes in high-participation states, sustaining niche pathways in states with strong relative participation, and addressing participation gaps in under-represented states.

Policy Direction 2: Agriculture-Relevant Performance Measurement Framework

Performance assessment should move beyond short-term employability rates to better reflect agricultural labour market realities. This includes tracking indicators such as income progression, enterprise sustainability, and production outcomes over time (e.g. yields or farm profitability).

Policy Direction 3: De-Risking Mechanisms for Post-Training Agropreneurship

Post-training transitions into agriculture should be supported through structured de-risking mechanisms to address early-stage constraints such as capital, land access, and market entry. This may include a targeted AgriTVET graduate support framework combining financing, access to productive assets, mentoring, and market linkages, implemented in a staged and performance-linked manner.

Policy Direction 4: Embedding Enterprise and Market Competencies in AgriTVET Curricula

Enterprise and market-oriented competencies should be embedded across all AgriTVET programmes, including business planning, cost management, and market analysis, to better prepare graduates for self-employment and enterprise-based work.

Policy Direction 5: Cross-Value-Chain Exposure within Agricultural Training

Training should incorporate structured exposure to the agricultural value chain beyond primary production, including processing, pricing, and distribution. This can be delivered through short modules, industry placements, or cross-programme projects to strengthen market orientation without requiring full downstream specialisation.

Policy Direction 6: Structured Industry Partnerships and Graduate Absorption Pathways

A more coordinated approach to industry engagement is needed, with formalised partnerships that provide structured placements, apprenticeships, and clearer pathways into employment. This should include collaboration with both large agricultural enterprises and emerging high-value segments such as agri-tech and agri-processing.

In summary, KPKM AgriTVET programmes play a critical role in sustaining Malaysia's agricultural labour pipeline. Evidence suggests that most graduates, especially those who attained up to MQF Level 3 KPKM AgriTVET qualifications, are appropriately skill-matched to their qualifications, with a stable share continuing to work in agriculture and earning modest yet higher incomes compared to those who do not. However, these gains remain fragile. To strengthen the long-term attractiveness and impact of KPKM AgriTVET, skills provision must be complemented by a stronger enabling ecosystem, one that:

- support enterprise formation;
- facilitates progression to higher-level skills where demand exists; and
- advances sectoral modernisation in tandem.

1. Introduction

1.1. Background Context

This report is an output from the collaboration between PNBRI and KPKM formalised through a Memorandum of Understanding (MoU) signed on 9 September 2025. It enables PNBRI to access national agri-food data for research and policy analysis aimed at strengthening Malaysia's agricultural sector and food security.

Under this collaboration, the present study focuses on the outcomes of the agricultural Technical and Vocational Education and Training (TVET) programme run by the Ministry, dubbed KPKM AgriTVET. This is an umbrella certification programme funded and offered by the Ministry, with technical training being a key strategic area identified in the KPKM Strategic Plan 2025-2030 under Pillar 3: Strengthening a Competitive Talent Pool. The initiative underscores the importance of building a skilled workforce in the agri-food sector by expanding trainee enrolment, enhancing outreach, and improving graduate employability outcomes.

1.2. Scope and Objectives

This study seeks to understand how agricultural TVET shapes the labour market outcomes and returns of its graduates in Malaysia. It traces their **immediate employment pathways within one year after graduation** from the KPKM AgriTVET program, examining the types of jobs they enter, the relevance of these roles to their training, and the economic returns derived from their qualifications.

The analysis draws on annual cross-sectional data provided by the Agricultural Capacity Building and Training Division (BPKLP) of KPKM, covering graduates from 2018 to 2024. The scope of this report is limited to the KPKM AgriTVET program, thus conclusions may not be generalisable to those offered by other providers. Nevertheless as the largest single provider of AgriTVET, accounting for approximately half of total graduates annually, KPKM offers a sufficiently broad and policy-relevant dataset for analysing graduate profiles and labour-market outcomes within the sector.

The study is guided by three key objectives:

1. **To profile KPKM's agricultural TVET graduates** according to their geographic distribution;
2. **To assess these graduate labour market outcomes** according to their employment status and income as indicators of the economic returns to the KPKM AgriTVET training; and
3. **To examine job-field alignment**, specifically whether graduates of KPKM AgriTVET programmes are employed in agriculture-related occupations.

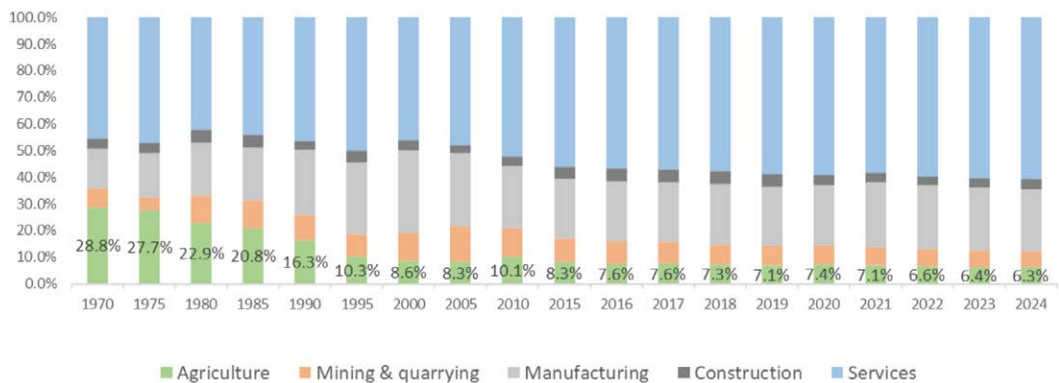
These objectives aim to generate empirical insights to support KPKM's efforts in strengthening the design and delivery of agricultural training under the KPKM Strategic Plan 2025-2030.

1.3. State of Agricultural Labour in Malaysia

1.3.1. Evolving Economic Landscape

Since independence, Malaysia has undergone a rapid transformation from an agrarian economy to an industrial and service-oriented economy. The shift accelerated from the mid-1980s, as industrialisation policies such as the National Development Policy, National Industrial Policy, and National Transformation Policy expanded manufacturing and services, driving urbanisation (Department of Statistics Malaysia, 2025).

Figure 1: Percentage contribution (%) of economic activity to GDP at constant prices (1970-2024)



Source: Malaysian Economic Statistics Review: Special Edition – Navigating the Economic Landscapes (Department of Statistics Malaysia 2025); PNBRI analysis

Within this evolving structure, agriculture's contribution to GDP declined from 28.8% in 1970 to 6.3% by 2024, reflecting the broader transition towards manufacturing and services (Figure 1). Despite this decline, agriculture continues to play an important role in ensuring domestic food supply and in export activity. Recognising this, successive policy frameworks, from the New Economic Policy (1971), which linked agriculture to poverty alleviation, to the National Agrofood Policy (DAN), which promotes technological innovation, have modernised the sector, keeping it central to national food security (Department of Statistics Malaysia 2025).

1.3.2. Shifting Labour Market Landscape

The same structural transformation has reshaped Malaysia's labour market. In 1957, agriculture accounted for nearly 58% of total employment (Abdur Rahman and Schmillen, 2020), indicating the sector's dominance in the early post-independence period. By 1970, one in two employed persons still worked in agriculture (Figure 2).

Figure 2: Total and agricultural employment and share of agriculture (1970-2024)



Sources: Labour Force Survey Reports (Department of Statistics Malaysia, various years); PNBRI analysis

As industrialisation accelerated from the 1980s onwards, there was a sharp reallocation of labour out of the sector. Figure 2 demonstrates that agriculture's share of total employment fell from 40.6% in 1980 to 26.0% in 1990 and further to 16.7% in 2000. By 2024, this share had stabilised at 9.0%, confirming a pattern of a sustained, long-term shift in employment away from agriculture. Today, fewer than 1 in 10 workers are employed in the agricultural sector.

This contraction does not reflect a collapse in agricultural employment but rather the sector's stagnation amid rapid labour-force expansion. Employment in agriculture has remained below two million persons since the 1970s, peaking at 1.8 million in 1989 (Department of Statistics Malaysia 2025) and hovered around 1.5 million persons thereafter. This indicates a situation where the agricultural sector has not been proportionally absorbing newer entrants into the labour market relative to other sectors, particularly the services sector, which has become the dominant source of employment growth in Malaysia.

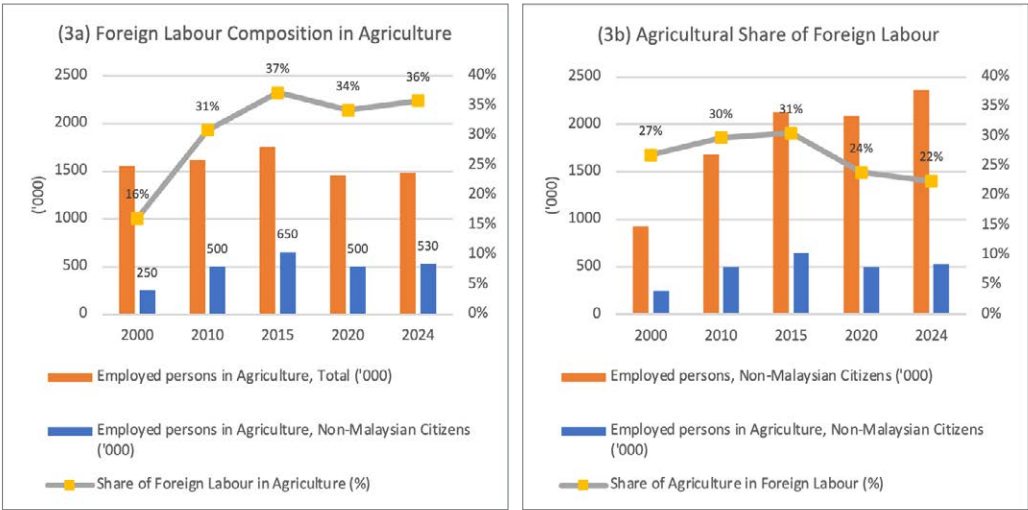
It is important to clarify that the concern here lies not in the declining share of agricultural employment per se, but in the shrinking aspirations among younger Malaysians towards entering the sector. In modernising economies, a declining agricultural labour share is a natural outcome of productivity gains. Furthermore, what matters for sectoral resilience is productivity growth, not labour intensity. Accordingly, Malaysia's priority should not be to re-expand agricultural labour participation, but to improve labour productivity in the sector and elevate both the quality and quantity of food production. These issues are examined further in the later section, **1.3.6 Stagnating Labour Productivity**.

1.3.3. Increasing Reliance on Foreign Labour

Within this stagnant agricultural workforce, dependence on foreign labour has also deepened significantly. The number of foreign workers in agriculture doubled from around 250,000 in 2000 to 500,000 in 2010 (Figure 3(a)). Over the past decades, the share of foreign labour within the agricultural sector rose from 16% in 2000 to 36% in 2024, indicating that more than one in three agricultural workers is now a foreign worker. This reliance on migrant labour is particularly striking when viewed in the broader labour-market context.

While agriculture accounts for only 9% of total employment (Figure 2), it absorbs 22% of all foreign workers in Malaysia (Figure 3 (b)). This trend may be expected to persist, as the Ministry of Home Affairs reported that 53,648 foreign workers had been recruited as of 2023, in line with a stated requirement of 90,000 for the agricultural sector under the Second Labour Recalibration Programme (Carvalho, 2023).

Figure 3a-b: Trends in agricultural employment and foreign labour composition (2000-2024)



Sources: Labour Force Survey Report 2024 (Department of Statistics Malaysia 2025c) and PRELIMINARY REPORT Food Security Indicators Malaysia 2025 (Department of Statistics Malaysia 2025b); PNBRI analysis

Note: Data are rounded to the nearest tenth owing to limitations in the available data.

From a policy perspective, the country's dependence on foreign labour is not an issue in itself, but whether it is managed sustainably and strategically. First, the sector must be better protected from labour-supply shocks such as those experienced during the Covid-19 pandemic, when border closures and recruitment constraints disrupted farm operations (Chu 2021; Vaghefi 2020). Second, reliance on relatively cheaper migrant labour should not create incentives-based barriers (in terms of low wages) against Malaysians who wish to enter agricultural occupations. Increasing Malaysia's local talent in on-farm occupations is central to the analysis that follows in this report.

Several factors may explain agriculture's deep reliance on foreign labour. One potential explanation is that, with more Malaysians completing tertiary education, they are increasingly drawn to skilled, less labour-intensive occupations, making the physically strenuous nature of most agricultural jobs less desirable. Conversely, it is also possible that the agricultural sector is absorbing more foreign labour due to their relatively lower wages, which then keeps wages low and simultaneously makes the jobs unattractive for Malaysians. Both explanations may be interrelated and potentially reinforce one another, yet this remains an area requiring further evidence. The following section, **1.3.4 Relative Low Wage Levels in the Agriculture Sector**, dives deeper in the low wage levels.

1.3.4. Relatively Low Wage Levels in the Agriculture Sector

Figure 4: Median monthly wages by sector (2010-2024)



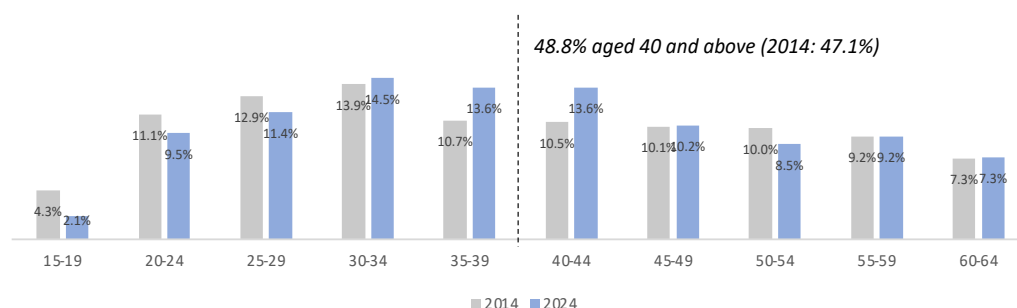
Source: Salaries and Wages Survey Report 2024 (Department of Statistics Malaysia, 2025a); PNBRI analysis.

Workers in the agriculture sector have consistently earned the lowest median wages across all economic sectors (Figure 4). The gap is substantial, with agricultural workers earning roughly one-third of the median wages in mining and quarrying, and about half of those in the services sector. While wages have increased over the years, they remained persistently below the overall median, at roughly half its level, and only marginally above the minimum wage thresholds. Agriculture continues to be the lowest-paying sector, reflecting a sustained and significant structural wage disparity.

These low returns have important implications for the sector's ability to attract and retain talent, as discussed earlier in **1.3.3 Increasing Reliance on Foreign Labour**. On the other hand, the limited inflow of well-trained and skilled labour or slower adoption of modern agricultural practices may constrain productivity improvements, thereby limiting the sector's ability to generate higher wages. In this context, addressing the sector's challenges requires not only the immediate push for higher wages, but also improvements in workforce quality, skills and productivity.

1.3.5. Ageing Demographics among Agriculture Workers

Figure 5: Age distribution of employed persons in agriculture (2014 and 2024)



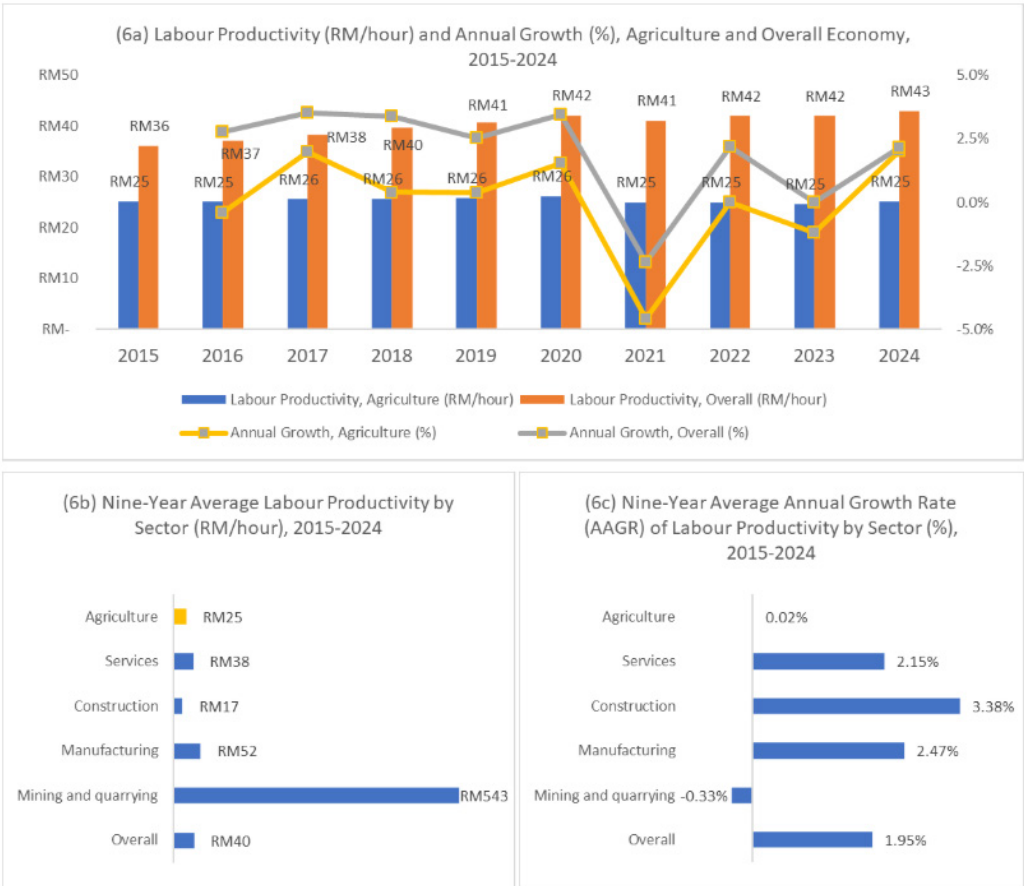
Sources: Labour Force Survey Report 2014 (Department of Statistics Malaysia 2015) and Labour Force Survey Report 2024 (Department of Statistics Malaysia 2025a); PNBRI analysis

One in every two workers in agriculture is aged 40 and above (Figure 5). Although older cohorts do not yet dominate the workforce, the age profile has shifted steadily since 2014. Over the same period, participation among younger cohorts, particularly those aged 15-19, 20-24, and 25-29, has declined noticeably. This trend reflects labour ageing driven primarily by weak youth entry rather than by the replacement of younger cohorts with older workers.

However, as highlighted earlier in the **1.3.2 Shifting Labour Market Landscape** section, the central issue is not just the shrinking number of workers, but whether productivity gains are rising at the same pace. A declining labour share is not inherently problematic when technological adoption and productivity gains enhance output. However, as the next section shows, productivity growth has remained weak, making the ongoing decline in labour share more concerning.

1.3.6. Stagnating Labour Productivity

Figure 6a-c: Labour productivity trends and growth by sector, 2015–2024



Source: Labour Productivity, First Quarter 2020 and Labour Productivity, First Quarter 2025, Department of Statistics Malaysia (2020, 2025b); PNBRI analysis.

Note: Labour productivity is measured as nominal value added per hour worked (RM).

Labour productivity performance provides another lens through which to assess the position of Malaysia’s agricultural sector. As shown in Figure 6 (a), agricultural labour productivity has remained flat in nominal terms at around RM25 per hour over the past decade, indicating a prolonged period of stagnation. While its annual growth rates broadly follow the cyclical pattern of overall labour productivity, they tend to be more volatile and do not accumulate into sustained improvements in productivity levels. This is reflected in the near-zero average annual growth rate for agriculture over 2015-2024, pointing to stagnation rather than meaningful productivity growth.

Across sectors, agriculture remains one of the least productive, ranking second lowest after construction (Figure 6 (b)). This reflects its heavy reliance on manual labour and the slower uptake of modern technology. In contrast, the mining and manufacturing sectors exhibit much higher productivity levels. Over the nine-year period observed, labour productivity in the agriculture sector has barely moved at RM25 per worker per hour, positioning it as the second slowest-growing sector (Figure 6 (c)).

1.3.7. Summary: Labour Market Challenges and the Skills Imperative

Malaysia's agricultural workforce is shrinking, ageing, and increasingly reliant on foreign workers. Wage levels are consistently the lowest among all sectors and productivity growth remain weak, while youth participation continues to decline. These trends reflect deeper structural challenges: low job attractiveness, limited skill development, and insufficient modernisation within the agricultural labour market.

To revitalise this workforce and sustain the country's food security goals, investment in skills development is critical. Strengthening agricultural TVET provides a pathway to equip workers with the technical competencies and adaptability needed in a modern agri-food economy. Chapter 3 explores this imperative in detail, situating agricultural TVET within Malaysia's broader skills development ecosystem.

1.4. Agricultural TVET in Malaysia

1.4.1. TVET in General

In recent years, TVET has increasingly been positioned by policymakers as a strategic response to the evolving needs of the labour market. The National TVET Policy 2030 aims to strengthen programme delivery, promote higher-level qualifications to diversify the skill base, and deepen industry collaboration to improve graduate employability (MTVET 2024). Supporting evidence from the MOHE's Graduates Tracer Study shows that TVET graduates consistently record higher employability rates (94%) than the national average (90%) over the past five years (MOHE 2024). TVET institutions also play a central role in promoting inclusivity, with TVET graduates from the Orang Kurang Upaya (OKU) (Persons with Disabilities) accounting for 68% of overall OKU graduates in 2023.

Globally, TVET has been extensively touted as a lever for employment and supporting inclusive growth. Despite this, the evidence from global research remains mixed, foregrounding that the effectiveness of TVET depends greatly on economic structure, institutional quality, and labour market dynamics.

A meta-analysis by Ghisletta, Kemper, and Stöterau (2021) synthesising 97 training interventions across 89 studies found that TVET tends to yield more positive employment impacts in low- and middle-income countries (LMICs) than in high-income economies. In LMICs, TVET functions primarily as a “signalling and screening mechanism” that helps young people demonstrate job readiness to employers. Whereas in high-income contexts, it operates more as a “human-capital accumulation system” that raises productivity within established industries. Overall, training interventions improved employment outcomes more consistently than wage levels, suggesting that TVET's greatest strength lies in facilitating labour-market entry rather than boosting income. Similarly, Tripney and Hombrados (2013), reported small but significant improvements in paid and formal youth employment from TVET programmes in Latin America. Their findings reinforced the view that TVET can smooth transitions into work.

Evidence from advanced economies shows results differ by qualification level. Using cross-country data from the Programme for the International Assessment of Adult Competencies (PIAAC), Brunello and Rocco (2015) observed that upper-secondary level vocational qualifications (ISCED 3-4) are associated with higher employment probabilities and longer tenure in paid work compared to academic routes. However, the advantage diminishes at the tertiary level (ISCED 5), where academic routes outperform TVET in employment outcomes.

Across these studies, **TVET outcomes show a clear pattern of heterogeneity**: TVET outcomes differ depending on economic structure, institutional context and programme design. For developing economies, TVET's greatest value lies in enhancing employability, lowering entry barriers, and building industry-aligned skills. In Malaysia, this heterogeneity is especially relevant to agriculture. As the previous chapter highlighted, the sector faces structural constraints like ageing labour demographics and low labour productivity. These constraints demand that TVET training be more focused onto targeted skill development. The next section focuses on agricultural TVET and how vocational training institutions are positioned to revitalise Malaysia's agri-food workforce.

1.4.2. TVET in Agriculture

TVET programmes in Malaysia are generally accredited within the national TVET ecosystem overseen by the Majlis TVET Negara (MTVET) (National TVET Council). These programmes span qualification levels 1 to 5 under the Malaysian Qualifications Framework (MQF), offering multiple pathways from foundational to advanced vocational credentials (MQA 2020; MTVET,2024). Figure 7 maps the academic and TVET pathways by MQF level and locates KPKM AgriTVET programmes within that broader structure and serves as a reference point for interpreting the programme-level analysis presented later in the report.

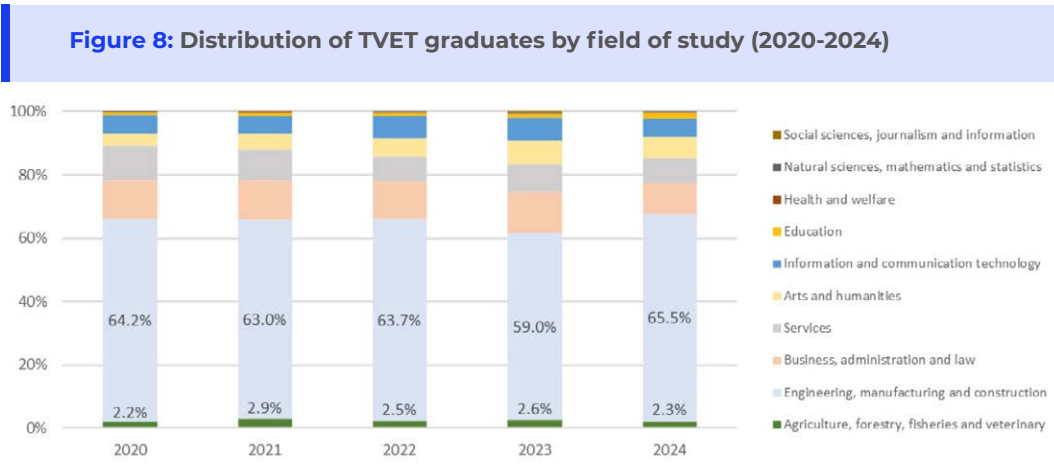
Figure 7: Academic and TVET qualifications by MQF level, with KPKM agricultural TVET programmes highlighted

MQF Level	Education Pathway		
	Academic	TVET	KPKM Agricultural TVET
8	PhD		
	Doctoral Degree		
7	Master's Degree		
	Postgraduate Diploma		
	Postgraduate Certificate		
6	Bachelor's Degree	Bachelor's Degree	
	Graduate Diploma	Graduate Diploma	
	Graduate Certificate	Graduate Certificate	
5	Advanced Diploma	Advanced Diploma e.g., Diploma Lanjutan Kemahiran Malaysia (DLKM)	
4	Diploma	Diploma e.g., Diploma Kemahiran Malaysia (DKM)	Diploma Kemahiran Malaysia (DKM)
3	Certificate	Certificate e.g., Sijil Kemahiran Malaysia (SKM) Tahap 3	Sijil Kemahiran Malaysia (SKM) Tahap 3
			Sijil Pertanian
			Sijil Veterinar Malaysia
			Sijil Perikanan
2	Certificate	Certificate e.g., Sijil Kemahiran Malaysia (SKM) Tahap 2	Sijil Kemahiran Malaysia (SKM) Tahap 2
1	Certificate	Certificate e.g., Sijil Kemahiran Malaysia (SKM) Tahap 1	

Sources: Adapted from Malaysian Qualifications Framework (MQF) Second (Malaysian Qualifications Agency 2017) and information from KPKM; visualisation by PNBRI

1.4.3. The State of Agricultural TVET in Malaysia

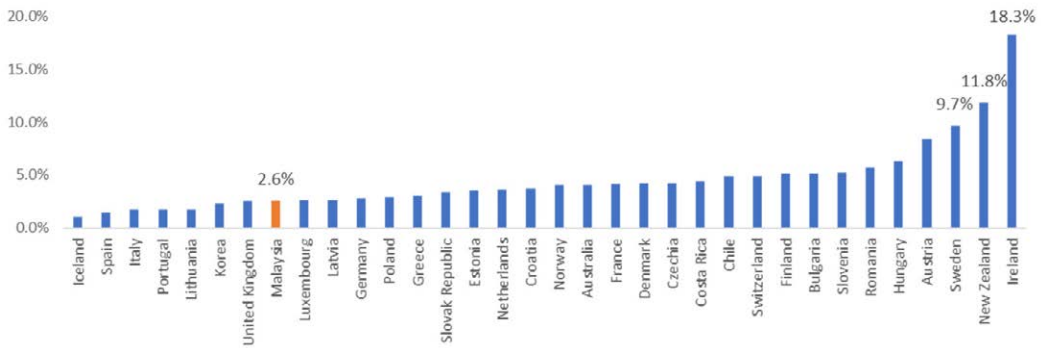
Within Malaysia's TVET landscape, agriculture is one of the ten recognised fields of study. As shown in Figure 8, less than 3% of TVET graduates each year are derived from this sector, while the engineering, manufacturing and construction cluster accounts for over 60% of all graduates. A small share of TVET graduates is expected in certain fields like education and the social sciences, which may rely predominantly on academic and theoretical training due to their lower demand for technical skills. Agriculture, by contrast, is an inherently skills- and technology-intensive field requiring practical and applied competencies. The sector increasingly demands proficiency in digital mechanisation, precision farming and sustainable production systems. However, the supply of graduates into this sector remains limited. In 2024, only 1,717 graduates (or 2.3%) of Malaysia's 75,888 total TVET graduates ended up in agriculture (Ministry of Higher Education 2025).



Source: Source: Graduates Tracer Study Report 2024 (Ministry of Higher Education 2025); PNBRI

When benchmarked internationally, Malaysia's share of agricultural TVET graduates within overall national level of participation in TVET falls below the global level. Based on OECD data (Figure 9), Malaysia's 2.6% is well below the median range of 4% to 6% recorded among OECD economies. Countries such as Ireland (18.3%), New Zealand (11.8%), and Sweden (9.7%) are positioned in the top quintile, reflecting higher relative importance of agricultural training. Conversely, Malaysia clusters with countries such as the United Kingdom, Korea, and Luxembourg, whose TVET systems are oriented more towards services and industry. Malaysia's position in the lower third of the global standing signals its limited agricultural emphasis in its TVET ecosystem.

Figure 9: Share of agricultural TVET Graduates as a percentage of total TVET graduates (%), Malaysia and OECD countries, 2023



Sources: Distribution of Students in Vocational Education and Training Programmes by Level of Education (OECD 2026) and Graduates Tracer Study Report 2023 (Ministry of Higher Education 2024); PNBRI analysis

Note: Due to differences in data coverage, OECD figures capture the proportion of agricultural graduates at the ISCED Level 3 (equivalent to MQF Level 3, such as Sijil Kemahiran Malaysia 3), whereas Malaysia's data encompass all TVET qualification levels, including certificate, diploma, and advanced diploma programmes.

Despite the relatively small share of agricultural TVET in Malaysia, the **AgriTVET courses offered by KPKM continue to face undersubscription**, even though they are fully funded (BERNAMA 2024). Students receive tuition-free education alongside housing, meals, and monthly stipends, yet enrolment typically fills only about half of available places. The persistence of low uptake in the absence of cost constraints points to deeper challenges related to perceptions, expected returns, and the overall attractiveness of agricultural career pathways relative to other training options in Malaysia.

Despite sustained policy attention on the role of TVET in modernising Malaysia's agricultural sector and improving youth employment outcomes, **empirical understanding of agricultural TVET remains limited**. While its importance is often emphasised in policy discourse, there is little clarity on who enrolls in agricultural TVET programmes, what happens to them after graduation, and how relevant their employment is to their training.

A key constraint lies in the **limited availability of disaggregated data**. MOHE's Graduates Tracer Study (GTS) remains the main source of national information on graduate outcomes, but it only reports aggregated results across broad programme clusters. Disaggregated data by sub-field, level of qualification and socio-economic background remain limited, making it difficult to build a detailed profile of agricultural TVET graduates and assess the programme reach.

This data gap limits the ability to tailor programmes or expand outreach strategies. If Malaysia aims to strengthen the attractiveness and labour-market relevance of agricultural TVET, analysis must move beyond surface-level indicators such as employability rates or average salaries. A **field-specific and outcome-based approach** is needed to understand who participates, why they do so, and how they fare after entering the workforce.

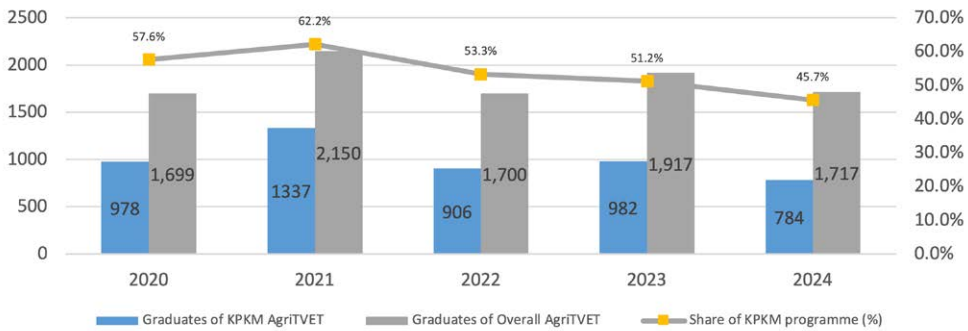
To date, **no publicly available studies** have been undertaken using comprehensive, graduate-level data for agricultural TVET. Addressing this evidence gap, this study draws on administrative data from KPKM's Agricultural Capacity Building and Training Division (BPKLP) to examine graduate profiles and employment outcomes within a year after graduation.

2. Methodology

2.1. Data Source and Coverage

This study draws exclusively on data from administrative records of the AgriTVET programmes administered by KPKM between 2018 and 2024, which account for approximately half of Malaysia's total agricultural TVET graduates annually (Figure 10). This offers a sufficiently broad and policy-relevant database for analysing graduate profiles and labour-market outcomes within the agriculture.

Figure 10: Share of KPKM AgriTVET graduates as a percentage of total AgriTVET graduates (2020-2024)



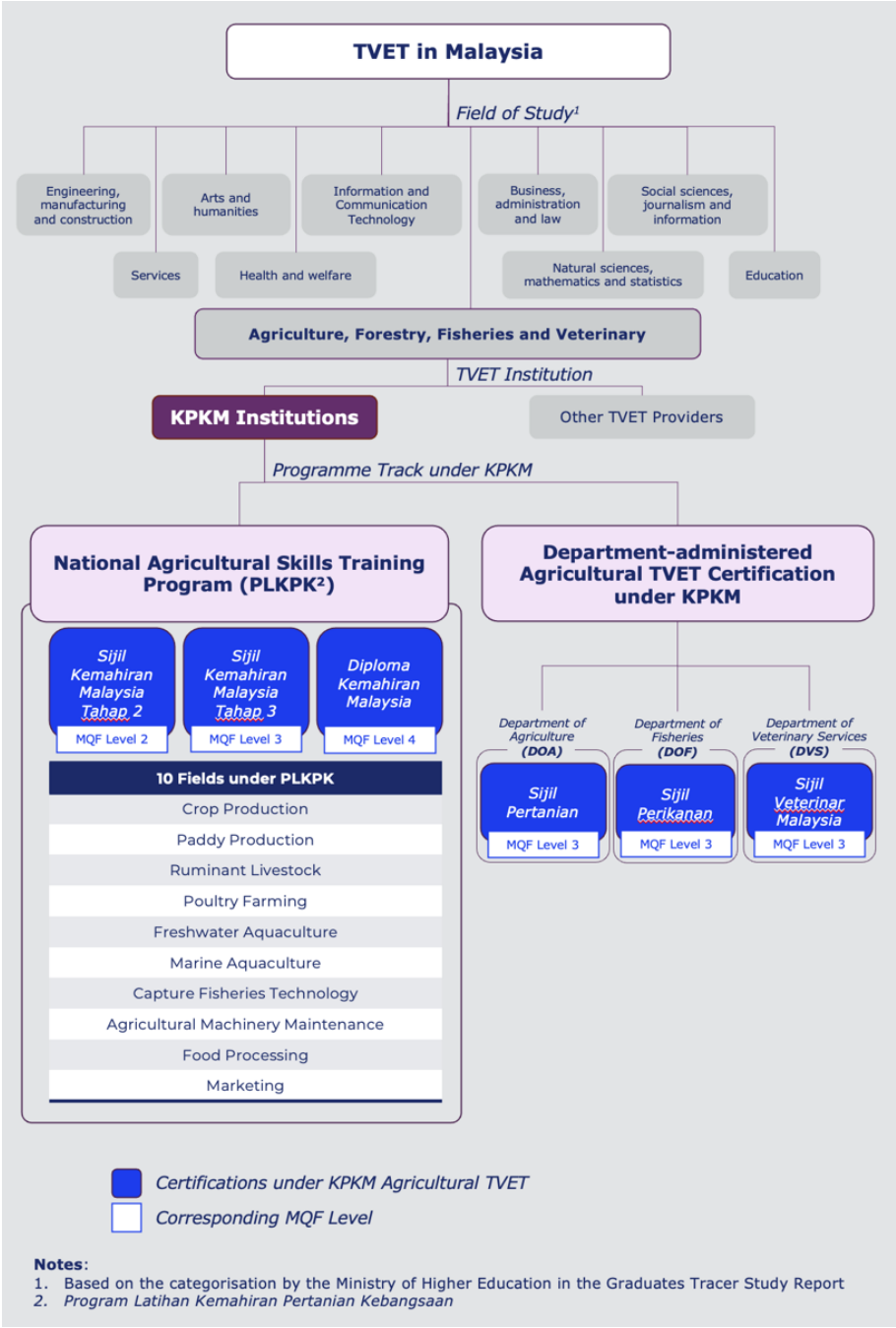
Sources: KPKM data and Graduates Tracer Study Report 2024 (Ministry of Higher Education 2025); PNBRI analysis

KPKM programmes consist of MQF-accredited qualifications delivered through four main streams:

1. National Agricultural Skills Training Programme (PLKPK), encompassing 10 sub-fields that offer qualifications ranging from *Sijil Kemahiran Malaysia* (Levels 2 and 3) to Diploma level;
2. *Sijil Pertanian*, administered by the Department of Agriculture;
3. *Sijil Veterinar Malaysia*, under the Department of Veterinary Services; and
4. *Sijil Perikanan*, offered by the Department of Fisheries.

These pathways are visualised in Figure 11.

Figure 11: Mapping the position of KPKM AgriTVET within Malaysia's TVET system



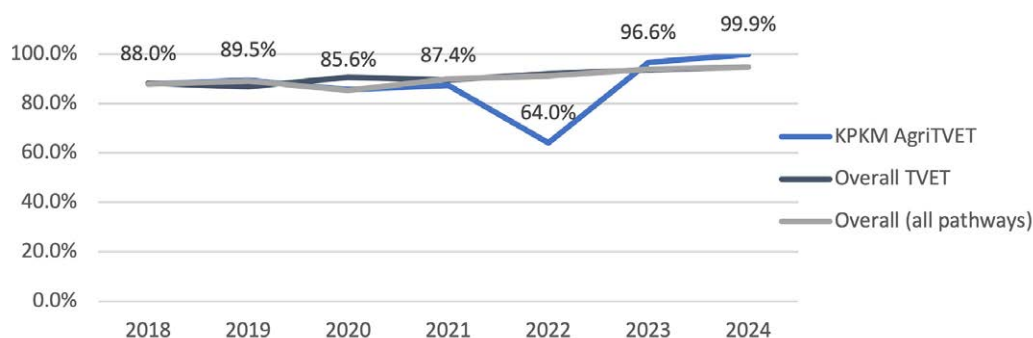
Sources: Adapted from the information from KPKM, Graduates Tracer Study Report 2024 (Ministry of Higher Education 2025) and Malaysian Qualifications Framework (MQF) Second Edition (Malaysian Qualifications Agency 2017); visualisation by PNBRI

2.2. Sample Scope

The dataset includes seven graduate cohorts (2018 to 2024) from all 15 KPKM training centres nationwide. The data provided to PNBRI were drawn directly from KPKM's submission to MOHE's GTS, with the addition of graduate respondents from an extended collection window of approximately six months to capture the trainees who graduate at later dates throughout the year. This allowed their labour-market outcomes to be observed up to one year after graduation and measured consistently across cohorts.

After excluding 421 partial responses lacking GTS information, the final dataset comprises complete records for 6,829 KPKM graduates. Data for 2022 were excluded from the core analysis due to a substantially lower response rate of 64%, relative to other cohorts (Figure 12).

Figure 12: Response rate of KPKM AgriTVET graduate tracers, juxtaposed against response rates of MOHE's GTS for TVET and overall (2018-2024)



Sources: KPKM data and Graduates Tracer Study Report 2024 (Ministry of Higher Education 2025); PNBRI analysis

While a 64% response rate is often considered acceptable in survey-based research, its adequacy must be assessed against the study design and benchmarking framework. The KPKM tracer is methodologically aligned with the national MOHE's GTS, which adopts a census-oriented approach and consistently achieves response rates above 85-90%. In this context, the primary concern is not sample size, but uneven institutional and graduate-level coverage. Lower participation in 2022 raises the risk of systematic non-response bias, potentially under-representing specific graduate groups and undermining year-to-year comparability. Excluding this cohort, therefore, preserves analytical consistency and reliability across cohorts.

As with most tracer surveys, these results may slightly overrepresent more engaged or responsive graduates and potentially underrepresent outcomes among those who are less reachable. Nevertheless, this dataset remains the most comprehensive graduate-level source currently available for Malaysia's AgriTVET system under KPKM. By comparison, agricultural TVET data in the MOHE's GTS is aggregated, making this dataset uniquely valuable for detailed, programme-level analysis.

The analysis focused only on graduates with MQF Level 3 and Level 4 qualifications and excluded SKM Level 2 (MQF Level 2). This restriction is applied for three reasons. First, SKM Level 2 responses are absent in several years (2018-2021), resulting in incomplete data. Second, BPLKP has clarified that progression within the skills pathway has always been designed for full completion up to SKM Level 3, with lower qualification levels functioning primarily as prerequisites. Third, restricting the sample to MQF Level 3 enables meaningful comparison across different qualifications within KPKM, including Sijil Pertanian, Sijil Veterinar Malaysia and Sijil Perikanan, all of which are classified as MQF Level 3-equivalent certifications.

2.3. Analytical Approach

The analysis is primarily descriptive and comparative, drawing on both national and international benchmarks where appropriate. Detailed findings are presented in Section 3 (The Profile of KPKM AgriTVET Graduates), Section 4 (The Labour Market Outcomes of KPKM AgriTVET Graduates), and Section 5 (Job-Field Alignment within KPKM AgriTVET Graduates).

2.4. Limitations

This study is subject to several limitations. First, the analysis is confined to KPKM AgriTVET programmes and may not be fully generalisable to other providers. Second, outcomes are observed within one year after graduation, which may not reflect longer-term trajectories. As such, it is unable to capture more long-term changes to income and employability of these graduates. Third, as with most tracer-based data, results may be affected by response bias.

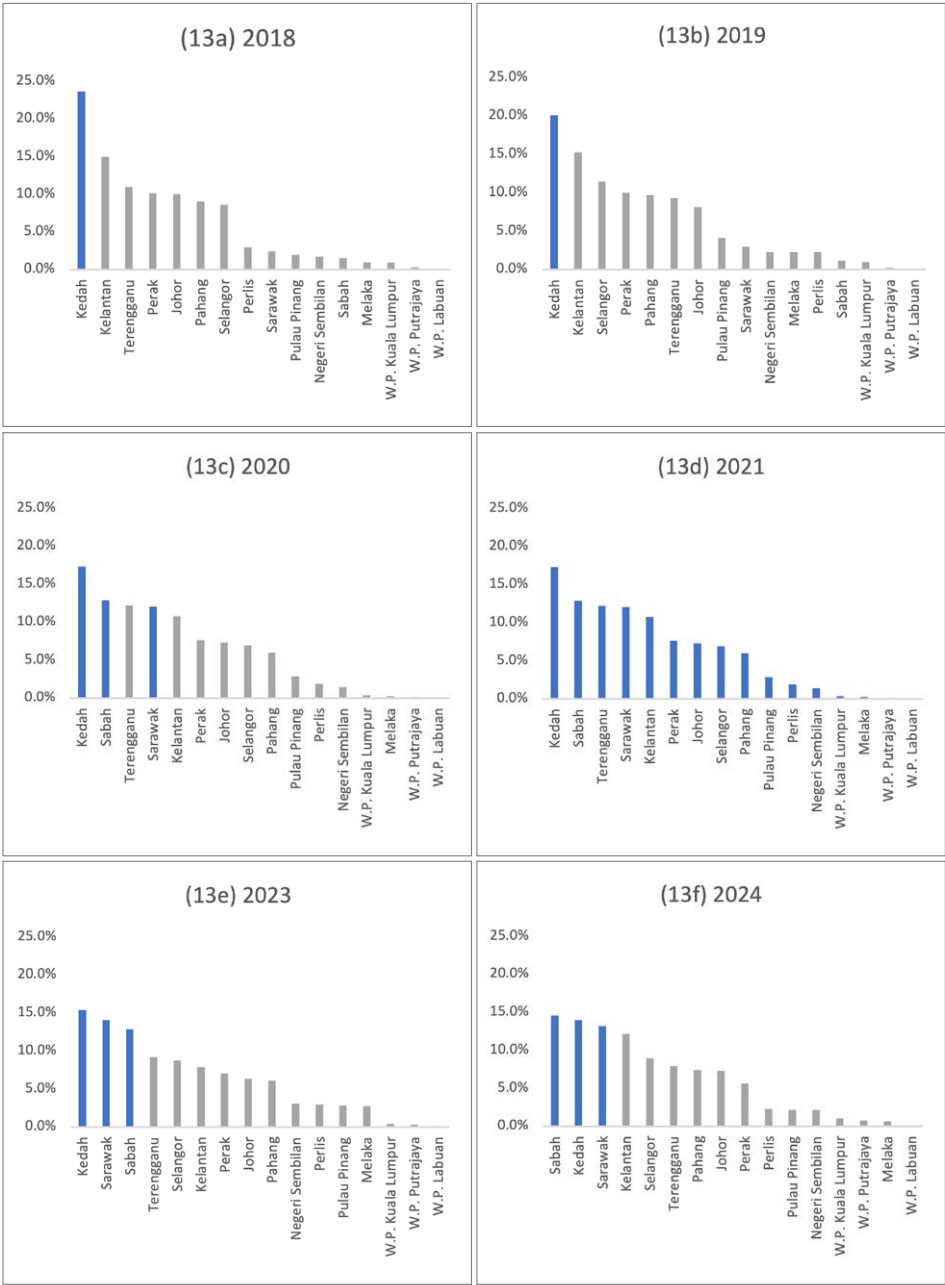
3. Results: The Profile of KPKM AgriTVET Graduates

This section profiles KPKM AgriTVET graduates across states in Malaysia, with the aim of identifying where participation is most concentrated and how it is shaped by underlying structural factors. The analysis proceeds in four stages. First, it examines the spatial distribution of graduates by home state to identify states that contribute the largest number of AgriTVET graduates. Second, it assesses relative participation using a location quotient (LQ) to determine whether AgriTVET participation within each state is proportionately higher or lower than the national average. Third, it contextualises these patterns by examining differences in state-level economic structure, particularly the scale and relative importance of agriculture. Finally, it analyses the extent of localisation in training, providing insight into graduate mobility and the role of access to locally available programmes.

3.1. Spatial Distribution of Graduates by Home State

When graduates are tabulated according to the state they hailed from (regardless of where they studied), as shown in Figures 13, Kedah consistently ranked among the top three states each year. From 2020 onwards, Sabah and Sarawak rose significantly in the rankings (Figures 13 (c-f)), following the inclusion of Sijil Pertanian graduates from these two states from 2020 in KPKM's tracer. Prior to 2020, the data for Sabah and Sarawak only captured PLKPK track (SKM and DKM) graduates. From 2020 to 2024, **Kedah, Sabah, and Sarawak** emerged as the dominant contributors to the number of AgriTVET graduates.

Figure 13 (a-f): Distribution of KPKM AgriVET graduates by home state (% of total KPKM AgriVET graduates), Malaysia, 2018-2024



Source: KPKM data; PNBRI analysis

- Note:**
1. Prior to 2020, the data for Sabah and Sarawak only included the PLKPK track (SKM and DKM).
 2. The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

The higher participation from Kedah, Sabah, and Sarawak reflects stronger expressed interest in agricultural TVET among youth from these states, highlighting them as key areas for sustaining and strengthening enrolment in KPKM AgriTVET programmes.

These overall state-based trends are consistent with evidence on youth interest in agriculture. A nationwide study by Khazanah Research Institute (Ahmad Shaharudin and Abu Rahim, 2020) found that Kedah and Sabah rank among the states with the highest shares of in-school youth expressing interest in agriculture, while interest in fisheries is particularly strong in Sabah and Terengganu.

3.2. Relative Spatial Concentration of AgriTVET Participation by Home State

While the distribution of graduates by home state (Section 3.1) provides a useful overview of where participation is concentrated in absolute terms, it does not account for differences in the size of each state's overall TVET participation.

To further understand the spatial concentration of AgriTVET participation within individual states, a location quotient (LQ) is used to measure proportional concentration relative to the national average.

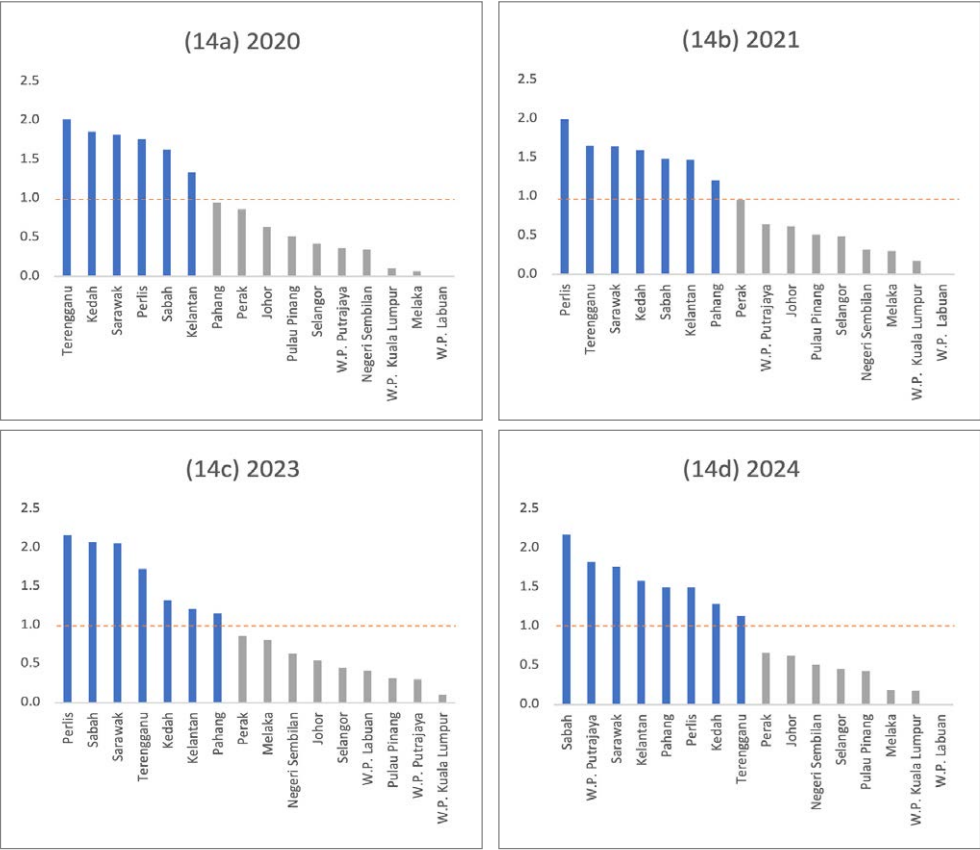
The LQ is computed as:

$$\text{Location Quotient} = \frac{\text{KPKM AgriTVET graduates from a state} / \text{All TVET graduates from the state}}{\text{National KPKM AgriTVET graduates} / \text{All TVET graduates nationally}}$$

An LQ of greater than 1 indicates that the proportion of KPKM AgriTVET graduates among all TVET graduates coming from a given state exceeds the national average proportion. Conversely, an LQ below 1 indicates a lower proportion than the national benchmark. By construction, the LQ controls for differences in population size and overall TVET participation, enabling proportional comparisons across states.

Given the expansion of tracer coverage to include Sijil Pertanian graduates from Sabah and Sarawak from 2020 onwards, the LQ analysis focuses on the period 2020-2024.

Figure 14 (a-d): Location Quotient (LQ) of KPKM AgriTVET participation by home state (2020-2024)



Sources: KPKM data and Graduates Tracer Study Report 2024 (Ministry of Higher Education 2025); PNBRI analysis

Note: KPKM agricultural TVET data are drawn from KPKM tracer records, while total TVET data are sourced from MOHE's tracer records (GTS). Calculations are conducted annually and restricted to graduates in the labour force for cross-dataset comparability.

Figure 14 show that several states consistently recorded LQ values of above one over this period. In addition to the states identified in Section 3.1, namely Kedah, Sabah, and Sarawak, Perlis, Kelantan and Terengganu also exhibit above-average relative concentration of AgriTVET participation compared to the national average.

For **Sabah**, **Sarawak** and **Kedah**, the high LQ values (Figures 14) alongside large absolute numbers (Figures 13) indicate that these states are both major contributors to the overall supply of KPKM AgriTVET graduates and exhibit a relatively stronger presence of AgriTVET within their TVET systems.

On the other hand, **Perlis**, **Kelantan** and **Terengganu** display above-average relative concentration (Figures 14) with more moderate absolute participation (Figures 13). In particular, Perlis records one of the highest LQ values, suggesting a disproportionately strong orientation toward KPKM AgriTVET relative to its overall TVET participation.

Taken together, these patterns point to a differentiated spatial structure, where Sabah, Sarawak, and Kedah combine both scale and relatively stronger participation, while Perlis, Kelantan and Terengganu reflect states where AgriTVET plays a more prominent role relative to their overall TVET landscape, despite a smaller absolute base.

3.3. Economic Context of AgriTVET Participation by State

Having identified states with strong participation in both absolute (Section 3.1) and relative terms (Section 3.2), this section examines whether differences in state-level economic structure help explain why certain states emerge as both major contributors and relatively stronger participants in AgriTVET. In particular, it considers whether the scale and relative importance of agriculture within each state economy are associated with the patterns observed earlier.

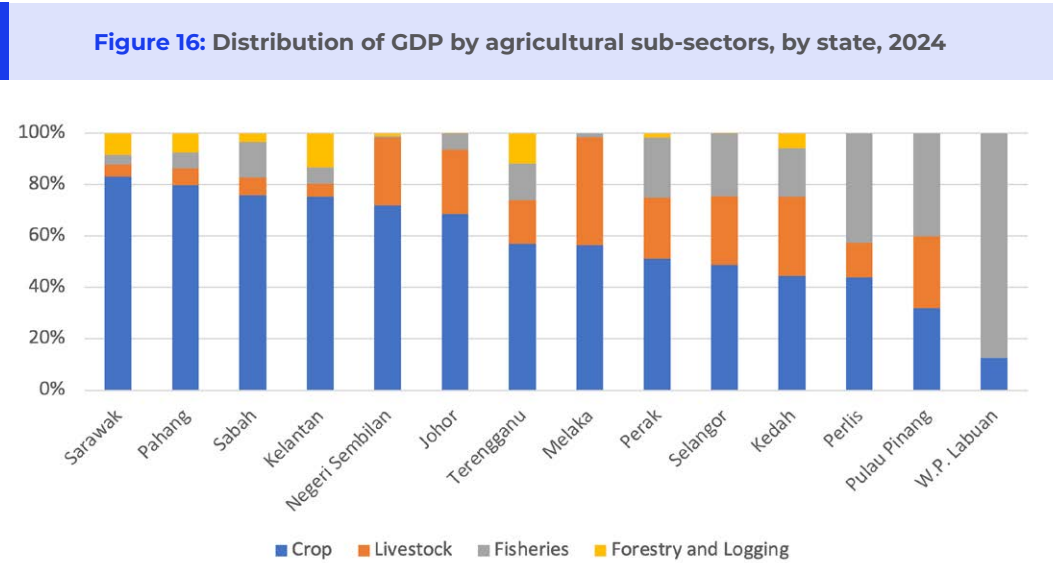
Figure 15: State GDP (RM million), agricultural GDP (RM million), share of agricultural GDP (%), and share of KPKM AgriTVET graduates, by state, ranked by agricultural GDP share, 2024

State	Total GDP (RM million)	Agriculture GDP (RM million)	Share of agricultural GDP in total GDP (%)	Share of KPKM AgriTVET graduates in total state TVET graduates (%)
Pahang	68,669.31	15,312.36	22.3	1.7
Kelantan	28,650.59	5,764.03	20.1	1.8
Perlis	6,549.00	1,120.73	17.1	1.7
Sabah	84,302.56	12,204.57	14.5	2.5
Perak	86,238.85	12,094.03	14.0	0.8
Johor	158,017.23	17,933.90	11.3	0.7
Kedah	54,036.05	5,727.67	10.6	1.5
Sarawak	148,200.02	15,059.12	10.2	2.0
Melaka	48,928.79	4,656.40	9.5	0.2
Terengganu	39,921.95	2,940.73	7.4	1.3
Negeri Sembilan	54,321.84	3,437.85	6.3	0.6
Pulau Pinang	121,496.28	2,196.63	1.8	0.5
Selangor	432,115.70	4,879.77	1.1	0.5
W.P. Labuan	8,558.52	128.61	1.5	1.8
W.P. Kuala Lumpur and W.P. Putrajaya*	265,757.86	-	0.0	0.2

Sources: KPKM data and State's Socioeconomic Report 2024 (Department of Statistics Malaysia 2025d); PNBRI analysis

As shown in Figure 15, many of the states identified in Sections 3.1 and 3.2 also exhibit relatively strong agricultural bases. Sabah and Sarawak combine large agricultural output in absolute GDP terms with relatively high participation in AgriTVET, while Kedah reflects both a meaningful agricultural base in its significant GDP share and strong AgriTVET participation. Additionally, Perlis and Kelantan, which display high LQ values, also record among the highest share of agricultural GDP, indicating that agriculture plays a more prominent role within their local economies relative to other states.

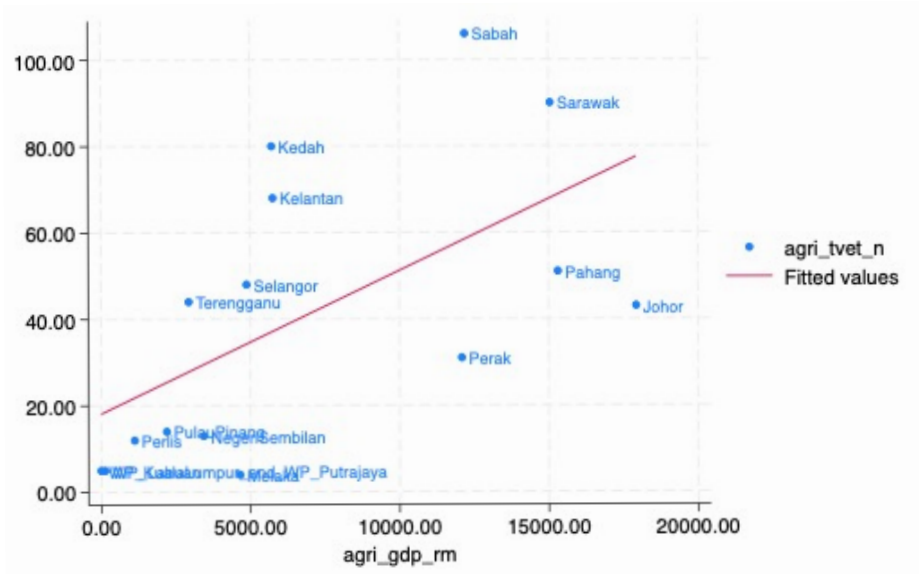
When the agricultural activities were broken into sub-sectors, there is also a clear pattern. The sub-sector activities comprise of crops, livestock, forestry and logging, and fisheries. When these figures were analysed as a proportion, crops were consistently the highest contributor within the agriculture subsector for all states with high AgriTVET participation, with the exception of Kedah and Perlis.



Sources: State's Socioeconomic Report 2024 (Department of Statistics Malaysia 2025d); PNBRI analysis

To further examine whether this alignment reflects a broader pattern across states, Figures 17 and 18 plot AgriTVET participation against measures of agricultural output and agricultural significance.

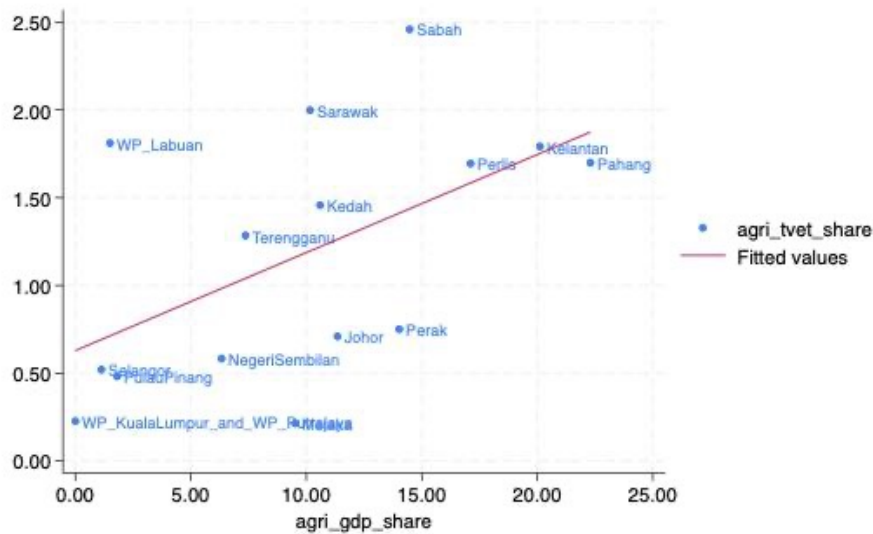
Figure 17: Relationship between agricultural GDP (RM million) and number of KPKM AgriTVET graduates by state, 2024



Sources: KPKM data and State's Socioeconomic Report 2024 (Department of Statistics Malaysia 2025d); PNBRI analysis

There are states with large agricultural economies such as Sabah, Sarawak, and Johor. In these states, agriculture is economically significant in absolute terms and the demand for skilled or semi-skilled agricultural labour is scalable. Figure 17 plots agricultural GDP in RM terms against the number of AgriTVET graduates and shows a positive relationship. This pattern is supported by simple correlation analysis, which indicates a moderate positive association between agricultural GDP and graduate numbers, with an R squared of approximately 0.36. This suggests that states with larger agricultural sectors tend to produce more AgriTVET graduates, although the relationship is not strong. States such as Sabah, Sarawak and Kedah, which were identified in Section 3.1 as major contributors, lie above the fitted relationship, indicating stronger participation relative to the size of their agricultural sectors. In contrast, states such as Johor, Pahang and Perak lie below the fitted relationship, suggesting lower participation than what would be expected given their agricultural base.

Figure 18: Relationship between agricultural GDP share (%) and share of KPKM AgriTVET participation (%) by state, 2024



Sources: KPKM data and State's Socioeconomic Report 2024 (Department of Statistics Malaysia 2025d); PNBRI analysis

On the other hand, Figure 18 examines the relationship in relative terms by plotting agricultural GDP share against the share of AgriTVET participation. A similar positive association is observed. Correlation analysis indicates a moderate positive relationship, with an R squared of approximately 0.29. This suggests that states where agriculture represents a larger share of the state economy tend to exhibit higher relative participation in AgriTVET, although variation across states remains substantial. All the states highlighted in Sections 3.1 and 3.2 lie close to or above the fitted relationship. By comparison, states such as Pahang, Johor and Perak again fall below the expected pattern.

Additional analysis indicates that overall state GDP size does not have a statistically significant relationship with AgriTVET participation. This suggests that the presence of agriculture, rather than the size of the state economy more generally, is the more relevant factor in explaining participation patterns.

The findings suggest that the patterns observed in Sections 3.1 and 3.2 are partly consistent with differences in state economic structure, particularly in terms of the scale and relative importance of agriculture. However, the presence of clear deviations, especially among states such as Johor, Pahang and Perak, indicates that economic structure alone does not fully explain KPKM AgriTVET participation patterns. This also points to the possibility that these states may not be fully reflecting their underlying agricultural potential in current AgriTVET participation.

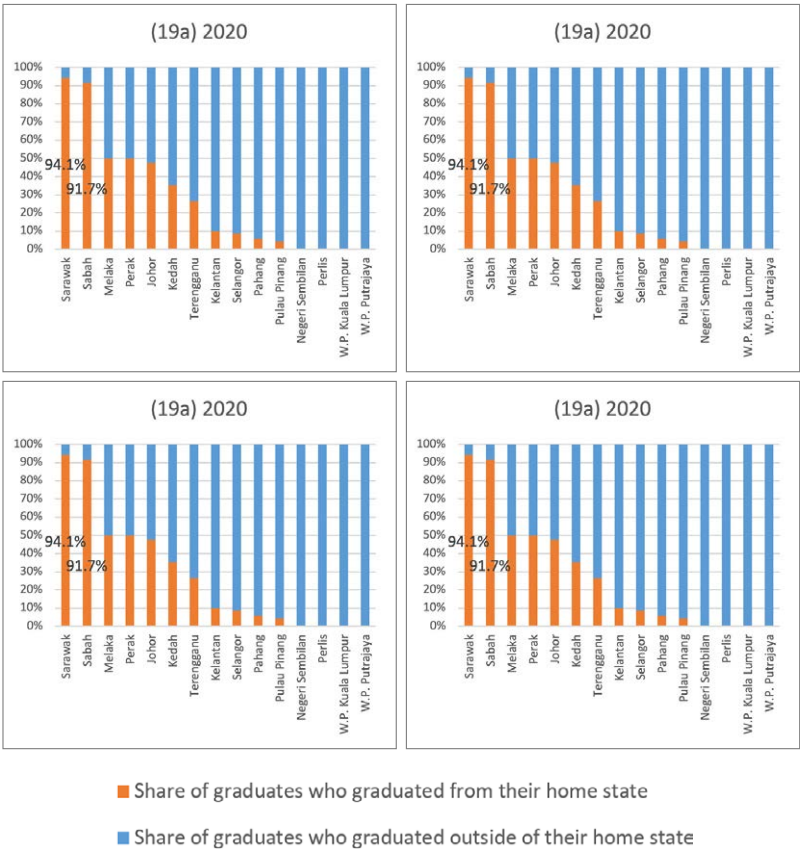
A special mention would be for the state of Johor. This is a state with a lower KPKM AgriTVET participation rate, contributing only 7.3% graduates in 2024. But given the economic status, it has the potential for such programs to be expanded further. Johor is the largest contributor to Malaysia's agricultural GDP, and further breaking down the sub-sectors revealed that Johor is also the biggest driver of Malaysia's agri-food GDP (crop, livestock and fisheries, excluding forestry and logging). The scale and diversity of agricultural activity in Johor therefore contrast sharply with its relatively low AgriTVET participation. This gap suggests that Johor's agricultural potential is not yet fully reflected in the current footprint of KPKM AgriTVET.

3.4. Localisation and Graduate Mobility

While the preceding sections identify key states in terms of both absolute participation (Section 3.1) and relative concentration (Section 3.2), they do not capture whether graduates remain within their home states for training or move across state boundaries. This distinction is important, as mobility patterns shape the extent to which participation is driven by access to local training opportunities.

Figures 19 show the proportion of AgriVET graduates who complete their training within their home state, providing insight into patterns of localisation and graduate mobility.

Figure 19 (a-d): Distribution of KPKM AgriVET graduates by place of study relative to home state (% within each home state) (2018-2024)



Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

A clear pattern emerges when these localisation trends are viewed alongside the findings in Section 3.1. States such as **Sabah, Sarawak, and Kedah**, which were identified earlier as major contributors to the overall number of AgriTVET graduates, **also exhibit high levels of localisation**. In particular, Sabah and Sarawak record very high within-state participation, with more than 80% of graduates being trained within the home states. Kedah similarly shows a relatively high level of localisation, although to a lesser extent.

In the case of Sabah and Sarawak, discussions with KPKM indicate that geographic distance and limited inter-state mobility are likely to be important factors underlying these patterns. In contrast, the relatively high localisation observed in Kedah, despite its location within Peninsular Malaysia, suggests that factors beyond physical constraints may also be relevant. This may include the availability of suitable programmes within the state, as well as alignment between local training provision and student interests.

These patterns indicate that **participation in AgriTVET is closely linked to locally available training opportunities in these key states**. Where mobility is limited, or where students display a strong tendency to remain within their home states, the availability and accessibility of local programmes become important determinants of overall participation. This provides an additional lens for assessing the importance of state-based programme expansion.

3.5. Discussion and Policy Implications: Typology of State-Level Participation and Strategic Priorities

Bringing together evidence from Sections 3.1 to 3.4, a clearer picture emerges of how participation in AgriTVET varies across states. The combination of absolute distribution, relative concentration, economic structure, and localisation patterns highlights a differentiated landscape of AgriTVET participation in Malaysia.

First, states such as **Kedah, Sabah, and Sarawak** consistently emerge as primary participation centres. These states combine large absolute numbers of graduates (Section 3.1), above-average relative concentration (Section 3.2), alignment with underlying agricultural economic activity (Section 3.3), and high levels of localisation (Section 3.4). Taken together, this suggests that **participation in these states is both structurally supported by the local economy and reinforced by strong local training ecosystems**.

A second group of states, including **Kelantan, Terengganu, and Perlis**, display a different profile. While total graduate numbers were more modest, these states recorded consistently high LQ values, indicating that AgriTVET plays a relatively more prominent role within their TVET systems. This pattern is also broadly consistent with their higher dependence on agriculture within the state economy. **Participation in these states appears to be driven more by relative importance and local economic structure, rather than scale.**

In contrast, several states with relatively large or established agricultural sectors, most notably **Johor** and **Perak**, and to a lesser extent **Pahang**, exhibit lower-than-expected participation in AgriTVET. This is observed in both absolute and relative terms and is reflected in the correlation analysis presented in Section 3.3. These deviations suggest that **existing agricultural capacity in these states is not yet fully translated into training participation.**

This differentiated structure provides a basis for more targeted policy responses. In particular, it suggests that strategies to expand AgriTVET participation may need to be adapted to the specific characteristics of each group of states, rather than adopting a uniform national approach.

Policy Direction 1: Strengthen Targeted State-Level Expansion of KPKM AgriTVET Provision

Policy efforts should prioritise understanding how student demand, local economic structure, and access constraints interact within each state context.

- i. For **primary participation states** such as **Kedah, Sabah, and Sarawak**, the combination of strong participation and high localisation indicates that local demand is already well established and closely tied to available training pathways. In these contexts, **further expansion should focus not only on increasing capacity, but on better aligning programme offerings with student interests and local industry needs.**

This may involve **conducting targeted state-level diagnostics to identify preferred sub-sectors, career pathways, and existing gaps in training provision.** Such insights can then inform the diversification and upgrading of programmes, ensuring that expansion reflects actual demand rather than supply-driven assumptions.

- ii. For states such as **Kelantan, Terengganu, and Perlis**, where **participation is relatively strong but absolute numbers remain modest**, targeted strategies should focus on understanding the factors sustaining this high relative participation. This includes **identifying whether participation is driven by specific pathways, the state's agricultural labour demand, or specific programme availability.**

Policy responses in these states may therefore **prioritise niche and demand-responsive programme development**, rather than large-scale expansion, with a focus on strengthening pathways that are already locally relevant.

- iii. For **under-participating states** such as **Johor, Perak**, and to some extent **Pahang**, the gap between agricultural economic activity and observed KPKM AgriTVET participation suggests the presence of underexplored potential and underlying participation constraints. This may suggest that existing provision may not yet be fully aligned with state-specific agri-food structures and skills demand.

In these contexts, rather than immediate expansion the priority should be to **diagnose barriers to participation, including awareness, accessibility, programme availability, and alignment with industry demand.**

These states may benefit from **targeted engagement with students, training institutions, and industry stakeholders to better understand why participation remains low despite a sizeable agricultural base.** This could inform more effective strategies to stimulate interest and participation where latent demand exists.

Across all states, strengthening the alignment between training provision and labour market demand requires a more systematic approach to data collection and stakeholder engagement. This may include regular state-level needs assessments, tracking student preferences and career intentions, as well as closer collaboration with industry to identify emerging skill requirements across agricultural sub-sectors.

4. Results: The Labour Market Outcomes of KPKM AgriTVET Graduates

This section assesses whether graduates of KPKM AgriTVET programmes achieved meaningful labour market outcomes within one year of graduation. The assessment is grounded in SDG 4, particularly Target 4.4, which highlights TVET’s role in supporting employment, entrepreneurship and decent work (United Nations 2015). The analysis focuses on three dimensions: employability, quality of employment (employment status, job-skill match and income), and entrepreneurial participation.

4.1. Employment Rate

4.1.1. Significance of Graduate Employment Rates (GER) in the Agriculture Sector

Against the backdrop of Malaysia’s shrinking agricultural workforce, which places pressure on TVET outcomes to deliver job-ready graduates, as previously discussed in **1.3 State of Agricultural Labour** section, graduates’ employability becomes a critical indicator of KPKM AgriTVET’s programme effectiveness. Beyond increasing educational attainment, agricultural TVET must support transitions into stable, sector-relevant employment within one year of graduation.

Employment rate is widely used as a proxy for the quality and relevance of TVET systems, as highlighted in previous research (Korea-World Bank Partnership Facility, 2016; UNESCO-UNEVOC 2021). The common definition of employability focuses on graduates’ ability to obtain work. This study adopts the Graduate Employment Rate (GER) introduced in the most recent GTS Report² (Ministry of Higher Education, 2025), aligned with definitions used by the International Labour Organisation:

Graduate Employment Rate
(GER)

=

(Number of fresh graduates from the reference year
who are employed ÷ Number of fresh graduates from
the same cohort in the labour force) × 100

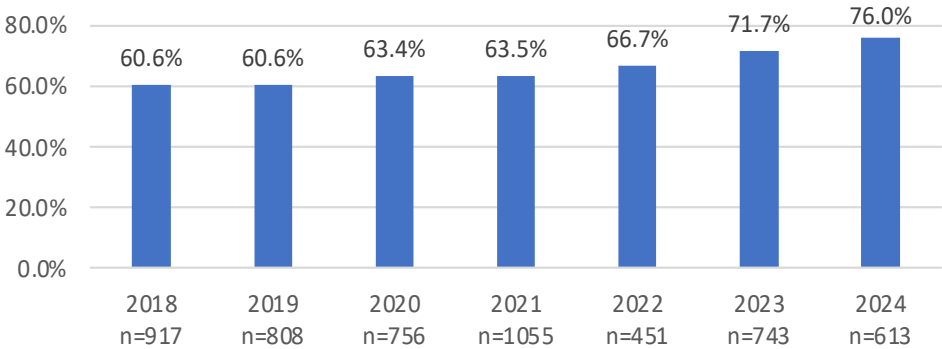
The labour force includes graduates who are employed or unemployed, while those furthering studies, upskilling, or waiting for job offers³ are considered outside the labour force.

² Previously, GTS used the employability rate as the main measure. This captures all graduates who are employed, as well as those who are continuing their studies and undergoing upskilling. The recent adoption of the GER is more reflective of the labour market landscape, as it captures only those who enter the labour force.

³ Those awaiting job offers are not yet in employment, but neither do they accurately represent unemployment, as they are in transition phase into work.

4.1.2. Gradual Improvement in GER from a Low Base

Figure 20: GER (%) of KPKM AgriTVET graduates (2018-2024)



Source: KPKM data; PNBRI analysis

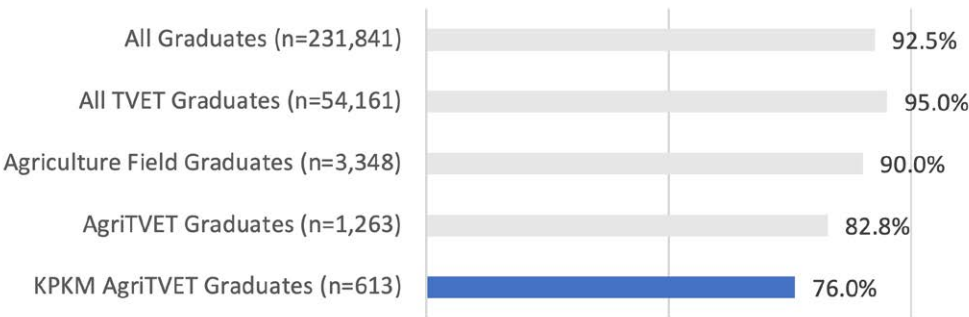
Notes:

- 1. n represents the number of responding KPKM programme graduates in each year (2018-2024) who were in the labour force (employed or unemployed) when surveyed.
- 2. Individuals who were upskilling, furthering their studies, or waiting for employment were excluded.
- 3. The tracer study was conducted annually by BPKLP within one year after graduation.
- 4. The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

The GER for KPKM AgriTVET graduates increased from 60.6% in 2018 to 76.0% in 2024 (Figure 20). The year-on-year improvement may suggest progressively better labour market absorption of its graduates. However, the level remained modest, particularly when compared to other education pathways.

4.1.3. Relative Positioning of KPKM AgriTVET Within the Broader Graduate Landscape

Figure 21: GER (%) by educational pathway 2024



Sources: KPKM data and Graduates Tracer Study Report 2024 (Ministry of Higher Education, 2025); PNBRI analysis

Note: n refers to the number of responding graduates of each pathway, who were in the labour force (employed or unemployed, excluding those upskilling, furthering studies, or waiting for employment).

As shown in Figure 21, overall, TVET graduates continued to outperform general graduates (95.0% versus 92.5%). However, **this trend did not hold in agriculture**. Agricultural TVET graduates achieved a GER of 82.0%, significantly below the 90.0% observed for all graduates in the agriculture field.

Within agricultural TVET, KPKM AgriTVET graduates exhibited the lowest graduate employment rate at 76.0%, trailing both agriculture field graduates and agricultural TVET graduates from non-KPKM institutions. **The agricultural field can thus be seen to have diverged from the conventional TVET advantage, where it is one of the few domains in which TVET does not translate into stronger immediate employability outcomes.**

This pattern motivates a closer examination of employment structure in agriculture, particularly the role of self-employment, which is more prevalent in the sector and shaped by distinct entry barriers.

4.2. Employment Structure In Agriculture: Paid Employment And Self-Employment

4.2.1. Distinct Features of Agricultural TVET Employment Structure

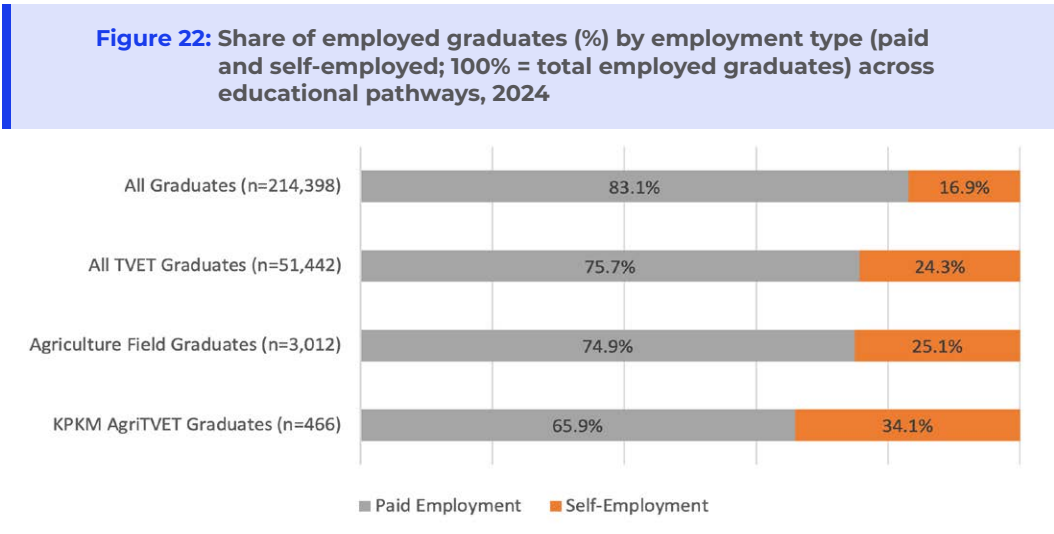
Globally, there is no single harmonised source that compares employment rates of TVET graduates across sectors and countries. However, evidence from the literature indicates that agricultural TVET generally underperforms relative to other fields, particularly manufacturing and engineering. For example, a study from Australia analysing the 2011 National Vocational Education and Training (VET) in Schools Collection data found higher employment rates among engineering graduates compared to agriculture, although agriculture outcomes remained stronger than information technology or natural and physical sciences (Misko, Chew, and Korbel 2020). Similarly, a UNESCO-UNEVOC report highlighted that industrial TVET tend to have higher employment outcomes than agricultural TVET, especially in developing economies (Brown and Majumdar, 2020).

An exception or a global outlier worth mentioning is New Zealand, where the agricultural TVET programme outperforms other industries. When compared to Europe and Asia, agriculture TVET in New Zealand has prestige, strong employer linkages, and higher employability (Tertiary Education Commission, 2025). This is because in New Zealand, the agriculture industry is technology-driven and high-value. It is dominated by commercial, high-tech, global-scale agribusinesses, thereby creating higher demand for TVET graduates, resulting in higher employability rates at a more premium salary. These jobs are seen as professionally demanding and not low-skilled, with clear career ladders. For example, TVET Level 3 is a farm assistant, going to Level 4 is a skilled worker, Level 5 is a supervisor and Level 6 is a farm manager. This also aligns with insights from the UNESCO-UNEVOC paper (Brown and Majumdar, 2020), which notes that employability in the agricultural sector tends to be lower in developing economies, but potentially higher in developed economies where larger and more structured agricultural enterprises are prevalent.

With the exception of New Zealand, one of the main reasons agricultural TVET graduates record lower employability in many countries is that agriculture is structurally distinct from other sectors. In many developing economies, TVET graduates in agriculture are more likely to enter self-employment than paid employment (Brown and Majumdar, 2020). In other sectors, TVET qualifications primarily function to strengthen employer recognition and, in turn, improve graduates' prospects of paid employment. In agriculture, however, particularly in non-advanced economies characterised by a predominance of smallholder population, family farming, and a relatively thin layer of larger enterprises, graduates more commonly transition into own-account work, micro-enterprise activities or family farming. This may explain the lower employability rates.

4.2.2. Prevalence of Self-Employment Among Agriculture Graduates in Malaysia

Malaysia's data in Figure 22, mirrored this structural pattern. Overall, agriculture graduates were more likely to be self-employed (25.1%) than the general graduate population (16.9%). This tendency was even stronger among agricultural TVET graduates, particularly those from KPKM, where 34.1% of employed graduates were in self-employment, compared with 24.3% among the broader TVET cohort.



Sources: KPKM data and Graduates Tracer Study Report 2024 (Ministry of Higher Education, 2025); PNBRI analysis

Note: n refers to the number of responding graduates who were employed. Paid employment refers to graduates who are employees, while self-employment includes employers, own-account workers, freelancers, and family workers. Data on Agricultural TVET graduates (including KPKM AgriTVET and non-KPKM AgriTVET programmes) is not available.

Self-employment in agriculture typically requires capital, land access and networks, which can pose substantial barriers immediately after graduation. In this context, a **lower GER (Figure 21) within one year may reflect constraints in entering viable self-employment, rather than programme failure.**

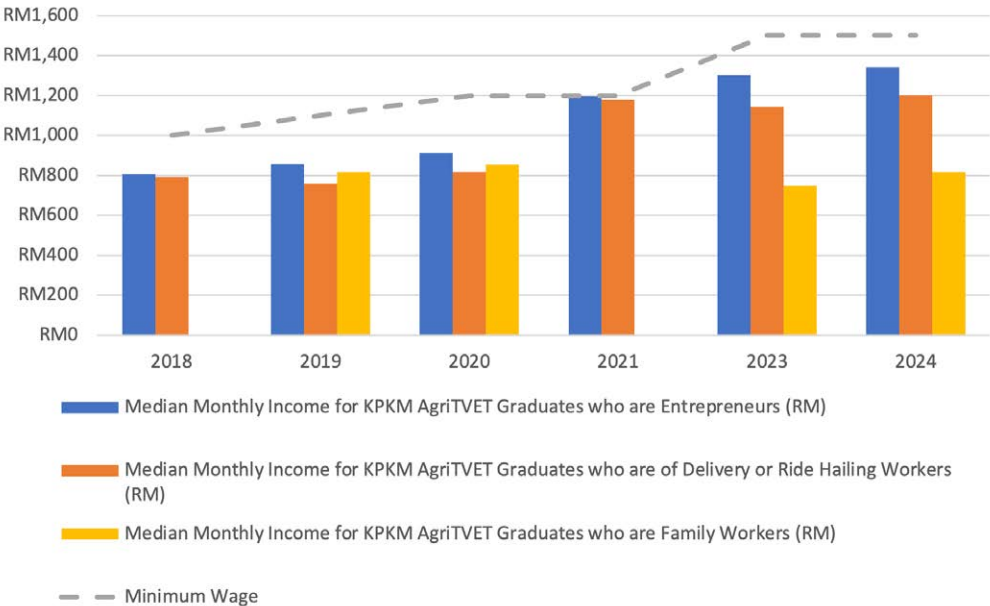
While this self-employment is often viewed as a “residual” form of work associated with economic vulnerability (Cohen 2025; Gammarano 2018), agriculture is an exception: entrepreneurial activity can be the core driver of sectoral advancements in emerging and developing economies (Brown and Majumdar, 2020). In this context, a positive labour-market outcome is not defined by employability alone but by whether entrepreneurial activity can be sustained and scaled. The next subsections, therefore, examine differences within KPKM AgriTVET and then move on to the quality of employment and entrepreneurship outcomes.

4.2.3. Entrepreneurship and Self-Employment Pathways

Self-employment is structurally prevalent in agriculture, but it is important to distinguish entrepreneurship from other forms of self-employment. In this report, self-employment is grouped into:

- i. entrepreneurs who operate their own businesses;
- ii. gig workers engaged in ride-hailing and delivery services; and
- iii. family workers, including unpaid family workers.

Figure 23: Median monthly income of self-employed KPKM AgriTVET graduates by type of self-employment, 2024



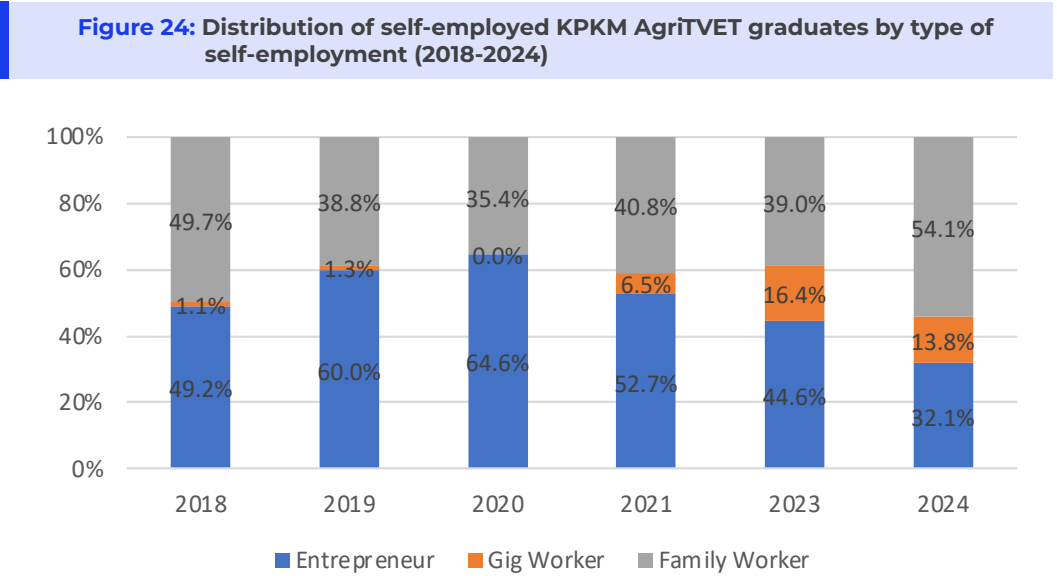
Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Figure 23 shows that **entrepreneurs earn slightly higher median incomes than gig workers, and a more pronounced premium over family workers**, whose earnings had been understandably low given the inclusion of unpaid roles.

Across all three categories, median income remained below the minimum wage. The income gap between entrepreneurs and gig workers was also relatively modest. Upon considering the higher barriers to entry faced by prospective entrepreneurs, including financial constraints, access to land and physical assets, and the need for market networks (Malhotra, Kumar, and Yadav 2025), the **limited income premium from entrepreneurship may not be sufficient to compensate for the additional risk and uncertainty.**

Under these conditions, it is rational for many KPKM AgriTVET graduates to opt for gig work, which offers immediate cash flow and low entry requirements. Figure 24 illustrates this concern. The share of graduates entering entrepreneurship has declined since 2020, while participation in gig work has increased over time. This pattern exhibited diluting returns from agricultural TVET training. When graduates shift into jobs such as ride-hailing or delivery services that do not require their agricultural skills or qualifications, the programmes would have effectively functioned only as a means of raising formal educational attainment, without translating into the intended outcomes, such as sector development and food security.



Source: KPKM data; PNBRI analysis
Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Taken together, the entrepreneurship evidence suggests that while there is some earnings advantage of becoming an agricultural entrepreneur relative to other self-employment options, that “so-called” earnings advantage is currently too small and too fragile to anchor graduates’ decisions. **That being said, the available data do not capture longer-term income trajectories.** While initial earnings may be more uncertain than in gig work, the accumulated experience, scale, and market positioning that lie ahead for agricultural entrepreneurship represent greater potential for income growth over time. This is an upside that remains unobservable in the current analysis.

Without stronger support ecosystems and clearer income prospects, agricultural TVET graduates may continue to be pushed towards generic gig work for immediate cash, undermining both the rationale for public investment in agricultural TVET and the sector's long-term talent pipeline. For KPKM, **this points to the need to pair entrepreneurial training with access to finance, land, incubation, entrepreneur networks, and market linkages, so that agropreneurship becomes a credible and competitive pathway rather than a high-risk option of last resort. With this, we propose that the government provide de-risking support for agropreneurs.**

4.3. Differences within Agricultural TVET: Qualification Levels and Programme Tracks

4.3.1. Relative Performance of KPKM and Non-KPKM Providers

As observed earlier in Figure 21, KPKM AgriTVET graduates consistently reported a lower employment rate (76.0%) than graduates from agricultural TVET programmes offered by other providers (82.2%). This divergence, occurring within the same agriculture field and TVET pathway but across different providers (KPKM versus non-KPKM), may be explained by two key factors: variation in the qualification levels offered, and differences in the technological orientation and field characteristics of the respective sub-fields.

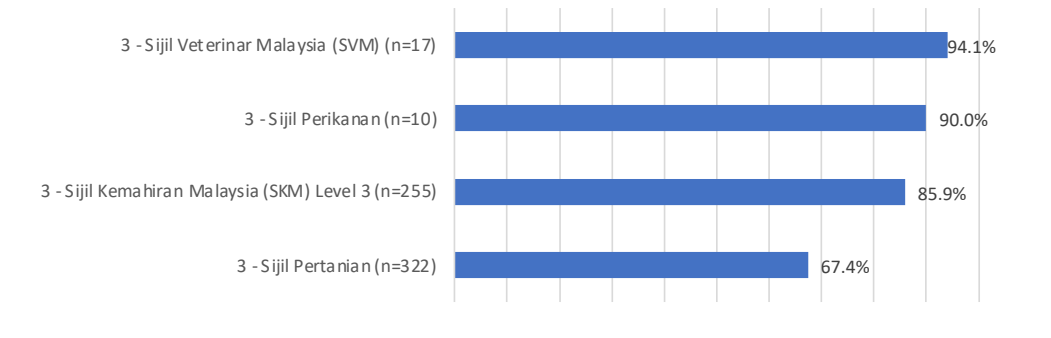
KPKM's programmes remain concentrated at MQF Level 3 (Figure 11). Sijil Pertanian, Sijil Veterinar Malaysia and Sijil Perikanan are all MQF Level 3 qualifications. PLKPK offers a mix of SKM Levels 1-3, with only six of its ten specialisations offering a diploma-level qualification (DKM, MQF Level 4).

By contrast, **non-KPKM AgriTVET providers, such as the University College of Agrosience Malaysia (2024: 123 graduates), offer higher-level qualifications**, including diplomas (MQF Level 4) and bachelor's degrees (MQF Level 6) (Ministry of Higher Education, 2025; University College of Agrosiences Malaysia 2025). Higher qualification levels often correspond to stronger employer recognition and more advanced competencies, which can support better immediate employability. This difference in qualification mix likely contributes to the observed employability gap between KPKM and non-KPKM AgriTVET graduates.

In addition, **sub-field orientation matters. KPKM AgriTVET programmes are predominantly upstream and within farm gates, and oriented towards farm operations such as crop production, farm management, and machinery maintenance (Figure 11). In these sub-fields, self-employment is common.** In contrast, other institutions offer agriculture-related programmes, with stronger technology, innovation and scientific components, such as precision agriculture, agri-technology and modern agricultural sciences (University College of Agrosiences Malaysia 2025). These programmes support pathways into paid employment in an increasingly dynamic agricultural sector. This suggests that improving graduates' labour market outcomes requires attention not only to increasing AgriTVET programmes, but also to enhancing the technological content and alignment with evolving agricultural industry demands.

4.3.2. Programme-Level Differences: The Outstanding Performance of Sijil Veterinar Malaysia (SVM)

Figure 25: GER (%) of KPKM AgriTVET programme by programme tracks, 2024

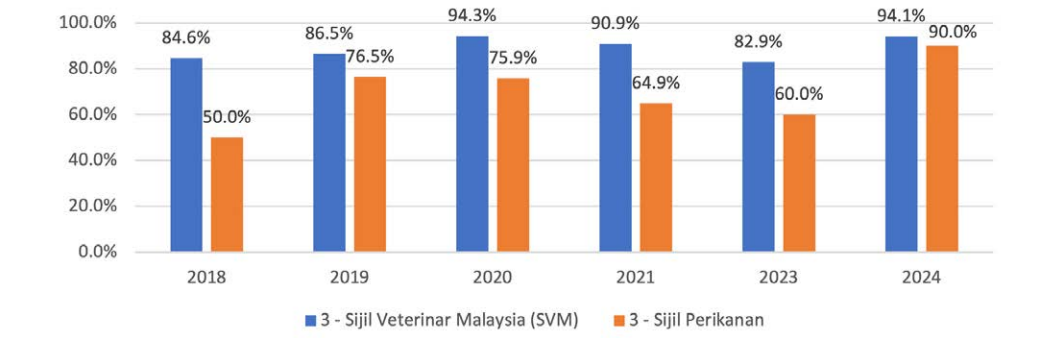


Source: KPKM data; PNBRI analysis

Note: n refers to the number of responding graduates, for each KPKM programme track, who were in the labour force (employed or unemployed, excluding those upskilling, furthering studies, or waiting for employment). The number labelled for each certification name corresponds to its MQF level. The figure excludes Diploma Kemahiran Malaysia (MQF 4) from PLKPK since there are only 2 graduates in 2024 and both are unemployed when they answered the tracer.

Figure 25 shows clear variation in employment outcomes across KPKM programme tracks. Sijil Veterinar Malaysia (SVM) recorded the highest employment rates. SVM's graduate employment rate also consistently exceeded 90% in four out of the seven years analysed. Although cohort sizes tended to be small, cohort size does not, in itself, explain performance. For comparison, Sijil Perikanan also had small cohort sizes, yet it did not exhibit as impressive employment rates (Figure 26).

Figure 26: GER (%) of SVM and Sijil Perikanan (2018-2024)

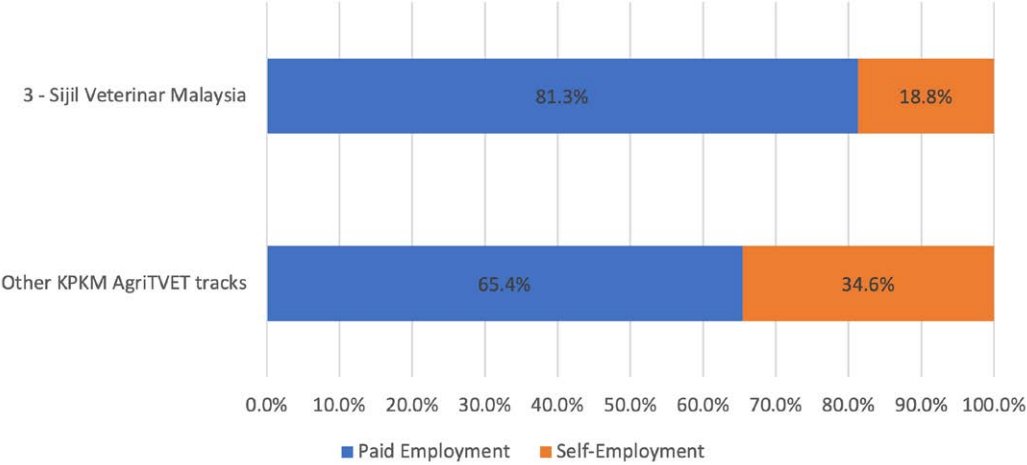


Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage

The key differentiating factor is the structure of the sub-industry into which SVM graduates were graduating. SVM qualifications prepare graduates for clinical and para-clinical roles in veterinary clinics, animal care facilities, and related establishments, where paid employment dominates. This is reflected in patterns of employment status (Figure 27), where only 18.8% of employed SVM graduates entered self-employment. This share was far lower than other KPKM AgriTVET sub-fields.

Figure 27: Share of employed graduates (%) by KPKM AgriTVET programme track (SVM and total for other tracks; 100% = total employed graduates for each pathway category), 2024 pe of Self-Employment, Malaysia, 2024



Source: KPKM data; PNBRI analysis

Although classified under agriculture, veterinary labour markets resemble health-adjacent services more than farm-based agricultural work. The SVM track, therefore, illustrates how industry characteristics across sub-fields can produce different immediate employability outcomes, even among TVET graduates with the same qualification level in other fields.

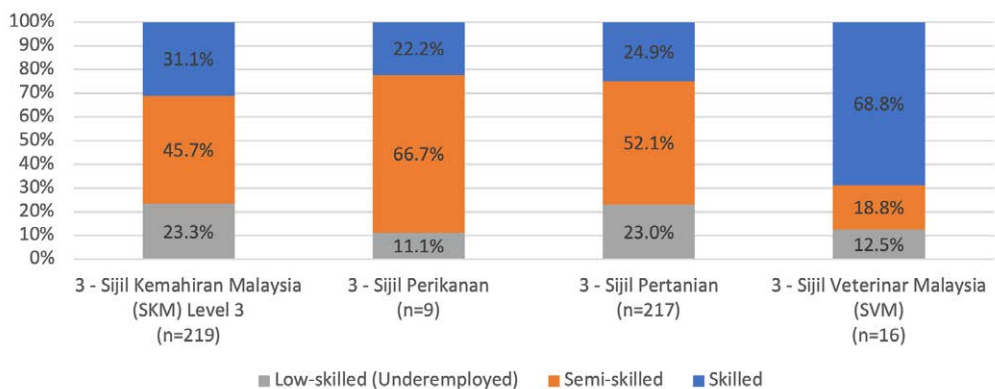
4.4. Quality of Employment

Beyond employment status, it is also important to assess the quality of jobs that agricultural TVET graduates obtain. In line with SDG 4.4 (United Nations, 2015), quality of employment speaks to whether education and training lead to decent work that provides a sustainable livelihood. This is particularly important in the KPKM AgriTVET context, where participation in a low-paying industry like agriculture entails non-negligible opportunity costs. Many youths, primarily those from low-income households, must weigh the decision between enrolling and meeting immediate income needs. Even with fee waivers and allowances, time spent in training may displace earning opportunities (Brown and Majumdar, 2020). For these graduates, the returns to education must materialise, not only in terms of post-graduation employment, but also in terms of providing adequate compensation to offset lost earnings during the training period.

4.4.1. Job-Skill Match

A key measure of a positive labour market outcome is whether qualifications can lead to appropriately skilled employment. As defined by MASCO skill classifications, the relevant measure is whether MQF Level 3 qualifications would lead to at least semi-skilled employment, whereas Diplomas would lead to skilled employment. Graduates employed in lower than the expected roles would be considered skill-based underemployed.

Figure 28: Distribution of employed graduates by skill levels (skilled, semi-skilled, or low-skilled), by KPKM AgriTVET qualifications, MQF Level 3 qualifications, 2024



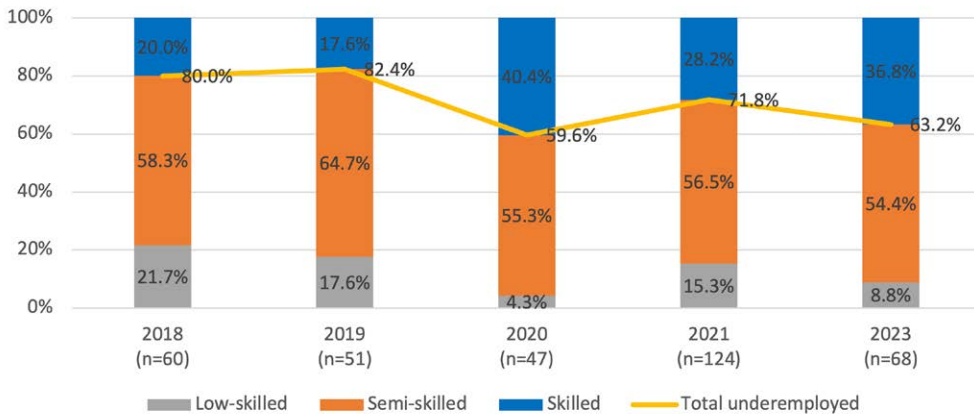
Source: KPKM data; PNBRI analysis

Figure 28 shows that across SKM Level 3, Sijil Pertanian, and Sijil Perikanan, around half of employed graduates were in semi-skilled jobs, with a further 20 to 30% progressing into skilled jobs. In 2024, around one-fifth of graduates from SKM Level 3 and Sijil Pertanian were skill-underemployed, while the corresponding share for Sijil Perikanan and SVM was only around one-tenth. **This indicates some degree of alignment between training and occupational level for most Level 3 qualifications.**

SVM stood out once again. A large majority of its graduates were employed in skilled occupations despite holding MQF Level 3 qualifications, far exceeding the typical benchmark for non-tertiary TVET. This pattern was not limited to a single cohort. From 2018-2024, SVM graduates consistently exhibited high rates of job-skill match and strong representation in skilled employment. In other words, **the veterinary track offers both higher employability and higher skill utilisation than other KPKM programmes at the same qualification level.**

The picture changed markedly when turning to tertiary-level graduates. **The expected “premium” of tertiary education in securing skilled employment is largely absent among KPKM graduates.**

Figure 29: Distribution of employed DKM graduates by skill levels (skilled, semi-skilled, or low-skilled), and the share of skill-underemployment (semi-skilled + low-skilled) (2018-2023)

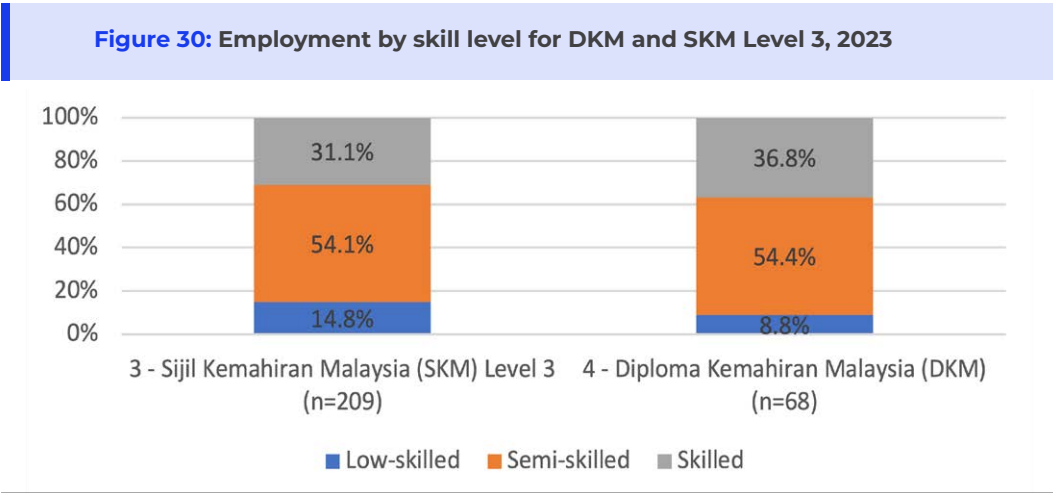


Source: KPKM data; PNBRI analysis

Notes:

1. The figure excludes 2024 data since there are only 2 DKM graduates in 2024 and both are unemployed when they answered the tracer.
2. The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Figure 29 reveals that each year, an **overwhelming majority of tertiary KPKM graduates were skill-underemployed**, working in semi-skilled or low-skilled positions rather than skilled roles. In 2023, nearly two-thirds of diploma graduates fell into this category. This becomes clearer when comparing within the same PLKPK track, holding field-specific characteristics constant. Figure 30 shows that the share of graduates in skilled jobs was only 5.7 percentage points higher for diploma holders than for SKM Level 3 graduates in 2023. Most diploma holders, like their certificate counterparts, were employed in semi-skilled roles.



Source: KPKM data; PNBRI analysis

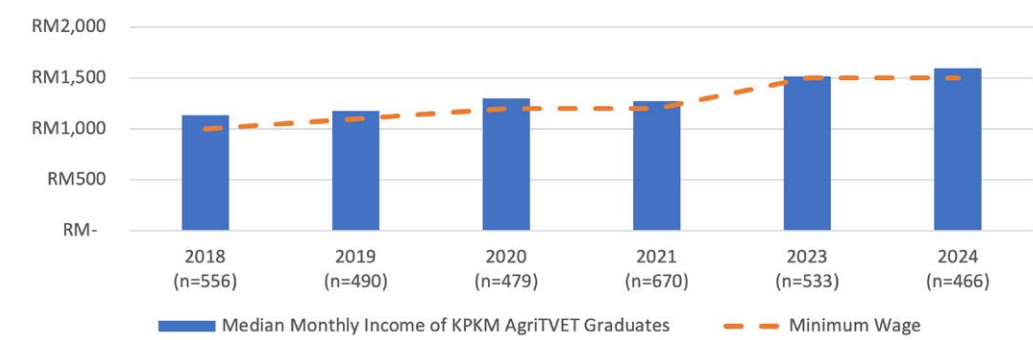
Note: n is the total employed graduates of each qualification, excluding three SKM level 3 graduates who did not answer this question.

Given that the diploma qualification requires roughly an additional 18 months of study, the incremental benefit in terms of job-skill match appears limited. If the labour market does not distinguish clearly between diploma and certificate holders, the incentive to pursue higher-level TVET weakens. Over time, this could erode progression pathways within agricultural training and reduce enrolment in advanced TVET.

Overall, KPKM programmes **perform reasonably well at MQF Level 3**, where most graduates are appropriately matched, but the **Diploma Kemahiran Malaysia track warrants closer attention** due to persistent skill underemployment. If left unaddressed, this weak diploma premium risks undermining the attractiveness of progressing to higher TVET levels within agriculture.

4.4.2. Income Outcomes

Figure 31: Median monthly income of employed KPKM AgriTVET graduates, juxtaposed with minimum wage levels (2018-2024)



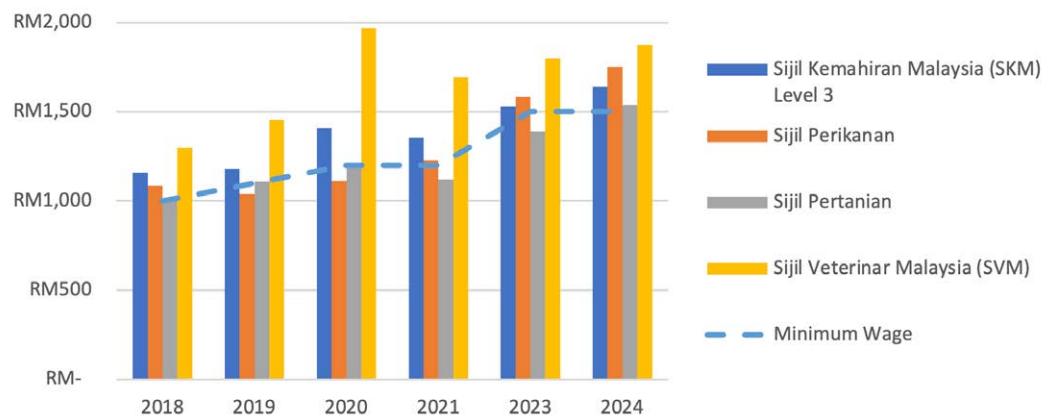
Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Income outcomes provide a second lens on employment quality. Figure 31 shows that the overall median monthly income for KPKM AgriTVET graduates hovered around the statutory minimum wage. Because the data include self-employed graduates and those in time-related underemployment⁴, this does not imply that half of all graduates are formally paid below the legal minimum. Rather, it signals that the earnings distribution is compressed at the lower end, with a substantial share of graduates in low-paying or low-hour work.

⁴ As defined by the Department of Statistics Malaysia: individuals employed for fewer than 30 hours per week, despite being willing and available to work additional hours, primarily due to a lack of available work.

Figure 32: Median monthly income of employed KPKM AgriTVET graduates by programme track, juxtaposed with minimum wage levels and the median monthly income for all TVET certificates (2018-2024)

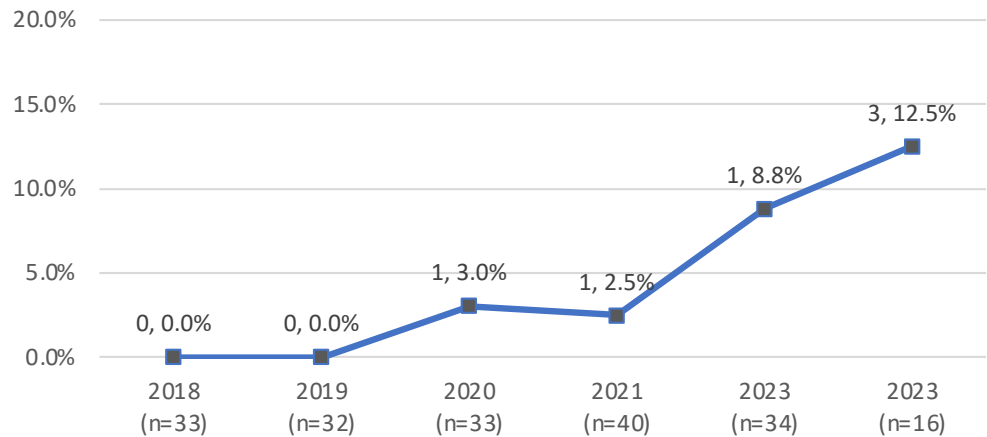


Sources: KPKM Data and Graduates Tracer Study Report 2024 (Ministry of Higher Education 2025); PNBRI Analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Disaggregated by programme track, Figure 32 reveals a clear pattern. SVM consistently recorded the highest median income among KPKM tracks in every year observed. In recent cohorts, Sijil Perikanan emerged as the second-highest earning track, whereas SKM Level 3 previously held this position. In contrast, Sijil Pertanian recorded the lowest median income in five of the seven years analysed, with median earnings frequently below the minimum wage benchmark. However, **even for the strongest-performing track, the absolute income level remained modest.** Median monthly earnings for SVM graduates remained below RM2,000 in all years.

Figure 33: Share and number of SVM graduates earning above RM3,000 (2018-2024)



Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Figure 33 shows that only a small fraction of SVM graduates earned more than RM3,000 per month. The apparent increase in the share of high earners in 2024, from 8.8% to 12.5%, was largely driven by a sharp decline in the cohort size from 34 to 16 graduates, rather than by a broad-based improvement in wages. Thus, while SVM graduates fare better than their peers within KPKM, they remain far from the high-income segment. This reinforces the broader diagnosis that TVET graduates, including those in agriculture, are constrained by generally low wages in the labour market, particularly within the first year of graduation (Amran 2025).

In summary, the quality-of-employment analysis suggests a mixed picture. At the non-tertiary MQF Level 3, most graduates achieved appropriate job-skill matches, and some specialised tracks, particularly veterinary, delivered relatively stronger earnings. However, the tertiary KPKM AgriTVET showed weak skill utilisation, and overall, KPKM graduates were largely clustered at the lower end of income levels.

In combination with modest job-field and skill matches, these low wages risk creating strong incentives for graduates to seek opportunities outside agriculture. This could prove problematic with regard to ensuring food security for Malaysia.

4.5. Discussion and Policy Implications: Aligning KPKM AgriTVET With Sector Realities

The findings indicate that suboptimal outcomes for AgriTVET graduates require policy responses that recognise the distinctive structure of agricultural employment, where self-employment and enterprise-based work are central. Accordingly, **effective policy must extend beyond a narrowly defined notion of employability and address the conditions under which graduates transition into viable agricultural livelihoods.** Six interrelated policy directions emerge:

i. Policy Direction 2: Agriculture-Relevant Performance Measurement Framework

Standard employability metrics understate the effectiveness of agricultural TVET, where self-employment and gradual enterprise development are common. Internationally, there is a shift towards sector-sensitive performance indicators. The OECD (2020) recognises indicators such as quality of employment, farm income sustainability and enterprise survival as more appropriate for evaluating rural and agricultural TVET. These measures better reflect sectoral realities than short-term job placement rates.

Instead of mere employment rates, **KPKM may track agriculture-specific indicators to assess the performance of AgriTVET graduates, such as farm net profits or yields over time.**

ii. Policy Direction 3: De-Risking Mechanisms for Post-Training Agropreneurship Transitions

A key feature of the agricultural labour-market outcomes, as revealed by the findings earlier, is the prominence of self-employment as a significant pathway for graduates. In this context, the challenge is not primarily one of employability, but of transition into viable enterprise activity. Starting an agricultural business typically requires access to capital, land, equipment and production inputs, alongside the capacity to manage uncertain and uneven income in the early stages. These conditions make early-stage enterprise entry inherently risky, particularly for new graduates with limited financial buffers.

As such, the lack of coordinated support at this transition point can constrain the realisation of returns to agricultural TVET. International experience illustrates how these risks can be mitigated. In India, initiatives such as **Startup India** and the **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)** provide seed funding, subsidised loans, and structured mentorship to rural TVET graduates, thereby reducing the risk of failure in the early stages of business formation. **France's Jeunes Agriculteurs scheme** similarly recognises farming as a high-barrier profession by offering installation grants, concessional financing and early-income support, often co-financed through EU rural development funds and structured over the first five years of operation. These

models acknowledge that agricultural entrepreneurship requires transitional support beyond training.

KPKM may consider introducing an AgriTVET-specific “graduate package”, targeted at graduates entering enterprise pathways. This could include concessional or risk sharing financing, structured equipment leasing arrangements, insurance mechanisms, facilitated land access, and coordinated mentoring and market linkages.

These instruments can be designed as a targeted, staged de-risking framework tied to training performance and completion. Such an approach would reduce early-stage failure risks, strengthen the returns to agricultural TVET, and improve alignment with **Pillar 5 of the National TVET Policy 2030** on outcome-based evaluation and graduate employability.

iii. Policy Direction 4: Embedding Enterprise and Market Competencies in AgriTVET Curricula

Countries with mature TVET ecosystems embed enterprise literacy across all qualifications. In Finland, entrepreneurship education is mandatory across vocational training, including agriculture, covering business planning, market assessment, cost structures and regulatory compliance. These transversal skills support diverse pathways into employment and entrepreneurship.

KPKM could integrate core enterprise and market modules into all AgriTVET qualifications, rather than confining them to specialised programmes. This would strengthen future-ready skills and better prepare graduates for self-employment and enterprise-based work.

iv. Policy Direction 5: Cross-Value-Chain Exposure within Agricultural Training

Comparative TVET programme evidence and rural entrepreneurship research indicate that limited understanding of downstream activities, such as processing, pricing and market access, is a common constraint on enterprise viability in smallholder-dominated agricultural systems (Brown and Majumdar, 2020). Reflecting this, agricultural TVET programmes in **Australia** incorporate short-term placements and rotational modules across production, processing, packaging and logistics, to strengthen market literacy and enterprise readiness without requiring full downstream specialisation (Misko, Chew, and Korbel 2020).

In the KPKM AgriTVET programme, only two out of the ten courses offered under the PLKPK track (SKM and DKM) cover the downstream agricultural production: food processing and marketing. Other courses remain largely concentrated in upstream production with no exposure to downstream segments. **This narrowed focus may constrain graduates’ ability, especially that of those interested in entrepreneurship, to connect production decisions to market outcomes.**

KPKM could introduce structured cross-value-chain exposure modules, such as short modules, industry visits, inter-programme projects or brief placements, to address this gap. These initiatives are expected to strengthen market orientation and entrepreneurial readiness while preserving technical specialisation.

v. Policy Direction 6: Structured Industry Partnerships and Graduate Absorption Pathways

Agriculture currently lacks systematic industry partnership ecosystem. Existing engagements are often one-off in nature, informal, or project-based, limiting prospects for sustained graduate absorption. A more coordinated approach, centred on **sector-specific placements, apprenticeships and facility-based training**, could strengthen paid employment pathways alongside enterprise development.

Experience from other sectors demonstrates the effectiveness of **structured, outcome-oriented industry partnerships**. In manufacturing, the Malaysian Technical University Network (MTUN) has facilitated substantial industry collaborations, including Universiti Tun Hussein Onn Malaysia's partnerships valued at over RM1.5 million across technology-intensive fields (Nizam, 2025). Similarly, collaborations between TVET institutions and the Federation of Malaysian Manufacturers have supported more than 10,000 industry-exposure programmes for TVET trainees in the manufacturing sector, illustrating how coordinated partnerships can translate training into employment outcomes (Mahari and Azmi 2024).

Malaysia can leverage both its **existing large agri-related enterprises** and its expanding landscape of **higher-value, technology-driven agricultural activities** to strengthen employment absorption for agricultural TVET graduates. Growth in precision agriculture, controlled-environment systems, agri-processing, agri-logistics and digital farm services signals the emergence of enterprises with greater capacity and incentives to absorb skilled labour.

KPKM could formalise partnerships with established agricultural producers across key sub-sectors. Examples include vegetable producers Monoluxury Sdn Bhd. and BoomGrow Farms, Farm Fresh Berhad in livestock, FGV Holdings Berhad in diversified agribusiness operations, and aquaculture firms such as Blue Archipelago Berhad and Sankina Aquaculture Sdn. Bhd.

In addition, partnerships could be extended to large fruit plantations and smaller speciality producers in Sabah and Sarawak, particularly in niche segments such as speciality rice, coffee, and pepper. Under such arrangements, industry partners could provide structured paid-training placements, apprenticeships, or facility-based learning and commit to absorbing a defined number of graduates annually, ensuring that agricultural TVET provision is closely aligned with evolving industry demand.

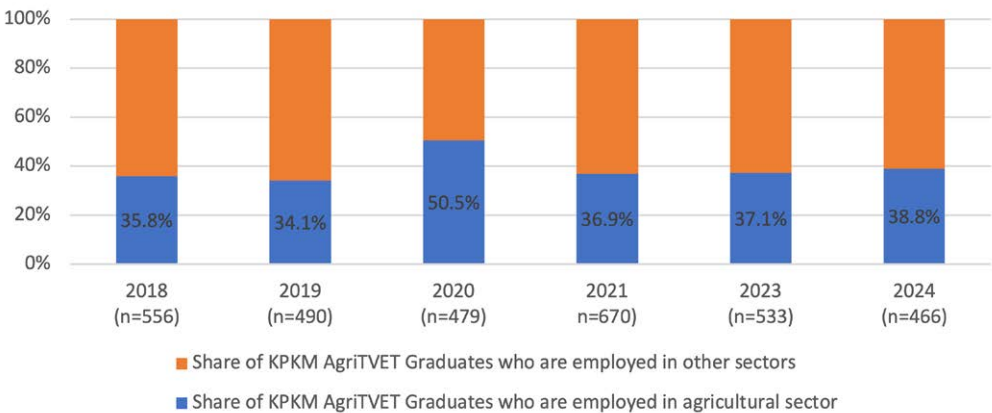
5. Results: Job-Field Alignment within KPKM AgriTVET Graduates

Ensuring that graduates enter jobs aligned with their field of training is critical for both individual and national returns. For graduates, job-field alignment reflects whether agricultural TVET translates into meaningful opportunities within agriculture-related work. For the country, it signals whether substantial public investment in programmes like the KPKM AgriTVET, including the covering of tuition or living allowances, contributes to strengthening Malaysia's agricultural workforce and ultimately national food security aspirations. Weak alignment reduces both the value of the qualification for graduates and the agricultural labour pipeline.

This section examines the extent to which KPKM AgriTVET graduates enter agriculture-related employment within one year of graduation. Due to data limitations, job-field alignment is operationalised as employment in the agriculture sector. It does not capture adjacent roles that are not categorised under agriculture by the Department of Statistics Malaysia using the Malaysia Standard Industrial Classification (MSIC). Measured alignment should therefore be interpreted as a lower-bound estimate of graduates' engagement with agriculture-related work.

5.1. A Stable But Limited Level of Job-Field Alignment

Figure 34: Share of employed KPKM AgriTVET graduates by sector (2018-2024)

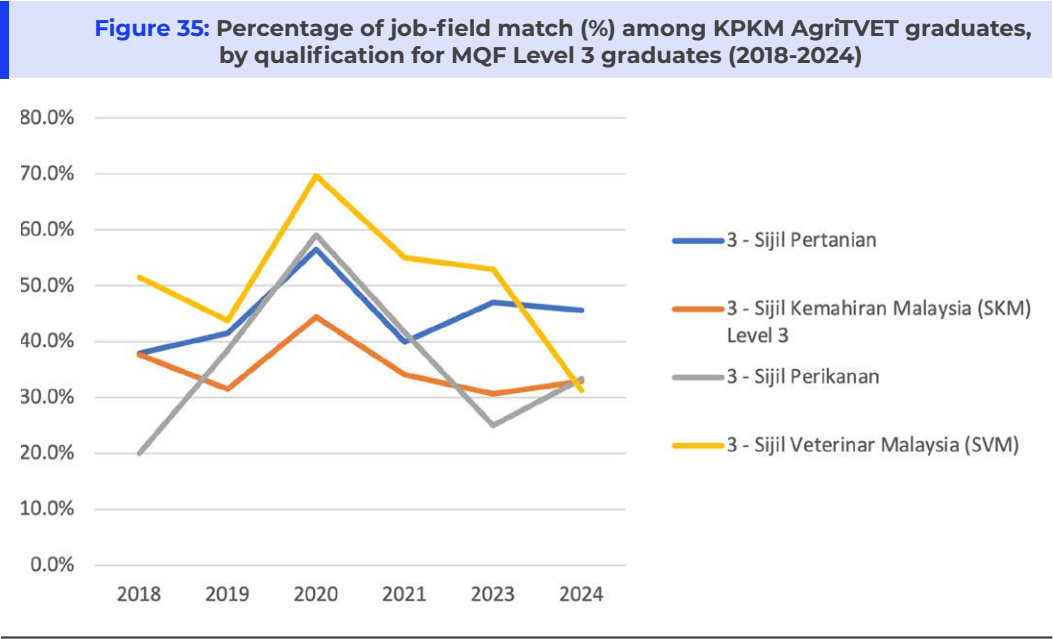


Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Across the seven-year period, approximately **one-third of employed KPKM AgriTVET graduates** were employed in the agriculture sector each year (Figure 34). This indicates that while a stable core of graduates maintained job alignment, the majority transitioned into other sectors in the early post-graduation period. This pattern is also consistent with the overall agriculture graduates, as 34.9% and 35.7% of those who graduated from agricultural programmes were employed in the agricultural sector in 2023 and 2024, respectively.

A notable exception occurred in **2020**, when job-field alignment rose sharply to **50.5%**, meaning that one in two employed graduates worked in agriculture that year. This increase was observed across all KPKM programme tracks (Figure 35). KPKM indicated that pandemic-related restrictions may have constrained non-agricultural opportunities, making farm-based work relatively more viable and accessible during this period. This may illustrate how graduates' choice of job sectors is responsive to relative opportunity.

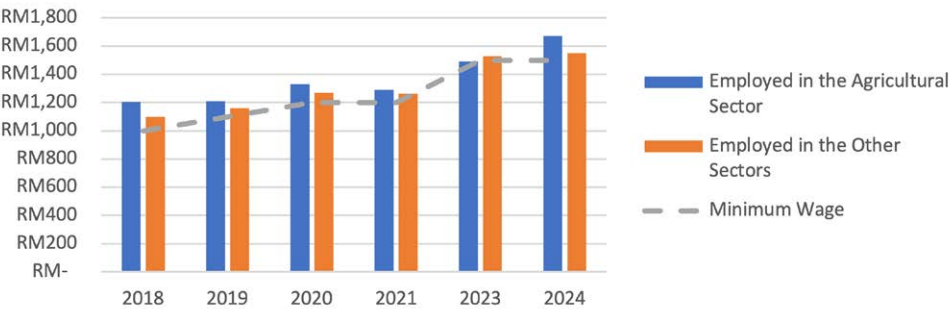


Source: KPKM data; PNBRI analysis
Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

5.2. Modest Income Incentives for Agricultural Alignment

KPKM AgriTVET graduates working in the agriculture sector consistently earned **slightly higher** median incomes than those employed in non-agricultural sectors (Figure 36). This may suggest that job-field alignment carries some additional financial value.

Figure 36: Median monthly income of KPKM AgriTVET graduates (RM), agriculture vs non-agriculture sectors (2018-2024)



Source: KPKM data; PNBRI analysis

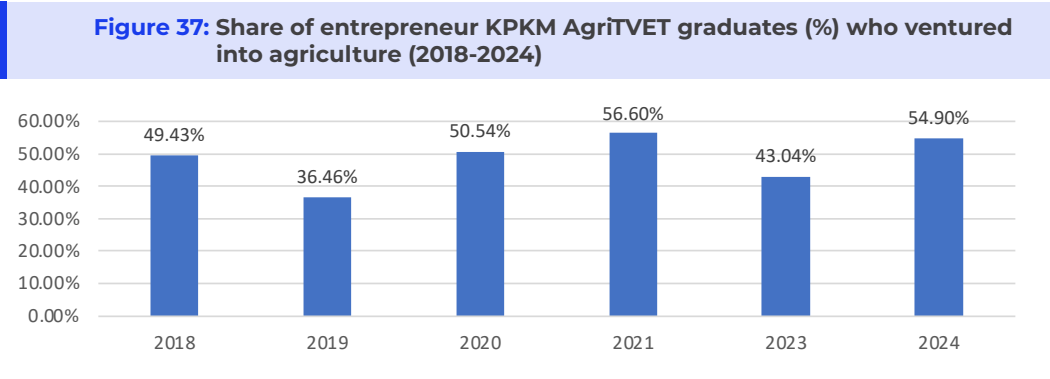
Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage

However, that additional financial value was modest, at around **RM100 per month**. In some years, it was negligible. Given the physical demands, irregular hours and working conditions often associated with upstream agricultural jobs, such a small income differential is unlikely to outweigh non-pecuniary considerations such as job comfort, stability or social preferences.

In short, while agricultural alignment offers a positive income signal, it appears **too weak to act as a strong retention mechanism**.

5.3. Agropreneurship: Aligned But Under-Scaled

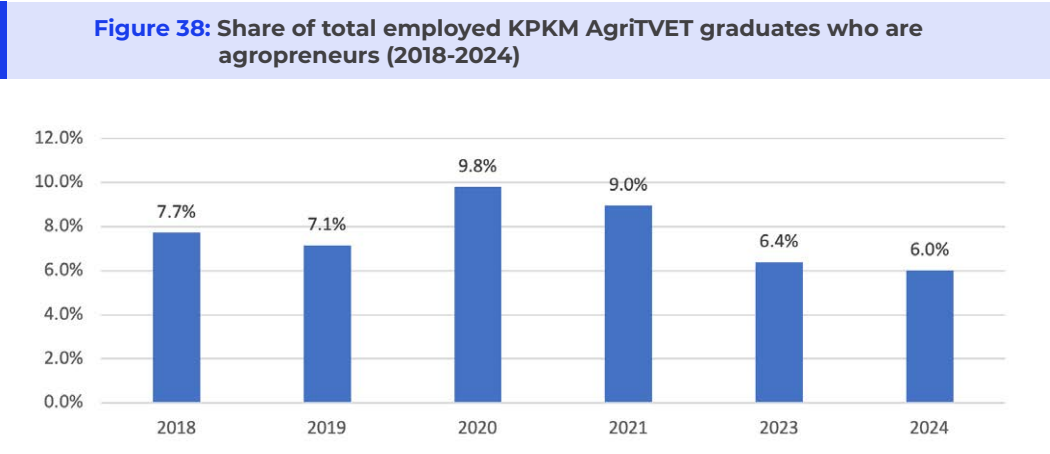
Entrepreneurship plays a structurally important role in agriculture, yet not all self-employed KPKM AgriTVET graduates pursued agriculture-related businesses. Among graduates who did pursue entrepreneurship, the share venturing into agriculture-based businesses, dubbed “agropreneurs”, fluctuates widely between **30%** and **60%** across the years (Figure 37), considerably prohibiting us from establishing any pattern or hypothesis.



Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

When viewed against all employed graduates, however, agropreneurs constitute a **small and declining group** (Figure 38 below).



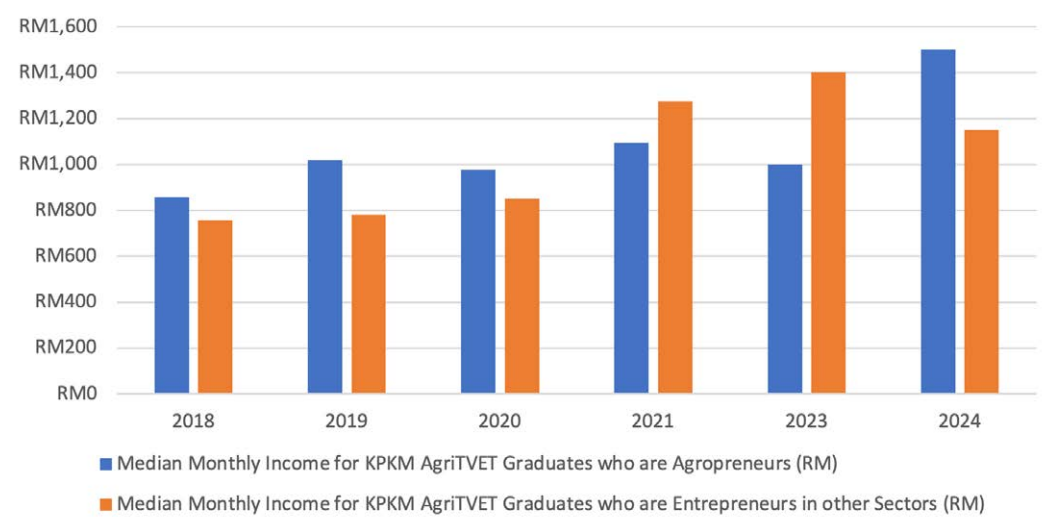
Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Across the seven years, fewer than 10% of all employed graduates engaged in agricultural entrepreneurship, with the share declining to only 6.0% in 2024. For a sector that is characterised by structurally high levels of self-employment, such low agropreneurship rates raise concerns. They suggest that agricultural TVET is not yet translating into agricultural enterprise creation at a scale needed to revitalise Malaysia’s shrinking agricultural workforce. However, a caveat is that these graduates may still be in agriculture- or food-related activities that are not captured under agriculture.

At the same time, the existence of a small but persistent group of agropreneurs indicates that there may be unique motivations which could be scaled up if the right enabling conditions were in place. Understanding what these motivations might be is the subject of warranted future research. Income patterns provide further insight into the returns associated with these entrepreneurial pathways (Figure 39).

Figure 39: Median monthly income for KPKM AgriTVET graduates (RM), agropreneurs vs non-agriculture entrepreneurs (2018-2024)



Source: KPKM data; PNBRI analysis

Note: The 2022 cohort is excluded for comparability reasons due to substantially lower tracer coverage.

Agropreneurs tended to earn higher median incomes than entrepreneurs in other sectors in most years. This suggests a positive pattern, although premium fluctuated considerably. During the COVID-pandemic years, this premium even turned negative, likely impacted by COVID 19. Given the higher barriers to entry in agricultural entrepreneurship, including capital needs, land access, equipment, regulatory requirements and market volatility (Malhotra, Kumar, and Yadav 2025), an income premium that is small, unstable or occasionally negative is unlikely to motivate sustained entry rates into agropreneurship.

This is particularly notable when compared to gig work. Delivery and ride-hailing offer immediate income and lower barriers to entry with minimal upfront cost, whereas agricultural entrepreneurship demands higher initial investment and inherently carries greater risks. Combined with a modest and uncertain wage premium, there appear to be strong incentives for KPKM AgriTVET graduates to opt for non-agricultural self-employment instead of agropreneurship. Nevertheless, agropreneurship ultimately holds far greater potential, both for building a sustained career trajectory and for strengthening the agricultural labour pipeline, than gig work, which typically offers limited progression and weak links to long-term skills development.

5.4. Discussion and Policy Implications: Incentive-Constrained Job-Field Alignment

Overall, **job-field alignment among KPKM AgriTVET graduates had been stable but remained limited**. Around one-third of employed graduates consistently work in agriculture, while the majority transition into other sectors within a year of graduation. Importantly, graduates who remain in agriculture do not experience worse income outcomes than those employed elsewhere. However, the **income advantage associated with agricultural work may still be insufficient to offset the higher risks, capital requirements and working conditions characteristic of the sector**.

The temporary increase in job-field alignment observed in 2020 suggests that **graduates' sectoral choices may be sensitive to changes in relative opportunity and changes to other sectors**. This pattern indicates potential responsiveness to post-training incentive structures.

Accordingly, the policy implications of this chapter reinforce our earlier policy directions.

First, the combination of stable-levels of job-field alignment and modest income differentials underscores **the need for sector-relevant performance indicators that capture longer-term engagement and enterprise viability, rather than short-term employment outcomes (Policy Direction 2)**.

Second, the low and declining share of agropreneurs, despite their relatively higher earnings than non-agricultural entrepreneurs, highlights **the importance of integrated post-training de-risking mechanisms to lower entry barriers (Policy Direction 3)**.

Third, the dominance of non-agricultural employment and gig work reflects less structured employment pathways within agriculture, reinforcing the case for **stronger industry partnerships to improve absorption into paid employment, especially in roles that are beyond upstream farming (Policy Direction 6)**.

Strengthening these levers would improve the risk-return profile of agricultural employment and agropreneurship, thus attracting more AgriTVET graduates to enter agricultural pathways and enabling KPKM to retain a larger share of its trained graduates within the agriculture sector.

6. Integrated Discussion and Policy Directions

Taken together, the findings across Sections 3, 4, and 5 point to a coherent set of mutually reinforcing policy directions for strengthening agricultural TVET outcomes. The evidence shows that outcomes are shaped by the interaction between spatial participation patterns, graduate transition pathways, and the structural characteristics of agricultural labour markets.

First, the location-based analysis shows that AgriTVET participation is geographically differentiated across states in both scale and relative concentration, and is partly aligned with the strength and role of agriculture within state economies. Localisation remains consistently high in states with the highest participation, such as Sabah, Sarawak, and Kedah, indicating that these states account for both where graduates originate and where training participation is concentrated. Taken together, these patterns point to a geographically uneven distribution of participation shaped by place-specific conditions, supporting a more targeted, state-differentiated approach to programme expansion and alignment.

Second, labour market outcomes indicate that AgriTVET serves its core function at entry level, particularly at MQF Level 3, where job-skill alignment is generally strong. However, these outcomes are shaped by the structure of agricultural employment, where self-employment and enterprise-based work are more prevalent than in other sectors. As a result, conventional employability metrics, including the Graduate Employment Rate (GER), capture only part of programme value. This highlights the need for sector-relevant performance indicators that better reflect income progression, enterprise sustainability, and longer-term livelihood outcomes, rather than short-term employment status alone.

Third, job-field alignment patterns indicate the existence of a stable core of graduates working in agriculture, complemented by a smaller group engaged in agropreneurship. The observed income differentials suggest that alignment with agriculture is associated with positive but modest financial returns, indicating that outcomes in agriculture are not necessarily inferior to other sectors. However, these gains remain limited and may not be sufficient to anchor graduates' decisions. Where entry barriers are high and short-term returns are uncertain, graduates may shift into alternative forms of work. This underscores the importance of post-training transition conditions and highlights the role of de-risking mechanisms in enabling agropreneurship pathways to function as viable early-career options.

Across chapters, six policy directions emerged consistently, reflecting the need to align programme design, transition support, and labour market pathways.

Strengthening AgriTVET Programme Design and System Alignment:

- **Policy direction 1: Targeted State-Specific Expansion of KPKM AgriTVET Provision**
Agricultural TVET provision should be expanded in a targeted, state-specific manner, prioritising diversification in high-participation states while aligning programme mix with local agricultural structures and student demand.
- **Policy direction 2: Agriculture-Relevant Performance Measurement Framework**
Performance assessment should reflect agricultural realities, particularly for agropreneurship, by moving beyond short-term employability rates toward sector-relevant indicators such as farm net profits or yields over time.

Strengthening Graduates' Preparedness for Agropreneurship Pathways:

- **Policy direction 3: De-Risking Mechanisms for Post-Training Agropreneur Transitions**
Post-training transitions into agriculture should be supported through structured de-risking mechanisms, particularly for agropreneurs, to reduce early-stage failure risks associated with capital, land access, and market volatility via an agricultural TVET-specific "graduate package" comprising small grants, vouchers and other starter kits, tied directly to graduates' performances.
- **Policy direction 4: Embedding Enterprise and Market Competencies in KPKM AgriTVET Curricula**
Enterprise and market competencies should be embedded across all agricultural TVET programmes curricula, recognising self-employment and enterprise-based work as core outcomes.
- **Policy direction 5: Cross-Value-Chain Exposure within Agricultural Training**
Cross-value-chain exposure should be strengthened, enabling graduates to connect production decisions with downstream processing, pricing, and market access without requiring full specialisation.

Strengthening Graduates' Pathways into Agricultural Employment:

- **Policy direction 6: Structured Industry Partnerships and Graduate Absorption Pathways**
Sector-specific industry partnerships should be strengthened, shifting from ad-hoc engagement towards structured placements, apprenticeships, and clearer graduate absorption pathways.

Overall, the evidence suggests that improving AgriTVET outcomes is less about expanding participation per se and more about **aligning programme design, transition support and performance measurement with the structural characteristics of agriculture**. When these elements move in tandem, agricultural TVET is better positioned to translate training into sustainable livelihoods and to support Malaysia's longer-term food-security and workforce objectives.

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Glossary

AgriTVET	Technical and vocational education and training in agriculture
Agropreneur	Entrepreneurs who venture in agriculture
BPKLP	Bahagian Pembangunan Kapasiti dan Latihan Pertanian, the official Malay name for KPKM's Agricultural Capacity Building and Training Division.
GTS	Graduate Tracer Study
GTS TVET	TVET category based on MOHE's Graduates Tracer Studies, referring to "TVET (excluding MTUN)"
KPKM	Kementerian Pertanian dan Keterjaminan Makanan, the official Malay name for the Ministry of Agriculture and Food Security.
KPKM AgriTVET	Agricultural TVET programmes administered by the Ministry of Agriculture and Food Security (KPKM).
MOHE	Ministry of Higher Education
MTVET	Majlis TVET Negara, the official Malay name for the National TVET Council.
OKU	Orang Kurang Upaya, the official Malay term of Persons with Disabilities.
TVET	Technical and Vocational Education and Training

