

FROM GRADUATION TO UNDEREMPLOYMENT: TACKLING THE STRUCTURAL IMBALANCES IN SKILL DEVELOPMENT AND JOB CREATION

^{1*} Choon Wei, Low

¹Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman,
UTAR Sungai Long Campus, 43000 Kajang, Selangor, Malaysia

*Corresponding Author

Email: ¹cwlow@utar.edu.my

Received: 8 November 2024

Accepted: 8 January 2025

ABSTRACT

Graduate underemployment is a critical issue affecting both developed and developing countries. Despite a significant rise in the number of graduates, the labour market faces a persistent mismatch between the qualifications of graduates and available job opportunities. This study investigates the trends, causes, and consequences of skill mismatch, focusing on the growing concern of overeducation. Despite the increasing number of graduates, the analysis reveals a widening gap between the number of graduates produced and the availability of skilled jobs. The Malaysian labour market has seen a shift in job creation, emphasising semi-skilled positions rather than high-skilled roles. As a result, graduates increasingly take on jobs that only partially utilise their qualifications, contributing to rising underemployment. The economic consequences of underemployment are significant, as graduates' skills remain underutilised in roles that fail to match their expertise. This mismatch not only reduces individual productivity but also limits overall economic growth. Socially, underemployed graduates may experience lower wages, job dissatisfaction, and a sense of unfulfillment, which can further exacerbate career stagnation. To address this issue, the gap between the growing number of graduates and the creation of skilled jobs must be closed. This study calls for a coordinated effort from the government, educational institutions, and industries to address these structural imbalances, ensuring that graduates are equipped with the skills needed for emerging job opportunities and contributing to sustainable economic development.

Keywords: Graduate Underemployment, Graduates, Overeducation, Job Creation, Skilled Jobs, Higher Education

1.0 INTRODUCTION

Matching skills with jobs has become a critical policy concern, particularly during global economic instability. Skills mismatch is a structural issue arising when the workforce's skills do not align with job requirements. While some degree of mismatch is inevitable in a rapidly evolving labour market, persistently high levels of skills mismatch impose significant economic and social costs. These costs affect employers,

workers, and society by reducing productivity, increasing recruitment challenges, and limiting career progression opportunities.

Globally, there is mounting evidence of a growing disconnect between workers' skills and the competencies employers seek. For example, the Organisation for Economic Co-operation and Development (OECD) highlighted significant mismatches between individuals' skills and educational qualifications. In the European Union, over 40% of workers perceive a mismatch between their skill levels and job requirements, with similar trends observed in Mexico, Japan, and Korea. Employers in these regions report difficulty finding candidates with the right skills, with 40% indicating challenges in meeting job requirements. The consequences of these mismatches are stark: in Europe alone, 45% of workers report either insufficient skills for their current roles or being overqualified for their jobs. Similarly, more than half of the workforce in Romania, Greece, Hungary, and Albania experience skill mismatches, underscoring the global nature of the issue.

Malaysia, too, is grappling with skills mismatch challenges, compounded by structural issues in the labour market. During the implementation of the Eleventh Malaysia Plan (2016–2020), the country witnessed a significant 25.2% increase in graduates, rising from 4.28 million in 2016 to 5.36 million in 2020 and further to 5.61 million in 2021. Despite a commendable graduate employability rate of 85.5%, a significant proportion – 80.3% of graduates face skill-related underemployment. This translates to 1.55 million graduates in roles that do not match their skills or qualifications. Skill shortages can only be filled when the higher education system and training prepared by employers can produce workers who meet the skill requirements. Some firms, especially those operating in a rapidly changing market, usually look to hire workers with higher qualifications. They believe that workers with higher qualifications can adapt to the rapid change of the future market (Desjardins & Rubenson, 2011).

The issue extends beyond underemployment statistics. Malaysia's labour force exhibits underutilisation, with gaps between the supply and demand of skilled labour. For instance, while underemployment rates were 2.3% in the first quarter and 2.5% in the second quarter of 2021, nearly half of these underemployed workers could take on additional work. Skill-related underemployment highlights the disparity between workforce capabilities and employer demands, further reflected in the mismatch between educational qualifications and labour market requirements.

Statistics from the Malaysian Graduate Tracer Studies indicate a 42% increase in graduates from 185,126 in 2011 to 260,701 in 2019. However, this growth has yet to be matched by an equivalent rise in job opportunities aligned with graduate qualifications. Compounding the issue is the uneven distribution of graduates across disciplines. While arts and social science graduates have increased significantly, the number of science graduates—critical to meeting the demands of the Fourth Industrial Revolution (IR 4.0)—has declined. This imbalance exacerbates job competition among science graduates, with only 10% finding employment upon graduation.

Persistently high rates of skill-related underemployment reflect deeper structural issues in the Malaysian labour market. The Malaysian labour force is underutilised or underemployed. The gap refers to the differences between demand and supply of labour. Underemployment may be due to work or short work. The total

underemployment was 2.3 percent (in the first quarter) and 2.5 percent (in the second quarter). Half of the underemployed workers were willing and able to do more work (Nur Thuraya Sazali, 2020). Contributing factors include changes in industry demand, technological advancements, and a disconnect between the skills taught in educational institutions and those required by employers. For fresh graduates, the lack of work experience, limited professional networks, and insufficient job-ready skills exacerbate their struggles to secure suitable roles. Prolonged unemployment or underemployment can lead to skill atrophy, further perpetuating the mismatch (Bank Negara Malaysia, 2021).

In the literature, Freeman (1976) found that underemployment was mainly due to the problem of rapid expansion of higher education, which caused an oversupply of graduates to the labour market relative to demand. Vedder, Denhart, and Robe (2013) explained that underemployment is often due to job applicants graduating from less selective colleges or with a major that has little value in the job market. Fogg, Harrington, and Khatiwada (2019) concluded that the low quality of higher education causes underemployment. Many graduates lack basic numeracy and literacy skills and cannot perform workplace tasks.

This study aims to address these pressing issues by achieving two key objectives: first, to identify trends in skill-related underemployment among graduates, and second, to investigate the factors contributing to this phenomenon. The analysis encompasses both labour supply and demand perspectives. On the demand side, it examines job availability, job creation, and the extent of skilled job fulfilment. On the supply side, it explores graduate statistics and employment trends.

This study seeks to provide actionable insights for policymakers to formulate strategies that mitigate underemployment and skill mismatches by addressing these gaps. It also offers valuable guidance to the education sector, enabling it to better align academic programs with the evolving demands of the labour market. Bridging these gaps will contribute to optimising Malaysia's workforce potential and foster sustainable economic growth.

2.0 LITERATURE REVIEW

Skills mismatch represents a critical challenge to ensuring a sustainable and equitable future for work, with consequences spanning individuals, firms, and countries. It affects individuals through wage penalties and overeducation, firms through reduced productivity and market share, and nations through diminished competitiveness and lost investments. According to the International Labour Organisation (ILO, 2020), skills mismatch arises when education and training need to meet labour market demands. The rapid pace of technological changes, demographic shifts, and labour market restructuring exacerbates this misalignment.

Skills mismatch manifests across various dimensions, including skill shortages, skill gaps, and overeducation. Skill shortages occur when specific skills are in high demand but need to be supplied. Recent studies, such as McGuinness et al. (2016), Latifa (2023), and Whelan et al. (2024), highlight that skill shortages are pronounced in sectors experiencing rapid technological transformation, including information technology and renewable energy. Employers face challenges in sourcing workers

with specialised technical expertise, resulting in slowed innovation and economic inefficiencies.

Skill gaps, on the other hand, refer to workers lacking the requisite skills for their current roles. The ILO (2021) identifies that rapid technological changes often exacerbate skill gaps, particularly among mid-career workers whose skills may lag behind emerging industry standards. Skill gaps can also stem from the limited responsiveness of educational systems to evolving labour market needs (OECD, 2023). Research by Kupets (2015) suggests that skill gaps are particularly evident in economies transitioning towards Industry 4.0, where digital literacy and problem-solving skills are increasingly prioritised. Also, the focus of the research on skills mismatches should not be limited to education and training systems as it may be a misguidance. The role of wage-setting may be a critical factor in skill mismatch (Roland & Thijs, 2017).

Several studies have explored factors contributing to skills mismatch. The mismatch is not solely attributable to education and training systems but is also influenced by labour market dynamics and wage-setting mechanisms. Choi (2016), Kim and Lee (2023), and Fleckenstein et al. (2023) found that immobility and barriers such as non-recognition of qualifications can hinder workers' ability to secure jobs matching their skills, while Restrepo (2015) argue that rigid wage structures in some countries discourage firms from hiring workers with advanced skills, contributing to underutilisation.

Green and McIntosh (2007) investigated skills and educational mismatches in Britain using a cross-sectional survey of 4,470 individuals aged 20–60. They found that overqualified and over-skilled workers were more likely to work in low-skill industries, with managers and professionals experiencing the lowest incidences of over-skilling. Individual characteristics (e.g., age, marital status) and job status (e.g., full-time employment) were significant determinants of overqualification. Their analysis highlighted that overqualification often represents underutilised skills, whereas underqualification showed no apparent connection to underskilling.

Technological advancement remains a key driver of skills mismatch. As noted by CEDEFOP (2023), the rapid pace of globalisation and automation often outpaces workers' ability to adapt, leading to skills obsolescence. Sectors experiencing technological disruption, such as manufacturing and finance, face challenges in maintaining workforce alignment with evolving skill demands.

Overeducation, a dimension of skills mismatch, arises when workers possess qualifications exceeding job requirements. Recent studies shed light on the prevalence of overeducation in developed and developing economies. For instance, Ramos and Ramos (2020) found that nearly 20% of tertiary-educated workers in the European Union were employed in positions requiring lower qualifications. The study also highlighted that overeducation is linked to reduced job satisfaction and lower earnings, contributing to workforce inefficiencies. Cutillo and Di Pietro (2006) analysed overeducation in the Italian graduate labour market using a sample of 14,383 graduates. They identified age and gender as significant factors, with older workers more likely to experience overeducation while females were less likely to do so. Workers with postgraduate qualifications and extensive experience were less likely to be overeducated. Furthermore, job characteristics such as full-time employment and

self-employment were associated with reduced probabilities of overeducation. However, graduates in economics and statistics were more likely to be overeducated than those in law, sciences, and agriculture. These findings contrasted with earlier studies by (Dolton & Vignoles, 2000).

Meroni and Vera-Toscano (2017) examined overeducation among graduates. They observed that overeducation was more prevalent among general degree holders than among those with professional qualifications, such as engineering and accounting. The study underscored the importance of aligning educational curricula with labour market demands to mitigate the mismatch. Robst (2007) examined the alignment between college majors and occupations in the U.S. Using a logit model and data from 124,063 individuals, he observed that graduates with specific skill sets—such as those in library science, engineering, and architecture—were less likely to experience mismatches compared to those with general skill sets, such as English and social sciences. Postgraduate degree holders were also less likely to face mismatches, emphasising the role of specialised education in reducing skills mismatch.

Lim (2013) studied graduate overeducation using longitudinal data from two surveys of 154 employed graduates in Malaysia. The findings revealed that professional degree holders, particularly in accounting, were less likely to experience overeducation than business administration and finance graduates. Family background factors, including economic inactivity, also significantly influenced the likelihood. Larger sample sizes were associated with increased odds of overeducation. Similarly, Alzubaidi (2021) analysed overeducation among Saudi Arabian graduates and found that individuals with general-field degrees, such as humanities, were more prone to overeducation than those in STEM fields. The study emphasised the need for targeted career counselling and skills enhancement programs to address this challenge.

The dynamics of skills mismatch underscore the importance of addressing both supply- and demand-side factors in the labour market. Recent research emphasises the growing role of technological advancements, labour mobility, and wage-setting mechanisms in exacerbating or mitigating mismatch. Policymakers must collaborate with educational institutions and industries to align educational outcomes with emerging labour market needs. By addressing these challenges comprehensively, stakeholders can foster workforce adaptability, enhance economic efficiency, and promote a more resilient labour market.

3.0 METHODOLOGY

This study employed a comprehensive data set from various reports to analyse graduate employment trends and skill-related underemployment. The data sources include the Graduate Statistics (2017–2021) published by the Ministry of Higher Education (MOHE), the Labour Force Survey 2021, and the Labour Market Review 2022 from the Department of Statistics Malaysia (DOSM). These datasets provide critical insights into the representation of graduates in the workforce and the dynamics of skill utilisation in the Malaysian labour market.

The proportion of graduates in skill-related underemployment (SRU) is calculated to evaluate the representation of graduates within specialised recruitment categories. This is done by dividing the number of graduates employed in SRUs by the total number of SRUs (Number of graduates in SRUs/ Number of SRUs). This metric explains how graduates are distributed in specific employment units requiring specialised skills.

Next, the proportion of graduates in the labour force is assessed to examine their representation within the workforce. This is calculated by dividing the total number of graduates in the labour force by the total labour force size. This calculation indicates the overall integration of graduates into the labour market and their contribution to the economy.

To measure graduate employment, the study determines the proportion of graduate employment, which is the ratio of employed graduates to the total number of employed individuals in the labour force. This metric reflects how graduates contribute to overall employment in the country.

The availability of skilled positions is analysed using the proportion of filled-skilled jobs, calculated by dividing the number of filled-skilled jobs by the total number of filled jobs. This metric provides an overview of the availability of skilled job opportunities relative to the total job market.

The study further breaks down graduate employment by skill categories to understand the alignment between educational qualifications and job roles. The proportion of graduates in skilled jobs is calculated by dividing the number of graduates in skilled positions by the total number of employed graduates. This measure assesses the extent to which graduates are employed in positions that match their qualifications and training.

In addition, the proportion of graduates employed in semi-skilled jobs is determined by dividing the number of graduates in semi-skilled positions by the total number of employed graduates. This calculation identifies the share of graduates working in roles requiring some skill level but potentially not fully utilising their educational background.

Finally, the proportion of graduates employed in low-skilled jobs is analysed by dividing the number of graduates in low-skilled positions by the total number of employed graduates. This measure highlights the prevalence of underemployment among graduates, where individuals work in jobs that do not require their level of education.

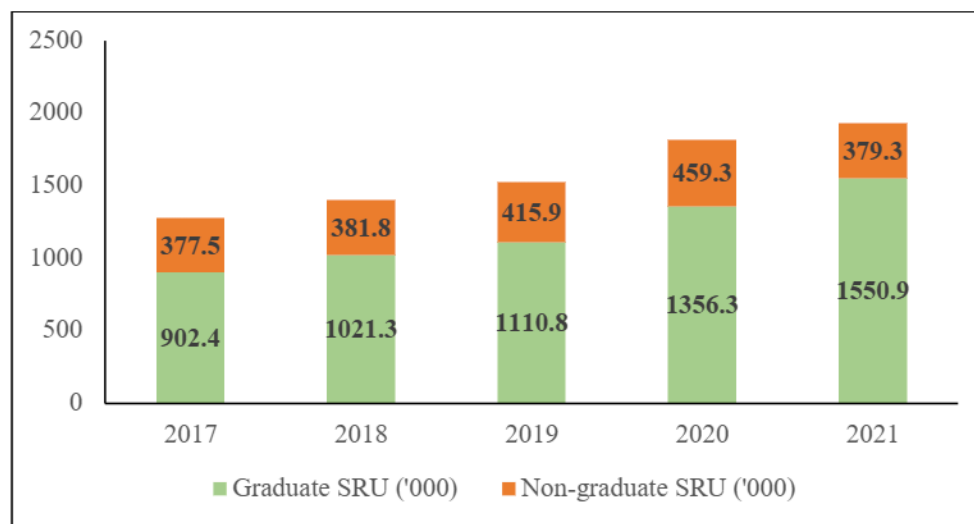
By employing these metrics, this study provides a detailed examination of the representation and utilisation of graduates in Malaysia's labour market, contributing valuable insights into the challenges of skill-related underemployment and mismatches.

4.0 DISCUSSION AND FINDINGS

This study elaborates on the findings using statistical tools such as trend analysis and proportions, mainly focusing on the number of graduates, skill-related underemployment, graduate employment, and the availability of skilled jobs. The following analysis examines labour demand and supply in the Malaysian labour market.

Figure 1 illustrates the trend in skill-related underemployment in Malaysia from 2017 to 2021. The data reveals a significant increase of approximately 51%, from 1.27 million people in 2017 to 1.93 million in 2021. Among this group, graduate skill-related underemployment also saw a notable rise, increasing by about 72%, from 0.9 million individuals in 2017 to 1.55 million in 2021. While graduate employability has improved, growing from 79.1% in 2017 to 85.1% in 2021, the proportion of graduates experiencing skill-related underemployment has steadily increased. In 2017, 70.5% of individuals in skill-related underemployment were graduates; by 2021, this figure had climbed to 80.3%. These findings highlight a concerning trend: despite the rise in graduate employability, many graduates accept jobs that must align with their qualifications.

This shift is especially troubling as it points to a growing willingness among graduates to accept semi-skilled or low-skilled jobs, even when they possess higher educational qualifications. This mismatch between qualifications and job opportunities underscores a fundamental issue in the labour market, indicating that the needs of the educational system and labour market must be fully aligned. Addressing this issue is critical for ensuring that graduates are employed in roles that match their skillsets and qualifications, ultimately fostering a more efficient and sustainable labour market for Malaysia's workforce.



Sources: MOHE, 2021; DOSM, 2022

Fig. 1. Skill-related Underemployment in Malaysia, 2017 – 2021

Graduate statistics reports show that graduates increased by about 31%, from 4.28 million in 2016 to 5.61 million in 2021 (MOHE, 2022) – an increase in the proportion of graduates in the Malaysian labour force. The rise in graduates naturally contributes to an overall increase in the proportion of Malaysian graduates. As more

individuals complete their tertiary education, they enter the job market, impacting the demographic composition of the workforce. This demographic shift has broader implications for the labour market dynamics, influencing factors such as job competition, the demand for diverse skill sets, and the need for corresponding adjustments in employment opportunities.

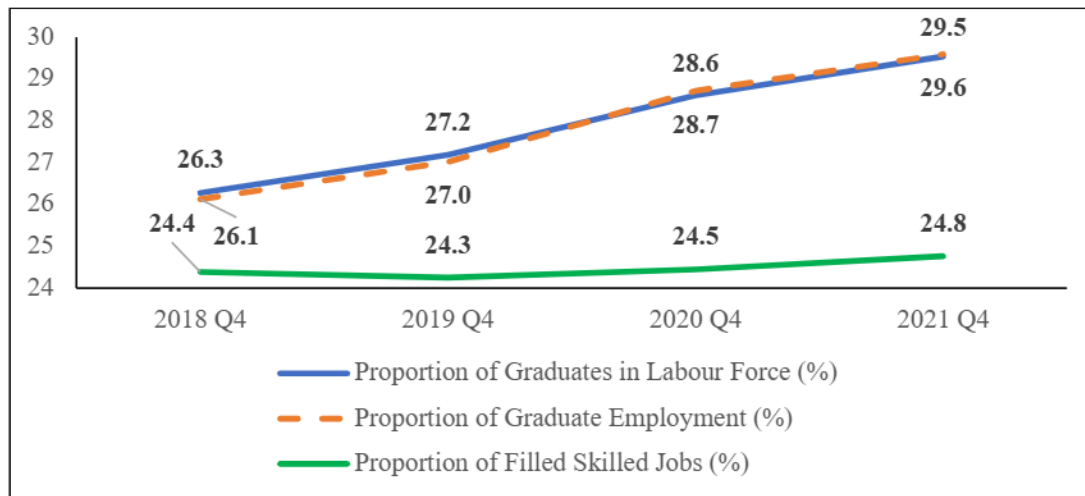
Moreover, the increase in the proportion of graduates in the labour force may have implications for the economy, including skill utilisation, job market alignment, and the effectiveness of educational policies. The subsequent sections of this analysis will further explore how this influx of graduates intersects with the prevailing challenges of underemployment, particularly regarding skill-related mismatches and the distribution of graduates across skilled, semi-skilled, and low-skilled job categories. Understanding this context is vital for formulating effective policies and interventions to align educational outputs with Malaysia's evolving labour market demands.

According to the Graduate Statistics report, the number of graduates in Malaysia increased by approximately 31%, rising from 4.28 million in 2016 to 5.61 million in 2021 (MOHE, 2022). This significant increase is reflected in the growing proportion of graduates within the Malaysian labour force, as illustrated in Figure 2. The rise in the number of graduates entering the workforce directly contributes to the overall expansion of the graduate population. As more individuals complete tertiary education, they are increasingly joining the labour market, resulting in a shift in the demographic composition of the workforce.

This demographic shift has profound implications for labour market dynamics. A larger graduate cohort impacts job competition as more individuals with higher educational qualifications vie for available positions. It also influences the demand for diverse skill sets as employers seek candidates to meet the evolving needs of a more educated workforce. Consequently, the increase in graduates necessitates corresponding adjustments in employment opportunities, particularly in sectors that require more specialised skills and higher levels of education.

Furthermore, the growing proportion of graduates in the labour force presents several challenges and opportunities for the Malaysian economy. One key challenge is ensuring that the skills acquired through formal education are effectively utilised in the workplace. This concern underscores the need to align educational outputs and labour market demands. The mismatch between graduates' skills and the skills required by employers can exacerbate issues such as skill-related underemployment, which remains a pressing concern.

The implications of this shift also extend to the broader economic context. A surge in graduate numbers may influence the distribution of graduates across various job categories, including skilled, semi-skilled, and low-skilled roles. As the number of graduates increases, the pressure on skilled jobs intensifies, potentially leading to an oversupply of graduates in some sectors and undersupply in others.



Sources: (DOSM, 2023; MOHE, 2022)

Fig. 2. The proportion of Graduates in the Labour Force, Graduates' Employment, and Filled Skilled Jobs in Malaysia

A notable trend is the decline in the proportion of graduates employed in professional roles, which dropped from 75.5% in 2017 to 66.1% in 2021. In contrast, the proportion of graduates in semi-skilled and low-skilled jobs has steadily increased. By 2021, most graduates were employed in semi-skilled roles, including clerical support workers, service and sales workers, and craft and related trades workers. This trend reflects a concerning shift in the labour market, as the percentage of graduates securing employment in skilled jobs continues to decline. From 2017 to 2021, the proportion of graduates in professional roles decreased by 9.4 percentage points, highlighting the growing difficulty graduates face in finding positions that fully utilise their qualifications and training. This decline suggests that the labour market needs to absorb graduates in line with the demand for their specialised skills and expertise.

At the same time, the data reveals a rising proportion of graduates employed in semi-skilled and low-skilled jobs, traditionally associated with lower educational requirements. In 2021, many graduates found themselves in positions such as clerical support, service and sales, and craft trades—jobs that do not necessarily leverage the advanced skills and knowledge obtained through tertiary education. This shift in employment patterns raises concerns about the optimal use of graduate skills and highlights a growing mismatch between educational qualifications and job opportunities. The increasing prevalence of graduates in semi-skilled roles further underscores the need to examine the underlying factors contributing to this trend. Key factors may include the evolving demands of the job market, the pace at which industries adapt to new technologies and skill requirements, and potential discrepancies between the skills taught in educational programs and the practical needs of employers. Additionally, the growing number of graduates may be contributing to heightened competition for professional roles, making it more challenging for graduates to secure positions that align with their qualifications.

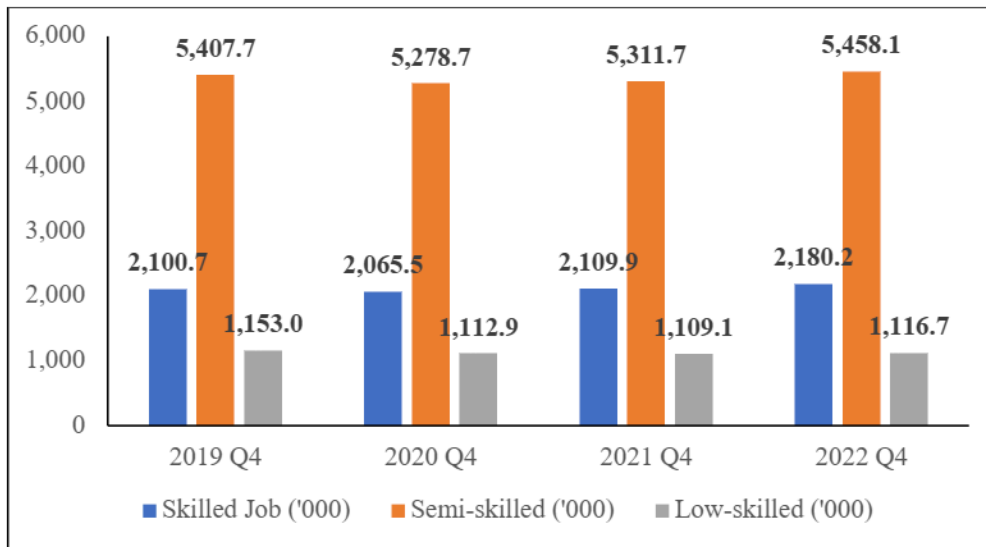
Addressing this shifting employment landscape requires a comprehensive approach from policymakers, academic institutions, and employers. Policymakers must ensure that labour market policies foster an environment where job creation aligns with the skills graduates possess. Educational institutions must review and potentially redesign curricula to ensure graduates have skills that meet industry demands, particularly in emerging fields. Employers must also recognise the importance of developing opportunities that match graduates' qualifications and contribute to long-term career growth and economic productivity.

Ultimately, creating a labour market where graduates can secure employment commensurate with their education is crucial. By ensuring better alignment between educational outputs and employment opportunities, the potential for individual career growth and broader economic productivity can be maximised, leading to a more sustainable and effective labour market.

This study further examines job availability (in Figure 3) and job creation trends (in Figure 4) in the Malaysian labour market between 2019 and 2022, focusing on the increasing emphasis on semi-skilled and low-skilled jobs. The findings reveal a persistent trend: a substantial proportion of available and newly created jobs are in semi-skilled occupations. As the number of graduates with tertiary education continues to rise, competition for these positions intensifies, exacerbating the challenges for graduates seeking employment that aligns with their qualifications.

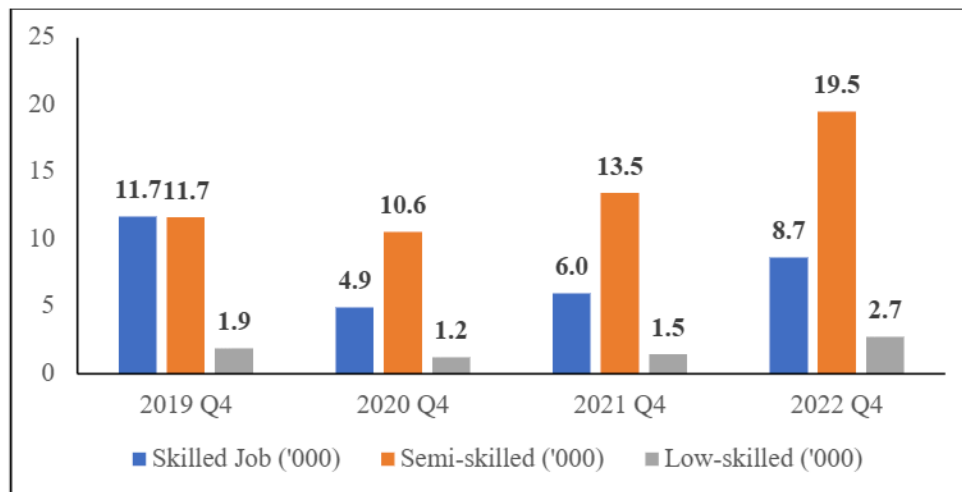
The labour market is increasingly characterised by an imbalance where the supply of graduates with higher qualifications exceeds the demand for high-skilled jobs. The demand for high-skilled positions remains relatively low, while semi-skilled jobs dominate both availability and creation. Consequently, graduates are often forced to accept roles that only partially utilise their educational backgrounds, contributing to a qualification-job mismatch. This trend highlights a key issue: the growing disconnects between the skills graduates possess and the available jobs. This mismatch between qualifications and job opportunities reflects more profound structural challenges within the Malaysian labour market. The supply of tertiary-educated workers is outpacing the creation of high-skilled roles, suggesting that educational outputs need to be fully aligned with the economy's demands. This situation leads to higher rates of underemployment and raises concerns about the efficient utilisation of human capital, which could undermine long-term economic productivity and growth.

Addressing these issues requires a multifaceted approach. Policymakers, educational institutions, and employers must collaborate to create a more dynamic and responsive labour market. Academic programs must be updated to align more closely with industry needs, particularly in emerging sectors where high-skilled jobs are expected to grow. At the same time, there is a need to stimulate the creation of high-skilled employment through targeted economic policies that promote innovation and the development of industries that require advanced skills.



Source: (DOSM, 2023)

Fig. 3. Jobs Available in Malaysia



Source: (DOSM, 2023)

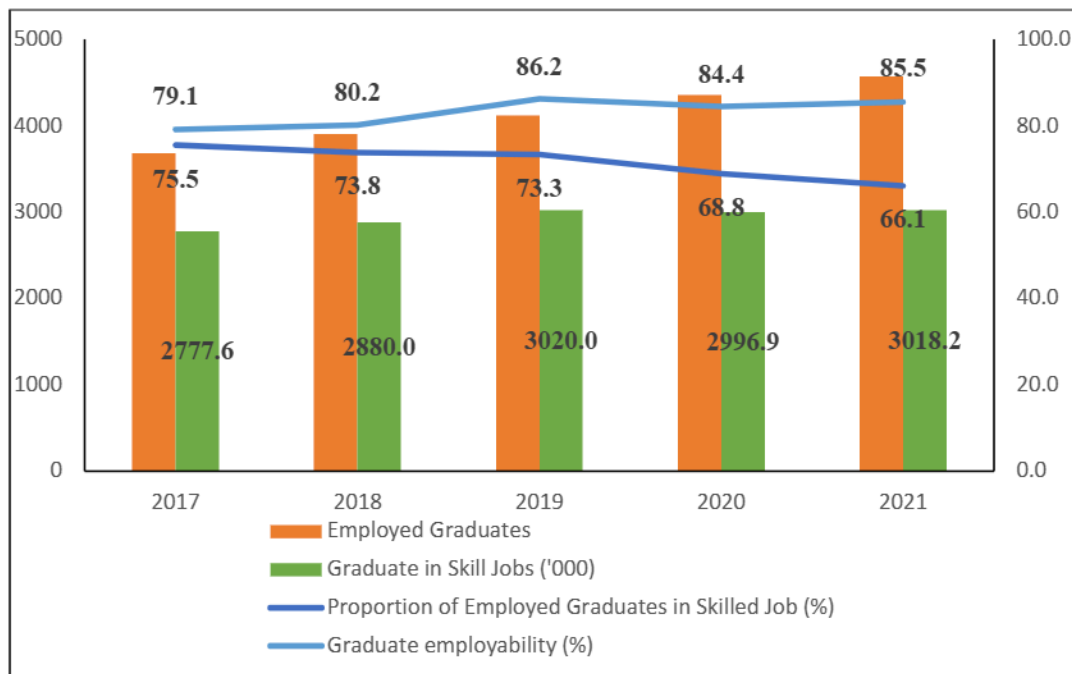
Fig. 4. Jobs Creation in Malaysia, 2019 Q4 – 2022 Q4

Integrating statistics from the Ministry of Higher Education (MOHE) and the Department of Statistics Malaysia (DOSM), this study highlights a notable discrepancy between the increasing number of graduates and the quality of employment opportunities available (as depicted in Figure 5). It cannot be denied that there has been a significant increase in the number of graduates produced in recent years, with figures rising by over 20%. This surge in graduate output has led to a corresponding increase in employed graduates, which saw a 25% rise. However, a concerning trend emerges when examining the types of jobs these graduates secure.

While graduate employability remains high, exceeding 80%, the number of graduates employed in skilled jobs has stagnated, failing to keep pace with the growth in overall graduate employment. This is further reflected in the decline in the proportion

of employed graduates in skilled positions, signalling that an increasing number of graduates are absorbed into semi-skilled and low-skilled jobs. This stagnation, coupled with the continued expansion in the number of graduates entering the workforce, suggests a growing mismatch between graduate qualifications and the availability of skilled job opportunities.

Despite the positive employability figures, the underemployment issue cannot be overlooked. The increasing number of graduates working in lower-skilled positions raises concerns about the adequacy of the labour market in accommodating the educational qualifications of the workforce. This phenomenon calls for a more in-depth examination of the structural challenges in the labour market and the need for policies that better align graduate skills with market demands. Therefore, while graduate employability rates are high, the quality of job placements, specifically in skilled roles, requires urgent attention to avoid a potential widening of the skills gap and ensure that graduates are equipped to contribute effectively to Malaysia's economy.



Source: (MOHE, 2022; DOSM, 2023)

Fig. 5. Trends in Graduates Employment and Employability

5.0 CONCLUSION

In conclusion, this study has highlighted significant concerns regarding graduate underemployment in the form of overeducation in Malaysia. There are insufficient skilled jobs for graduates nowadays. The growing disparity between the number of graduates entering the job market and the availability of skilled jobs points to an apparent mismatch between the skills of the workforce and the demands of the labour market. This imbalance may be attributed to the rapid pace at which Malaysian higher education institutions (HEIs) produce graduates, while the creation of skilled jobs has yet to keep pace. As a result, an oversupply of graduates is contributing to

overeducation, where individuals are employed in positions that must fully utilise their qualifications.

The implications of this underemployment are twofold: economically and socially. Economically, the underemployment of graduates leads to reduced productivity, as their skills should be more utilised in roles that align with their qualifications. This inefficiency hinders the economy's overall growth, preventing the optimal use of human capital. Socially, underemployed graduates often face lower wage rates, leading to dissatisfaction and regret over their investment in higher education. Such sentiments may erode confidence in pursuing higher education, resulting in lower future enrolment rates and decreased education attainment.

Given these findings, the Malaysian government must take proactive steps to address the mismatch between the supply of graduates and the demand for skilled workers. The government can better align graduate output and employment opportunities by fostering a more dynamic job market with increased opportunities in professional and skilled sectors. This would not only enhance economic productivity but also improve the long-term prospects of graduates, contributing to a more balanced and sustainable labour market. Ensuring that higher education investments lead to fulfilling, well-compensated careers will also help maintain the confidence of future generations in the value of higher education.

6.0 SUGGESTION FOR FUTURE RESEARCH

This study highlights significant issues related to graduate underemployment and overeducation in Malaysia, particularly the mismatch between the growing number of graduates and the availability of skilled jobs. Several avenues for future research are recommended to address these challenges and deepen our understanding of the underlying factors.

First, future research could focus on a more in-depth analysis of the skills mismatch between graduates and the labour market. At the same time, this study has identified a general gap. A more granular examination of the skills that graduates possess versus the skills employers require is necessary. This research could explore sector-specific skills shortages, identifying fields or industries where the mismatch is most pronounced. Understanding the nature of the skills gap, whether technical expertise or soft skills like communication and problem-solving, would help inform curriculum design and training programs, ensuring they are aligned with market demands.

Another key area for future research is conducting longitudinal studies to track the career progression of graduates over time. This would provide valuable insights into the long-term effects of underemployment, helping to determine whether graduates remain stuck in lower-skilled positions or eventually transition to roles that better match their qualifications. Longitudinal data could also shed light on the economic consequences of overeducation, such as the impact on lifetime earnings, career satisfaction, and overall productivity. Understanding these long-term trends could enable policymakers to develop more effective interventions to improve graduate outcomes.

Research could also focus on sector-specific employment trends, particularly in industries most affected by graduate underemployment. For example, sectors such as technology, healthcare, or engineering may experience differing levels of overeducation, and investigating these industries could reveal whether specific fields are more likely to suffer from a mismatch between graduate qualifications and job availability. Sector-specific studies would allow for targeted solutions tailored to the needs of industries, ensuring a more responsive labour market and better job creation strategies.

Additionally, future research could examine the impact of changes within the education system on graduate employment outcomes. As higher education policies evolve—such as curriculum reforms, increased university-industry collaborations, and the expansion of vocational training programs. It is crucial to assess how these changes influence graduates' employability. This research could explore whether initiatives like internships, apprenticeships, and skills certification programs effectively equip graduates with the competencies needed to succeed in the job market, potentially reducing the incidence of overeducation.

Comparative studies across countries experiencing similar challenges with graduate underemployment would also provide valuable insights. By examining how other nations have addressed the issue of overeducation, researchers could identify best practices and strategies that could be adapted to the Malaysian context. These comparisons could include the effects of national economic policies, labour market flexibility, and job creation efforts in reducing graduate underemployment, offering lessons that could inform policy decisions in Malaysia.

Furthermore, research into graduate underemployment's social and psychological impacts would provide a more holistic understanding. Studies could explore how being underemployed affects graduates' mental health, job satisfaction, and social mobility. Understanding the broader consequences of overeducation on individual well-being, including feelings of dissatisfaction or wasted potential, could help design policies that address economic outcomes and the social costs of graduate underemployment, particularly regarding inequality and social cohesion.

Finally, an important area for future research would be the effectiveness of current and future policy interventions to reduce graduate underemployment in Malaysia. This could involve evaluating the success of government programs designed to stimulate job creation in skilled sectors and assessing the impact of public-private partnerships that promote employment in high-skill industries. Research could also investigate the role of wage subsidies, job placement services, and skills development programs in improving graduate employability and reducing the negative effects of overeducation.

AUTHOR CONTRIBUTION

The author affirmed that there is no conflict of interest in this article. Choon Wei Low conducted the fieldwork, prepared the literature review, and wrote the entire article. He also developed the research methodology, entered the data, and performed the statistical analysis and interpretation of the results.

ACKNOWLEDGEMENTS

This study is self-funded by the author.

REFERENCES

- Alzubaidi, M. (2021). Overeducation among Saudi graduates in the labour market: Incidence and determinants across two self-assessment measures. *Education Quarterly Reviews*, 4(2), 469–497.
- Bank Negara Malaysia. (2021). Getting the great reset right: Structural labour market issues in the post-Covid-19 world. https://www.bnm.gov.my/documents/20124/3026377/emr2020_en_box3_labourmkt.pdf
- CEDEFOP (2023). Skills in transition: the way to 2035. Luxembourg: Publications Office. <http://data.europa.eu/doi/10.2801/438491>
- Choi, S. (2016). How does job mobility affect inequality? Evidence from the South Korean economic crisis. *Social Forces*, 94(3), 1045-1073. <https://doi.org/10.1093/sf/sov095>
- Cutillo, A., & Di Pietro, G. (2006). The effects of overeducation on wages in Italy: A bivariate selectivity approach. *International Journal of Manpower*, 27(2), 143–168. <https://doi.org/10.1108/01437720610666182>
- Department of Statistics Malaysia. (2022). Labour Force Survey 2021. Putrajaya.
- Department of Statistics Malaysia. (2023). Labour Market Review Q4 2022. Putrajaya.
- Desjardins, R., & Rubenson, K. (2011). An analysis of skill mismatch using direct measures of skills. *OECD Education Working Papers*, No. 63. <https://doi.org/10.1787/5kg3nh9h52g5-en>
- Dolton, P., & Vignoles, A. (2000). The incidence and effects of overeducation in the UK graduate labour market. *Economics of Education Review*, 19(2), 179–198. [https://doi.org/10.1016/S0272-7757\(97\)00036-8](https://doi.org/10.1016/S0272-7757(97)00036-8)
- Fleckenstein, T., Lee, S. C., & Mohun Himmelweit, S. (2023). Labour market dualization, permanent insecurity and fertility: The case of ultra-low fertility in South Korea. *Economy and Society*, 52(2), 298-324. <https://doi.org/10.1080/03085147.2023.2175449>
- Fogg, N., Harrington, P., & Khatiwada, I. (2019). Skills and the earnings of college graduates. The impact of human capital in the American labour market series. ETS Center for Research on Human Capital and Education. <https://files.eric.ed.gov/>
- Freeman, R. (1976). *The over-educated American*. Cambridge, MA: Academic Press.
- Green, F., & McIntosh, S. (2007). Is there a genuine under-utilization of skills amongst the over-qualified?. *Applied Economics*, 39(4), 427-439. <https://doi.org/10.1080/00036840500427700>
- International Labour Organisation (ILO) (2020). What is skills mismatch and why we should care? https://www.ilo.org/skills/Whatsnew/WCMS_740388/lang-en/index.htm
- International Labour Organisation (ILO) (2021). The role of digital labour platforms in transforming the world of work. <https://www.ilo.org/publications/flagship-reports/role-digital-labour-platforms-transforming-world-work>
- Kim, H., & Lee, C. (2023). The immigrant wage gap and assimilation in Korea. *Migration Studies*, 11(1), 103-122. <https://doi.org/10.1093/migration/mnac031>

- Kupets, O. (2015). Skill mismatch and overeducation in transition economies. IZA World of Labor. <https://wol.iza.org/articles/skill-mismatch-and-overeducation-in->
- Latifa, A. (2023). Analyzing students' attitude and behavior toward artificial intelligence technologies in higher education. *International Journal of Recent Technology and Engineering*, 11(6), 65-73. <https://www.doi.org/10.35940/ijrte.F7475.0311623>
- Lim, H. E. (2013). Overeducation and happiness in the Malaysian graduate labour market. *International Journal of Business and Society*, 14(1), 93–110.
- McGuinness, S., Whelan, A., & Bergin, A. (2016). Is there a role for higher education institutions in improving the quality of first employment?. *The BE Journal of Economic Analysis & Policy*, 16(4), 20160174. <https://doi.org/10.1515/bejeap-2016-0174>
- Meroni, E. C., & Vero-Toscano, E. (2017). The persistence of overeducation among recent graduates. *Labour Economics*, 48, 120-143. <https://doi.org/10.1016/j.labeco.2017.07.002>
- Ministry of Higher Education. (2018). Graduates statistics 2017. Putrajaya.
- Ministry of Higher Education. (2019). Graduates statistics 2018. Putrajaya.
- Ministry of Higher Education. (2020). Graduates statistics 2019. Putrajaya.
- Ministry of Higher Education. (2021). Graduates statistics 2020. Putrajaya.
- Ministry of Higher Education. (2022). Graduates statistics 2021. Putrajaya.
- Nur Thuraya Sazali. (2020). Measuring labour underutilization in Malaysia. Malaysia. *Labour Review*, 14(1). <https://www.ilmia.gov.my/index.php/en/component/zoo/item/malaysian-labourreview>
- OECD (2023). OECD Skills Outlook 2023: Skills for a Resilient Green and Digital Transition. https://www.oecd.org/en/publications/2023/11/oecd-skills-outlook-2023_df859811.html
- Ramos, J., & Ramos, A. (2020). Over-qualification in young Spanish workers: A decade of research at IDOCAL. *Revista Psicologia Organizações e Trabalho*, 20(4), 1168-1176. https://pepsic.bvsalud.org/scielo.php?pid=S1984-66572020000400002&script=sci_arttext
- Restrepo, P. (2015). Skill mismatch and structural unemployment. Massachusetts Institute of Technology Job Market Paper, 13(9), 66-94.
- Robst, J. (2007). Education and job match: The relatedness of college major and work. *Economics of Education Review*, 26(4), 397–407. <https://doi.org/10.1016/j.econedurev.2006.08.003>
- Roland, R., & Thijs, V. R. (2017). Rethinking the skills gap. Retrieved from <https://wol.iza.org/uploads/articles/391/pdfs/rethinking-the-skills-gap.pdf>
- Vedder, R., Denhart, C., & Robe, J. (2013). Why are recent college graduates underemployed? University enrollments and labour-market realities. Center for College Affordability and Productivity. Retrieved from <https://files.eric.ed.gov/>
- Whelan, A., McGuinness, S., Staffa, E., & Redmond, P. (2024). Skill requirements for emerging technologies in Ireland. Research Series No. 191. <http://doi.org/10.26504/rs191>
- Yap, J. Y. (2020). Covid-19 Set to Aggravate Malaysia's Skills Mismatch. <https://penanginstitute.org/publications/covid-19-crisis-assessments/covid-19-set-to-aggravate-malaysias-skills-mismatch/>