THE OVEREDUCATION DILEMMA: GRADUATE SKILL MISMATCH IN MALAYSIA'S LABOUR MARKET

Low Choon Wei
Faculty of Accountancy and Management
Universiti Tunku Abdul Rahman, 43000 Kajang, Selangor, Malaysia
Email: cwlow@utar.edu.my

Mah Pei Yew
Faculty of Business and Finance
Universiti Tunku Abdul Rahman, 31900 Kampar, Perak, Malaysia
Email: mahpy@utar.edu.my

ABSTRACT

Skill mismatch and graduate underemployment are pressing global challenges with significant implications for both developed and developing economies. In Malaysia, the rapid increase in graduate output from Higher Education Institutions (HEIs) has not been matched by a proportional rise in high-skilled job opportunities. This imbalance has led to a growing trend of overeducation, where graduates are employed in roles that do not fully utilise their qualifications, particularly in semi-skilled or low-skilled occupations. This study examines the evolving trends and key drivers of skill mismatch in Malaysia, analysing recent labour market data and government reports. The findings reveal a widening gap between the number of graduates entering the labour market and the availability of skilled jobs, driven by an oversupply of graduates and insufficient job creation in high-skilled sectors. This mismatch results in the underutilisation of human capital, hindering productivity, innovation, and national economic growth. Socially, it contributes to lower wages, job dissatisfaction, and limited career advancement for graduates while eroding public confidence in the value of higher education. Addressing these challenges requires coordinated efforts among policymakers, educational institutions, and industries to align graduate output with labour market demands. Strategic interventions are essential to expand high-skilled job opportunities and better integrate industry needs into educational curricula. By fostering this alignment, Malaysia can enhance graduate employability, optimise its human capital, and drive sustainable economic growth while reinforcing the value of higher education as a pathway to meaningful career development.

Keywords: Overeducation, skill mismatches, skill underutilisation, graduate, employability

INTRODUCTION

During the implementation of the Eleventh Malaysia Plan (2016–2020), Malaysia experienced a significant 25.2% increase in graduates, rising from 4.28 million in 2016 to 5.36 million in 2020. This growth continued, with graduates reaching 5.61 million in 2021. However, this substantial increase in graduate numbers has not been accompanied by an equivalent enhancement in graduates' employment quality, raising concerns about underemployment—particularly skill-related underemployment (SRU)—in the Malaysian labour market. This structural issue indicates that while graduates enter the workforce in more significant numbers, many are not finding roles that match their qualifications and skills, reflecting deeper inefficiencies in the labour market. These inefficiencies raise critical questions about aligning Malaysia's education system with labour market needs. According to the Labour Force Survey 2021 and Labour Market Review 2022, released by the Department of Statistics Malaysia (DOSM), the trend of skill-related underemployment has shown a worrying upward trajectory. In 2021, 1.55 million graduates were classified as having a skills mismatch, with a staggering 80.3% of graduates working in jobs that did not align with their qualifications.

Despite graduate employability remaining relatively high at 85.5%, this paradox underscores the complexity of the mismatch issue, highlighting that mere employment figures do not adequately reflect the quality and relevance of employment opportunities for graduates (Pauw et al., 2008; Isuku, 2011; Low, 2023). Several factors contribute to this misalignment. Rapid technological advancements, shifting industry demands, and outdated educational curricula have likely played critical roles in exacerbating the mismatch. Academic institutions often fail to anticipate or adjust to the evolving needs of the workforce, resulting in graduates being equipped with skills that are either obsolete or not directly applicable to the modern job market. Studies by Cheong and Narayanan (2021), Rahim et al. (2021), Rahim et al. (2023), and Moo et al., 2023 emphasize that such mismatches are not unique to Malaysia but represent a broader challenge in developing economies transitioning to knowledge-based structures.

The research problem extends beyond graduate underemployment statistics. It encompasses the persistent disconnect between educational outputs and labour market requirements, the inefficiency in human capital utilization, and the socio-economic repercussions of wage disparities and limited career progression opportunities. Moreover, this issue raises broader questions about the effectiveness of current policies and institutional frameworks in addressing labour market volatility and preparing graduates for long-term career adaptability.

Despite numerous studies on graduate employability and labour market dynamics, limited research explicitly addresses the persistent and growing issue of skill-related underemployment in Malaysia. Previous research primarily focuses on employment rates rather than the quality and relevance of employment, leaving a gap in understanding the nuanced relationship between educational outputs and labour market requirements. Additionally, studies often overlook the systemic factors, such as policy inertia and industry-academia collaboration gaps, exacerbating the mismatch.

This study aims to fill this gap by providing an in-depth analysis of SRU's trends and contributing factors while proposing actionable recommendations to bridge these disparities. Addressing this mismatch is critical to optimising the potential of

Malaysia's workforce and ensuring that the education system adapts to the fast-changing economic landscape. Failure to resolve this issue could hinder Malaysia's aspirations for a high-skilled economy, as outlined in the Twelfth Malaysia Plan (2021–2025), which prioritises human capital development as a key enabler for future growth.

This study has two key objectives: (1) identifying skill-related underemployment trends among graduates and investigating the contributing factors to this mismatch. This involves examining how SRU has evolved, focusing on quantitative and qualitative changes in employment quality and alignment with educational qualifications. It will also address both labour supply and demand dynamics, exploring the interplay between graduate statistics, employment trends, job availability, and the capacity of industries to create and fill skilled positions; and (2) the study aims to propose actionable recommendations for bridging the gap between graduate skills and labour market requirements, thereby contributing to more effective policy frameworks.

This study offers several significant contributions. First, the findings will provide critical insights for policymakers, enabling the formulation of targeted strategies to address skill-related underemployment. The study's focus on supply and demand dynamics ensures a comprehensive understanding of labour market inefficiencies. Second, the education sector may gain a clearer understanding of labour market demands, facilitating the design of curricula that better align with the realities of the job market. This aligns with recommendations by Sikubwabo et al. (2024), who advocate for integrating practical skill-building components into higher education programs. Third, by addressing SRU, the study aims to enhance graduates' career prospects and reduce wage disparities and economic inequality. Such contributions are essential for achieving Malaysia's broader socio-economic development goals.

The study builds on existing literature to investigate the phenomenon of SRU in Malaysia. References include studies on labour market dynamics (Ramasamy & Rowley, 2011; Nagaraj et al., 2014; Man et al., 2022), educational outcomes, and industry alignment (Karyanto et al., 2023 and Ramakrishnan et al., 2023). This study contributes to ongoing efforts to enhance the Malaysian workforce's adaptability and resilience in an evolving economic landscape by comprehensively addressing these aspects.

LITERATURE REVIEW

Overeducation is a widely recognised skill mismatch that occurs when an individual's educational attainment exceeds the qualifications required for their job. According to McGuinness (2006), overeducation can be defined as the underutilisation of human capital, where workers are employed in roles that demand lower levels of education than they possess. Similarly, Chevalier (2003) distinguishes between "genuine overeducation," where workers are inappropriately matched to their jobs, and "apparent overeducation," where overqualification may result from other job-related factors such as career preferences or job availability.

Skills mismatch, a broader concept encompassing overeducation, reflects various dimensions of labour market friction. Policymakers, practitioners, and social partners recognise skills mismatch as a significant challenge, often attributed to dynamic socio-economic contexts such as labour market restructuring, technological advancements, demographic changes, and evolving trade patterns. Measuring the magnitude and interrelatedness of skills mismatch requires diverse indicators and methodologies (OECD, 2019).

Historically, Freeman (1976) argued that underemployment largely stemmed from the rapid expansion of higher education, which created an oversupply of graduates relative to labour market demand. More recently, Vedder, Denhart, and Robe (2013) highlighted that underemployment is frequently linked to graduates from less selective institutions or those with majors perceived as less marketable. Fogg, Harrington, and Khatiwada (2019) noted that deficiencies in basic numeracy and literacy skills among graduates exacerbate underemployment, suggesting that higher education quality significantly influences employment outcomes.

Cutillo and Di Pietro (2006) examined the prevalence of overeducation in the Italian graduate labour market using survey data from 14,383 graduates. They found that individual characteristics, such as age and postgraduate qualifications, were inversely associated with overeducation. Women and self-employed individuals were also less likely to experience overeducation. Furthermore, law, mathematics, and science graduates had a lower probability of overeducation than those in economics or statistics. This finding partially contrasts with Dolton and Vignoles (2000), who reported differing patterns of field-specific mismatches in their analysis.

Green and McIntosh (2007) explored overqualification and under-skilling in Britain using a cross-sectional survey of 4,470 individuals. Their study revealed that overqualified workers are often employed in low-skill industries, with professionals and managers exhibiting the lowest rates of over-skilling. Occupations like sales and plant operations demonstrated higher probabilities of skills mismatch. Their analysis underscored that overqualification frequently results in underutilised skills, while underqualification does not necessarily imply under-skilling.

Robst (2007) investigated job-education mismatches by focusing on college majors and occupations. Using a logit model on data from 124,063 individuals, he observed that graduates with specific qualifications, such as engineering and architecture, experienced lower mismatch rates. In contrast, those with generalist degrees, like English or social sciences, were more likely to encounter mismatches. Postgraduate degree holders were less prone to mismatch, reflecting the alignment between advanced qualifications and specialised roles.

Lim (2013) studied overeducation determinants using longitudinal data from 154 employed graduates in the Malaysian context. He found that professional degree holders (e.g., accounting) had a lower likelihood of overeducation than those in fields like business administration. Family background also emerged as a significant factor, with economically inactive families increasing the probability of graduate overeducation. Similarly, Alzubaidi (2021) explored overeducation among Saudi graduates, revealing that general fields of study were associated with higher mismatch rates. In contrast, science, mathematics, and computing graduates had lower odds of overeducation.

These studies highlight the multifaceted nature of skills mismatch, including overeducation, and its implications for individual and labour market outcomes. However, the literature reveals significant gaps in understanding the systemic drivers of these mismatches. While research in developed economies has provided insights into individual and job-related factors, there remains limited investigation into the structural and policy-level contributors in developing nations, particularly Malaysia. This

study aims to bridge this gap by examining the interplay of education, industry demands, and policy frameworks in addressing skill-related underemployment and overeducation.

METHODOLOGY

Data for this research are drawn from multiple authoritative sources to ensure the reliability and robustness of the analysis. Key data sources include the Graduate Statistics (2017–2021) published by the Ministry of Higher Education (MOHE), as well as the Labour Force Survey 2021 and the Labour Market Review 2022, both released by the Department of Statistics Malaysia (DOSM). These datasets provide detailed insights into graduate demographics, employment trends, and skill-related underemployment within the Malaysian labour market.

The quantitative analysis identifies trends in skill-related underemployment by examining annual graduate statistics and employment patterns. This involves descriptive statistical techniques highlighting shifts in graduate numbers, employability rates, and the prevalence of skills mismatches over time. Cross-tabulations and trend analyses explore the relationships between key variables such as educational qualifications, employment sectors, and job roles.

Analyses in this study include the following equations:

The proportion of graduate SRU
= (Number of graduates in SRU)/ (Number of SRU) **[1]**

The proportion of graduates in the labour force
= (Number of graduates in the labour force)/ (Number of labour force) **[2]**

The proportion of graduate employment
= (Number of employed graduates)/ (Number of employed labour force) **[3]**

The proportion of filled-skill jobs = (Number of filled skilled jobs)/ (Number of filled jobs) **[4]**

The proportion of graduates employed in skilled jobs
= (Number of employed graduates in skilled jobs)/ (Number of employed graduates) **[5]**

The proportion of graduates employed in semi-skilled jobs
= (Number of employed graduates in semi-skilled jobs)/ (Number of employed graduates) **[6]**

The proportion of graduates employed in low-skilled jobs
= (Number of employed graduates in low-skilled jobs)/ (Number of employed graduates) **[7]**

FINDINGS AND DISCUSSION

Analysis 1: Skill-Related Underemployment and Graduate Unemployment

This section presents the analysis of labour demand and supply in the Malaysian labour market, aligning with the study's objectives to identify trends in skill-related underemployment and investigate contributing factors. Figure 1 illustrates the number of skill-related underemployment cases in Malaysia from 2017 to 2021. Statistics indicate a steady rise in skill-related underemployment, with a 51% increase from 1.27 million to 1.93 million individuals. Graduate skill-related underemployment rose sharply, increasing by 72%, from 0.9 million to 1.55 million graduates.

Figure 2 further underscores this trend by presenting graduate employability alongside the proportion of graduate skill-related underemployment. While graduate employability improved from 79.1% in 2017 to 85.1% in 2021, the proportion of graduates in skill-related underemployment within the broader category of skill-related underemployment also increased, from 70.5% in 2017 to 80.3% in 2021 (DOSM, 2022; MOHE, 2022). This trend highlights a critical issue: many graduates are increasingly accepting and working in semi- and low-skilled jobs that do not match their qualifications despite overall employability growth.

These findings reflect broader challenges within Malaysia's labour market, consistent with the study's objectives to explore mismatches between graduate skills and job opportunities. Graduates' willingness to accept positions beneath their qualifications may be attributed to systemic inefficiencies, including an oversupply of graduates, outdated curricula, and limited high-skilled job opportunities. As Freeman (1976) observed, such issues often arise from rapid expansions in higher education, leading to an imbalance between the supply of qualified graduates and the demand for high-skilled labour.

The literature provides additional support for these findings. Studies by Green and McIntosh (2007) and Lim (2013) emphasise that overqualification and skills mismatches are often linked to structural inefficiencies in labour markets, where job creation in high-skilled sectors fails to keep pace with the number of graduates. Alzubaidi (2021) further highlights the role of individual and job characteristics, such as contract work and fields of study, in exacerbating over-education and skill-related underemployment. In Malaysia, graduates' willingness to accept semi- and low-skilled jobs may also stem from immediate economic pressures and limited job market flexibility.

Despite rising employability, the increasing proportion of graduates in skill-related underemployment highlights a paradox within the Malaysian labour market. While graduates enter employment, the qualitative aspects of their job placements remain suboptimal. This underscores the urgency of aligning educational outputs with labour market demands, a concern echoed
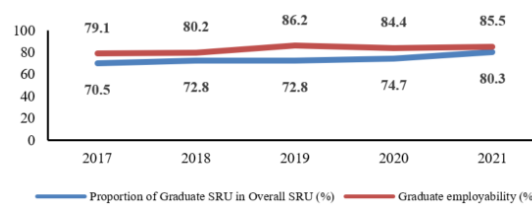
by Vedder, Denhart, and Robe (2013), who argue that academic institutions must better prepare students with skills directly relevant to modern industries.

Figure. 1. SRU in Malaysia, 2017 – 2021
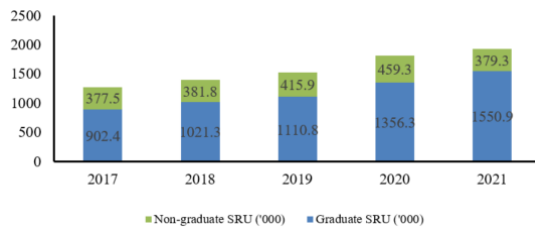
Sources: MOHE (2022); DOSM (2022)

Figure 2. Graduate Underemployment Rate and Employability, 2017 – 2021

Sources: MOHE (2022); DOSM (2022)

Analysis 2: Graduates in Labour Force and Graduate Employment

Graduate statistics reports show a 31% increase in graduates, rising from 4.28 million in 2016 to 5.61 million in 2021 (MOHE, 2022), indicating a significant growth in the proportion of graduates within the Malaysian labour force (Figure 3). This increase highlights a demographic shift as more individuals complete tertiary education and enter the workforce. Such a shift has broader implications for labour market dynamics, including intensified job competition, the growing demand for diverse skill sets, and the necessity for corresponding adjustments in employment opportunities.

This observation directly aligns with the study's objective of identifying trends in skill-related underemployment and its contributing factors. The rise in graduates contributes to an overall increase in skill supply, intensifying competition among graduates for skilled positions. As highlighted by Lim and Mahyuddin (2021), an oversupply of graduates in the labour market often exacerbates skill mismatches, leading to higher rates of underemployment and employment in roles beneath graduates' qualifications.

Moreover, the increase in graduates in the workforce underscores the need for effective educational policies and alignment between educational outputs and labour market demands. Freeman (1976) noted that rapid expansions in higher education systems often result in structural imbalances, where the labour market cannot absorb the influx of highly qualified individuals. This is evident in Malaysia, where rising graduate numbers have not proportionately translated into higher-quality employment opportunities, as many graduates face skill-related mismatches or end up in semi-skilled and low-skilled jobs (DOSM, 2022).

The broader economic implications of this trend are significant. Skill underutilisation can lead to inefficiencies in human capital allocation, wage stagnation, and reduced economic productivity, as McGuinness et al. (2018) noted. Additionally, the job market's inability to accommodate a rising proportion of graduates signals systemic challenges in job creation within high-skilled sectors. Their study calls for greater alignment between education systems and industry needs to mitigate these inefficiencies.

Understanding the demographic shift in the labour force is crucial for addressing the challenges associated with skill-related underemployment. As highlighted by Rahman et al. (2020), the evolving composition of the workforce requires adaptive policies that balance supply and demand dynamics while fostering an environment conducive to skill development and utilisation. The subsequent sections of this analysis will further explore how this influx of graduates intersects with underemployment challenges, focusing on skill mismatches and the distribution of graduates across skilled, semi-skilled, and low-skilled job categories.

Analysis 3: Graduates in the Labour Force and Graduate Employment

The analysis of this study reveals a concerning trend: the issue of overeducation has not only persisted but has intensified over time. Between 2019 and 2021, the gap between graduates entering the job market and the proportion of filled skilled jobs has widened significantly. This growing disparity underscores the increasing challenge of aligning the qualifications and skills of graduates with the demands of the job market, highlighting the urgent need for targeted interventions to address this mismatch.

The implications of this overeducation problem are multifaceted. It suggests the underutilisation of human capital, resulting in inefficiencies within the labour market that prevent the optimal allocation of skills to positions that require them. Addressing this issue is critical for fostering a more efficient and productive labour market where graduates can contribute meaningfully to economic growth and development. In subsequent sections, this study will explore the dimensions of the overeducation challenge in greater detail, examining its impact on various job categories and the overall distribution of graduates within the workforce.

Figure 3 illustrates the proportion of employed graduates, graduates in the labour force, and the proportion of filled skilled jobs. A study by Yap (2020) identified a skills mismatch, including overeducation, in Malaysia since 2013. Our findings confirm her conclusions: the proportion of graduates in the labour force and the proportion of employed graduates consistently exceed the proportion of filled skilled jobs. Furthermore, we observe a growing gap between the proportion of graduates in the labour market and the proportion of filled professional positions from 2019 to 2021.

Figure 4 presents the distribution of employed graduates across skilled, semi-skilled, and low-skilled jobs. Notably, the proportion of graduates in professional roles has declined over the years, from 75.5% in 2017 to 66.1% in 2021. In contrast, the proportion of graduates working in semi-skilled and low-skilled jobs has increased. By 2021, most graduates were in semi-skilled positions, including clerical support, service and sales roles, and craft and related trades.

This data reveals a troubling trend: the gradual decline in graduates securing employment in skilled jobs. This drop, from 75.5% in 2017 to 66.1% in 2021, highlights the growing difficulty in aligning job opportunities with graduates' acquired skills.

Conversely, a rising proportion of graduates accept semi-skilled and low-skilled positions. This shift suggests restructuring the employment landscape, with many graduates settling for roles that do not fully utilise their higher education qualifications. By 2021, the largest share of graduates was employed in semi-skilled jobs, such as clerical support, service and sales, and craft-related trades.

The increasing prevalence of graduates in semi-skilled roles, traditionally associated with lower educational requirements, raises concerns about the optimal use of the skills and knowledge gained through tertiary education. It also calls for a thorough examination of the factors influencing the distribution of graduates across different job categories, such as the evolving demands of the job market and the potential mismatch between educational curricula and industry requirements.

Figure 3. Graduates and Filled Skilled Jobs, 2018 Q4 – 2021 Q4
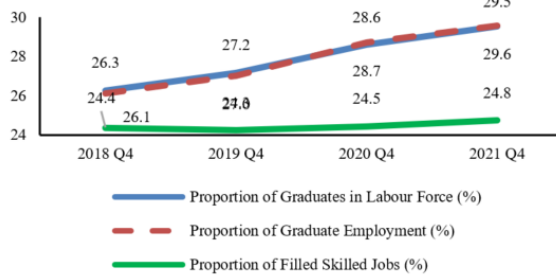
Sources: DOSM (2023); MOHE (2022)

Figure 4. Employed Graduates in Jobs, 2017 – 2021
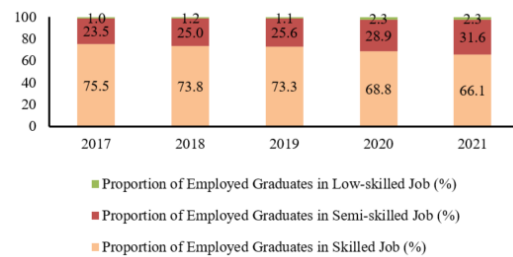
Source: MOHE (2022)

*Analysis 4: Job Availability in the Malaysian Labour Market*

This study also analysed job availability and job creation trends in the Malaysian labour market between 2019 and 2022. Figures 5 and 6 illustrate these trends, revealing that both available and newly created positions were concentrated in semi-skilled and low-skilled occupations. Over 50% of the jobs available in the labour market during this period were in semi-skilled roles, with figures such as 5407.7 thousand (62.4%), 5278.7 thousand (62.4%), 5311.7 thousand (62.2%), and 5458.1 thousand (62.3%) in the fourth quarters from 2019 to 2022. Similarly, about 60% of the jobs created during this period were semi-skilled. This trend has intensified competition among graduates, as the number of employed individuals with tertiary education has increased.

Additionally, a significant imbalance exists in the labour market, with the demand for high-skilled jobs falling short of the supply of graduates with tertiary education. As a result, many graduates are compelled to accept semi-skilled or low-skilled jobs to avoid unemployment. The available and created jobs predominantly consist of semi-skilled positions, which are insufficient in meeting the aspirations of graduates seeking roles that align with their qualifications.

The focus on semi-skilled job opportunities, both in terms of availability and creation, has heightened competition among graduates entering the labour force. With an increasing number of graduates holding tertiary education qualifications, the pressure to secure high-skilled jobs has become even more intense, given the limited number of such positions in the market.

Furthermore, this mismatch between qualifications and job roles reflects a deeper structural issue in the labor market. The demand for high-skilled jobs is significantly lower than the supply of graduates, forcing many to settle for positions that do not fully utilise their qualifications. This growing qualification-job mismatch underscores the need for strategic interventions to align educational outputs with the evolving demands of the job market.

Figure 5. Jobs Available, 2019 Q4 – 2022 Q4
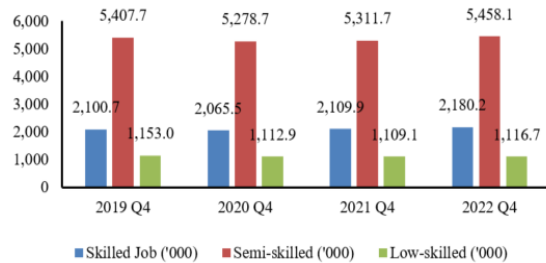
Source: DOSM (2023)

Figure 6. Jobs Creation in Malaysia, 2019 Q4 – 2022 Q4
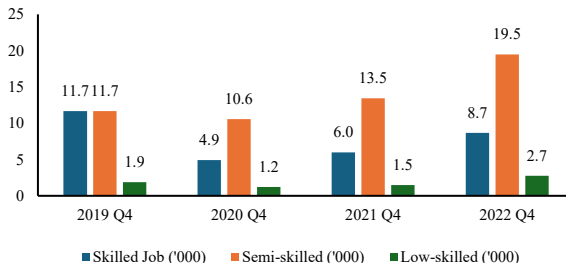
Source: DOSM (2023)

CONCLUSION

In conclusion, the analysis in this study has identified graduate underemployment in Malaysia, primarily manifesting as overeducation, where graduates possess qualifications that exceed the requirements of their jobs. The findings highlight a growing gap between the proportion of graduates entering the job market and the availability of skilled jobs, suggesting that the rate of job creation has not kept pace with the rapid increase in graduates produced by Malaysian Higher Education Institutions (HEIs). This imbalance points to an oversupply of graduates in the labour market, a key factor contributing to skill-related underemployment.

From an economic perspective, this underemployment leads to the suboptimal utilisation of human capital, which diminishes productivity and hampers overall economic growth. When graduates cannot fully apply their skills in roles that do not match their qualifications, it results in underutilised potential and reduced contributions to Malaysia's economic development. Underused human capital represents missed opportunities for innovation, competitiveness, and growth. Underemployed graduates often experience lower wages and career dissatisfaction on the social front, which can have broader implications for their well-being and career fulfilment. This sense of underachievement and the perceived waste of effort in obtaining higher qualifications may also erode public confidence in the value of higher education. If individuals begin to doubt that investing in education leads to suitable employment opportunities, enrollment rates in higher education could decline, jeopardising the long-term development of a skilled and educated workforce.

Given these findings, the study emphasises the urgent need for the Malaysian government to align the pace of job creation with the growing number of graduates. Proactive efforts to create more skilled and professional jobs will be critical in closing the gap between graduate supply and market demand. Expanding opportunities in sectors requiring high-level skills will improve graduate employability and ensure that Malaysia maximises its human capital's potential by fully utilising its workforce's skills and knowledge.

Addressing graduate underemployment is essential for achieving economic and social progress. Policymakers must create an environment that stimulates the demand for skilled professionals, enabling Malaysia to capitalise on the full potential of its highly educated population. In doing so, the country can build a more sustainable and balanced labour market that better aligns graduate qualifications with market needs, fostering long-term growth, improving social mobility, and reinforcing the value of higher education.

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. http://dx.doi.org/10.31014/aior.1993.04.02.295

Cheong, J. Q., & Narayanan, S. (2021). Factors affecting the transition from university to work in selected Malaysian cities: is a public university degree a disadvantage?. *Asia Pacific Journal of Education*, *41*(1), 39-54. https://doi.org/10.1080/02188791.2020.1779027

Chevalier, A. (2003). Measuring over-education. *Economica*, *70*(279), 509-531. https://doi.org/10.1111/1468-0335.t01-1-00296

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.

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

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/fulltext/ED595423.pdf

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

Isuku, E. J. (2011). The paradox of Nigeria higher education and the employment problem among youths: a critical analysis. *African Journal of Educational Management*, *12*(2), 153-168. http://journals.ui.edu.ng/index.php/ajem/article/view/189

Karyanto, Y., Asmaul, R., Fath, Z. F. M. R., Junaidi, A., & Sabur, F. (2023). Evaluating the Dynamic Alignment of Higher Education Curriculum with the Evolving Industry Landscape: A Multi-Dimensional Analysis In The Context Of Indonesia. *International Journal of Teaching and Learning, 1*(3), 208-220.

Lim, H. E. (2013). Overeducation and happiness in the Malaysian graduate labour market. *International Journal of Business and Society, (14)*1, 93-110.

Low, C. W (2023). Harmonizing Human Capital: Insights from the Malaysian Labor Market. Asian Journal of Research in Business and Management, (5)4, 72-77. https://doi.org/10.55057/ajrbm.2023.5.4.7

Man, L. B., Rahman, N. A., & Arsad, Z. (2022). Impact of The Factors for Labour Market on Overall Labour Force Participation Rate in Malaysia. *Journal of Hunan University Natural Science*, *59*(1), 1-15.

McGuinness, S. (2006). Overeducation in the labour market. *Journal of economic surveys*, *20*(3), 387-418.

Ministry of Higher Education (2018). *Graduates Statistics 2017*. Malaysia: Putrajaya.

Ministry of Higher Education (2019). *Graduates Statistics 2018*. Malaysia: Putrajaya.

Ministry of Higher Education (2020). *Graduates Statistics 2019*. Malaysia: Putrajaya.

Ministry of Higher Education (2021). *Graduates Statistics 2020*. Malaysia: Putrajaya.

Ministry of Higher Education (2022). *Graduates Statistics 2021*. Malaysia: Putrajaya.

Ministry of Higher Education (2022). *Higher Education Report (Malaysia)*. Malaysia: Putrajaya.

Moo, K. H., & Da Wan, C. (2023). Graduate Employability in Malaysia: Unpacking the Concept, Policy and Practices. *IIUM Journal of Educational Studies*, *11*(2), 3-25. https://doi.org/10.31436/ijes.v11i2.471

Nagaraj, S., Goh, K. L., Cheong, K. C., Tey, N. P., & Jani, R. (2014). Gender imbalance in educational attainment and labour market dynamics: Evidence from Malaysia. *Malaysian Journal of Economic Studies*, *51*, 127-145.

OECD (2019), OECD *Skills Outlook 2019: Thriving in a Digital World*. OECD Publishing, Paris, https://doi.org/10.1787/df80bc12-en

Pauw, K., Oosthuizen, M., & Van Der Westhuizen, C. (2008). Graduate unemployment in the face of skills shortages: A labour market paradox 1. *South African journal of economics*, *76*(1), 45-57. https://doi.org/10.1111/j.1813-6982.2008.00152.x

Rahim, M. A. R. A., Wahab, D. A., & Jani, R. (2021). Overeducation and Its Effect on Wages: The Case of Young Workers in Malaysia. *International Journal of Advanced Research in Education and Society*, *3*(3), 31-48.

Rahim, M. A. R. A., Wahab, D. A., & Jani, R. (2023). School-to-work transition and job mismatch among the young workers in Malaysia. *International Journal of Business and Economy*, *5*(1), 84-101.

Ramakrishnan, M., Gregor, S., Shrestha, A., & Soar, J. (2023). Achieving industry-aligned education through digital-commons: A case study. Journal of Computer Information Systems, 63(4), 950-964. https://doi.org/10.1080/08874417.2022.2115955

Ramasamy, N., & Rowley, C. (2011). Labour markets in Malaysia: Evolution to a knowledge-based economy?. In *The dynamics of Asian labour markets* (pp. 191-223). Routledge.

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

Sikubwabo, C., Rukundo, D., Ruhumuriza, G., & Mukunzi, D. (2024). Transitioning from Academia to Workforce: Addressing the Challenges Faced by University Graduates in Securing Employments in the Labor Market. *African Journal of Education, Science and Technology*, *7*(4), 201-210. https://doi.org/10.2022/ajest.v7i4.1036

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 (NJ1). https://eric.ed.gov/?id=ED539373

Yap, J. Y. (2020). *Covid-19 Set to Aggravate Malaysia's Skills Mismatch*. Penang Institute. https://penanginstitute.org/publications/covid-19-crisis-assessments/covid-19-set-to-aggravate-malaysias-skills-mismatch/ (Accessed January 20, 2024).