e-ISSN: 2550-1569

Available online at
https://myjms.mohe.gov.my/index.php/IJSMS

International Journal of Service Management and Sustainability
10(2) 2025, 54 – 73.

International Journal of Service Management and Sustainability (IJSMSust)

Labour Market Imperfection: A Case Study of Graduate Underemployment in Malaysia

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ARTICLE INFO

Article history:
Received : 1 July 2025
Revised : 28 July 2025
Accepted : 26 August 2025
Online first
Published : 30 September 2025

Keywords:
graduate underemployment
occupational mismatch
Malaysian graduates
overqualifications
semi-skilled occupations
labour market

DOI: 10.24191/ijsms.v10i2.24227

Citation in APA:
Ting, S. K., & Yong, S. W. (2025). Labour market imperfection: A case study of graduate underemployment in Malaysia. *International Journal of Service Management and Sustainability, 10*(2), 54 – 73.

ABSTRACT

Underemployment is a global issue in which graduates are employed in jobs that do not fully utilise their skills and education. Graduates are often employed below their skill level, on a part-time basis and receive lower salaries. In Malaysia, the government has prioritised higher education as a key driver of economic growth through various policies, initiatives, and budgets over the decades. Have these efforts improved graduate employability in the labour market? This study aims to examine underemployment trends by focusing on occupational skills and the socio-economic background of Malaysian graduates using secondary data from 2020 to 2023. The analysis shows that about one-third of Malaysian graduates were underemployed. In semi-skilled occupations, service and sales jobs were the most common among graduates, followed by clerical support jobs. There was a decline in low-skilled occupations among graduates. Female graduates outnumbered their male counterparts in service and sales occupations. Prime-age graduates (25 to 34 years old) recorded the largest share of underemployment. The wage growth of semi-skilled graduates was consistent but slower as compared to that of skilled graduates. The time-related underemployment from 2020 to 2022 fluctuations reflected COVID-19 impacts, while 2023 showed stabilisation of underemployment. Several policy recommendations are proposed to reduce graduate underemployment in Malaysia.

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1.0 INTRODUCTION

Graduate underemployment refers to tertiary-educated individuals whose employment does not completely utilise their skills or correspond with their qualifications (Department of Statistics Malaysia [DOSM], 2024a). Graduate underemployment has emerged as a prevalent issue in the labour market. It impacts recent graduates in both developed and developing countries. In the United States, more than half (52%) of individuals with bachelor's degrees are underemployed one year after graduation, and nearly 45% continue in sub-degree positions a decade later (Burning Glass Institute, 2018). Developing countries are similarly affected, in which over 20% of young graduates in low- and lower-middle-income nations are unemployed or underemployed (International Labour Organisation [ILO], 2023).

There are two main types of graduate underemployment: skill-related and time-related. Skill-related underemployment occurs when individuals are hired for jobs that do not match their skills or academic qualifications (DOSM, 2024a; Wilkins & Wooden, 2011). On the other hand, time-related underemployment refers to graduates who are willing and able to work more hours but are limited to part-time or temporary employment (DOSM, 2024a; ILO, 2013). The graduate underemployment rate in Malaysia remains high due to a mismatch between graduates' qualifications and labour market demands. In 2024, 1.72 million graduates were in skill-related underemployment, up 2.4% from the previous year (DOSM, 2024a). Young graduates aged 24 and under face skill-related underemployment at 59.8% (DOSM, 2024b). These data indicate challenges such as an oversupply of graduates and a mismatch between university curricula and industry needs.

The ongoing problem of graduate underemployment in Malaysia has significant economic and social impacts. Economically, underemployment leads to an inefficient distribution of human capital, as talented graduates contribute less to labour productivity than would be expected given their academic qualifications. This imbalance impedes innovation and diminishes the overall return from investments in higher education, affecting both individuals and the entire country (World Bank, 2021). This reflects a significant underutilisation of human capital. The talent drain can deter foreign investors who may be apprehensive about the skills gap in the local workforce, thereby reducing national productivity. Socially, prolonged underemployment contributes to dissatisfaction and mental health issues, particularly among young people. As of recent statistics, 5.5% of Malaysians are employed abroad, exceeding the global average of 3.3% (Sivakumar, 2023). Malaysia's aspiration to establish a knowledge-driven, high-income economy is hindered by the persistent loss of skilled talent.

Against this background, this study would like to examine the characteristics and trends of graduate underemployment through thematic analysis, focusing on five key demographic and socio-economic factors: occupation; age; gender; academic qualification; and wages and salaries. Secondly, the study aims to advance policy suggestions to improve the employability of underemployed graduates. This corresponds with the national agenda in promoting inclusion, creativity, and the well-being of Malaysians by ensuring fair access to quality employment opportunities. The study also further supports the Sustainable Development Goals (SDGs), particularly SDG 4: quality education, and SDG 8: decent work and economic growth, which promote graduate employment and foster productive, inclusive, and sustainable economic engagement (United Nations [UN], 2025).

The paper is divided into seven main parts. Section 2 provides a synoptic literature review on graduate underemployment. Section 3 highlights the institutional background of the graduate labour market in Malaysia. Section 4 outlines the methodology employed in the paper, while Section 5 discusses the results of thematic analysis. Section 6 advances some policy recommendations. The paper ends with some brief concluding remarks in Section 7.

2.0 LITERATURE REVIEW

Graduate underemployment is explained by various theories, as documented in the scholarly literature. Among others, these include spatial mismatch theory, human capital theory, dual labour market theory, gender segregation theory, and age discrimination theory. These theories are commonly employed by scholars to explain the phenomenon of graduate underemployment in both developed and developing countries.

The spatial mismatch theory (Kain, 1968) explains that employment opportunities and skilled labour are frequently physically disconnected due to geographical constraints. The geographical gap causes obstacles to work, such as moving expenses, higher rental, and insufficient transportation infrastructure, which result in underemployment or employment in non-graduate positions (Hodge and Whitby, 2024).

On the other hand, the human capital theory posits that underemployment occurs due to a disparity between graduates' education and abilities and the demands of the labour market (Becker, 1964; Low, 2025). Graduates from lower-ranking universities or non-technical fields may find their qualifications devalued in the labour market. Furthermore, the oversupply of graduates in particular disciplines results in overeducation, and individuals must accept employment below their level of qualification due to a scarcity of appropriate opportunities.

The persistence of graduate underemployment is explained by the dual labour market theory posited by Doeringer and Piore (1971). This theory categorises the labour market into two segments: a main sector that provides steady, high-wage employment with defined advancement opportunities, and a secondary sector marked by poor remuneration, job instability, and restricted career development. This scenario is clearly reflected between urban and rural employment (Li, 2024; Liang et al., 2024), where the main sector is concentrated in advanced central business districts (CBDs) while the secondary sector is frequently focused in rural areas where opportunities in employment, education, ICT, and infrastructure are limited.

The gender segregation theory further explains disparities in graduate underemployment. Horizontal segregation results in women being overrepresented in traditionally lower-paying professions such as education, social sciences, and the arts, while men predominantly occupy lucrative STEM industries (Blackburn et al., 2002; Hakim, 2004). Vertical segregation refers to the "glass ceiling" phenomenon, whereby women are obstructed from attaining leadership positions even though they hold higher qualifications (Hakim, 2004). These gendered dynamics lead to the underutilisation of female graduate talent, especially in areas characterised by informal or biased promotion channels (Heilman et al., 2024).

Finally, age discrimination theory elucidates the reasons for the underemployment of graduates despite having formal education (Gignac et al., 2024; Abu Rahim et al., 2023). Employers frequently stereotype younger job applicants as inexperienced, immature, or unprepared for the workplace, compared to older and experienced graduates. The absence of internships or industry exposure during higher education may hinder young graduates from securing a job. On the other hand, older workers or graduates also face discrimination in climbing the career ladder. They are frequently laid off by companies due to health issues, level of participation, and higher salaries (Gignac et al., 2024; Jiang et al., 2024).

The above theories are examined in various empirical studies conducted worldwide. The findings of these empirical studies reveal the complexity of labour markets in both developed and developing countries. Ndayikeza (2025) discovered that employers preferred hiring graduates with experience in low-skilled jobs over those with no job experience. This corresponds with the findings of Duan and Jackson (2025) in the U.S., where prolonged periods of underemployment diminish the probability of entering college-level occupations due to human capital erosion and enduring wage penalties. These findings validate the concept of the "underemployment trap," in which early career underemployment negatively impacts long-term wages and career advancement (Fauser & Mooi-Reci, 2025).

In addition, structural and geographic labour market characteristics intensify the dangers of underemployment. Houston et al. (2025) discovered that underemployment is more widespread in economically poorer regions characterised by labour market slack, low productivity, and informal employment structures in the UK. The research highlights the significance of localised workforce planning in reducing underemployment by aligning corporate operations with local labour demand. In a previous investigation on Australian nursing graduates, Li et al. (2022) similarly revealed that those not employed as registered nurses experienced elevated levels of underemployment and overqualification, primarily attributable to a constrained local job market.

Additionally, other researchers have investigated unconventional employment trajectories and the socio-psychological implications of underemployment. Kang and Xiong (2021) examined the viability of entrepreneurship as a solution to graduate underemployment in China. Notwithstanding advantageous policies, numerous graduates exhibit resistance to embarking on business ownership owing to restricted resource accessibility, personal risk aversion, and cultural impediments. Beck et al. (2025) utilised Jahoda's latent deprivation theory to contend that underemployment can be almost as detrimental as unemployment, due to its effects on identity, purpose, social interaction, and psychological health.

Overall, these theories and empirical studies provide important insights into the economic and social effects of underemployment on graduates and furnish evidence-based justification for policy interventions. Most underemployment research focuses on more developed countries. Studies on the underemployment of graduates in Malaysia are limited (Amini & Ravindran, 2024; Low & Mah, 2024). Existing studies primarily focus on women's empowerment, entrepreneurship, and wage efficiency in the Malaysian labour market. This study narrows the gap by analysing Malaysia's graduate underemployment by examining its occupational skills and various socio-economic characteristics of Malaysian graduates.

3.0 INSTITUTIONAL BACKGROUND OF THE GRADUATE LABOUR MARKET IN MALAYSIA AND ASEAN COUNTRIES

Graduates demonstrate different characteristics in the labour market in both developed and developing countries. Graduates are important to a country's productivity and economic growth. Graduates contribute to innovation, research and technological advancement, and social development. Both developed and developing countries invest significantly in higher education and the employability of graduates. Table 1 demonstrates that graduates in countries with better industrial alignment, digital transformation, and policy assistance tend to have better employment prospects.

Singapore's expanding employment rate and competitive earnings provide graduates with finance, technology, and healthcare jobs. Malaysia has moderate graduate employment rates in information and communication technology (ICT), finance, manufacturing, and healthcare. However, skills and automation gaps threaten future jobs in Malaysia. The Philippines' outsourcing sector offers Business Process Outsourcing (BPO), ICT, and healthcare jobs at low wages. Despite strong industrial and ICT sectors, Indonesia and Vietnam have struggled to find jobs for young graduates, and they must accept lower-paid jobs or work informally. Malaysia and Thailand have similar salaries and employment trends. Graduates work in tourism, banking, and manufacturing. Automation and a shrinking workforce have generated fears about future jobs in Malaysia and Thailand. Singapore has the highest average salaries (USD2,500–5,000), while Indonesia (USD150–600) and Vietnam (USD200-600) have the lowest, affecting graduate career advancement and financial security.

A complicated combination of higher education programmes, economic growth goals, and labour market norms shapes Malaysia's graduates' labour market. Malaysia has significantly improved its tertiary education system over the past decades to produce a more skilled workforce and achieve high-income country status. This rapid expansion has exceeded the labour market's capacity, creating structural gaps between graduates' qualifications and employment prospects.

Table 1. Graduate labour market in six ASEAN countries

Countries	Graduate employment rate	Key industries	Average salaries/month
Malaysia	Moderate, with a focus on STEM and business graduates	ICT, Finance, manufacturing, healthcare	USD 400 - 1,000
Singapore	High, strong demand for skilled professionals	Finance, technology & healthcare	USD 2,500 - 5,000
Philippines	Moderate, with outsourcing playing a major role	BPO, IT, & healthcare	USD 200 - 800
Indonesia	Moderate, with growing opportunities in technology	Manufacturing, ICT & Finance	USD 150 - 600
Thailand	Moderate, with tourism and services leading	Tourism, Finance & manufacturing	USD 400 - 1,000
Vietnam	Growing, with strong demand for skilled workers	Manufacturing, ICT & Finance	USD 200 - 600

Source: ASEAN Employment Outlook, 2023

The Ministry of Higher Education (MOHE), Talent Corp, and industry partners improve graduate employability through curriculum creation, industry-academia collaborations, and labour market activities in Malaysia. Over the decades, the government has carried out various official initiatives to improve the labour market. The national employment policy 2022-2030 promotes a digital economy and renewable job prospects, reduces skills mismatches, and creates high-quality jobs (ASEAN Secretariat, 2025). The Malaysia Education Blueprint (Higher Education) 2015-2025 intends to increase graduate employability by 90% by reforming courses and improving university-industry relationships. While the Twelfth Malaysia Plan (12MP) 2021-2025 spends RM1.2 billion on upskilling initiatives and intends to create 500,000 high-skilled jobs, focusing on STEM and TVET education (HEAD Foundation, 2020).

Malaysia employs extensive monitoring and evaluation methods to verify these efforts. University performance is reported annually by the Graduate Tracer Study, which tracks employment outcomes six months after graduation (HEAD Foundation, 2020). Targets include achieving 80% graduate employment within six months, a 30% income boost for upskilled workers, and a 50% skills mismatch reduction by 2025 (ASEAN Secretariat, 2025). These programmes attempt to make Malaysia's graduate labour market more competitive and sustainable. Despite labour market challenges, these initiatives and evaluations have contributed to the employability of graduates in Malaysia (Amini & Ravindran, 2024; Low & Mah, 2024).

4.0 METHODOLOGY

In this study, we employ a qualitative method, namely a case study, to examine the underemployment of graduates in Malaysia from 2020 to 2023. We focus on official statistical publications by the Malaysian government and literature review on the underemployment of graduates. A case study is chosen for its flexibility to use various data sources such as secondary data, literature review, and official documents to examine the trends and patterns of graduate underemployment over time.

4.1 Sources of data

We employ statistical data published by the Department of Statistics Malaysia (DOSM) and Ministry of Higher Education (MOHE), and literature review on underemployment. In this study, we focus on the underemployment of graduates and exclude the unemployment of graduates in Malaysia. We focus on statistical data to examine the trends and patterns of occupational skills and socioeconomic background of graduates, such as gender, age, academic qualification, and salary, using graphical presentations. Trend analysis is important to identify anomalies such as sudden drops or increases in underemployment and determine patterns of changes over time.

4.2 Research design

We examine all the secondary data related to underemployment published by MOHE and DOSM through their official websites. We focus on their annual publications, surveys, brochures, and booklets. Then, the data are downloaded and sorted based on relevant themes. Two main types of underemployment are identified: (a) skill-related underemployment and (b) time-related underemployment.

Skill-related underemployment refers to overeducation job mismatch, where employees accept a job that requires skills lower than their academic qualifications (DOSM, 2024a). In this context, it can be presented through graduates working in the category of semi-skilled and low-skilled jobs. Meanwhile, time-related underemployment refers to employed graduates working less than 30 hours per week and those who worked less than 30 hours due to the nature of their work or insufficient work (DOSM, 2024a). The details of the research design are shown in Table 2.

Table 2. Research design: Case study of graduate underemployment in Malaysia

No	Items	Remarks
1	Identification of archives of graduate underemployment	● Various stakeholders involved ● Selected two main stakeholders: (a) Ministry of Higher Education (MOHE) (b) Department of Statistics Malaysia (DOSM)
2	Literature review	● Focus on the underemployment of graduates from both developed and developing countries ● Identification of theories related to underemployment ● Identification of similarities and differences in underemployment between developed and developing countries
3	Identification of data sources	● Annual publications ● Survey ● Brochures ● Booklet
4	Thematic Analysis	● Analyse all data related to the underemployment of graduates ● Sort data into similar aims and construct themes ● Identify and analyse the trends and patterns over the years ● Graphical presentation of trends and patterns
5	Validation of findings	● Validate the findings based on official government publications and literature review

Source: authors' interpretations

Based on these two types of underemployment, we examine their trend and patterns of occupations and socioeconomic background through graphical presentations. We explore three (3) categories of occupations, namely skilled, semi-skilled, and unskilled. In terms of socioeconomic background, we examine the trends and patterns of graduate underemployment by gender (male vs female), academic qualification (degree and diploma), and age (four categories). Then, the findings are validated with official government publications and literature review. The details of the themes of underemployment are outlined in Table 3.

Table 3. Selected themes of underemployment in Malaysia, 2020-2023

No	Themes	Explanation
1	Skill-related underemployment	Overeducation job mismatch which a situation where employees accept a job that requires skills lower than their academic qualifications
	By skills	Skilled ● Managers ● Professionals ● Technicians and associate professionals Semi-skilled ● Clerical support workers ● Service and sales workers ● Skilled agricultural, forestry, livestock, and fishery workers ● Craft and related trades workers ● Plant and machine operators, and assemblers Low-skilled ● Elementary occupations
	By gender	● Male ● Female
	By age	● 4 categories ○ ≤ 24 ○ 25 – 34 ○ 35 – 44 ○ ≥ 45
	By salaries	● Based on three types of skills: skilled, semi-skilled, and low-skilled
2	Time-related underemployment	● Employed graduates working less than 30 hours per week ● Those who worked less than 30 hours due to the nature of their work or insufficient work
	By academic qualifications	● Diploma ● Degree
	By age	● 4 categories of age ○ ≤ 24 ○ 25 – 34 ○ 35 – 44 ○ ≥ 45

Source: authors' interpretations

5.0 RESULTS AND DISCUSSION

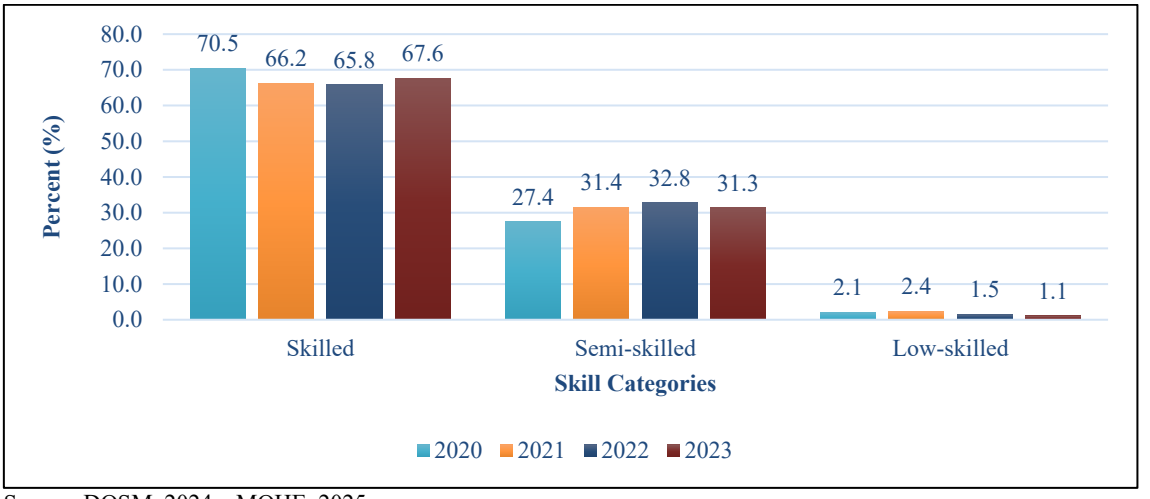
Overall, one-third of Malaysian graduates worked in semi-skilled and low-skilled occupations from 2020 to 2023, which indicates the mismatch between their academic qualifications and occupational skills. This mismatch is addressed as skill-related and time-related underemployment. Each theme has its characteristics and remains dynamic from 2020 to 2023. The details of the underemployment will be discussed in the following sub-sections. We maintain skilled occupations in the following sub-sections as a comparison to semi-skilled and low-skilled occupations to shed additional insight into the analysis of underemployment. Three main sub-sections are discussed, which include skill-related underemployment, (b) time-related unemployment, and (c) main patterns and characteristics of underemployment.

5.1 Skill-related underemployment

5.1.1 Occupational mismatch by skills

There was a stable growth in total graduate employment (4,053 thousand in 2020 → 4,755 thousand in 2023), reflecting a growing labour market in Malaysia. Skilled occupations consistently accounted for the largest share of graduate employment (65–71% annually) from 2020 to 2023. The sub-category of skilled occupations, namely professionals, remained the most common category, accounting for 38-42% of total employment from 2020 to 2023.

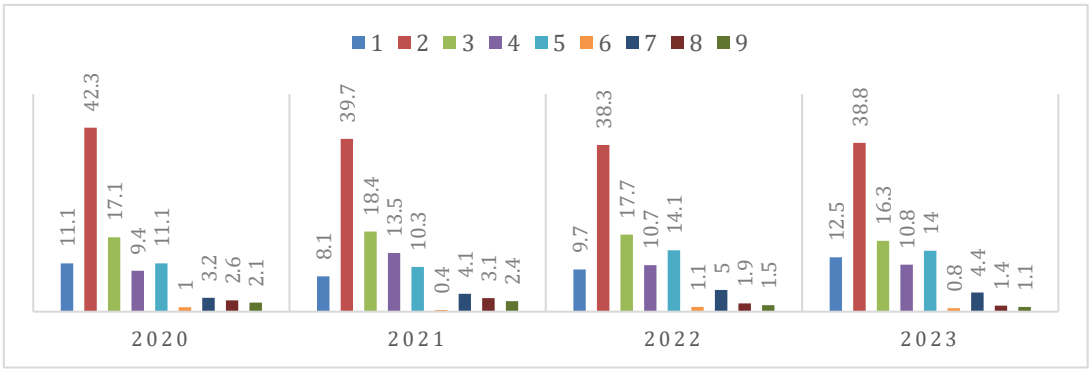
However, 27.4% to 32.8% of graduates were employed in semi-skilled labour, while 1.1% to 2.4% worked in low-skilled labour from 2020 to 2023. In other words, almost one-third of graduates were employed in semi-skilled and low-skilled labour, which did not match their academic qualifications. Such a high percentage of occupational mismatch among graduates has sparked debates among policymakers and scholars. Skilled roles continued to dominate but declined (70.5% → 67.6%), while semi-skilled employment grew (27.4% → 31.3%) in 2023. See Figure 1 for the overall occupation categories.



Source: DOSM, 2024a; MOHE, 2025

Fig. 1. Percent of graduates in skilled, semi-skilled, and low-skilled occupation categories in Malaysia, 2020-2023

In semi-skilled occupations, service and sales workers were the most common among graduates. Similar findings were also reported by Shahidan et al. (2019). Out of 1489 thousand semi-skilled occupations, most graduates worked as service and sales workers (14%) due to higher demand in retail and hospitality, and followed by clerical support workers (10.8%), craft and related trades workers (4.4%); and plant and machine operators, and assemblers (1.4%) and skilled agricultural, forestry, livestock and fishery workers (0.8%) in 2023. Craft and related trades workers nearly doubled (3.2% in 2020 to 5.0% in 2022), mainly due to vocational upskilling. There was a sharp decline in machine operators and assemblers, falling from 2.6% (2020) to 1.4% (2023), likely due to computerisation and automation (Amini and Ravindran, 2024).



Notes:

Skilled
1 = Manager
2 = Professionals
3 = Technician and associate professionals

Semi-skilled
4 = Clerical support workers
5 = Service and sales workers
6 = Skilled agricultural, forestry, livestock, and fishery workers
7 = Craft and related trades workers
8 = Plant and machine operators, and assemblers

Low-skilled
9 = Elementary occupations

Source: DOSM, 2024a; MOHE, 2025

Fig. 2. Graduates' employment by occupational skills in Malaysia, 2020-2023

Interestingly, there was a decline in low-skilled jobs by graduates, where it decreased from 2.1% (2020) to 1.1% (2023). This may suggest that graduates were moving towards higher-skilled jobs. The representation of graduates in skilled agricultural, forestry, livestock, and fishery workers, and elementary occupations was rare. Recent scholarly works on occupational mismatch due to overeducation in Malaysia are documented in Loh and Mah (2024) and Rahim and Sivashanmugam (2024). Details of the breakdown of types of occupations are shown in Figure 2.

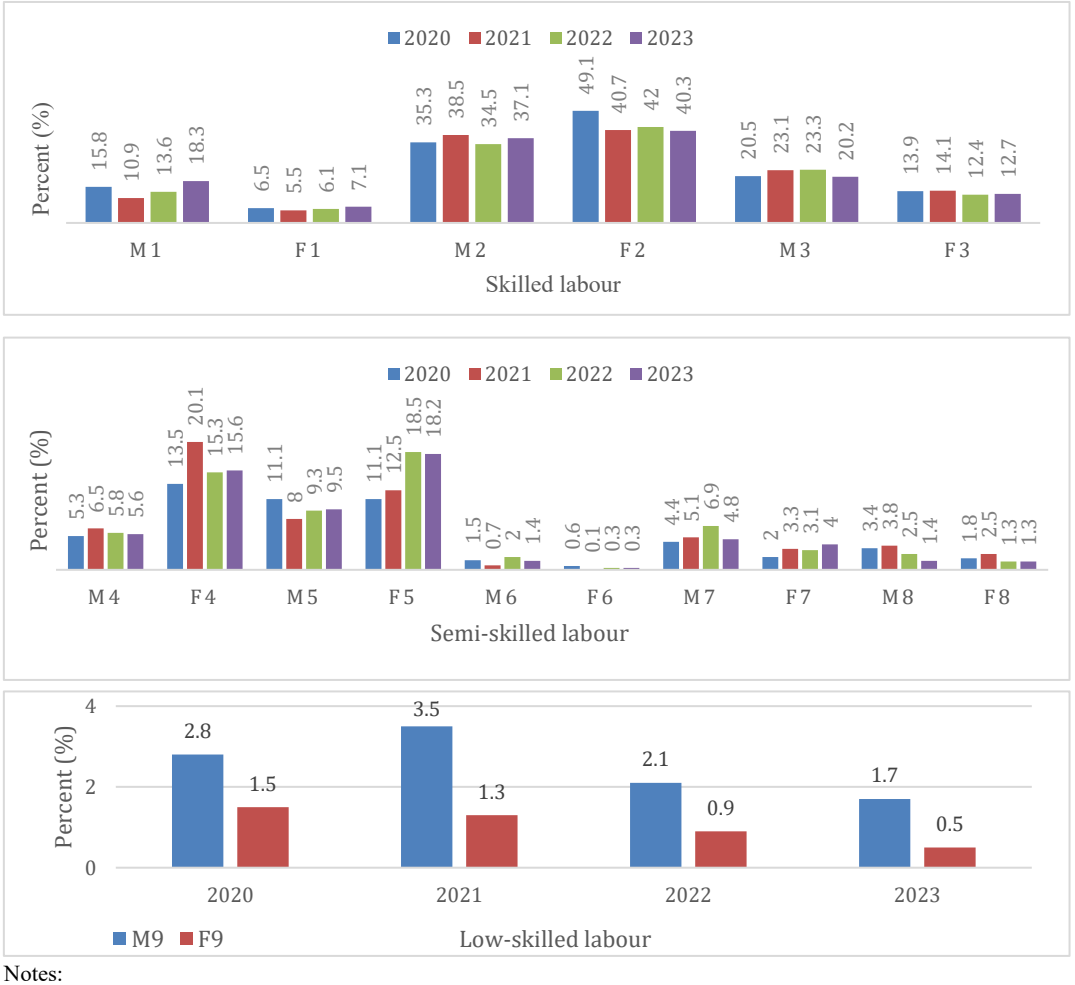
5.1.2 Occupational mismatch by gender

Three similarities are recorded between male and female graduates in occupations, as observed from 2020 to 2023. Firstly, both males and females were predominantly employed in skilled occupations (71.4–75.6% for males, 60.2–69.5% for females). Within skilled occupations, professionals were a major choice for both genders (males: 34.5%–38.5%, females: 40.3%–49.1%). Secondly, low-skilled workers were a small minority. Both genders had a small proportion in low-skilled occupations (males: 1.7–3.5%, females: 0.5%–1.5%). Lastly, both skilled agricultural, forestry, livestock, and fishery workers, and plant and machine operators and assemblers were a small share for both genders (mostly <5%).

Some significant differences are identified between the choices of occupations by males and females. Firstly, in terms of leadership and management roles, males were significantly more likely to be managers (10.9%–18.3% for males vs. 5.5%–7.1% for females). In addition, the gap even widened in 2023 (18.3% males vs. 7.1% females), where males were 2.6 times more likely to hold managerial roles.

Several causes contribute to male dominance in management. Occupational segregation is one of the causes in which males dominate industries with higher managerial density, such as manufacturing and technology, while females are clustered in sectors with flatter hierarchies like education and healthcare (Hussin et al., 2021). Promotion bias would lead to implicit biases in which male leadership traits were favoured in traditionally male-dominated fields (Ismal & Jajir, 2012). In addition, females were more likely to take career breaks or part-time roles (e.g., for caregiving), thus, slowing career advancement (Halim et al., 2016).

Secondly, females dominated in professional roles (40–49%), as compared to males (34–38%). Males were more likely to be technicians and associate professionals (20–23%) than females (12–14%). Thirdly, an interesting semi-skilled work trend was observed between males and females. Females were increasingly occupied in semi-skilled jobs (29% in 2020 → 39% in 2023), especially in service and sales (11% → 18%) and clerical support (14% → 16%). On the other hand, males in semi-skilled work declined (26% → 23%), with more shifting to skilled roles. Fourthly, males were more represented in craft and related trades (4–7%) than females (2–4%). Lastly, females recorded a sharper decline in low-skilled jobs (1.5% → 0.5%), as compared to males (2.8% → 1.7%). Details of the breakdown of graduates' employment by occupational skills and gender are illustrated in Figure 3.



Notes:
M = male & F = Female

Skilled
1 = Manager
2 = Professionals
3 = Technician and associate professionals

Semi-skilled
4 = Clerical support workers
5 = Service and sales workers
6 = Skilled agricultural, forestry, livestock, and fishery workers
7 = Craft and related trades workers
8 = Plant and machine operators, and assemblers

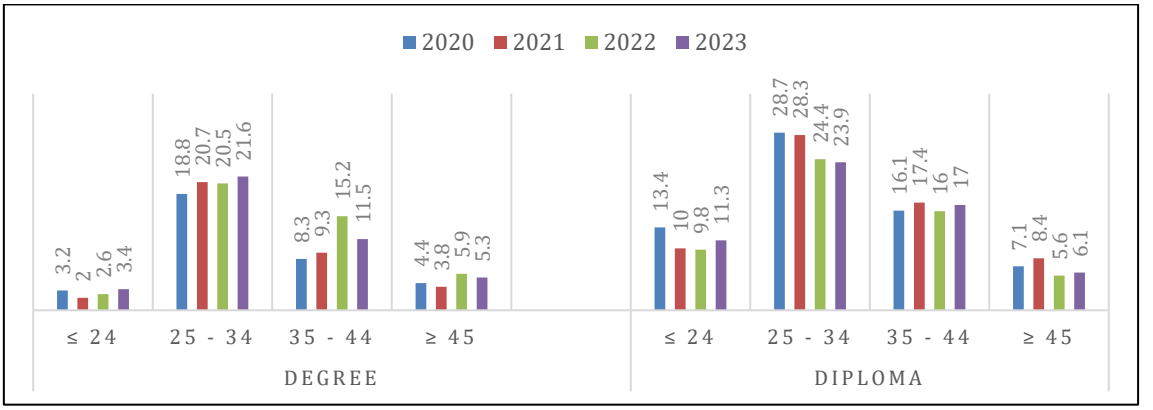
Low-skilled
9 = Elementary occupations

Source: DOSM, 2024a

Fig. 3. Graduates' employment by occupational skills and gender in Malaysia, 2020-2023

5.1.3 Occupational mismatch by age and academic qualification

There are four age categories of underemployment, namely: (a) the youth: under 24, (b) prime-age workers: 25 to 34, (c) mid-career workers: 35 to 44, and (d) older workers: ≥ 45. Overall, the prime-age workers dominated the underemployment regardless of the type of academic qualifications. Underemployed diploma holders consistently outnumbered degree holders in all four types of age categories from 2020 to 2023, indicating diploma holders face more competition in occupations. The details of the occupational mismatch by age and academic qualification of graduates in Malaysia from 2020 to 2023 are presented in Figure 4.



Source: DOSM, 2024a

Fig. 4. Graduates' underemployment by age and academic qualification, Malaysia, 2020 – 2023

Underemployed diploma holders consistently outnumbered degree holders from 2020 to 2023. The degree holders' underemployment spiked to 44.2% in 2022, which may likely be due to the oversupply of graduates in mismatched fields (e.g., arts/social sciences) and employers preferring diplomas for technical roles (Idris et al., 2023).

The youth (≤24 years old) underemployment dropped from 16.6% to 12% in 2021 but rebounded to 14.7% in 2023. The underemployed degree holders rose from 2.0% in 2021 to 3.4% in 2023, while underemployed diploma holders declined from 13.4%in 2020 to 11.3% in 2023. Youth with diplomas continued to struggle in securing skilled jobs, while fresh graduates faced strong competition for limited high-skilled roles.

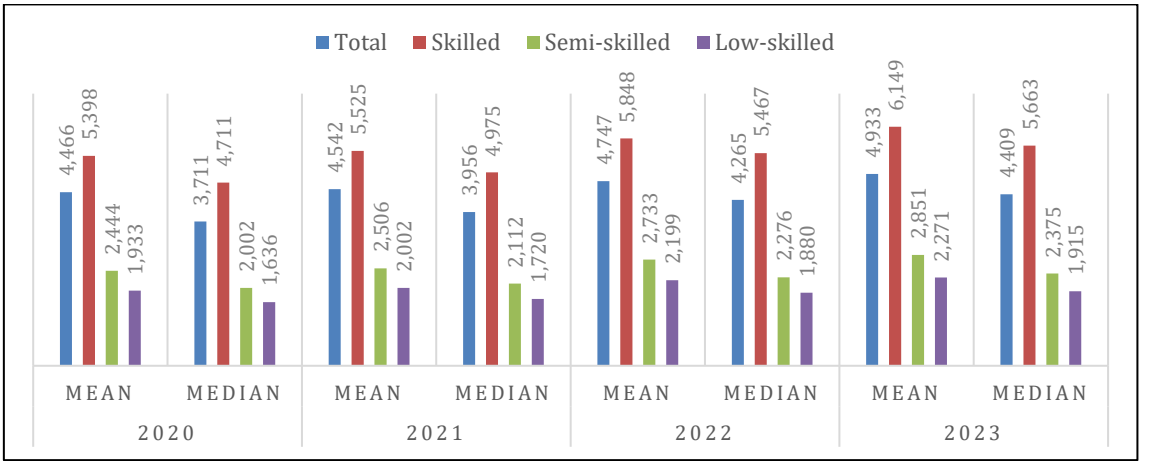
The underemployed prime-age workers (25 to 34 years old) accounted for the largest share of underemployment at 45.5% in 2023, in which degree holders represented 21.6% in 2023, increased from 18.8% in 2020, while diploma holders recorded 23.9% in 2023 declined from 28.7% in 2020. Many degree holders were employed in low-skill jobs, such as those in the gig economy, due to structural underemployment. On the other hand, diploma holders were more suited for mid-skill technical roles such as IT support and nursing (Moo and Wan, 2023).

The mid-career (35 to 44 years old) demonstrated a sharp rise in underemployment to 31.2% in 2022, before declining to 28.5% in 2023. The underemployed degree holders recorded 15.2% in 2022 due to post-pandemic layoffs. This group suffered from reskilling gaps, as many older graduates lack updated competencies such as ICT skills, while age discrimination resulted in fewer opportunities for career switchers.

The older workers (above 45 Years) recorded stable underemployment at around 11 to12%, while the degree holders peaked at 5.9% in 2022 before dropping to 5.3% in 2023. Many older graduates often faced an underemployment trap, with limited upward mobility caused by seniority biases (UNESCAP, 2023).

5.1.4 Occupational mismatch by salaries and wages

Overall, the skilled graduates earn significantly more than semi-skilled and low-skilled workers, with faster wage growth from 2020 to 2023. Similar observations of graduate salaries from 2016 to 2019 were reported by Aun in 2020. However, income inequality measured by mean and median was highest among skilled workers, driven by top earners in fields such as technology, finance, and engineering. Meanwhile, low-skilled graduates showed the least wage dispersion but also recorded the slowest pay growth. The low pay of graduates has been highlighted by Rahim et al. (2021) and Saari et al. (2020). The details of the mean and median salaries of graduates in Malaysia from 2020-2023 are shown in Figure 5.



Source: DOSM, 2024a

Fig. 5. Mean and median monthly salaries & wages (RM) by occupational skills in Malaysia, 2020-2023

From 2020 to 2023, the mean salary of graduates in Malaysia was consistently higher than the median, indicating that some high earners raised the average. The gap narrowed slightly over time from RM 755 in 2020 to RM 524 in 2023, suggesting reduced income inequality.

For skilled workers, the mean-median gap is significant, with RM 687 in 2020 against RM 486 in 2023, indicating that high earners skewed the distribution. Both mean and median rose steadily, with wages growing by 13.9% and 20.2% respectively for skilled graduates in Malaysia.

On the other hand, for semi-skilled graduates, the mean salary was 20% to 22% higher than the median, suggesting some semi-skilled graduates earned significantly more than the typical workers. Wage growth of semi-skilled graduates was consistent but slower compared to skilled workers. For low-skilled workers, the mean-median salary gap was RM300, indicating that some low-skilled graduates earned notably more than the majority. The wage growth in low low-skilled category was modest.

5.2 Time-related underemployment

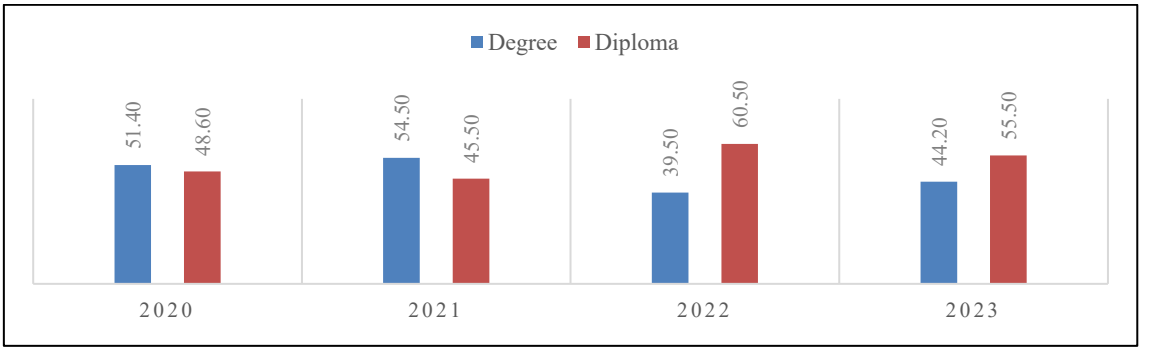
Time-related underemployment refers to employed graduates working less than 30 hours per week and those working less than 30 hours due to the nature of their work or insufficient work (DOSM, 2024). In other words, graduates who work as part-time or have temporary roles despite seeking full-time work.

Overall, 2021 recorded the highest number of time-related underemployment graduates (88,800), likely due to post-pandemic economic disruptions. There was a sharp decline in 2023 to 35,500 graduates, suggesting economic recovery and improved job market conditions. The fluctuations during 2020 to 2022 might reflect the impacts of COVID-19, while 2023 showed stabilisation of underemployment.

In terms of academic qualifications, the degree holders were more affected in 2020 to 2021, but their underemployment dropped significantly between 2022 to 2023. While the diploma holders recorded a rise in underemployment post in 2021, peaking at 60.5% in 2022, this suggests a tougher job market for mid-skilled workers. The details of the mean and median salaries of graduates by academic qualifications in Malaysia from 2020 to 2023 are shown in Figure 6.

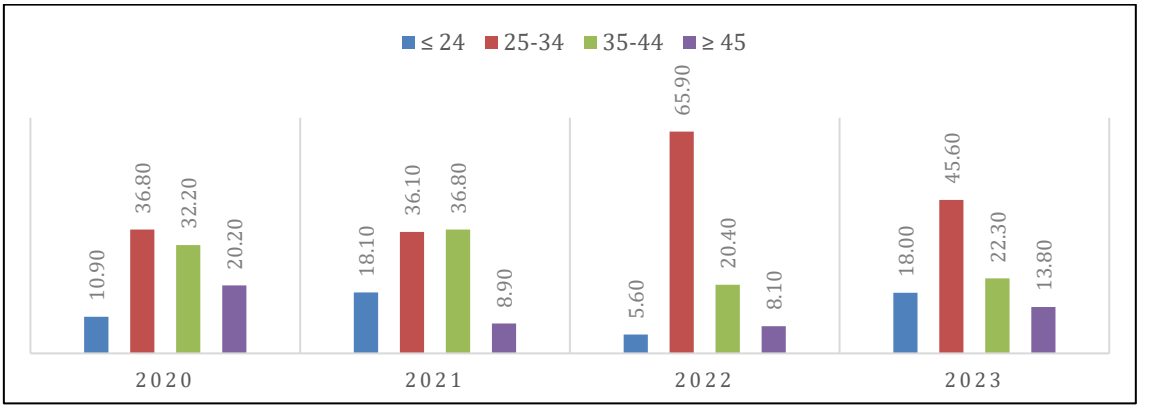
Youth under 24 experienced rising time-related underemployment in 2021 and 2023, reaching 18%. Entry-level jobs were scarce after the pandemic, and recovery remained unstable in Malaysia. The prime-aged (25-34) and young (≤24) graduates struggled the most with time-related underemployment. The 25 to 34 group was the worst hit each year, peaking at 65.9% in 2022. This could be due to mid-career instability, such as part-time gig work or slow full-time hiring (Low & Mah, 2024).

Mid-career graduates (aged 35-44) were the second-highest group experiencing time-related underemployment, largely due to disruptions such as pandemic-related layoffs in mid-level roles. There was a sharp drop in 2022 to 2023, suggesting some found stable jobs or exited the labour force. Nonetheless, the time-related underemployment for mid-career graduates remained high in 2022, with 20.4% and 2023, 22.3%. Meanwhile, time-related underemployment among older workers (45+) improved after 2020, with 8.90% possibly due to some leaving the workforce. However, it slightly worsened to 13.8% in 2023. There were fewer job options, but some older workers re-entered flexible or part-time employment (Moo & Wan, 2023). The details of the mean and median salaries of graduates by age in Malaysia from 2020-2023 are shown in Figure 7.



Source: DOSM, 2024a

Fig. 6. The percentage share of time-related underemployment of graduates by academic qualification in Malaysia, 2020-2023



Source: DOSM, 2024a

Fig. 7. The percentage share of time-related underemployment of graduates by age in Malaysia, 2020-2023

5.3 Main characteristics of skill-related and time-related underemployment

Based on the above discussion on skill-related and time-related underemployment, several characteristics of skills, gender, age, and salaries and wages have been summarised from 2020 to 2023. Firstly, skilled employment was stable and increasing, while semi-skilled and low-skilled employment recorded a surge and decline, respectively. Secondly, male underemployment improved, but female underemployment worsened. Thirdly, the prime age graduates between 25 and 34 documented the largest percentage of underemployment. Lastly, the salaries and wages of graduates demonstrated significant growth in skilled occupations, alongside steady increases for both semi-skilled and low-skilled occupations. The details of the main pattern and characteristics of skill-related are shown in Table 4.

Table 4. Summary of main characteristics of skill-related underemployment in Malaysia, 2020-2023

No	Items	Groups	Major trends	Key characteristics
1	Skills	Skilled	Stable and increasing	● Volatile recovery: dropped sharply in 2021 (66.2%) before partial recovery (67.6% in 2023) ● Managerial drop & rebound fell to 8.1% (2021) then surged to 12.5% (2023) ● Professional stagnation: Steady decline from 42.3% → 38.8%
		Semi-skilled	Surge	● Service sector boom: Service/sales jobs jumped from 11% → 14% ● Clerical worker instability: peaked at 13.5% (2021), then stabilised at 11%
		Low-skilled	Decline	● Positive trend showing fewer graduates in elementary occupations
2	Gender	Male	Improving	● Skilled employment increased (72% → 76%) ● Persistent issues: 22-27% stuck in semi-skilled jobs
		Female	Worsening	● Skilled roles decreased (70% → 60%), with professional jobs dropping sharply (49% → 40%) ● Semi-skilled underemployment increased (29% → 39%), mostly in clerical (+2%) and service/sales (+7%)
3	Age	Youth (≤ 24)	Rising	● Mostly diploma holders (12% → 14.7%) ● Worsening entry-level job mismatch
		Prime age (25 – 34)	Slight decline	● Largest group (47.5% → 45.5%) ● Degree underemployment rising
		Mid-career (35-44)	Sharp increase	● Fastest-growing crisis, especially for degree holders (24.4% → 31.2% in 2022)
		Oldie (≥45)	Stable	● Persistent underemployment, slight rise in degree holders (~11–12%)
4	Salaries and wages	Skilled	Strong growth	● Median: RM4,711 (2020) → RM5,663 (2023) (+20.2%) ● Mean: RM5,398 → RM6,149 (+13.9%) ● Median rising faster than mean, suggesting more graduates reached middle-to-high salary ranges
		Semi-skilled	Increasing	● Median: RM2,002 → RM2,375 (+18.6%) ● Mean: RM2,444 → RM2,851 (+16.7%) ● While growing, salaries remained less than half of skilled graduates' pay
		Low-skilled	Increasing	● Median: RM1,636 → RM1,915 (+17%) ● Mean: RM1,933 → RM2,271 (+17.5%) ● 2023 median (RM1,915) was barely above Malaysia's urban poverty line (RM2,208)

Source: authors' interpretation; DOSM, 2024a

On the other hand, several unique characteristics of time-related underemployment were observed. Firstly, the youth (under 24) showed volatility of underemployment, in which they were stuck in temporary or part-time roles. Secondly, the prime age (25 to 34) documented the largest underemployed group. Thirdly, the mid-career (35 to 44) recorded improvement of underemployment, with degree holders being better off. Lastly, the oldies (above 45) showed a mixed pattern of underemployment. The details of the main pattern and characteristics of skill-related are shown in Table 5.

Table 5. Summary of main characteristics of time-related underemployment in Malaysia, 2020-2023

No	Items	Groups	Major trends	Key observations
1	Age	Youth (≤24)	Volatility	● The "Youth Trap" persisted ● Represented ~15-18% of the underemployed ● Stuck in temporary/part-time roles despite qualifications
		Prime-age (25-34)	Growing challenges	● Became the largest underemployed group ● 2020: 36.8% → 2023: 45.6% of total underemployment
		Mid-career (35-44)	Improvements	● Share of underemployment fell from 32.2% (2020) to 22.3% (2023) ● Degree holders fared better (8.7% in 2023 vs 16.4% in 2020
		Oldie (≥45)	Mixed patterns	● Underemployment share halved (20.2% → 13.8%) ● Recorded a worrying spike (5.9% in 2023 vs 5.3% in 2021)

Source: authors' interpretation; DOSM 2024a

6.0 POLICY RECOMMENDATIONS

Nearly one-third of university graduates in Malaysia are underemployed, indicating a mismatch between job market expectations and educational outcomes. Thus, the government shall continue to improve the graduate skill matching and upskilling initiatives to address this issue. The initiatives shall be revised to reflect the changing needs of the labour market, notably in service, sales, and clerical fields, where many graduates are semi-skilled. Improved university-industry partnerships, tailored upskilling modules, and graduate apprenticeship programmes can help underemployed graduates to find skilled jobs. This would boost productivity, wage growth, and employability.

Furthermore, a gender and age-inclusive employment strategy is essential to address demographic disparities in the labour market. Given the under-representation of women in various categories, targeted initiatives are essential. This concept advocates for mentorship, adaptable employment arrangements, and skill enhancement for young women re-entering the labour market. Career advancement for prime-age graduates shall be facilitated by certifications, employment-matching platforms, and professional development initiatives. These measures will enhance workplace equality and inclusion.

Finally, the wage and labour market transparency reform shall be implemented to guarantee equitable compensation and enhanced labour market transparency. This policy involves the establishment of a graduate labour market observatory to monitor trends in job quality, time-related underemployment, and wage disparities. The government can safeguard semi-skilled graduates from wage stagnation and encourage employers to acknowledge skills acquisition and job tenure by establishing industry-specific minimum wage benchmarks and fostering transparent wage progression systems. Collectively, these three policy orientations will establish a comprehensive framework that will mitigate graduate underemployment and foster a more inclusive and resilient labour market in Malaysia.

7.0 CONCLUSION

Overall, this study aims to examine underemployment by focusing on the occupational skills and socio-economic background of Malaysian graduates using secondary data from 2020 to 2023. The finding shows that around one-third of Malaysian graduates were underemployed. Each theme has its characteristics. In semi-skilled occupations, service and sales jobs were the top choice of graduates, followed by clerical support jobs. There was a decline in low-skilled occupations among graduates. Females outnumbered males in service and sales occupations. The prime-age graduates (25–34 years old) recorded the largest share of underemployment. Wage growth of semi-skilled graduates was consistent but slower, as compared to skilled graduates. The time-related underemployment in 2020 to 2022 fluctuations reflected COVID-19 impacts, while 2023 showed stabilisation of underemployment.

This study offers two contributions to the literature on underemployment. Firstly, we offer a methodology approach by using a case study to examine the main trends and characteristics of underemployment. We listed the steps in the research design, as shown in Tables 2 and 3. We examine the trend and characteristics of underemployment based on occupational skills, age, gender, and salaries. Future researchers could use a similar approach to examine the underemployment and other economic issues, such as unemployment, household consumption and expenditure, and poverty in Malaysia. Secondly, the skill-related and time-related underemployment provides a foundation for more targeted empirical studies and policy recommendations to reduce underemployment in Malaysia and other developing countries. This study helps policymakers to target policy interventions more effectively. Policymakers could align better between occupation mismatch and education, while underemployment by gender and age could contribute to policy making on labour market distortions. Salary disparities warrant further research on households' standard of living and income inequalities.

To address graduate underemployment in Malaysia, three key policies are proposed. Firstly, skill alignment policy, which includes updating curricula, expanding training, and boosting apprenticeships to bridge education-industry gaps. Secondly, an inclusive hiring initiative which includes flexible work, mentorship, and career support for women and older graduates; and lastly, fair wage reforms by leveraging real-time labour data, setting minimum wages, and ensuring transparent pay scales. Together, these measures aim to reduce underemployment and foster a more equitable and sustainable labour market.

Our study has several limitations. Among others, these include the quality of secondary data and limited parameters. The focus on numerical trends ignores external factors and oversimplifies complex systems of underemployment in Malaysia. Future researchers could include more government departments and authorities to make comparisons on the effectiveness of infographics using both quantitative and qualitative methods. Researchers could examine the determinants of underemployment using a dynamic panel data approach in Malaysia, and a comparative study between developed and developing countries on the determinants of underemployment. In addition, future researchers could use primary qualitative methods such as interviews, focus group discussions, and open-ended surveys to examine the determinants of graduate underemployment. In essence, our findings showed that around one-third of Malaysian graduates were underemployed and the important roles that should be played by the government, universities, and employers to reduce graduate underemployment in Malaysia.

8.0 CONTRIBUTION OF AUTHORS

Siew King Ting (SKT) conceptualised the central research idea. Sze Wei Yong (SWY) wrote the introduction, theoretical framework, literature review, institutional background of the graduate labour market, and policy recommendations. SKT wrote the methodology, data analysis, results and discussion, and conclusion. Both authors reviewed, revised and approved the final version of this work.

9.0 FUNDING

This work received no specific grant from any funding agency.

10.0 CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

11.0 ACKNOWLEDGEMENT

The authors would like to acknowledge the technical and facilities support of the Faculty of Business and Management and Universiti Teknologi MARA (UiTM) for this research. The authors also want to thank the reviewers and editors for the useful insights to improve this paper.

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