

## Beyond the Numbers: Exploring the Financial and Socio-Cultural Roots of Malaysia's Brain Drain

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### Abstract

This study aims to investigate the underlying factors contributing to the brain drain phenomenon in Malaysia, with a specific focus on evaluating the relative influence of financial and socio-cultural drivers behind the migration decisions of skilled professionals. A quantitative research design was employed, utilizing survey data to examine the statistical relationship between selected financial variables (cost of living, unemployment rate, monetary and non-monetary incentives) and socio-cultural variables (politics and governance, education, family influence, and nepotism) with the intention to migrate. Hypothesis testing was conducted to determine the significance of each factor. The study reveals that financial factors, particularly the domestic cost of living and unemployment rate, are the most influential in shaping emigration decisions among skilled Malaysians. In contrast, socio-cultural factors demonstrated no statistically significant impact in the Malaysian context. The results suggest that professionals are primarily driven by economic pressures rather than dissatisfaction with socio-cultural conditions. The findings call for a holistic and context-sensitive policy response. Policymakers should prioritize economic reforms focused on reducing the cost of living, increasing job opportunities, and improving wage competitiveness. Simultaneously, long-term strategies must cultivate professional environments that support career growth and retain domestic talent. This study contributes to the limited empirical literature on brain drain in Malaysia by integrating both financial and socio-cultural perspectives within a unified framework. It offers practical insights for the formulation of targeted talent retention strategies that align with Malaysia's sustainable development goals.

**Keywords:** Brain Drain, Skilled Migration, Cost of Living, Unemployment Rate, Financial Factors, Socio-Cultural Factors, Malaysia, Talent Retention, Sustainable Development

**Introduction**

Throughout all stages of civilization development human migration served as a historical defining aspect. Highly skilled professionals now engage in migration flows from developing to developed nations which scientists call brain drain or human capital flight in current times. People choose to migrate internationally in search of better career advancement options as well as political security and improved technological capabilities and enhanced living standards. The brain drains phenomenon creates both economic difficulties along with new possibilities for development. Brain drain creates professionals' talent exodus which leads to decreased research capacities in domestic systems and minor financial returns on educational expenditures from the state. The program provides dual gains through money transfers and exchange of expertise which aids sustained national growth programs.

The problem of brain drain stands out as a critical issue for Malaysia because the nation aims to progress from its existing upper-middle status to a high-income nation by 2050 according to its national vision plans. The vision stands upon talent as its essential foundation. The situation of workforce retention in Malaysia remains challenging because approximately 1.86 million Malaysians have moved abroad since the 1960s resulting in a loss of 5.6% of the population which exceeds the global average of 3.6% (Anderson, 2020). Studies suggest that this outflow is driven by a complex interplay of financial and socio-cultural factors, including unsatisfactory wages, limited career development opportunities, higher quality of life overseas, and perceived lack of opportunities in research and development. While there has been increasing attention on Malaysia's brain drain in recent years, much of the existing research either focuses narrowly on quantitative emigration data or centers on single-factor explanations, particularly monetary incentives. Few studies have comprehensively explored how both socio-cultural and financial factors, such as cost of living and domestic unemployment, jointly shape emigration decisions. This represents a notable gap in the literature, especially in a rapidly developing and culturally diverse country like Malaysia.

Brain drain has long been a pressing concern for developing nations, and Malaysia is no exception. Despite being recognized as a key player in the ASEAN region, the country continues to experience a steady outflow of highly skilled professionals seeking better prospects abroad. According to recent estimates, approximately 1.86 million Malaysians have emigrated over the past five decades, representing around 5.6% of the national population, a figure notably higher than the global average of 3.6% (Malay Mail, 2024). Many of these individuals are professionals equipped with tertiary-level education, whose departure poses significant challenges to the nation's growth trajectory. This exodus of talent is especially concerning given Malaysia's ambition to transition into a high-income nation by 2050. Human capital is the cornerstone of this goal. However, gaps in education quality, a perceived lack of meritocracy, and limited opportunities for innovation and advancement have eroded confidence among the professional class, prompting them to seek better opportunities elsewhere (Cheok & Lee, 2022; EMIR Research, 2024). Although Malaysia's policymakers have acknowledged the issue, the national discourse has largely centered on numerical indicators, such as the number of emigrants and their academic qualifications, without adequately identifying or addressing the underlying causes. This overemphasis on quantitative migration statistics has limited the development of meaningful, evidence-based policies to retain talent. Any efforts to curb brain drain face failure when based on insufficient knowledge of migration

drivers because such interventions end up creating more brain drain than reducing it (Foo, 2011).

The components that lead to brain drain in Malaysia have been analyzed through various recent academic studies (Ghazali *et al.*, 2015; Shariff *et al.*, 2018; Sabti & Ramalu, 2020; Anees *et al.*, 2021) with a concentration on salary compensation and student or medical professional immigration. Fragmented research methods reveal weak understanding of financial and socio-cultural relations between migration variables that have grown vital in current migration patterns. The expense of everyday life and the trends of joblessness within the country prove more decisive than basic pay rates for migration decisions. The perceptions of political stability and discrimination practices together with educational quality and family influences have become important migration decision influencers but receive limited attention in Malaysian research.

The investigation substitutes existing research shortcomings by performing extensive empirical measurements regarding socio-cultural and financial influences on brain drain in Malaysia. The present research stands out because it uses a dual-focus approach to exceed standard economics models by adding qualitative aspects connected to migration. The research uses Malaysian professional data gathered from different sectors for empirical testing of each factor's influence strength.

This study is significant for several reasons. First, brain drain poses a long-term threat to Malaysia's aspirations of becoming a high-income, innovation-driven economy. Skilled migration results in the loss of human capital, reduced returns on public investment in education, and weaker institutional capacity, especially in sectors such as healthcare, research, and digital development. Despite increasing national discourse on the issue, limited research has holistically examined both socio-cultural and financial determinants in a single model, leaving gaps in evidence-based policymaking. By addressing this gap, the study offers a comprehensive framework to understand the root causes of talent outmigration. The findings are particularly valuable for policymakers, education planners, talent management strategists, and labor market regulators, as they point toward the need for targeted interventions focused on cost of living, job creation, and institutional trust-building. In doing so, this research supports Malaysia's broader vision for sustainable development and inclusive economic growth by helping to design more effective retention policies for highly skilled citizens.

This study aims to address this gap by examining the relative influence of socio-cultural and financial factors on the brain drain phenomenon in Malaysia. Specifically, the study seeks to:

- a. Investigate the relationship between socio-cultural factors (*e.g.*, political conditions, education, family influence, and nepotism) and the decision to migrate.
- b. Examine the impact of financial factors (*e.g.*, cost of living, unemployment, monetary and non-monetary incentives) on brain drain.
- c. Identify which category of factors exerts the greatest influence on emigration intentions.

To achieve these objectives, the paper adopts a quantitative approach using primary data from Malaysian professionals. The remainder of the paper is structured as follows:

Section 2 presents a detailed review of the relevant literature and the conceptual framework and hypotheses; Section 3 outlines the research methodology; Section 4 reports the findings; Section 5 concludes with recommendations for policy and future research.

## **Literature Review**

### ***Conceptualizing Brain Drain***

#### *Definition and Theoretical Foundations*

Brain drain, also referred to as human capital flight, is broadly understood as the emigration of highly skilled and educated individuals from their country of origin to more developed economies offering superior employment opportunities, better compensation, political stability, and higher standards of living. Departures of educated experts in developing nations have substantial negative effects on innovation and public services together with long-term economic progression.

Kwok and Leland (1982) provide an original definition of brain drain using their theory of asymmetric information to show how skilled individuals maintain their international presence after finishing studies. Developing country employers provide salaries which reflect average quality levels of returnees because they do not have full information about their overseas-trained student employees' characterization. Staff evaluation methods in Senders' countries allow employers to determine actual professional capabilities of foreign graduates so they can establish appropriate compensation. The mismatch of qualifications between acquired and employment opportunities results in qualified individuals avoiding homecoming while lower-caliber professionals tend to return thus sustaining negative selection patterns. According to Miyagiwa (1991) the possibility of migrating to developed economies causes people from developing nations to dedicate more resources to education and skill development. However, when local job markets fail to match these heightened expectations, it results in the emigration of the most capable talent. This paradox illustrates how the very mechanisms designed to enhance human capital can unintentionally accelerate its outflow. Although advancements in global communication and recruitment have somewhat addressed the issue of asymmetric information, the persistence of brain drain indicates that broader structural and institutional challenges remain.

#### *Global Trends and Dual Perspectives*

Globally, the phenomenon of brain drain presents a dual narrative, encompassing both challenges and opportunities for source countries. On the negative side, the immediate consequence is the loss of skilled human capital, which can severely disrupt the functioning of critical sectors such as healthcare, education, engineering, and scientific research. Developing countries, especially in regions like the Caribbean, South Asia, and parts of Africa, have long grappled with weakened institutions and slowed economic development due to this sustained outmigration of their brightest minds (Johnson, 2009). The loss not only affects innovation and productivity but also reduces the return on public investments made in education and training.

Conversely, there are also positive dimensions to brain drain, particularly in terms of remittances, which serve as a vital source of foreign income for many developing economies. These financial flows can help alleviate poverty and improve household living standards. International migration prospects serve as an effective force that drives people toward

achieving higher education levels and advanced proficiency skills leading to higher human capital in the country known as brain gain. Some migrant workers gain enhanced competencies that combine with foreign exposure and professional relationships upon their return to their home countries. When brain circulation enables the return of people home it results in both knowledge dissemination and startup activities which help propel country development forward. Implementation success rates for return migration programs depend on how well countries present promising opportunities and assist migrants to become integrated members of their local communities such as Estonia and Kazakhstan (Mukhamejanova & Konurbayeva, 2023).

The brain drain phenomenon includes multiple factors which constantly shift in nature. The phenomenon needs an advanced comprehension which extends past monetary factors by integrating institutional performance and leadership control and community-driven desires. Both the vulnerabilities and advantages of losing skilled talent need to be acknowledged by Malaysia as the country develops long-lasting retention and reintegration strategies for skilled personnel.

### **Determinants of Brain Drain: A Dual Lens Approach**

#### *Socio-Cultural Factors*

According to Panagiotakopoulos (2020), the research investigated socio-cultural and financial aspects affecting Greek brain drain phenomena by evaluating participant opinions about returning home. According to the research findings the present socio-political environment stands as the key element that leads professionals toward foreign migration. This finding, expressed by 65% of respondents, sheds new light on socio-cultural factors that have been under-researched, especially in the Greek context. Employees are more willing to migrate to countries with similar culture so that they can experience the excitement of a new environment without forcibly accepting a culture that is too foreign (Carr *et al.*, 2005) One study concluded that while brain drain has been discussed by many scholars, previous studies tend to be based on external factors such as compensation. While more studies are being published that focus on interactions, social networks are still new to this issue. Not to mention that social norms, international engagement, etc. are mainly discussed in the context of other regions (Jauhar *et al.*, 2015). Ethnicity is an identity of Malaysia; this is one of the social networks that should be uncovered in future studies.

A study suggests that the reasons for the migration of Iranian students to Malaysia are strongly related to social freedom in the areas of politics, social norms, language, religion, and press. According to Kazemi *et al.* (2018), the educational opportunities for Iranian students from different geographical regions are unequal, which is why the respondents also value the advanced technology of Malaysian universities, good international cooperation that could have a positive impact on students' future careers, and lower costs compared to other countries.

#### *Politics and Government*

The movement of skilled workers abroad is strongly affected by the combination of political systems and governing principles at home and in adoption countries. The migration of professionals who hold skills occurs because political turbulence along with governance weaknesses combined with policy choices leads them to search for alternative stable



opportunities. Solimano (2002) identified that the Latin American dictatorships of the 1960s alongside political turmoil frequently caused substantial loss of talent. The search for political refuge and stability pushed experts and intellectuals to relocate themselves to destinations that provided more stable conditions. A study by Ghanbari-Jahromi and Marzaleh (2024) shows political instability acts as the main catalyst for health sector brain drain in Iran because healthcare experts choose to leave their jobs to escape poor political situations. Multiple forms of legislation implemented by host nations determine how migration patterns shift. According to Lam (2002) potential migrants use immigration criteria together with taxation policies and residency conditions as their main determining factors to decide where to move. Portugal along with other nations has put into effect both housing assistance and tax incentives to attract young professionals in order to stop the process of brain drain. These measures face skepticism because talented workers keep moving toward successful regions because of continuing wage variations and professional prospects (Reuters, 2024, February 22).

The Malaysian population of skilled people leaves the country because of political and social instabilities within the nation. The author Ghazali *et al.* (2015) explains how unstable social and political environments cause professionals to lose trust in their national economic stability which leads them to look for employment prospects outside the country. The population movement in Hong Kong began due to political uncertainties resulting in educated people who moved to safer environments (Migration Policy Institute, 2023, July 18). Skilled migrants face difficulties when their qualifications are unrecognized by receiving countries which results in their understaffing during employment. The problem reveals why it is essential to develop extensive immigration policies which help skilled immigrants find their proper professional roles Financial Times. (2024, January 29). The solution to brain drain requires political stability improvements in all countries to maintain resident professionals and supportive policies at receiving countries to maximize new talent utilization.

### *Education System*

A nation's education system creates multiple complicated interactions with its residents who migrate abroad for employment. Lack of adequate educational facilities together with restricted academic pathways previously made skilled people migrate abroad to continue their education and develop their careers. Multiple studies by Chang (1992) established that Taiwan faced brain drain because its academic institutions lacked sufficient accommodation and inadequate degree programs forced educated residents to seek overseas education. Internationalization of higher education stands as a central factor that drives migration patterns because of its effect on educational standards domestically. Kwok and Leland (1982) demonstrated that students opt to stay abroad for the combination of higher education quality and worldwide educational value despite equivalent employment benefits between their home and host countries. International credentials prove essential for migrants because they determine their relocation choices.

The spread of educational globalization has intensified these existing dynamics during the recent period. Belarbi *et al.* (2023) demonstrated that MENA regional standardized education both in academic programs and international partnerships accidentally intensified brain drain patterns. Collaborating internationally for educational quality enhancement and research innovation can trigger talent outmigration through better resource-enabled and

recognition-seeking environments. Empirical research keeps illuminated aspects of this issue. The research by Petreska *et al.* (2023) demonstrates that Western Balkan students who view their national higher education system poorly tend to plan their departure from their home country. The research concludes that inadequate study opportunities along with out-of-date curricula force students to pursue improved academic prospects internationally. Research support inadequacy combined with political instability in Yemen drives academics and students to migrate offshore according to Muthanna and Sang (2018).

Brains drain impacts the population through various consequences which surpass a simple loss of qualified workers. Docquier (2014) mentions that when professionals who received education depart their homeland this causes critical sectors to experience staff shortages which obstructs economic growth although it produces significant tax revenue declines. The removal of skilled workers through brain drain produces potential advantages including remittance payments made by emigrants as well as future knowledge sharing after their return. The final outcome of brain drain depends heavily on various factors present in the source nation. The successful resolution of brain drain problems needs multiple solutions in place. The primary concern must be to boost both quality standards and educational institution capacities within the home country. An economy built with favorable economic conditions together with political support will maintain skilled people within their home country and motivate them to return. Countries must structure their international partnership activities to allow beneficial relationships that do not only benefit the receiving countries via talent transfer. Such implementation allows nations to reduce brain drain damage while achieving sustainable development through their human capital potential.

### *Family Influence*

Family relationships strongly affect migration choices through their influence on marital conditions and family duties combined with geographical locations of relatives and home. Modern research offers sophisticated knowledge about factors which shape migration and settlement decisions of people in their home territories and host nations. According to Sowl *et al.* (2022) rural college graduates in the United States displaying strong school attachments in adolescence show higher tendencies to migrate back to their hometowns after graduation. Education during the early part of life along with established community connections functions as stabilizing elements that drive people to stay within familiar environments. Young families commonly use various factors to make decisions about their migration plans. Young families base their migration decision on weighing potential advantages against staying near their extended family according to Castaneda and Triandafyllidou (2022). Young individuals often find the prospect of staying in their existing environment more favorable when they have family members nearby who offer essential support mechanisms.

When parents leave their children to migrate, they create serious negative impacts which affect their left-behind children. According to Lu (2014) Mexican and Indonesian children whose parents migrated experienced difficulties in achieving educational success. The study shows how the relationship between parent migration and family member welfare operates through multiple levels of sophistication. Research shows the significance of non-close relatives when making migration choices for various crises. Reports by Kan *et al.* (2024) demonstrated that individuals chose to move their residences nearer relatives during the

COVID-19 pandemic because family support became critical during times of crisis. The results from these studies establish that family reasons serve as essential determinants during migration decision-making processes. Family needs and emotional connections to loved ones together with the family support network can strengthen or weaken migration decisions besides economic factors. Policies fighting brain drain should study migration motives because they demonstrate that improving local family bonds represents an effective approach to maintain talented people in their home country.

### *Nepotism and Discrimination*

Job satisfaction together with migration choices of staff depend strongly upon nepotism and favoritism alongside workplace discrimination (Topsakal *et al.*, 2024). Research reveals that distribution of job positions through family ties instead of qualifications creates employee dissatisfaction which causes skilled workers to search for employment opportunities internationally. Employees working in Northern Cyprus banking adopted negative actions as a result of nepotism which led them to experience increased work-related tension and workplace dissatisfaction thus driving migration to prevent unfair treatment in their work environment according to Arasli and Tumer (2008). According to Arayssi *et al.* (2023) nepotism leads to both skill shortages and reduced workplace contentment at companies in Middle East and North Africa (MENA) nations specifically affecting young female employees. The presence of unfavorable workplace situations leads people to weigh the option of migrating to nations where employment practices are fair. The abundant practice of showing favoritism in organizations leads to damaged organizational trust and poor morale among staff. Employees start to feel insecure and experience injustice in their workplace because of nepotistic and favorable practices as noted in Vveinhardt and Bendaraviciene (2022). Job satisfaction decreases while employees become more likely to search for work outside the country in such unfavorable workplace settings.

Research evidence notes job dissatisfaction because of nepotism and discrimination matters to migration decisions but it does not function independently as the decisive element. According to Ghazali *et al.* (2015) Malaysian professionals commonly switch within close domestic or regional markets instead of going abroad for migration purposes which suggests workplace dissatisfaction is only one aspect in migration decisions. Organizations that want to keep their talented employees and minimize talent outflow must prioritize elimination of nepotism together with discrimination practices. Organizations that combine transparent employee selection and fair advancement methods within inclusive workplaces will create job contentment among their staff and lower their talent's willingness to search for overseas positions.

### *Financial Factors*

Research shows that job dissatisfaction stemming from nepotism along with discrimination factors may affect migration decisions although these issues remain outside of sole influence agency. According to Ghazali *et al.* (2015) Malaysian professionals commonly switch within close domestic or regional markets instead of going abroad for migration purposes which suggests workplace dissatisfaction is only one aspect in migration decisions. Organizations that want to keep their talented employees and minimize talent outflow must prioritize elimination of nepotism together with discrimination practices. Organizations that combine transparent employee selection and fair advancement methods within inclusive



workplaces will create job contentment among their staff and lower their talent's willingness to search for overseas positions.

Some recent research demonstrates that monetary benefits by themselves may not guarantee employee retention. The researcher committed to Sri Lanka reported GDP per capita income, unemployment rates and higher education opportunities formed key elements determining migration patterns (Kaluarachchi & Jayathilaka, 2024). The research shows that more extensive financial and learning environments function jointly with direct money rewards to determine practitioner decisions. Public policy makers have initiated research into tax breaks as a solution to stem the flow of medical professionals from developing countries. Recent policy changes in Italy show that tax incentives aimed at skilled migrant return movement remain uncertain despite their introduction because their success rates remain under debate (Reuters, 2024, February 22). Brain drain mitigation requires a solution which combines financial factors with progressive policies and career advancements and economic security creation.

### *Monetary Incentives*

Competitive wages along with financial incentives stand as recognized primary drivers that skilled workers use to decide migration. According to Daugeliene and Marcinkeviciene (2009) research domestic talent and foreign students could be persuaded to stay in Lithuania because of increased compensation packages. Song (1997) found that Korean scientists and engineers obtaining their U.S.-based doctorates did not base their migration choices on salary differences between America and their home country because other decisive factors existed for their determination.

Studies conducted during recent times demonstrate that migration motivations remain significantly complex. The study conducted by Vega-Muñoz *et al.* (2024) showed that financial incentives play a vital role but professional development options and working environment conditions are crucial determinants for skilled migrants making their migration choices. Governments have implemented tax incentive policies to fight against the loss of professional talent from their countries. Portugal established tax exemptions for young professionals to maintain their presence together with ensuring they would return home as an antidote against skilled youth brain drain (Reuters, 2024, November 14). The success of tax incentive policies is under scrutiny because Italy cut such benefits after observing budget constraints together with doubts about their ability to keep skilled workers in the country (Reuters, 2024, February 22). Brain drain mitigation requires comprehensive strategies which unite monetary incentives with non-financial solutions because monetary rewards demonstrate powerful effectiveness in retaining medical professionals.

### *Non-Monetary Incentives*

Modern research shows that migration motivations remain intricate in nature. According to Vega-Muñoz *et al.* (2024) non-financial career incentives together with job security and professional development and family benefits present significant influences on skilled professionals who decide to remain in or depart from their home countries. Malaysian skilled workers tend to migrate because they lack chances for professional career growth and personal satisfaction according to Ghazali *et al.* (2015). Chang (1992) documented that professional from Taiwan who studied overseas showed decreasing home return intentions

because overseas career satisfaction became better as their age increased and duration abroad increased. Migration-related decisions heavily depend on non-financial elements according to these investigative results. Research outcomes from recent years support how non-financial rewards matter a great deal. Liu *et al.* (2022) applied a discrete choice experiment to study Chinese doctoral students and established that students preferred jobs which provided fast career progression and excellent educational advantages for their children. According to Dambisya (2007) non-financial incentives like professional development opportunities together with housing and childcare facilities efficiently keep health workers in East and Southern Africa. The data reveals financial incentives play an essential role but non-economic staff retention factors remain equally vital for stopping skilled professionals from leaving their position.

### *Cost of Living*

Skilled professionals base their migration choices on how much their life costs at home compared to how affordable life appears abroad. Malaysian professionals who are younger in age have identified increasing residential and fundamental item expenses as essential reasons to migrate. Ghazali *et al.* (2015) showed that property and vehicle expenses have been outpacing salary growth which makes financial stability difficult to reach thus leading people to consider overseas opportunities. The economic problems faced by Zimbabwe have caused an increase in professional migration toward international opportunities. The Associated Press (2023) documented the growing number of Zimbabweans who sought passports because of poor economic conditions and their goal to find better living conditions in the United Kingdom. Exchange rates create additional challenges for companies when making decisions. Good currency exchange rates improve how much foreign money immigrants can spend through their transfers which boosts their incentives to move. Chetsanga and Muchenje (2003) studied the British pound's extensive value difference against the Zimbabwean dollar yet observed that Zimbabwean migrants chose the UK as their main migration destination. The economic factors play an integral role in migration decisions yet remain embedded within additional elements that affect the movement of people such as career prospects and political security alongside personal goals.

### *Unemployment Rate*

Professionals who face unemployment within their homeland commonly use such situations to search for employment in foreign markets which tend to offer more stable career possibilities. Daugeliene and Marcinkeviciene (2009) investigated the shortage of employment possibilities and insufficient professional qualification validation which led several educated individuals to view migration as their only option in Lithuania. Professional surveys in Greece conducted by Panagiotakopoulos (2020) determined that a majority group (58%) among professionals indicated high unemployment coupled with scant availability of job opportunities as the foremost driver to think about leaving the country. The research indicates that employment problems at home function as key factors which steer people toward migration decision-making processes. This trend is confirmed through current worldwide patterns. New Zealand faces an economic slow-down and high joblessness that enables its largest recorded emigration totals of citizens who migrate to Australia for better career options (Reuters, 2024, August 13). A large number of citizens leaving demonstrate that internal economic factors, especially job opportunities, trigger migration patterns. The unemployment rates in Appalachia have created incentives for residents to stay instead of

migrating because they want to contribute to their hometown according to Vazzana and Rudi-Poloshka (2019). The decision to migrate among skilled workers consists of multiple factors including personal goals together with family connections as well as larger economic conditions.

### *Comparative Perspectives and Gaps in Malaysian Context*

Relevant studies about brain drain use both economic sociopolitical and sociocultural approaches to explain the phenomenon across diverse scholarly works. Most empirical research in Malaysia is fragmented because it handles isolated explanatory variables that study particular population segments. Present studies offer only limited view into brain drain phenomenon since different factors do not receive enough analysis of their joint effects on migration choices.

Early researchh by Choong *et al.* (2013) investigated how Generation Y working adults decide to work abroad by studying inadequate payment, restricted career advancement, social inequality and lifestyle quality as drivers for migration. Chandar *et al.* (2015) examined Malaysian postgraduate students' views about job satisfaction and foreign job prospects playing vital roles as motivational factors. These studies investigated individual motives but failed to understand how socio-cultural and economic variables interact with changing modern socio-economic factors that affect migration patterns. The research on Malaysia's brain drain transitioned to include socio-cultural together with non-traditional financial variables which depicts a complex dynamic situation in modern times. EMIR Research (2024) conducted a thorough review of 40 articles from 2008 to 2023 that identified that Malaysians now base their migration decisions on more than just monetary factors such as education quality standards and governance and quality of life. The analysis proposes that middle income wage comparisons fail to reach the root causes which degrade Malaysians' desire to stay in the nation.

The intentions of Malaysian university students to migrate received detailed analysis from Ramdan *et al.* (2024). The research discovered family ties and how spending life abroad appeared to potential migrants as more important than salaries alongside career possibilities. Working environment failed to emerge as a vital decision-making factor among potential migrants in this study which indicated changes in migration motivations among contemporary migration candidates. Current research shows that there is a fundamental knowledge deficit because scientists have not developed integrated models which analyze socio-cultural elements together with non-financial financial elements. Existing studies tend to isolate either category, failing to account for how these factors interact and jointly influence migration intentions. This limitation has contributed to policy responses that are reactive rather than strategic, often focusing on financial incentives without addressing systemic socio-cultural drivers.

To address this gap, the present study proposes a holistic conceptual framework that encompasses both dimensions, socio-cultural factors (including politics, education, family influence, and nepotism) and financial factors (including monetary incentives, cost of living, unemployment rate, and non-monetary rewards). By empirically testing the relative influence of these variables, the study aims to provide comprehensive insights into the root causes of

brain drain in Malaysia and to guide the development of evidence-based, multidimensional policy interventions.

### *Conceptual framework and Hypothesis Development*

With reference to various studies conducted by local and international researchers, a research framework was developed and proposed to investigate the relationships between socio-cultural factors, financial factors and the problem of brain drain from Malaysia. Based on the literature reviews conducted, the proposed framework also aims to investigate which factors have the greatest weight on the brain drain problem in Malaysia. This study aims to fill the gap by examining the relationship between eight (8) independent variables categorized under two factors and the brain drain problem in Malaysia, on which few empirical studies have been conducted in the past. The study attempts to examine brain drain in Malaysia as a whole, rather than focusing on a specific profession or generation, in order to provide clearer insights to the audience in seeking solutions to brain drain in Malaysia. Figure 1 below shows the research framework of the study. In this theoretical framework, the two (2) factors with four independent variables each are as follows: Socio-cultural factors - politics and government, education, family influence, nepotism; and financial factors - monetary incentives, non-monetary incentives, cost of living, unemployment rate. The dependent variable of this study is the problem of brain drain from Malaysia.

### *Research framework*

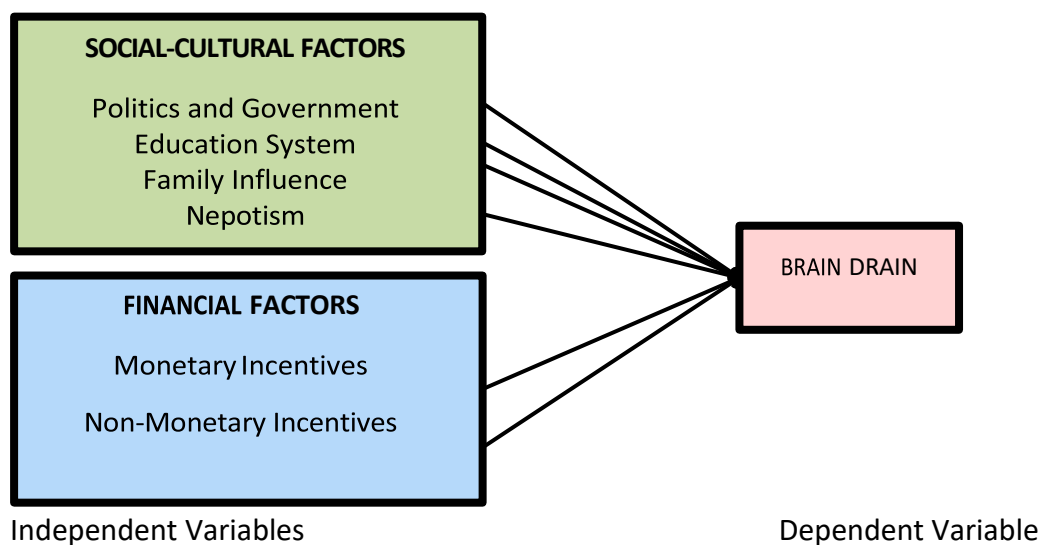


Figure 1: Research framework

### *Research Hypothesis*

Based on the derived theoretical framework, the research hypothesis examined in this article should be formulated as follows:

H<sub>1</sub>: There is a positive and significant relationship between sociocultural factors and the Malaysian brain drain issue.

H<sub>1a</sub>: There is a positive and significant influence of politics and government on Malaysia's brain drain issue.

H<sub>1b</sub>: There is a positive and significant influence of education on Malaysia's brain drain issue.

H<sub>1c</sub>: There is a positive significant impact of family influence on the brain drain issue in Malaysia.

H<sub>1d</sub>: There is a positive significant influence of nepotism on the brain drain issue in Malaysia.

H<sub>2</sub>: There is a positive significant relationship between financial factors and brain drain from Malaysia.

H<sub>2a</sub>: There is a positive significant effect of monetary incentives on the problem of brain drain in Malaysia.

H<sub>2b</sub>: There is a positive significant impact of non-monetary incentives on brain drain from Malaysia.

H<sub>2c</sub>: There is a positive significant influence of cost of living on the problem of brain drain from Malaysia.

H<sub>2d</sub>: There is a positive significant effect of unemployment rate on brain drain from Malaysia.

H<sub>3</sub>: Financial factors have the most significant impact on the problem of brain drain issue in Malaysia.

H<sub>3a</sub>: Monetary incentives of financial factors have the greatest influence on the problem of brain drain in Malaysia.

## **Methodology**

In order to investigate the main factors affecting brain drain in Malaysia, this paper conducted a cross-sectional study with a correlative research design. In order to establish and investigate a relationship between two closely related variables (independent and dependent), a quantitative approach and primary data analysis is used to perform a statistical analysis technique using the data collected through the questionnaire. The population of interest in this study is Malaysians who met three conditions to be eligible as respondents:

- a. The respondent must hold or have held Malaysian citizenship.
- b. The respondent must have a bachelor's degree or higher in any field or sector.
- c. Respondent must be employed and have at least one year of work experience, whether local or overseas.

A self-administered online questionnaire was designed to collect samples and data from respondents. This instrument was distributed using the snowball method to reach a larger target audience. This electronic survey was chosen instead of a manual approach, also due to the Covid 19 pandemic that is still spreading rapidly around the world during the current research year. Sixty-four records were collected with a response rate of 16.67%, which did not meet the target sample. The lack of the target sample size is noted as one of the limitations of this study. After obtaining all the required primary data, Statistical Package for the Social Sciences (SPSS) 26 was used to perform descriptive statistics, normality analysis, reliability analysis, correlation analysis, and regression analysis to investigate the relationships between socio-cultural factors, financial factors, and the brain drain problem in Malaysia.

## **Findings**

Section A of the questionnaires recorded the demographic profile of the respondents, which shows that the survey was properly distributed to the respondents. According to the data collected, 30 (46.9%) of the respondents plan to work abroad, while 21 (32.8%) have



been working abroad for more than one year and only 13 (20.3%) of the respondents do not plan to work abroad. To analyze the normality of the data despite the small sample size, the methods of skewness and kurtosis were applied. All variables in this study are considered normally distributed according to the rule of thumb of skewness statistics and kurtosis statistics. The range of skewness statistic is from -1.951 to 0.259, while the kurtosis statistic is in the range of -1.187 to 5.234.

The Cronbach alpha statistic shows the reliability of the scale's internal consistency in the study sample. The rule of thumb is that sociocultural factors generally have low reliability. Politics and government have poor reliability at 0.507. Education has moderate reliability at 0.617. Family influence also has low reliability at 0.527, and nepotism has moderate reliability at 0.661. On the other hand, financial factors generally have poor to moderate reliability. Monetary incentives have a Cronbach's alpha of 0.662, which is moderate reliability, while non-monetary incentives have poor reliability at 0.332. In addition, the cost of living has poor reliability at 0.541 and the unemployment rate has moderate reliability at 0.612.

This study uses a margin of error of 10% and a confidence level of 90%. Using the significant value (2-tailed) and a margin of error of 0.1 as an indicator, policy and government has a significant correlation with family influence (0.035), monetary incentives (0.048), and cost of living (0.045). In addition, there is a very strong correlation between education and family influence (0.003), nepotism (0.000), monetary incentives (0.061), and unemployment rate (0.004). Family influence is also significantly correlated with nepotism (0.000), monetary incentives (0.009), non-monetary incentives (0.000), cost of living (0.002), and unemployment rate (0.001). Nepotism is also significantly correlated with non-monetary incentives (0.000), cost of living (0.025), and unemployment rate (0.004). According to the data collected, non-monetary incentives are significantly correlated with the cost of living (0.000) and unemployment rate (0.001). The cost of living is also significantly correlated with the unemployment rate (0.000). The least significant correlation within the eight variables is politics and government with an unemployment rate with a significant value of 0.594, followed by politics and government with cronyism at 0.54, and the third most significant correlation is between education and cost of living at 0.524.

In this developed model, the non-monetary incentives factor is removed from the equation due to its very low-reliability value. Moreover, the model with this factor is invalid because the ANOVA value is 0.13, which is above the 90% confidence level. Therefore, the non-monetary incentives are excluded from the regression analysis and discarded.

Table 1  
*Regression Analysis Model Summary & ANOVA*

Model Summary		ANOVA	
R	R-Squared	F	Sig.
.436	.190	1.881	.090

Source: Authors own work.

According to the model summary,  $R^2$  0.190 indicates that 19% of the outcome of the dependent variable of this study can be explained by the independent variables. The

significant value of the ANOVA test indicates that this model is significant because the value is below the 90% confidence level. Therefore, the result of the analysis is valid.

Table 2

*Regression Analysis Coefficients*

<i>Coefficients</i>	<i>Unstandardized Coefficients Beta</i>	<i>Standardized Coefficients Beta</i>	<i>Sig.</i>
Constant	1.213		
Politics and Government	-.127	-.152	.254
Education	.144	.208	.165
Family Influence	-.122	-.164	.339
Nepotism	.044	.065	.692
Monetary Incentives	.220	.208	.122
Living Cost	.212	.306	.047**
Unemployment Rate	-.297	-.450	.004***

*Note(s): Asterisks \*\* and \*\*\* denote the 5% and 1% levels of significance, respectively.*

*Source: Authors own work.*

Multiple Regression Model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k$$

Multiple Regression Equation:

$$BD = \beta_0 + \beta_1 PG + \beta_2 E + \beta_3 FI + \beta_4 N + \beta_5 M + \beta_6 L + \beta_7 U$$

$$BD = 1.213 - 0.152 PG + 0.208 E - 0.164 FI + 0.065 N + 0.208 M + 0.306 L - 0.405 U$$

*Where,*

BD represents Malaysia's Brain Drain Issue;

PG represents Politics and Government;

E represents Education;

FI represents Family Influence;

N represents Nepotism;

M represents Monetary Incentives;

NM represents Non-Monetary Incentives;

L represents Living Costs;

U represents the Unemployment Rate;

$\beta_0$  represents Intercept;

$\beta_{1,2,\dots,7}$  represents slope coefficient.

According to the regression analysis, only living costs and the unemployment rate have a positive and significant impact towards Malaysian brain drain issue. This result is extracted from each item from the questionnaires that were answered by the respondents.

Table 3

*Summary of Hypothesis Testing*

<i>Hypothesis Testing</i>	<i>Result</i>	<i>Accepted/Rejected</i>
H <sub>1</sub> : There is a positive significant relationship between socio-cultural factors and Malaysia's brain drain issue	-	Rejected
H <sub>1a</sub> : There is a positive significant impact of politics and government on Malaysia's brain drain issue.	.254	Rejected
H <sub>1b</sub> : There is a positive significant impact of education on Malaysia's brain drain issue.	.165	Rejected
H <sub>1c</sub> : There is a positive significant impact of family influence on Malaysia's brain drain issue.	.339	Rejected
H <sub>1d</sub> : There is a positive significant impact of nepotism on Malaysia brain drain issue.	.692	Rejected
H <sub>2</sub> : There is a positive significant relationship between financial factors and Malaysia brain drain issue.	-	Partially Accepted
H <sub>2a</sub> : There is a positive significant impact of monetary incentives on Malaysia brain drain issue.	.122	Rejected
H <sub>2b</sub> : There is a positive significant impact of non-monetary incentives on Malaysia brain drain issue.	-	Rejected
H <sub>2c</sub> : There is a positive significant impact of living cost on Malaysia brain drain issue.	.047	Accepted
H <sub>2d</sub> : There is a positive significant impact of unemployment rate on Malaysia brain drain issue.	.004	Accepted
H <sub>3</sub> : Financial factors have the most weight that affects the brain drain issue in Malaysia.	-	Accepted
H <sub>3a</sub> : Monetary incentives of financial factors have the most weight that affects the brain drain issue in Malaysia.	-	Rejected

Source: Authors own work.

Table 3 offers a nuanced overview of the relationships tested between socio-cultural and financial variables and the brain drain phenomenon in Malaysia. Notably, none of the socio-cultural subdimensions, politics and government, education, family influence, and nepotism, showed a statistically significant relationship with brain drain. This finding diverges from Panagiotakopoulos (2020), who emphasized that in Greece, poor socio-political culture and organizational dysfunction were leading causes of talent outmigration. The contrast may stem from the differing institutional and economic maturity between Greece, a developed country with entrenched structural stagnation, and Malaysia, which is still undergoing economic development and modernization. Earlier studies echo the Greek scenario; for example, Marinakou *et al.* (2016) highlighted nepotism as a critical driver of migration in Greece, while Vazzana and Rudi-Polloshka (2019) demonstrated how strong family influence could either push or retain talent depending on cultural context. Yet in Malaysia, the lack of significance in these variables may indicate that while these factors exist, they are overshadowed by more immediate and tangible economic pressures, particularly for younger professionals seeking financial stability.

Conversely, the results indicate a partially significant and positive relationship between financial factors and brain drain, driven specifically by cost of living and unemployment rate. These findings are in line with Lawan Ngoma and Wana Ismail (2013), who argued that perceived salary gaps and job insecurity in developing countries are primary

motivators for skilled migration. Chandar et al. (2015) similarly observed that Malaysia's rising cost of living, particularly property and vehicle affordability, was prompting professionals to seek better standards of living elsewhere. The importance of the cost of living is further reinforced by global findings. For instance, Uzun and Kılıç (2024) reported that nearly 58% of Turkish medical students were motivated to emigrate due to high domestic costs and limited financial benefits. In Zimbabwe, despite extreme exchange rate disparities, professionals still migrated due to unaffordable living standards at home (Chetsanga & Muchenje, 2003; Associated Press, 2023). These patterns suggest that financial pressure and economic volatility are universal triggers for skilled migration across regions.

Additionally, Daugeliene and Marcinkeviciene (2009) confirmed that unemployment, especially among qualified youth, was a primary driver of emigration in Lithuania. Panagiotakopoulos (2020) echoed this in Greece, where young graduates faced multi-year job searches. Recent cases like New Zealand (Reuters, 2024, February 22) demonstrate that even high-income countries are vulnerable to brain drain when employment conditions deteriorate. In summary, these findings support a contextualized interpretation of brain drain: In Malaysia, economic factors such as rising costs and employment scarcity are more immediate push factors than cultural or institutional grievances. This departs from the European experience, where socio-cultural frustrations dominate. For Malaysia, it suggests the urgent need for policy interventions focused on wage competitiveness, affordable living, and employment generation to effectively mitigate the emigration of skilled professionals.

## **Conclusion**

This study investigated the key factors influencing the brain drain phenomenon in Malaysia, with a particular emphasis on understanding why skilled Malaysian professionals continue to emigrate to economically advanced countries. The research uses financial together with socio-cultural analysis to understand sophisticated talent movement drivers which have remained understudied in the Malaysian landscape. Skilled individuals leave the country mainly because of two financial factors which include living costs and unemployment at home. The findings confirm previous research by Lawan Ngoma and Wana Ismail (2013) together with Chandar *et al.* (2015) because supply and demand values stand as essential motivating elements that drive job seekers. The analysis confirms that traditional monetary incentives represented by wages and bonuses do not uniquely drive emigration decisions because workers assess their entire financial situation beyond compensation levels.

The research found no statistical connection between Malaysian brain drain rates and socio-cultural elements that involve government leadership and political matters as well as educational systems and systems of favoritism combined with familial influence. The research outcomes differ from Panagiotakopoulos (2020) and Marinakou *et al.* (2016) since socio-political culture together with corruption and favoritism emerged as vital factors in talent migration decisions for Greek nations. National and developmental contexts seem to generate distinct determinants of brain drain because the research results show divergent patterns between nations. The influence of socio-cultural factors on medical tourism migration should not be disregarded in Malaysia even though they do not directly drive workforce exodus because other studies show their significance in various global situations (Chetsanga & Muchenje, 2003; Vazzana & Rudi-Poloshka, 2019).

The statistical outcomes create two separate implications. The research outcome demands specific policy actions which aim to diminish economic challenges through better compensation levels and improved employment development together with living expenses control measures. The workplace needs stability together with inclusivity as a key factor to maintain personnel retention. Research should proceed with due consideration for socio-cultural determinants even after their statistical insignificance in this study because qualitative and longitudinal analysis might expose weaker yet important influences. Although socio-cultural aspects proved statistically insignificant in this particular study, they might retain cultural significance for specific industries and demographic populations.

For sustainable development, Malaysia needs to establish a complete strategic plan for human capital development which extends over long periods of time. Creating a growth-oriented economy requires development of social and professional environments which nurture personal and career advancement for the country. The development of such an approach will transform Malaysia into a more appealing destination both for domestic professionals and for international professionals. Malaysia's competitiveness in the global knowledge economy will improve through policies which support work-life harmony combined with education benefits along with clear career movement systems and stable political conditions. This comprehensive view of brain drain treatment leads to both temporary workforce maintenance and lasting vitality of Malaysia's workforce and its overall development program.

Future research needs to extend the current study through several vital research directions. The analysis of socio-cultural motives requires quantitative research methods because interviews and focus groups offer more deep understanding than statistical approaches typically provide. People determine their prolonged residence or migration decisions based on how they view political inclusiveness together with corruption and meritocratic practices. Longitudinal research along with generational studies reveal how migration motivations shift between different generations particularly targeting the millennials and gen Z members since they place significance on personal freedom along with workplace culture and international networking despite financial benefits. Study comparison between ASEAN and MENA countries will help place Malaysia's brain drain issue in its appropriate regional economic and geopolitical context to develop mutual policy frameworks. Moreover, future studies should explore the industry-specific impact of brain drain. Understanding how talent shortages affect sectors like healthcare, education, or digital technology will allow for more targeted policy design. Finally, greater emphasis should be placed on studying return migration and "brain circulation." Exploring the factors that encourage skilled Malaysians abroad to return, reintegrate, and contribute domestically is essential for converting brain drain into a regenerative cycle. These future avenues of research will offer a more comprehensive foundation for designing evidence-based interventions that not only stem the tide of emigration but also reinvigorate Malaysia's capacity to attract, develop, and retain its most valuable asset, its human capital.



## References

- Anderson, J. T. (2020). Managing labour migration in Malaysia: foreign workers and the challenges of 'control' beyond liberal democracies. *Third World Quarterly*, 42(1), 86-104. <https://doi.org/10.1080/01436597.2020.1784003>
- Anees, R. T., Heidler, P., Cavaliere, L. P. L., & Nordin, N. A. (2021). Brain drain in higher education: The impact of job stress and workload on turnover intention and the mediating role of job satisfaction at universities. *European Journal of Business and Management Research*, 6(3), 1–8. <https://doi.org/10.24018/ejbmr.2021.6.3.849>
- Arasli, H., & Tumer, M. (2008). Nepotism, favoritism and cronyism: A study of their effects on job stress and job satisfaction in the banking industry of north Cyprus. *Social Behavior and Personality: An International Journal*, 36(9), 1237-1250. <https://doi.org/10.2224/sbp.2008.36.9.1237>
- Arayssi, M., Fakh, A., & Haimoun, N. (2023). Skill mismatch, nepotism, job satisfaction, and young females in the MENA region. *Econometrics*, 11(2), 16. <https://doi.org/10.3390/econometrics11020016>
- Associated Press. (2023, December 24). A Christmas rush to get passports to leave Zimbabwe is fed by economic gloom and a price hike. <https://apnews.com/article/f134866e557272996b58d2b9552947f8>
- Beine, M., Docquier, F., & Rapoport, H. (2008). Brain drain and human capital formation in developing countries: Winners and losers. *The Economic Journal*, 118(528), 631-652. <https://doi.org/10.1111/j.1468-0297.2008.02135.x>
- Belarbi, A. K., El Refae, G. A., & Aissani, R. A. (2023). Internationalization of education and the brain drain paradox: Case of the MENA region. *Journal of Higher Education Theory & Practice*, 23(3), 136-145. <https://doi.org/10.33423/jhetp.v23i3.5844>
- Castaneda, R., & Triandafyllidou, A. (2022). Migration, Decision Making and Young Families: A Literature Review. Working Paper No. 2022/12, October 2022.
- Chandar, H., Jauhar, J., & Ghani, A. B. A. (2015). Postgraduates' perception about the causes of brain drain among Malaysian professionals. *Problems and Perspectives in Management*, 13(2), 365-370.
- Chang, S. L. (1992). Causes of brain drain and solutions: The Taiwan experience. *Studies in Comparative International Development*, 27(1), 27-43. <https://doi.org/10.1007/BF02687103>
- Cheok, C. K., & Lee, T. L. (2022). Talent and human capital. In *Malaysia's leap into the future: The building blocks towards balanced development* (pp. 215-235). Singapore: Springer Singapore.
- Chetsanga, C. J., & Muchenje, T. (2003). An analysis of the causes and effects of the brain drain in Zimbabwe. *Harare: Scientific and Industrial Research and Development Centre (SIRDC)*, 1(1).
- Choong, Y. O., Keh, C. G., Tan, Y. T., Lim, Y. H., & Tho, M. S. (2013). Propensity to work abroad amongst Generation Y working adults in Malaysia. *Proceeding of the International Conference on Social Science Research*, 4–5 June 2013, Penang, Malaysia.
- Dambisya, Y. M. (2007). A review of non-financial incentives for health worker retention in east and southern Africa. *EQUINET Discussion Paper No. 44*. <https://chwcentral.org/wp-content/uploads/2013/07/A-review-of-non-financial-incentives-for-health-worker-retention-in-east-and-southern-Africa.pdf>
- Daugeliene, R., & Marcinkeviciene, R. (2009). Brain circulation: theoretical considerations. *Engineering economics*, 63(3), 49-57.

- Docquier, F. (2014). The brain drain from developing countries. *IZA World of Labor*, 31. <https://doi.org/10.15185/izawol.31>
- Dodani, S., & LaPorte, R. E. (2005). Brain drain from developing countries: How can brain drain be converted into wisdom gain? *Journal of the Royal Society of Medicine*, 98(11), 487-491. <https://doi.org/10.1258/jrsm.98.11.487>
- EMIR Research. (2024, May 16). *Malaysian brain drain: Voices echoing through research*. <https://www.emirresearch.com/malaysian-brain-drain-voices-echoing-through-research/>
- Financial Times. (2024, January 29). Europe's brain waste: When skilled migrants struggle to find jobs that match their training. <https://www.ft.com/content/58b9ade8-43b8-4b7a-8f77-d4129123fd07>
- Foo, G. (2011). Quantifying the Malaysian brain drain and an investigation of its key determinants. *Malaysian Journal of Economic Studies*, 48(2), 93-116.
- Ghanbari-Jahromi, M., & Marzaleh, M. A. (2024). Factors Affecting Brain Drain and a Solution to Reduce it in Iran's Health System: A Qualitative Study. *Archives of Iranian Medicine*, 27(8), 427. <https://doi.org/10.34172/aim.28863>
- Ghazali, M. S., Kusairee, M. A. Z. A., Tan, P. L., Yasin, N. H. M., & Yaso, M. R. (2015). Intention to Migrate: Underlying factors affecting Malaysia brain drain. In the *Proceedings of the 4th international seminar on entrepreneurship and Business (iseB 2015)*. Faculty of entrepreneurship and Business, UMK. (pp.637-647). ISBN 9789670955032.
- Jauhar, J., Ghani, A. B. A., Joarder, M. H. R., Subhan, M., & Islam, R. (2015). Brain drain to Singapore: A conceptual framework of Malaysians' diaspora. *Social Sciences*, 10(6), 702-711.
- Johnson, N. (2009). Analysis and assessment of the "brain drain" phenomenon and its effects on Caribbean countries. *Florida Atlantic Comparative Studies Journal*, 11(1), 1-16.
- Kaluarachchi, S. & Jayathilaka, R. (2024). Unveiling Sri Lanka's brain drain and labour market pressure: A study of macroeconomic factors on migration. *PLoS One*. <https://doi.org/10.1371/journal.pone.0300343>
- Kan, U., McLeod, J., & López, E. (2024). Non-coresident family as a driver of migration change in a crisis: The case of the COVID-19 pandemic. *Humanities and Social Sciences Communications*, 11, Article 503. <https://doi.org/10.1057/s41599-024-03020-6>
- Kazemi, A., Baghbanian, A., Maymand, M. M., & Rahmani, H. (2018). Contributing factors to migration growth among Iranian students: Drivers of migration to Malaysia. *Journal of International Migration and Integration*, 19(3), 757-770. <https://doi.org/10.1007/s12134-018-0567-z>
- Kwok, V., & Leland, H. (1982). An economic model of the brain drain. *The American Economic Review*, 72(1), 91-100. <https://www.jstor.org/stable/1808577>
- Lam, K. C. (2002). Interaction between economic and political factors in the migration decision. *Journal of Comparative Economics*, 30(3), 488-504. <https://doi.org/10.1006/jcec.2002.1783>
- Liu, S., Gu, Y., Yang, Y., Schroeder, E., & Chen, Y. (2022). Tackling brain drain at Chinese CDCs: understanding job preferences of public health doctoral students using a discrete choice experiment survey. *Human Resources for Health*, 20(1), 46. <https://doi.org/10.1186/s12960-022-00743-y>
- Lu, Y. (2014). Parental migration and education of left-behind children: A comparison of two settings. *Journal of Marriage and Family*, 76(5), 1082-1098. <https://doi.org/10.1111/jomf.12139>

- Malay Mail. (2024, July 29). What you should know about Malaysia's brain drain and who's benefitting from it. <https://www.malaymail.com/news/malaysia/2024/07/29/what-you-should-know-about-malaysias-brain-drain-and-whos-benefitfrom-it/144271>
- Marinakou, E., Giousmpasoglou, C., & Paliktzoglou, V. (2016). The Brain Drain Phenomenon in Higher Education in Greece: Attitudes and Opinions on the Decision to Immigrate. Paper presented in the 3rd Annual International Conference on Humanities & Arts in a Global World, 3-6 January. Athens, Greece.
- Migration Policy Institute. (2023, July 18). The Hong Kong migration shuffle: How political uncertainty is reshaping movement patterns. <https://www.migrationpolicy.org/article/hong-kong-migration-shuffle>
- Miyagiwa, K. (1991). Scale economies in education and the brain drain problem. *International Economic Review*, 32(3), 743-759. <https://doi.org/10.2307/2527117>
- Mukhamejanova, D., & Konurbayeva, Z. (2023). Diaspora engagement and return migration for educational purposes in Estonia and Kazakhstan. *International Journal of Comparative Education and Development*, 25(2), 123-135. <https://doi.org/10.1108/ijced-07-2022-0055>
- Muthanna, A., & Sang, G. (2018). Brain drain in higher education: Critical voices on teacher education in Yemen. *London Review of Education*, 16(2), 296-307. <https://doi.org/10.18546/LRE.16.2.09>
- Mutlu, H., Bozkurt, G. & Öngel, G. (2023). Fear of violence and brain drain analysis among healthcare workers in Turkey. *BMC Health Services Research*, 24, 1666. <https://doi.org/10.1186/s12913-024-12183-6>
- Lawan Ngoma, A., & Wana Ismail, N. (2013). The determinants of brain drain in developing countries. *International Journal of Social Economics*, 40(8), 744-754. <https://doi.org/10.1108/IJSE-05-2013-0109>
- Panagiotakopoulos, A. (2020). Investigating the factors affecting brain drain in Greece: Looking beyond the obvious. *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(3), 207-218. <https://doi.org/10.1108/WJEMSD-10-2019-0076>
- Petreska, N., Prodanova, J., & Kocarev, L. (2023). Should I Leave My Country? Higher Education Value Shaping Students' Satisfaction and Brain Drain Intentions in Western Balkans. *SAGE Open*, 13(4). <https://doi.org/10.1177/21582440231208770>
- Ramdan, F. A. B., Yeow, J. A., Nasreen, F., & Yeo, S. F. (2024). Brain drain: The determination of students' intention to leave Malaysia. *Pakistan Journal of Life and Social Sciences*, 22(2), 15064-15074. <https://doi.org/10.57239/PJLSS-2024-22.2.001084>
- Reuters. (2024, August 13). People leave New Zealand in record numbers as economy bites. <https://www.reuters.com/markets/asia/people-leave-new-zealand-record-numbers-economy-bites-2024-08-13/>
- Reuters. (2024, February 22). Tax break clampdown adds to Italian brain drain fears. <https://www.reuters.com/world/europe/tax-break-clampdown-adds-italian-brain-drain-fears-2024-02-22/>
- Reuters. (2024, November 14). Borderless Europe fights brain drain as talent heads north. <https://www.reuters.com/world/europe/borderless-europe-fights-brain-drain-talent-heads-north-2024-11-14/>
- Sabti, Y. M., & Ramalu, S. S. (2020). The effect of political push factors on intention to migrate: The mediating role of psychological distress among professionals. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(8), 1028-1045.

- Shariff, N., Krishnaswamy, J., Abdullah, D., & Ang, W. C. (2018). The influence of new economic model on intention to work abroad: an empirical study to address brain drain issue in Malaysia. *Journal of Sustainability Science and Management Special Issue: The Role of Transparency and Management Integrity in Organisational Sustainability*, 4, 99-115.
- Solimano, A. (2002). Globalizing talent and human capital: Implications for developing countries. Paper presented at the Annual World Bank Conference on Development Economics for Europe, June 24 –26, Oslo, Norway.
- Song, H. (1997). From brain drain to reverse brain drain: Three decades of Korean experience. *Science, Technology and Society*, 2(2), 317-345. <https://doi.org/10.1177/097172189700200206>
- Sowl, S., Smith, R. A., & Brown, M. G. (2022). Rural college graduates: Who comes home? *Rural Sociology*, 87(1), 303–329. <https://doi.org/10.1111/ruso.12416>
- Topsakal, Y., Dinç, A., & Özcan, E. (2024). The impact of nepotism on employee organisational attitudes in accommodation enterprises. *Tourism & Management Studies*, 20(1), 21-34. <https://doi.org/10.18089/tms.20240102>
- Uzun, S. U., & Kılıç, B. B. (2024). Seeking greener pastures: Attitudes towards brain drain among Turkish medical students. *BMC Medical Education*, 24, Article 1473. <https://doi.org/10.1186/s12909-024-06511-x>
- Vazzana, C. M., & Rudi-Poloshka, J. (2019). Appalachia has got talent, but why does it flow away? A study on the determinants of brain drain from rural USA. *Economic Development Quarterly*, 33(3), 220-233. <https://doi.org/10.1177/0891242419844320>
- Vega-Muñoz, A., González-Gómez-del-Miño, P., & Salazar-Sepúlveda, G. (2024). Scoping review about well-being in the 'brain migration' studies. *MethodsX*, 103068. <https://doi.org/10.1016/j.mex.2024.103068>
- Vveinhardt, J., & Bendaraviciene, R. (2022). How do nepotism and favouritism affect organisational climate? *Frontiers in Psychology*, 12, 710140. <https://doi.org/10.3389/fpsyg.2021.710140>