INTENTION TO MIGRATE AMONG ENGINEERING STUDENTS IN MALAYSIA

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ABSTRACT

Human capital and innovation play a crucial role for an economic growth of a country based on the Endogenous Growth Model. Many developing countries including Malaysia has adopted this model to pursue in becoming high-income nation. Thus, strategies such as the Higher Education Strategic Plan are implemented with the aim to increase the number of human capital with tertiary education up to 33% specifically in the field of science, engineering and ICT by 2020. However, Malaysia are struck by the flight of high skilled human capital to a foreign country with no intention to return home. In 2000, there were 184 thousand Malaysians with tertiary-education are migrated for economic reasons, in 2010, it was estimated that approximately 1 million Malaysian are living abroad. Brain drain could hindered Malaysia's economic growth due to the outflow of skilled workers and may distort growth of innovation of the country. The objective of this study is to investigate the intention to migrate among engineering students, if any and to determine the factors that influence them to migrate abroad. Sample for this study are engineering students from selected public and private universities. This research utilized quantitative methodology, which 400 questionnaires has distributed to engineering undergraduates. Result shows that majority of engineering students have the intention to migrate to Japan, United Kingdom and Australia. Female students are more likely to migrate as compared to male students. Additionally, the study found that attractive salary, employment opportunity, and having family and friends living abroad are among the reasons to move abroad. Hence, a more comprehensive policies and initiatives are crucial in order to retain skilled labor in Malaysia.

ABSTRAK

Modal insan dan inovasi memainkan peranan yang penting dalam pertumbuhan ekonomi negara berdasarkan Model Pertumbuhan Endogen. Banyak negara membangun termasuk Malaysia mengguna pakai model ini dalam menjadikan Malaysia sebagai negara berpendapatan tinggi. Oleh itu, strategi seperti Pelan Strategik Pengajian Tinggi dilaksanakan di mana matlamat strategi ini adalah untuk meningkatkan bilangan modal insan melalui pengajian tinggi sebanyak 33% terutamanya dalam bidang sains, kejuruteraan dan ICT menjelang 2020. Tetapi Malaysia berhadapan dengan isu penghijrahan modal insan berkemahiran tinggi ke luar negara tanpa niat untuk pulang ke Malaysia. Pada tahun 2000, terdapat 184 ribu rakyat Malaysia dengan pendidikan tinggi yang berhijrah atas alasan ekonomi dan pada tahun 2010, dianggarkan 1 juta rakyat Malaysia berhijrah ke luar negara. *Brain Drain* akan menghalang pertumbuhan ekonomi Malaysia berikutan aliran keluar pekerja mahir dan boleh mengganggu pertumbuhan inovasi negara. Oleh itu, matlamat ini kajian adalah menyiasat niat untuk berhijrah di kalangan pelajar kejuruteraan dan menganalisis apakah faktor yang mempengaruhi mereka untuk berhijrah ke luar negara. Sampel kajian ini adalah pelajar kejuruteraan dari pelbagai universiti awam dan swasta. Soal selidik telah diedarkan di kalangan mahasiswa kejuruteraan. Sebanyak 400 sampel telah dikumpul dan dianalisis. Keputusan menunjukkan bahawa majoriti pelajar kejuruteraan mempunyai niat untuk berhijrah ke luar negara ke Jepun, United Kingdom dan Australia. Analisis juga menunjukkan bahawa pelajar perempuan lebih cenderung untuk berhijrah daripada pelajar lelaki. Kajian ini juga mendapati pelajar-pelajar kejuruteraan berhijrah kerana gaji yang menarik, peluang pekerjaan, dan faktor keluarga.

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LIST OF SYMBOLS AND ABBREVIATIONS

Symbol

N   :   Frequency

Abbreviations

4IR	:	4th Industrial Revolution
APEC	:	Asia-Pacific Economic Cooperation
ASEAN	:	Association of South East Asia Nation
BEM	:	Board of Engineers Malaysia
BR1M	:	*Bantuan Rakyat 1Malaysia*
CIMA	:	Chartered Institute of Managerial Accountant
E&E	:	Electric & Electronics
EPU	:	Economic Planning Unit
EU	:	European Union
Eurostat	:	European Statistical Office
DOSM	:	Department of Statistics Malaysia
GDP	:	Gross Domestic Product
ICT	:	Information and Communication Technology
ILO	:	International Labour Organization
IOM	:	International Organization for Migration
IT	:	Information Technology
JPA	:	Department of Civil Service (*Jabatan Perkhidmatan Awam*)
MFI	:	Malaysia France Institute
MMU	:	Multimedia University
MOE	:	Ministry of Education
MOF	:	Ministry of Finance
MOHE	:	Ministry of Higher Education
MOSTI	:	Ministry of Science, Technology, and Innovation
NELM	:	New Economic Labour of Migration

NKEA	:	National Key Economic Areas
NOM	:	Net Overseas Migration
OECD	:	Organisation for Economic Co-operation and Development
OR	:	Odd Ratio
PTPTN	:	National Higher Education Fund Corporation
REP	:	Returning Expert Programme
RP-T	:	Residence Pass-Talent
SMEs	:	Small and Medium Enterprises
SPSS	:	Statistical Package for the Social Sciences
TalentCorp	:	Talent Corporation Malaysia Berhad
TPB	:	Theory of Planned Behaviour
TRA	:	Theory of Reasoned Action
TN50	:	National Transformation 2050 (*Transformasi Nasional 2050*)
TVET	:	Technical and Vocational Education and Training
UNCTAD	:	United Nations Conference on Trade and Development
UNDP	:	United Nations Development Programme
UM	:	University of Malaya
UniKL	:	University of Kuala Lumpur
UniMAP	:	University Malaysia Perlis
USM	:	University of Science Malaysia
UTHM	:	University of Tun Hussein Onn Malaysia
UTM	:	University of Technology Malaysia
UTP	:	University of Technology Petronas
WHO	:	World Health Organization

CHAPTER 1: INTRODUCTION

1.0 Background of the Study

The activity of migration has existed since the early times of civilization. From the migration of nomadic tribe in search for food and shelters, to the migration of traders from one place to another to provide goods and services. Since then, the role of migration has expanded as a tool in seeking new knowledge, exchanging information, finding a new job and starting a new life in a new environment. In 2013, there are 150 million migrant workers globally (International Labour Organization, 2015) and this number increase to 244 million migrant in 2015 (International Organization of Migration, 2018).

International Organization of Migration (IOM) defined migration as the movement of a person or a group of persons, either across an international border or within a State. It is a population movement, encompassing any kind of movement of people, whatever its length, composition, and causes. This movement includes migration of refugees, displaced persons, economic migrants, and persons moving for other purposes, including family reunification

In 2009, the United Nations Conference on Trade and Development (UNCTAD) reported that the share of migrants residing in developed countries have increased over the years from 43% in 1960 to 63% in 2005 and numbers of countries that received migrants have increased from 30% to 64% between 1960 and 2005. Developed countries that are most attractive for migrants to migrate are the United States, Russia, Germany, France, Saudi Arabia, Canada, the United Kingdom, and Spain.

The activity of migration can be beneficial for both sending and receiving countries. For sending countries, migration activities can bring a positive impact by creating linkages between sending countries (home country) and receiving countries (destination country). This impact is useful for small business as outside connection are needed either for expanding a business or transferring new knowledge in creating new

product or services. Transfer of knowledge between countries such as innovation can directly promote economic growth. Ratha, Mohapatra, and Scheja (2011) have discussed this impact where networking is a new form of foreign direct investment. New knowledge can easily be obtained at lower cost and higher returns, compared to other traditional foreign investment.

For receiving countries, there are benefits from the migration activities. First of all migrant workers help fulfil unmet labour requirements in lower-pay and low-skill jobs such as those associated with domestic, construction, and agricultural work. Similar to sending countries, receiving countries can create connection and knowledge transfer with migrants' country of origin. For example, in the 1960s, many Indian engineers migrated to the United States and by 1990s; many of them become entrepreneurs, venture capitalists and senior executives in large and medium-size companies. Some return to India, starting their own company or facilitate the establishment of India as an outsourcing destination for the United States. Similar with Chinese and Mexican diaspora where their culture and knowledge can provide new knowledge and contribute scientific and technological development for the host country (UNCTAD, 2009).

However, an uncontrolled outflow of migrant worker specifically the skilled worker result in a global phenomenon called "Brain Drain". Brain Drain as defined by Beine, Docquier, and Rapoport (2008) is an international transfer of capital in a form of human capital and mainly applies to the migration of highly skilled or educated individuals from developing to developed countries. These phenomena cause an effect towards developing countries' human capital, economy, and social development.

1.1 Overview of Engineering Sector

Engineering plays a role as an innovators and inventors since the European industrial revolution in the 16th century and helps to build modern western civilizations to automated machines and robotics in the 21st century, thus helping economic growth as a whole. The engineering sector is crucial for the development of a country and engineers play a role in providing creative ideas and services to produce new goods and services. The infrastructure needed by society such as school, road, water pipeline, electric pole, and telecommunication tower requires engineers to plan and build those infrastructures. With all necessary infrastructure had been built, it could improve social development and directly improve economic growth. Thus, create a multiplier effect on the economy and society.

For example, telecommunication technology and engineering have helped society to exchange new information either domestically or internationally. This is significantly important in developing countries such as in Botswana when the government implements modern communication technology, the GDP growth rate increased by 9.98% in a period 1983-89. Similarly, in Lesotho, communication technology helped to increase the GDP growth rate by 7.07% within the same period (Alleman, Hunt, Michaels, Mueller, Rappoport & Taylor, 1999).

The developed country also pursue the same strategy by investing in engineering research and development to create a more sustainable source of income. The UK government has invested estimated £1.5–3.1 billion a year on engineering research through a wide variety of programs and researches. UK engineering-related sectors have contributed around £240 billion in exported goods and services – 48% of the total value of exports – in 2011 (Royal Academy of Engineering, 2015).

But a new trend has emerged where developed countries employ immigrant skilled workers and engineers to increase the country's talent pool. These skilled

immigrants migrated abroad in pursuing the better prospect of work such as higher salary and the better infrastructure for research and the better quality education and healthcare. A developed country such as Australia attracts skilled workers by offers them permanent resident pass through Net Overseas Migration (NOM) Program (Smith, 2011).

This migration trend of engineers and skilled workers have benefitted many host countries but it has also negatively affected the development of the origin countries. The migration has left a massive gap in the stock of skilled labour that important in contributing economic growth for their country.

1.2 The Importance of Engineering Sector toward Malaysia's Development

Engineering related sector such as manufacturing and construction play an important role in the Malaysian economy. Manufacturing sector includes electric and electronics (E&E), chemical and petroleum, and plastic goods and non-metal mineral goods contributed 23.0% of Malaysian GDP and construction sector contributed 4.5% of Malaysian GDP in 2015 (MOF, 2016). The report also reported that the share of GDP is expected to rise by 5.5% in manufacturing and 10.3% in construction by 2020.

In 11th Malaysian Plan, the government is committed to transforming Malaysia into a developed country with a sustainable source of income. This can be achieved by producing a high-quality human capital and by increasing the number of graduates with engineering degrees and technical certificate. Ministry of Science, Technology, and Innovation (MOSTI) classify these graduates as "technologist":

In achieving the status of a high-income nation, Malaysia's Former Prime Minister Najib Razak introduced the Transformasi Nasional '50 (TN50) with a vision to transform Malaysia into a high-income nation by the year 2050. To achieve this Malaysian government has invested heavily in science and technology sector such as opening a Digital Free Trade Zone. The government has allocated a large amount of budget and tax incentives for SMEs that applied new technology in their business such as

the Government Guarantee Loans to enable SMEs to automate their production, Accelerated Capital Allowance for automation equipment and Capital Allowance Incentive for ICT equipment.

The engineering sector is even more important when Malaysia enters the 4th Industrial Revolution (4IR). The industrial revolution is defined as a transition or fundamental changes in how certain goods and services being produced, delivered and consumed (WEF, 2017). 4IR is the changes to how new technology such as Artificial Intelligence (AI), automation, 3D printing, biotechnology, and blockchain changes how goods produced, distributed and consumed (MITI, 2017). This can help to improve the nation's industry and changing the pattern of consumer behaviour. Thus, reflect the importance of engineers for Malaysia in embracing 4IR.

1.3 The Impact of Migration towards Malaysia

This section discusses the impact of migration towards Malaysia and continue discussing the policy implemented by the Malaysian government to overcome the outflow of skilled worker and recommend initiatives from other countries. Various past studies highlight the consequences of migration toward country's development, either toward sending countries or toward receiving countries.

1.3.1 Economic Growth

Although there are plenty of past studies on factors or reasons why Malaysians skilled workers make a decision to migrate, but there are limited literature on how migration activities affects Malaysia's development.

One study on how migration impact Malaysia's development is by Harnoss (2011) as the author discusses on various migration scenarios on how each of these scenarios provide different effect toward Malaysia's economic growth. Harnoss explained that migration of skilled worker and GDP growth interact in two ways. One way is that the emigration of skilled worker could lower GDP growth as emigration reduce human

capital stock that contribute country's productivity. Second, GDP growth can influence the emigration of skilled worker decision, where increase in GPD growth could influence their decision either to return to Malaysia or stay in foreign country. The author predicted that the cost of emigration towards GDP growth is between 0.7% - 1.6% of average income.

1.3.2 Brain Drain

As defined by Beine, Docquier and Rapoport (2008), brain drain is an international transfer of capital in a form of human capital and mainly applies to the migration of highly skilled or educated individuals from developing to developed countries. This phenomena has an effect on developing countries' human capital and could hinder the national economic development agenda.

The brain drain is a phenomenal problem for a developing country including Malaysia where the large number of human capital are needed for Malaysia's economic development in achieving high income nation by 2050. In 2011, the World Bank has reported approximately 1 Million of Malaysian has contributed to the brain drain, in general. It has estimated that Singapore has the highest receiving Malaysian skilled worker with 54 percent followed by Australia (15%), the United States (10%), the United Kingdom (5%), Canada (4%), Brunei (3%) and New Zealand (2%). In terms of ethnicity, 90% of Malaysian Chinese migrated to Singapore. As a result, Malaysia has an outflow of skilled workers and inflow of low and semi-skilled foreign workers.

The brain drain situation is occurring even among Malaysian scholars studying abroad as it was reported in 2011, that 500 Malaysian students under the Department of Civil Service (JPA) scholarship do not return home after completing their study (Utusan Malaysia, 2011). Thus these graduates fail to fulfil their contract for the compulsory service in public sector. This is a problem for Malaysia as most of them study in critical fields of study such as in medicine, engineering and accountancy.

As emphasized in the endogenous growth theory, human capital, education, and innovation contributes to the economic growth. This investment creates positive externalities and promote economic development. Skilled worker such as engineers and scientist are important human capital as they provide innovation for the country. Any outflow of human capital can affect the economic growth of a country. Similar argument has been discussed by Haque & Kim (1995) where "brain drain reduces the growth rate of the effective human capital that remains in the economy and hence generates a permanent reduction of per capita growth in the home country" (Haque & Kim, 1995: pp 603). Choy and Glass (2002) support this as they found that brain drain could bring negative effect toward a country which impact toward education investment and other fiscal cost to a country.

1.4 Migration as Development Initiatives

Even though past studies pointed out that the migration of skilled workers give negative impact to the country of origin but a more contemporary suggest otherwise. There are studies that suggest migration can provide positive impact not only for the country of origin but also for the destination countries.

Migration can also be seen to have positive impact and can be seen as an investment for the country. Investment in this context is seen as a remittance or money sent by people who are working abroad and received by their family members or relatives in home country. Remittance sent to home country could help community exit from poverty. The money received can be used for household expenditures and pay the education of the family members. This has been discussed by Brzozowski (2012), he observed remittance as a tool to eradicate poverty in Brazil. The author found that total inflow of remittance into Brazil were $5.8 billion in 2003, 7% of total nation total import. Even though the number are impressively high, it only makes up 0.3% of total GDP. Brzozowski argued that the impact of remittance might not be on macroeconomic level

but on microeconomic level. He pointed out that remittance has hidden positive effect towards poor community.

Another positive impact of migration for the home country is that it creates linkages between sending countries (home country) and receiving countries (destination country). This impact is useful for small business as outside connection are needed whether for expanding business or transferring new knowledge in creating new product or services. Transfer of knowledge between countries such as innovation can directly promote economic growth. Ratha et al (2011) have discussed this impact where networking is a new form of foreign direct investment. New knowledge can easily be obtained with lower cost and higher returns, compared to other traditional foreign investment.

1.4.1 Talent Corporation Malaysia Berhad (TalentCorp) Initiatives

In order to attract Malaysian diaspora to come home, Malaysian government established an agency called The Talent Corporation Malaysia Berhad (TalentCorp). TalentCorp is a government agency under the Prime Minister Office given a task to assess, identify, and fulfill the Malaysia's needs for talent. In order to achieve these objectives, two major initiatives were introduced, The Returning Expert Programme (REP) and Residence Pass-Talent (RPT). These policies designed to attract and retain global talent (including the Malaysian diaspora) to fill the country's human capital and skill needs (The World Bank, 2015).

The aim of Returning Expert Programme (REP) is to attract targeted high-skilled Malaysians abroad who are interested to return home for employment. TalentCorp claimed that it has succeeded to attract Malaysian diaspora to come back to Malaysia. The applicants of this programme is assessed rigorously to determine whether the applicants can be considered high skilled with sufficient work experience abroad in high-priority National Key Economic Areas (NKEA).

In a 2013 survey by the TalentCorp, out of 1,656 applicants, 1,184 applicants returned to Malaysia – 71 percent success rate. Among those who returned, 231 applicants returned with job offers and 738 applicants returned without any jobs offered in Malaysia. The World Bank reported that REP contribute large fiscal benefit to the country, the net fiscal benefits are about RM 27,000 per applicant who returns to Malaysia (The World Bank, 2015)

Residence Pass-Talent (RP-T) is a programme to attract foreign skilled to work in Malaysia. This programme were offered to the highly qualify foreign worker or expatriates that seek to live and work in Malaysia on a long-term basis. Various benefits are given for those who are interested with the programme such as a ten-year pass to live and work in the country, flexibility to move from one employer to another, eligibility for spouses to work in Malaysia, and eligibility for under-age children to study in Malaysia.

1.5 Problem Statement

In 2010, the World Bank published a report, there are almost 1 million of Malaysian abroad where majority of them is high skilled worker (The World Bank, 2011). It is reported that more 500 student that received scholarship from the Department of Civil Service (JPA) did not come back to Malaysia after they finish their study (Utusan Malaysia, 2011). In view of this situation, Malaysia's Deputy Prime Minister Datuk Seri Dr Wan Azizah Wan Ismail pleaded to the talented Malaysian abroad to come back home and help develop the nation (New Straits Times, 2018).

A large portion of those who have migrated abroad are engineers, technologist and innovators. The World Bank (2015) reported that more than 60,000 of Malaysian skilled worker in the United States of America and more than 20,000 in Canada working in manufacturing and technical services sector. The World Bank also reported that there were more than 300,000 of Malaysian living in OECD country in 2010 and more than

half (54.5%) of those living in OECD countries were still pursuing their studies or have completed their tertiary education.

TalentCorp has provided numerous programmes, incentives, and benefits such as the Returning Expert Programme and Residence Pass-Talent to attract Malaysian abroad and also foreign skilled workers to contribute their expertise for Malaysia's development. TalentCorp has identified that other than economic salary, other factors such as family and social environment attract locals to return home and also attract foreign skilled worker to migrate to Malaysia. Ironically, most of those who return to Malaysia is to invest and buy properties (The World Bank, 2015). Beating the purpose of these programmes.

With dwindling numbers of engineers in Malaysia and Malaysian diaspora who only came back for investment, exposes Malaysia to a new economic crisis. Study by Harnoss (2011) shows that migration of Malaysian skilled worker can cost Malaysia a reduction of economic growth between 0.7% in 1980 to 1.6% in 2010. If Malaysian government fails to retain Malaysian engineers from going abroad and take advantage on the 4th Industrial Revolution, Malaysia's economic growth will be surpassed by other ASEAN countries such as Singapore, Thailand, and Vietnam.

To understand the issues of migration and brain drain, this study attempts to identify if there is any intentions to migrate among engineering students in Malaysia. The research questions and objectives as stated below.

1.6 Research Question

a) Is there any intention among engineering graduates to migrate abroad?

b) What are the underlying factors that influence engineering students to migrate abroad?

c) What are the likelihood of engineering students to migrate abroad across different socio-demographic background?

1.7 Research Objectives

i. To investigate the intention to migrate among engineering students.

ii. To examine the underlying factors that influence the intention of engineering students to migrate abroad.

iii. To analyse the likelihood to migrate abroad among the engineering students across different socio-demographic background.

1.8 Scope of the Study

A study of 400 undergraduate engineering students from selected public and private higher learning institutions in Malaysia were chosen in this study. The selection of samples is based on the function of these universities categorized by the Ministry of Higher Education; Research Universities and Technical Universities (Ministry of Higher Education, 2017).

1.9 Significant of the Study

This research intends to contribute to the growing body of knowledge on the factors of migration. This is important as the number of factors that influence people to migrate growing over the years.

This study could a platform to improve our understanding of the behaviour of migration, as people may migrate not due to economic reasons, but also other reasons such as family, politics and other more.

This study also can provide suggestions for the policymaker and stakeholder in tackling the issues of the shrinking of the talent pool and the outflow of skilled worker moving abroad.

1.10 Outline of Chapters

This report is divided into five chapters. Chapter 1 introduces the background of this study and a brief description of the activity of migration. This chapter also describes the overview of engineers and its role in Malaysia's development. The chapter continues

with a problem statement, research questions, research objectives, the scope of the study, and the significance of this study.

Chapter 2 discusses past studies and literature relating to this study. The discussion covers the theory of intentions and its framework, theory of migration and its framework, and past studies and research discussing factors of migration. This chapter continues with the structure of the theoretical and conceptual framework of this study.

Chapter 3 list the methodological approach of this study. This includes research design, the process of data collection, and the technique of analysis used in this study.

Chapter 4 analyses the data that were collected through a self-administered survey. The analysis technique was applied in this chapter in answering the research objectives.

Chapter 5 discusses and synthesis the findings from the analysis and the conclusion this study. The discussion of the findings are supported by past literatures. Limitations and suggestion for future research were included in this chapter.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter discusses previous studies performed by researchers to understand the human behaviour towards the activity of migration. The discussion starts with the history of modern migration and how it is related to the development and economic growth. This followed by theories related to migration and the psychological theory of behaviour and intention. In addition, this chapter discusses factors and reasons that influence student's decision to migrate abroad. Lastly, the theoretical and conceptual framework of the study is presented.

2.1 Migration and Development

In the late of 19th century, various schools of thoughts have discussed the impact of migration toward economic development for both sending and receiving countries. Two opposing theories are used to discuss the impact of migration toward development: Migration Optimism and Migration Pessimism (De Haas, 2010)

Until 1970s, views on migration were optimistic. Migration activity were seen as a positive way for development. Scholars argued that through migration, the capital and knowledge transfers can help developing countries to improve their economic growth. Migrants that returned to their home are seen as an important agent for development as they send remittances and bring new knowledge to the country. Theories that dominated migration optimism in this era were Neo-Classical and Developmentalist theory. These theories perceived migration as a free movement of labour and a form of optimal allocation of production factors for balanced growth between sending country and receiving country.

During the late 1970s and early 1980s, views on migration turn from optimism to pessimism. There is growing scepticism whether migration can help the development for both sending and receiving countries. Various studies from this era provide an empirical

study that did not support optimism views. Pessimist views that migration lead to an increase of spatial disparities in development and increasing inequality for sending countries where the majority are developing countries (De Haas, 2010). This contradicts with optimist views towards migration. A contemporary theory such as the Historical-Structuralist Theory suggests that people migrate to seek new opportunity due to global capitalist expansion. This lead to a growing concern about 'the brain drain'. Thus, during the pessimistic era, many sending country governments have been comparatively positive towards the emigration of lower educated citizens, but the attitude towards the emigration of skilled people have generally been more negative. Governments were tightening their migration policy to reduce the depletion of human capital migrating abroad (De Haas, 2010).

In the 1990s new thoughts on migration has emerged. Rather than one-sided views such an optimistic or pessimistic view, a more pluralist and hybrid approaches arose. The follower of this approach acknowledged the heterogeneous and non-deterministic nature of migration and its impact towards development based on the empirical findings. A new theory such as New Economic Labour of Migration (NELM) have emerged during this era. NELM taking a sociological and anthropological approach in discussing migration transnationalism. An approach that migration is not just an individual decision but includes a decision made by the family or the household (De Haas, 2010). Thus, migration is seen as a risk-sharing behaviour of families or the household to maximize income and minimize risk.

As the world enters into the new millennium era, a growing number of research on migration has emerged. Using empirical studies rather than a historical approach in finding the impact of migration towards development. Updating the ideas of migration through a transnational perspective. This perspective discussed that due to technological advancement in communication, transportation, and financial services, migrants can

foster a link with their family in the home country. Creating new way of development through remittances, knowledge transfers and creating a new business network. Thus, changing the ideas of brain drain to brain gain, tapping the diaspora abroad as a tool for development.

2.2 Theories and Laws Related to Migration

As new technique of research developed, new approaches to migration have also evolved from the historical approach to a more empirical approach. Evolving theory from simple economic reason to a complex social interaction and decision-making. As this study discusses theories related to migration, a conceptual can be produced for the purpose of answering the research objectives.

2.2.1 The Laws of Migration

The laws of migration by Ravenstein (1885) was one of the earliest theory in explaining modern migration. He outlines the law of migration based on his study in the United Kingdom. This outline was then used and updated among scholar in explaining migration activities. This outline includes:

- migrants migrated to more developed areas, town or country such as a centre of commerce or industrial places;

- the rapid growth of town or country create an employment gap which filled by migrants from a less developed town or country;

- the natives of a developed town or country are less likely to migrate than a migrant from less developed areas; and

- female is more likely to migrate than their male counterpart

2.2.2 The Theory of Migration

Even though Ravenstein (1885) has outlined and introduced the law of migration for modern migration activities, but he did not put it into a systematic framework. Lee (1966) argued that as large numbers of studies and theories are only focused on the characteristics of migrants, such as age, gender, race, distance of the destination, and education background. Few studies focusing on the reason of migration or assimilation of migrants in the destination country.

Lee (1966) stated that for every migration decision, there would be factors involved in the decision-making. He summarized these factors into four headings:

- factors associated with the area of origins;

- factors associated with the area of destination;

- intervening obstacles; and

- personal factors

The author explained, "…in every area, there are countless factors which act to hold people within the area or attract people to it, and there are others which tend to repel them" (pp. 50, Lee, 1966). This statement summarizes that activity of migration will be influenced by the pull and push factors of migration. These attract and repel factors are represented by positive (+) and negative (-) signs.
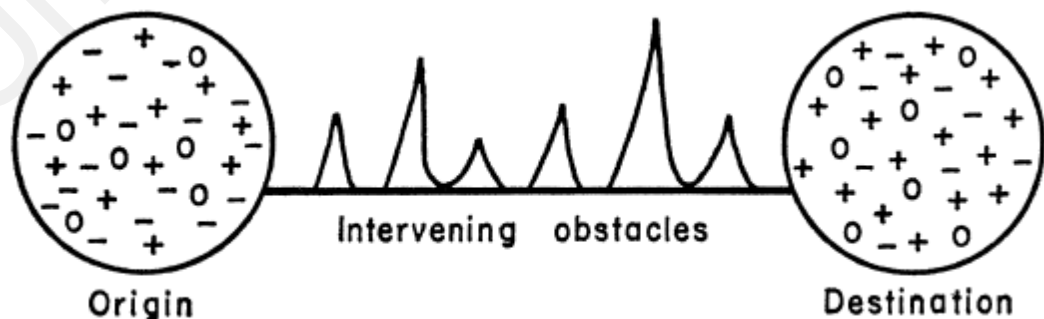
Figure 2.1: Theoretical Framework for Lee's Origin and Destination Factors and Intervening Obstacles in Migration

The diagram above shows the earliest framework on the push and pull factors of migration in modern history.

2.2.3 New Economics of Labour Migration (NELM)

The New Economics of Labour Migration (NELM) proposed that the decision to migrate is not focusing on individuals but as a decision by a household or family. The reason for migration is just not because to move away from deprivation but it is a "calculated strategy" in improving economic wellbeing (Stark & Bloom, 1985).

The authors also suggested that migrants relied upon "network and kinship capital" when migrating and this was identified as a prominent characteristic of migrants behaviour patterns. This means that individuals will migrate where they can find their fellow countrymen migrated before. Suggesting that the new migrants will be assisted by those who have migrated earlier.

Thus, the theory summarizes that people, family or household migrate not only as an act to maximize income and well-being but also to minimize and spread risk.

2.2.4 Theory of Reasoned Action (TRA) & Theory of Planned Behavior (TPB)

The Theory of Reasoned (TRA) is a psychological theory in explaining what determined one individual intention, which will determine their behaviour. Fishbein & Ajzen developed it in 1975. The theory defined intention as a cognitive representation of an individual in performing their behaviour. Which influenced by the attitude towards behaviour and subjective norm.

'Attitude toward behaviour' is a predictive determinant for individual intention based on how they feel about a certain behaviour or the behaviour that they will conduct. If he or she feels that the conducted behaviour are favourable on their side, there will be a higher chance that their intention will be executed.

Second is the individual's 'subjective norm'. Subjective norm is a predictive determinant where individual perceived on how other people view on certain behaviour,

usually people they care to such as family and friends. This is important because deciding to approve or disapprove by family or friends will influence individual's behaviour. If the people they care see the behaviour as a positive behaviour, there will be a higher chance that the intention will be carried out.

However, TRA has its own flaws. This is because TRA is lack of assumption on a volitional control which made by people in decision-making Volitional control is a cognitive process where individuals decide and commit to a particular course of action. It means that the decision-making process made by an individual can be either intentional or unintentional and based on past knowledge. In fitting with this research, engineering graduates' intention to migrate may be based on their past knowledge, which includes salary paid, conducive workplace environment, political climate, economic crisis, and rapid change of technological process that gained through mass or electronic media an interaction between friends and family members that can influence an individual's intention and decision to migrate abroad (Ajzen, 1991).

In 1985, TRA was updated and were replaced with the Theory of Planned Behaviour (TPB) developed by Ajzen. Similar with TRA, the core principal for TPB is that individual's intention will determine their behaviour. TPB has similar predictive determinant such as attitude toward behaviour and a subjective norm in TRA, the extension made by the TPB is the new predictive determinant that is the 'perceived behavioural control'.

Perceived behavioural control refers to an individual's perception on the ease or difficulty in performing certain behaviour of interest. It is the perception of whether a person can perform certain behaviour based on their ability to do so. The more resources and fewer obstacles individuals perceive, the greater their perceived behavioural control and the stronger their intention to perform behaviours (Hardin-Fanning & Ricks, 2016).

Though the result may vary for every person due to every person has varying perceptions of behavioural control depending on the situation (LaMorte, 2016).
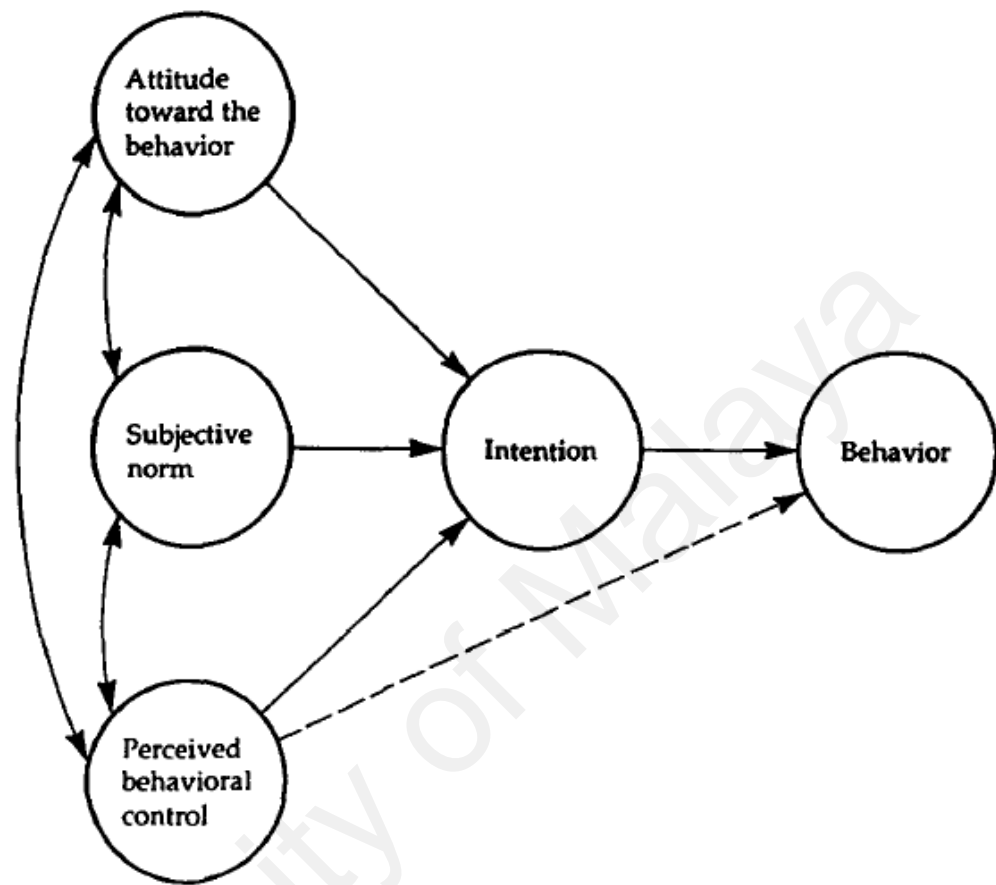
Figure 2.2: Theoretical Framework for Ajzen's Theory of Planned Behavior

2.3 Conceptual Framework

Figure 2.3 shows the conceptual framework for this research. It will be used in answering the research questions. The conceptual framework for this study is based on the theoretical framework of Theory of Planned Behavior (TPB) by Ajzen (1991) with a small amount of modification in order to fit with the research objectives.

In TPB, Ajzen discussed that individual's behaviour are influence by three determinants: Attitude, Subjective Norm, and Perceived Behavioural Control. After further reading from Ajzen and other past research articles that provide further explanations and definitions on TPB, this study concluded that all three determinants can

be categorized as Attitude. Three determinants that presented by Ajzen is attitude in different perspectives.

Attitude defined by Dawes and Smith (1985) is an evaluative response to some situation which disposes a person to behave in a certain way. How individual perceived, beliefs, or feeling towards socially significant objects, groups, events, symbols, or issues are also identified as attitude (Hogg & Vaughan, 2008). From these definitions on attitude, it can be stated that individual feeling of dissatisfaction in the country and how they perceived situation abroad can influence individual behaviour to migrate abroad. Individual's attitude toward situation in Malaysia are measure through satisfaction of an individual, which are classified as the 'Push Factor' of migration. For attitude towards situation abroad is measure through individual's perceive on the importance of this situation when migrating abroad. This will be classify as 'Pull Factor' of migration. Thus, individual's attitude towards a desired situation abroad and satisfaction in home country can influence the intention to migrate. Ajzen's Attitude is changed to Individual's Attitude in this study's conceptual framework (Figure 2.3).

Second determinant of Ajzen's TPB are Social Norms which is defined as how other people view on certain behaviour, usually people they care to such as family and friends. Subjective norm are focus on the individual perception toward other people's thought and view toward the behaviour (Tan, Johanim, & Annis Fadilla, 2015). Thus, it can be summarised that how other people's attitude towards the behaviour can influence individual's intention. The subjective norm is replaced with the Family Members, Relatives, and Friends' Attitude toward the Behaviour in the study's conceptual framework (Figure 2.3). A positive attitude shown by the family members and/or friends toward migration behaviour provide positive influence on an individual's intention to migrate.

Final determinant in TPB is perceived behavioural control where it is defined as individual's perception on the ease or difficulty in performing certain behaviour of interest. When an individuals perceived that there are fewer obstacles to perform certain behaviour, the greater the perceived behavioural control, and the stronger the intention to perform behaviours (Hardin-Fanning & Ricks, 2017). It can be summarised that perceived behavioral control is an individual's attitude toward the obstacles. When an individual perceived the obstacles to perform certain behaviour are hard, individual's intention became smaller and less likely to perform certain behaviour. When an individual perceived there are many obstacles to migrate abroad or certain destination countries, individual are less likely to migrate abroad or to destination countries due to obstacles. The obstacles in the context of this research are migration policies set by the destination countries. Thus, perceived behavioural control in the conceptual framework is known as attitude toward migration policies/barrier/obstacles

Ajzen and other past research focused on the intention of behaviour in general, though few studies discusses how TPB determinants influence the intention of individuals from different demographic background. This is because attitude and behaviour of an individual may differ based on gender or ethnic. Smith & Hogg (2008) stated that attitudes are grounded in social consensus defined by group membership. Most of attitudes are reflect and even define groups with which they are identified. Every determinant in the framework will influence individual's intention differently by gender, ethnic, and sponsorship received.
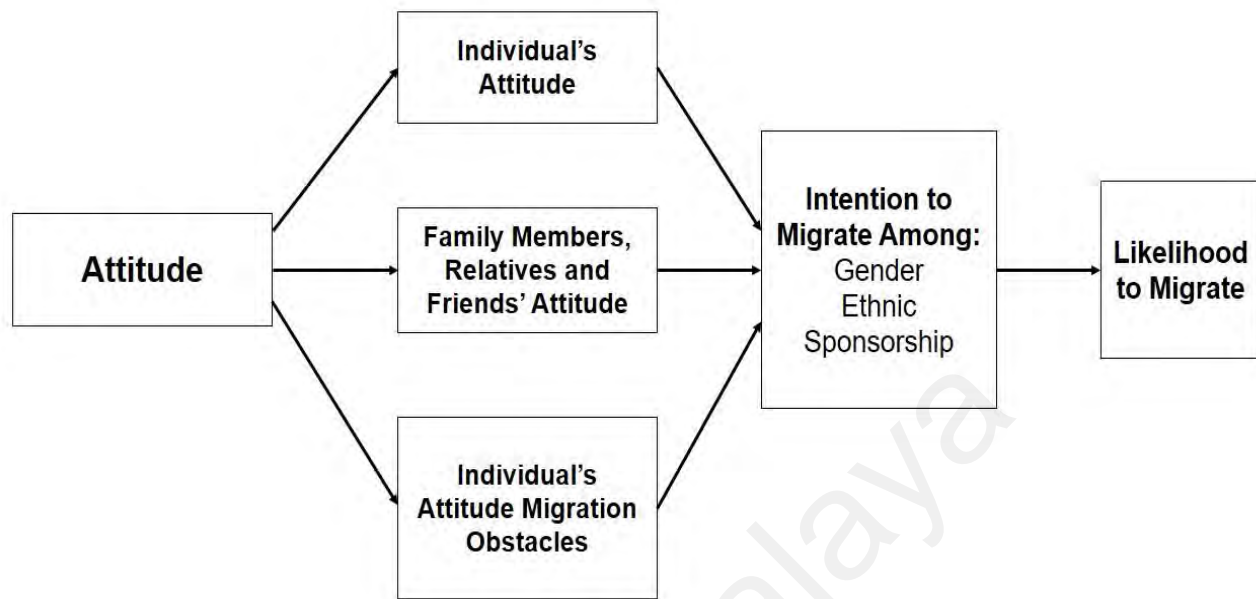
Figure 2.3: Conceptual Framework of the Study

2.4 Individual's Attitude

Individual's attitude are measured through the engineering students satisfaction toward the situation in home country i.e. Malaysia (Push Factors) and how students perceive toward ideal situation abroad (Pull Factors). Thus, both of this factors can influence students' intention to migrate.

2.4.1 Push Factors

A push factor is a factor of migration that causes people to move away from their home country. Push factors include the element such as economic, social, and political hardships (Eurostat, 2000). The push factors of migration for this study was measured through the life satisfaction of the engineering students and how it influences their intention to migrate.

There are various definition and measurement in measuring life satisfaction. Diener, Emmons, Larsen, & Griffen (1985) defines life satisfaction as a cognitive and

judgemental process of an individual. Judgement of satisfaction is a comparison between individual current living condition and appropriate standards. On the other hand, life satisfaction referred to as an individual overall evaluation of his/her life as a whole (Veenhoven, 1997). Life satisfaction is not just a comparison between ideal and reality situation but the overall satisfaction of an individual.

Most past measurement on life satisfaction was applied in medical and psychology field of study, relating how individual's health can be related to life satisfaction. Most of the question in measuring life satisfaction are structured in a simple and too general which can be found in a study by Neugarten et al (1961) and Diener et al (1985). Example of questions asked are "I am satisfied with my life", "The condition of my life are excellent", and "In most ways my life are closed to my ideal".

This type of single direct questions are criticized as too simple, invalid and unreliable. Veenhoven (1996) stated that not everybody are equally satisfied. Life satisfaction should take account individual's material wealth, social equality, political freedom and access to knowledge. Thus, Veenhoven list three determinants that influence life satisfaction: Societal Resources, Personal Resources, and Individual Abilities. Societal resources is an external environment surrounding an individual such as economic welfare, social equity, political freedom, cultural rush, and moral order. Personal resources is a personal characteristics of an individual such as social position, material property, political influence, and family bonds. Individual abilities, like the name imply, is an individual's ability to improve their life which can influence life satisfaction. This abilities include physical fitness, physics fortitude, social capability, and intellectual skill.

Other contemporary studies follow a similar determinant by Veenhoven (1997) in measuring life satisfaction. A study by Mafini (2017) included the individual's economic condition in investigating life satisfaction among South African communities. Economic condition include income and household size. Non-economic condition was also applied

in relation to life satisfaction. This condition include access to education, health, aging, job satisfaction, environment, and interpersonal factor (Prasoon & Chaturvedi, 2016). International organization such as OECD also used life satisfaction in measuring countries well-being other than using economic index. OECD life satisfaction measurement measured how people evaluate their life as a whole rather than their current feelings. The measurement included individual's health, education, income, personal fulfilment and social conditions (OECD, 2017).

As study on international migration grows, the search for migration factors have also expended. Other than using more conventional ways of identifying factors of migration through country's situation such as economic, politics, and environment, other scholar employed individual's situation approach in explaining migration activities. Thus, employing life satisfaction as a factor or determinant for migration. This is because individual perspective toward their surrounding can influence migration behaviour. When they feel dissatisfied with their surrounding or environment, they are more likely to migrate.

This can be seen in a study by Ivlevs (2014) who found that life satisfaction and happiness influence the household to migrate abroad based on data of the Latin America countries, the European Union (EU) countries and globally.

In the case of Latin America, two different situations were conducted, using the same data sources from the Latinbarometro survey. In the first situation, a research was conduct based on the level of happiness and willingness to migrate among household. The study found that there was a correlation between these two variables where an increase of one point in happiness (measure in 4 point scale), lowers the probability for the household to consider migrating by two percent. Also, it was found that the household will consider migrating when happiness level is lower even though they have higher wealth. The author classified them as "frustrated achievers".

For the second situation, the researcher applied life satisfaction rather than happiness in identifying household intention to migrate. The study found a similar result from the first study where the probability for the household to consider migrating abroad increased between two to four percent when they are dissatisfied with their life usually among highly educated people, where they are more likely to migrate when they are not dissatisfied with their lives.

Ivlevs (2014) continued his studies among countries in the European Union, where the research data was based on Eurobarometer survey. The study found that an increase in life satisfaction would reduce the respondents' decision to migrate. If respondents were satisfied with their lives, they were less likely to migrate abroad.

Lastly, for global evidence, data from the Gallup World Poll survey addressed the link between subjective well-being, life satisfaction, and the desire to migrate on a global scale. It covered 161 developing and developed countries between 2007 and 2012, with more than 400,000 interviews. The author found that respondents were less likely to migrate when they have higher subjective well-being. An increase in subjective well-being, less likely for respondents to migrate abroad. For life satisfaction, the result were similar where respondent with high life satisfaction were less likely to express a desire to migrate abroad.

Another study by Ostrachshenko and Popova (2011) found how life satisfaction influenced the intention to migrate among individuals that lived in the central European region and western European region. The study found that the average life satisfaction score for movers (people who migrated) was lower than people who stayed in the country. Individuals who were dissatisfied with macroeconomic and political stability, quality of institutions and business environment, and also the development of social security system in the country has influenced their intention to migrate especially individuals that lived in the central European region. The study concluded that at all level of satisfaction,

individuals that lived in central European countries had higher intention to migrate than individuals living in western European countries.

Past studies have provided numbers of evidence on the relationship between individuals' level of satisfaction and migration activities. But with all the evidence there is limited number of studies and literature that focused on Malaysian's level of satisfaction and intention to migrate. Most studies on migration in Malaysia focus on reasons why individuals want to migrate to certain countries rather than the reasons for them to leave Malaysia. It means that existing studies focused more on the pull factors than the push factors. Such study by Harish, Junaimah & Ahmad Bashawir (2015) found that, based on postgraduate perspective, professionals are more likely to migrate because of poor job quality rather than poor job satisfaction.

2.4.2 Pull Factors

Pull factors of migration is an ideal situations perceived by the engineering students that attract them to migrate abroad. These factors include attractive wages, political stability, and job opportunity abroad (Veenhoven, 1997).

2.4.2.1 Salary and Private Benefits

Finding a job that can provide a better salary, attractive benefit programs and promotions have been one of the main driver that influence more people to migrate to developed countries.

A study on an intention of professional accountants in Penang to migrate abroad found that better salary and benefits program were the main factors of migration (Junaimah, Yusliza & Khoo, 2009). In similar study regarding intention to migrate among Penang engineers highlighted that social welfare such as cash and non-cash benefit given by firms in foreign country influenced engineers intention to migrate abroad. Non-cash benefit includes unemployment benefit, housing benefits, family benefits, taxation of benefits and minimum wages programs (Lim, Junaimah, & Hasnah, 2004).

A study on salary and private benefit factor can also be found in a literature such by Quah, Siti Rohaida, and Guok (2014) in furthering our understanding of Malaysian diaspora's intention to return to Malaysia. Based on the study, better salary provided by foreign firms has attracted Malaysians and influence them to move abroad and this diaspora will come back to Malaysia if local firms can provide similar or higher than salary provided by foreign firms. This is the same with private benefits, where better promotion prospects were important factors of migration and has influence Malaysian to migrate (Junaimah & Yusliza, 2011). This is because high skilled worker from developing country can earn more than triple their salary in developed countries. For example, doctors in Kenya can earn four times of his/her salary in the United States or the United Kingdom (Dzvimbo, 2003). Thus, this will influence more skilled worker to migrate from their home country (Algeria, Angola, Morocco, Mozambique, The Gambia etc.) to their destination countries that are more developed (United States, United Kingdom, France, Netherlands, Portugal etc.) to earn a higher income.

Though these issues are not uniquely for developing countries. In the case of Lithuania, a study by Kazlauskienė & Rinkevičius (2006) has identified and analysed the push and pull factors of brain drain among Lithuanian highly skilled worker. They found that out of 500 Lithuanian that lived in 27 countries, 26.5% of respondent stated that they find work abroad that not related to their specialty but based on the salary paid by the firm abroad.

In summary, attractive salary and benefits has influenced people to migrate abroad. This situation are not unique to countries in a certain region such as Africa and South East Asia but it is also happen in European country such Lithuania. In addition, this factor has influenced professionals and university students alike. Thus, salary and private benefit is an important factor that need to be measure in this study.

2.4.2.2 Jobs Opportunity and Workplace Environment

Factor of jobs opportunity and workplace environment include motivation of workers, career advancement, job opportunities, and job mismatch. Jobs opportunity and workplace environment can be traced in various contemporary literature such as conducted by Jian, Poh, Tee, and Shi (2013) in identifying factors to migrate among undergraduate students. From 200 respondents, the study found that there is a significant relationship between intentions to migrate among undergraduate students, work stress and workplace environment.

A study by Junaimah and Yusliza (2011) and Junaimah et al. (2015) have shown that Malaysian diaspora searched for work-life balance where firms provide their employees with quality job and valuable time with their family. Similarly, Mastura (2014) also pointed out that university students found working environment as one of the important factors of migration.

However, in another study by Junaimah et al. (2009) found that for professional type of works such as accountants, challenging and promising job scopes were more important than work environment.

2.4.2.3 Political Factor

Political factors include social freedom, a secured environment, political stability, bureaucracy system, judicial system and government policies that became a push factor for individuals to migrate abroad.

Malaysia literature have not shown clear link between political factors and migration. Lim et al (2004) investigated how 'Human Security' influence Penang engineers to migrate abroad and found that respondent's perception toward safety, police performance and judicial system are not the factors that influence them to migrate. Though, study by Quah et al. (2014) found that unconducive social & cultural

environment and bureaucracy and inefficiency political pressure were push factors for the Malaysian to find work abroad.

However, in other developing countries, political factors have shown to be an important factor to migrate. Political instability and strict social freedom have become one of the reasons for them to migrate abroad in travelling to safer and politically stable countries.

Mohyuddin & Ulllah (2015) pointed out that brain drain in Balochistan, Pakistan occurred due to civil unrest – such as sectarianism, militancy & kidnap – and political instability. This led the local professionals to flee out of the country to find a more politically stable country. Dzvimbo (2003) also provide a similar situation where political instability has become a push factor for African to find jobs outside the African countries. These include corruption among government officials and poor planning in tertiary.

In summary, even though Malaysia's political situation are not similar with the situation in Africa and Middle East such as civil unrest, war, and political instability but political integrity, transparency, and freedom. Malaysian engineering students may find migrating to a country with an ideal political situations.

2.4.2.4 Social Capital and Family Factor

Social Capital is defined as networks of people that share similar norms, values and understandings that facilitate co-operation within or among groups (OECD, 2007). Example of social capital are friends and family members. In migration, social capital can be in a form of information or direct assistance provided by prior migrants which can decreases the costs of migration for potential migrants (Garip, 2008).

Family and relatives can influence the decision of individuals to migrate abroad. This is because individuals tend to migrate to a certain area where their parents, siblings or relatives have migrated before. Having families abroad increases the chance of

migration because of security and familiarity, thus reducing the cost of migration (Garip, 2008)

This situation can be found in past study such as by Haug (2008). The study focuses on how social capital that creates social network which influence people to migrate abroad. The author specified that the social capital includes family and relatives. It was suggested that people tend to migrate to their destination country when there is a social capital in that country. Haug (2008) also found that if the number of family members that migrate overseas increase, this will encourage other family members to follow. However, the migration intention decreases if less family stay abroad and return to home country.

Past findings also found that migration activities occurred due to the need to improve family member's well-being. This can be seen from past studies such as Ukwatta (2010) where family related situation play a role in influencing Sri Lankan women to migrate. Non-economic factor such as children's education, health factors, an escaping abusive marriage and family obligation became push factor for Sri Lankan women to migrate abroad. Unemployment, debts, and wages were the main economic factors highlighted in the study.

The study by Fleischer (2005) in interviewing Cameroonian in finding a reason why they migrate to Germany. Reason for the migration is because of "family reunion". The author found that most Cameroonian migrated abroad were women, and these women migrated to Germany to take care of their relative's children. Some will migrated to Germany in order to help their relatives there to earn extra income or help with house chores.

Thus, it can be concluded that family members and other social capital abroad can heavily influence individual's intention to migrate abroad. This is because social capital play a role as a place for information and assistance for newly migrated professionals.

Most past studies have shown that women are more likely to migrate due to family factor rather than male migrants. Thus, the family factor as well as gender factor would be an area of focus in this study.

2.4.2.5 Quality of Life

Quality of life is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns (World Health Organization, 1996). Based on this definition WHO outline the domain of quality of life which includes physical health, psychological, social relationships and environment. Eurostat (2018) measures quality of life in nine dimensions which are material living condition, productive or main activity, health, education, leisure and social interaction, economic and physical safety, governance and basic rights, natural and living environment, and overall experience of life. Quality of life are also measured by 'goodness' of multiple aspects in individual's life. This includes emotional reactions, disposition, sense of life fulfilment, and satisfaction with work and personal relationships (Theofilou, 2013).

In measuring whether quality of life can influence individual decision to migrate, Lewer, Pacheco & Rossouw (2009) measured the Quality of Life of immigrant into two perspectives: economic quality of life and non-economic quality of life. Economic quality of life measurement are usually influenced by economic variables as these are more readily accepted by policymakers and are more easily interpreted (Lewer, Pacheco & Rossouw, 2009). Example of economic quality of life measurement are Physical Quality of Life Index and UNDP Human Development Index. For non-economic Quality of Life measurement, Lewer et al (2009) used Human Development Index, Economic Freedom Index, Happiness Index, and Environmental Sustainability Index in measuring non-economic quality of life.

Most past studies applied indices to determine and to understand the reasons for migration. These index measures the quality of life in the origin country and destination country and use it to measure the migration activities. To determine the reason for migration, this study will use the respondent's perception towards the importance of quality of life when moving abroad and how it can influence their decision to migrate. This study focuses only on the intention of the engineering students to migrate. How students perceive the importance of quality of life abroad or in destination country can predict the likelihood for students to migrate.

2.6 Subjective Norm for Migration Behaviour

In the Theory of Planned Behaviour, Ajzen (1991) defined subjective norm as a perceived on how other people view on certain behaviour. Difference with attitude which is based on the individual perceives toward a situation and issues, subjective norm focus on the individual perceive and perception of other people's thought and view toward the behaviour (Tan, Johanim, & Annis Fadilla, 2015). Any positive attitude toward the behaviour either through oral or physical action can be translated as a positive subjective norm and influence individual's intention. In this study, when those who are close to an individual such as family and friends have travelled or migrated abroad it is a positive sign to the individual that migration is a positive behaviour and can influence individual's intention to migrate.

Various past studies has provided findings on how subjective norm can influence individual's intention to migrate. A study by Suwandi (2015) found that family and friends encouragement influence female Indonesian domestic workers to migrate to Egypt. Other than family and friends, domestic workers are depended on broker or sponsor in finding a job, thus encouragement from broker or sponsor such as offering higher salary also influence the domestic worker to migrate.

Ramoo (2018) found that subjective norm can influence professional workers such as engineers' intention to migrate. The author concluded that migration is seen as long term investment, thus any opinion given by the influential people such as family or friends can change the engineers' intentional behaviour to migrate.

2.7 Migration Policy as Perceived Behavioural Control

Migration policies are designed by the government in order to ensure immigrants who enter the country do not pose any threat, instead contribute to the productivity of the country. For example, the United States Immigration Policy is designed to receive immigrants that can achieve economic objectives, humanitarian objectives, cultural objectives, and political objectives of the country.

The strictness of migration policy whether at home country or abroad may influence people's decision to migrate abroad. Haug (2008) found that before to-be-migrant decided to migrate, the structural condition of the destination country must be taken into account. Structural condition includes economic conditions, cultural context, demography, ecology, and most importantly migration policy. Similarly, the study by Ukwatta (2010) in identifying reasons for Sri Lankan women to migrate abroad has identified migration policies as an important factor that need be taken into consideration before migrating to their destination country.

The varying migration policies do not just influence the low and semi-skilled worker but it can influence a high skilled worker too. High skilled worker and scholars from African countries tend to migrate to a more developed country if there are less bureaucratic controls by the government (Dzvimbo, 2003).

There are government in the developed countries that have open migration policies to encourage high skilled worker to migrate and contribute greatly to economic growth of the country. Developed countries such as Australia and Canada have designed a migration policies that attract foreign skilled workers to work and stay in their country.

Onshore Pathways is a programme designed by the Australian government in 1999 is to encourage former migrant students that studied in Australia to apply for permanent migration in Australia. This policy was introduced in order to meet the shortfall of IT workers in Australia (Smith, 2011).

Canada are also actively attracting skilled worker abroad by promoting attractive migration policies. The reason why Canada wants to attract more foreign skilled worker is because it could provide positive impact such as jobs creation for Canadian through entrepreneurship and innovation. In order to achieve this impact, Canadian government has improved its migration policies by reducing waiting time and less bureaucracy in obtaining a working permit for permanent and temporary migrants. By doing so, business owners who want to employ foreign worker will not waste their time on paperwork and bureaucratic process. This has indirectly improved local business and country's economic growth (Canadian Advisory Council on Economic Growth, 2016)

2.8 Socio-Demographic Background

Attitude, social norm, and perceived behavioural may influence engineering students' migration intention at different socio-demographic background. The socio-demographic backgrounds include gender, ethnicity, and type of sponsorship received by the students. Thus, the determinants may influence engineering students to migrate at different demographic groups.

2.8.1 Gender

As women empowerment starting to flourish in the 1960s, many studies included genders in the migration studies. There are even studies that included gender as a characteristic in migration in the 18th century. Ravenstein in 1885 in his journal 'The Law of Migration' on rural-migration between England, Ireland, and Scotland, found that women were greater migrant than men. Women migrated to an industrial areas such as manufacturing factories and workshops, while men migrated to a heavy industry area

such iron and coal mining. The study also found that women are more likely to migrate beyond the county in which they were born in, but limited to travelling within the United Kingdom. Men were more likely to migrate outside of the United Kingdom to the other part of the kingdom colonies due to trade and mercantilism.

Most studies that focus on the migration of women usually in less skilled labour such as domestic worker and the sex industry worker (Kofman & Raghuram, 2009). Recently, studies on skilled female migration have emerged. Kofman and Raghuram (2009) reported that 12.1% of total female migrant from non-OECD countries such as Philippines and Mexico migrated to European states worked in mining, manufacturing, and energy industry, and only 1.0% employed in construction sector in 2004.

The study on migration of skilled female labour were mostly focused in European and other western countries but in the South East Asia region most study on female migration are focused on the migration in informal sectors or in low skilled sectors such as domestic worker or factory worker. Origin countries of focus were Indonesia, Philippines, Bangladesh, Sri Lanka, Cambodia, and Myanmar and the destination country are mainly Malaysia, Thailand, and Singapore or to other developed countries such as the United States, United Arab Emirates, and South Korea (Sijapati, 2015).

Thus, this study can shed a light to the field of migration in identifying the demography of students who intend to migrate and reasons for their intention to migrate.

2.8.2 Ethnicity

Another characteristics studied by past literature is ethnicity. Past studies have found that due to discrimination on a certain race or ethnics, usually among minorities, can be a factor that influence their decisions to migrate. Discrimination can occur due to government policies, systemic oppression. In one study by Dzvimbo (2003) one of the reasons for African people to migrate is because of the tribe and ethnic discrimination in appointment as personnel in public and private sectors. This is because in Africa there are

more than 3,000 ethnic groups and tribes. When one of the tribe members hold a political position in the government, smaller tribes or rival tribes face discrimination through policies and laws.

Although the study between race and ethnics relation with migration intentions are very limited in Malaysia, most of these studies conclude that ethnics other than Malays are more likely to migrate, mainly Chinese ethnics. For example a report by the World Bank (2010) found that 85% of Malaysian who migrated to Singapore ethnically Chinese in 2010. This is because they feel that the Bumiputera has an advantage on local politics and economies. But a study by Yi (2014) found that among undergraduate students' that studying in the United States, there were no differences between Bumiputera and non-Bumiputera in terms of who were more inclined to return to Malaysia. These students were more likely to return to Malaysia if the economy and political situation improved.

2.8.3 Sponsorship

Migration to other countries were seen as a strategy by immigrants to pay their debt in home country. Most of past studies discussing debt repayment and migration are mostly related with low-skilled illegal immigrants entering a country illegally in order to pay their debt. Due to economic recession in the home country, high interest rate for bank loan, strict migration policy, and higher cost to obtain a visa, these immigrants turn to illegal immigration activities in order to enter the country illegally, find a job, and paying back their debt through remittances (Friebel & Guriev, 2005; Stoll, 2010; Djajic & Vinogradova, 2011). Thus, past studies suggest that students that received loans tend to migrate in order to pay off their debt.

But few scholars started to discuss how scholarship and loans can affect respondents' decisions differently. A study by Yi (2014) analyse what are the likelihood for Malaysia students who studied in the United States to return to Malaysia. She found that students that received Malaysian scholarship are inclined to return back to Malaysia

after study. This is because they are bound to a contract with the institutions that sponsored their studies.

2.9 Summary

Past scholars have provided large numbers of literature on migration and the theories and framework on the reason why individual migrate. Ravenstein (1885) and Lee (1966) has provided the foundation for the theory on migration and this have been updated by a contemporary scholar such as Stark & Bloom (1985) and de Haas (2010). Icek Ajzen (1991) contribute to the Theory of Reasoned Action (TRA) and Theory of Perceived Behavior (TPB) in study psychology of intentions behaviour. This became the based on the conceptual framework of this study.

Literature helps the research in identifying what are the factors and reasons for them to migrate. Through past study factors such as life satisfaction, salary and private benefits, jobs & workplace environment, political factor, social connection and family factor, and quality of life has been identified as factors of migration. Other than factors of migration, reasons such socio-demographic backgrounds, migration policies and social connection such as friends and family members abroad can influence students' intentions to migrate. Past studies also provide have information on how these factors of migration can influence individuals among different socio-demographic groups.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter discusses the research design, population sampling, research instrument, data collection method, data analysis, and conceptual framework.

3.1 Research design

A quantitative method was employed in collecting the data for this study. The data was collected through the distribution of questionnaire among engineering students in the selected public and private universities. A cross-sectional study design was adopted in this study. A cross-sectional study takes a snapshot of a population at a certain time, allowing conclusions about phenomena across a wide population to be drawn. This is a relative approach to gather a baseline data for the study and allowing the researcher to focus on certain population groups and understand the paradigm of the study. By considering a wide range of social background such as gender, ethnicities, and social backgrounds, the researcher have an ability to look at a subset of a population under this study. This is one of the most common non-probability study designs used in social-science research. In this type of research study, either the entire population or a subset thereof is selected, and from these individuals, data are collected to help answer research questions of interest.

3.1.1 Population

The target population for this study is based on the current enrolment of engineering students in the selected public and private universities. There were 211,647 university students who are enrolled in engineering, manufacturing & construction field of study in 2016 (Ministry of Higher Education, 2017).

3.1.2 Sampling

Martinez-Mesa, Gonzalez-Chica, Duquia, Bonamigo & Bastos (2016) defined sample as a subset of participants drawn from the target population. The sample was chosen from engineering students currently pursuing their studies in public and private universities.

This study applied Krejcie & Morgan (1970) sampling table in determining the sample size of a known population (see Appendix C). This technique suggests that a suitable sample size for this population size is 385 out of 211,647 respondents. Therefore a 400 respondents was considered for this research.

Purposive sampling technique, a non-probability sample was used in the sample selection. Purposive sampling is also known as judgmental, selective, or subjective sampling. Participant of the survey is selected based on characteristics and the qualities possessed by them and the suitability of the research (Etikan, Musa & Alkassim, 2015). As mentioned earlier, the study intended to investigate the migration intention of engineering students, hence, the participants in the research were among the engineering students. Universities that offered Engineering programs were selected, including University of Malaya (UM), one of the oldest institutions that has offered this program and produced many prominent engineers, University of Science Malaysia (USM), University of Technology Malaysia (UTM), National University Malaysia (UKM), University of Tun Hussein Onn Malaysia (UTHM), University Malaysia Perlis (UniMAP), University of Technology Petronas (UTP), University of Kuala Lumpur – Malaysia France Institute (UniKL-MFI) and Multimedia University (MMU).

3.2 Definition of Terms

This section explains the concepts used in this study that are an intention to migrate, push factors of migration, pull factors of migration, socio-demographic background, family members, relatives, and friends, and also relaxed migration policies.

- **Migration** refers to the movement of human capital to a more developed country in searching for a new employment opportunity or to further their studies. These activities are influenced by various factors and reasons.

- **Intention** in this research context defined as respondents' motives to migrate abroad influenced by the push and pull factor of migration, socio-demographic background, family members and friends, and migration policies.

- **Push Factors** in this research is factors or reasons that influence respondents to leave from their home country. The push factors for this consist of economic & environment satisfaction and personal satisfaction.

- **Pull Factors** is factors or reasons that attract respondents to move to their preferred destination country. The pull factors for this research consist of salary & private benefits, jobs & workplace environment, political factor, social connection & family factor and also the quality of life.

- **Socio-demographic Background** in this study include gender, ethnicity, and sponsorship received by respondents.

- **Family Members** refers to respondent's close family members such as father, mother, brother, and sister.

- **Relatives** are other family members such as uncles, aunties, cousins, nieces, and other relatives.

- **Friends** include close friends and other social connections abroad.

- **Migration Policies** is a term defined as policies imposed by the foreign government when entering the country and can be an obstacles for respondents when migrating abroad.

3.3 Data Collection Process

Data were collected through a self-administered survey developed for this study. A total of 400 engineering undergraduates from public universities and private higher learning institutions have participated in the survey. The survey questions were adapted from the study "Factors Influencing the Decision to Study Abroad for Students of Color: Moving Beyond the Barriers" by the Kasravi (2009) and extend the variables adapted from past literatures such as Junaimah, Yusliza, and Khoo (2009); Junaimah and Yusliza (2011); Quah, Siti Rohaida, and Guok (2014); and Junaimah et al. (2015).

3.4 Data Analysis

The data collected were analysed using the Statistical Package for the Social Sciences (SPSS) version 21. The statistical analyses were conducted to address the research questions outlined in this research. The analysis covered both descriptive and inferential statistics and together both would provide information on the whole picture of the collected data.

3.4.1 Descriptive Statistics

The descriptive analysis involved both numerical and graphical presentations (Anderson, Sweeney, & Williams, 2012). Descriptive statistics would help to summarize and describe the data in a more systematic way and easily interpreted and show any pattern or peculiarity in the data such as outliers. Outliers are observations that are distant or too different from other observations in the data that may due to a mistake during the data entry process that can cause serious problems in statistical analyses. Numerical statistics used include frequency, percentage, mean and standard deviation. Cross-

tabulations were used to see the two-way distribution of data between socio-demographic variables such as gender, type of institution, and ethnicity with students' intentions to migrate.

3.4.2 Inferential Data Analysis

Non-parametric tests were conducted to answer the objective of the study. The tests are described below.

3.4.2.1 Chi-Square Test of Independence

The Chi-Square test of independence is used in determining is there any relationship between two nominal (categorical) variables. For this research, the test was used in identifying whether "is there any relationship between socio-demographic variables and their intention to migrate?" Analyses were also conducted to see the association between factors of between factors of migration such as   Economic & Environment satisfaction, Personal Satisfaction, Salary & Private Benefits, Jobs & Workplace Environment, Political Factor, Social Connection & Family Factor and Quality of Life with the intention to migrate.

Chi-Square test of Independence Formula:

$$x^2 = \sum \frac{\left(O - E\right)^2}{E}$$

Where, O = observed value (data), E = expected values.

3.4.2.2 Kruskal-Wallis H Test and Mann-Whitney U Test

Further, detailed analyses were conducted to test significant difference between social background of respondents and scores for domains factors of migration. Due to the non-normality of the scores, non-parametric tests were applied. Mann-Whitney when testing any statistically significant difference between two populations (equivalent to two-sample test) and domain scores, such as gender and type of institutions. Kruskal-Wallis

H test, on the other hand, when testing any statistically significant difference between more than two populations (equivalent to ANOVA) and domain scores, such as sponsorship and ethnicity. Kruskal-Wallis H test is a non-parametric test where apply when nominal variables are more than two groups and data distribution are not normal (Kruskal & Wallis, 1952). This test is used to determine if there or more groups of independent variables on continuous or ordinal dependent variables.

Kruskal-Wallis H Test formula:

$$H = \frac{12}{N(N+1)} \sum_{i=1}^{k} \frac{R_i^2}{n_i} - 3(N+1)$$

Mann-Whitney U Test Formula:

$$U_1 = R_1 - \frac{n_1(n_1+1)}{2}$$

$$\textit{or}$$

$$U_2 = R_2 - \frac{n_2(n_2+1)}{2}$$

3.4.3 Logistic Regression

Logistic regression analyses the relationship between multiple independent variables and a categorical dependent variable, and estimates the probability of occurrence of an event (Park, 2013). For the purpose of this study, binary logistic regression is applied. This technique was applied when the dependent variable is dichotomous and the independent variables are either continuous or categorical.

The probability of an event to occur with the probability of an event to occur are measured by odds. Odds Ratio (OR) measurement are applied in comparing two odds relative to different events (Park, 2013). Comparing the probability of an event to occur with the probability of it not occurring. For example, using a toss coin experiment, the odds ratio of a coin showing up head after tossed in the air as opposed to tails is 50% chances which equal to 1.

OR represents the odds that an outcome will occur given a particular situation, compared to the odds of the outcome occurring in the absence of an activity in that certain situation. Applying for this research, OR identify the likelihood for students to migrate abroad compare with those who do not have the intention to migrate.

Logistic Regression Formula:

$$\text{odds of } \{Event\} = \frac{p}{1-p}$$

$$\text{odds ratio } \{A \text{ vs. } B\} = \frac{\text{odds } \{A\}}{\text{odds } \{B\}} = \frac{P_A/(1-p_A)}{P_B/(1-p_B)}$$

3.5 Summary

The methodology section describes actions that have been taken to investigate the research objectives and the rationale for the application of the specific technique used. A methodological of quantitative methods were applied in this study for answering the research questions and objectives as well as increasing the validity of the research findings. Different analysis has been applied such as Chi-Square test of independence, Kruskal-Wallis H test, Mann-Whitney U test, and logistic regression. The survey was specifically designed to investigate students' intentions to migrate, migration activities, level of satisfaction, important factors to migrate and students' socio-demographic background.

CHAPTER 4: ANALYSIS RESULTS

4.0 Introduction

This chapter discusses the results of the analysis addressing the objectives of the study. Section 4.1 presents backgrounds of the respondents and continue with section 4.2 analyse migration intention of respondents. Section 4.3 then describes and examine the factors that influence an individual to migrate. The next section, section 4.4 analyses the association between family and friend's migration experience and respondent's intention to migrate. Section 4.5 analyse how migration policy can influence respondent's intention to migrate. Lastly, section 4.6 is the logistic regression analysis, to analyse the likelihood of respondent to migrate. This chapter end with summary of chapter in section 4.7. This chapter are structured according to the research objectives of this study. Section 4.1 and 4.2 will answer the first objective; section 4.3, 4.4, and 4.5 will answer the second objective; and lastly section 4.6 will answer the third objective of the study.

4.1 Respondent's Background

This section summarized the respondents' socio-demographic background. The population for this study is based on the enrolment of an engineering student in Higher Learning Institutions. The total engineering students currently enrolled in public and private universities are 211,647 (Ministry of Higher Education, 2017). According to Krejcie & Morgan (1970), for a population which is equal to or greater than 70,000, the required minimum sample size is 382. Hence, the total target respondents for this study is 400 respondents.

4.1.2 Respondents' Characteristics

Of these 400 samples, 225 (56.3%) was male and the remainder 175 (43.80%), female students. Majority of respondents were Malay (66.5%) followed by Chinese

(21.3%), Indian (6.3%) and other ethnicities (6.0%). The details of demographic characteristics are summarized in Table 4.1.

Majority of respondents are from public universities (65.5%), with only 34.5 percent are from a private institution. Out of the total sample, 63.8 percent, 20.0 percent, and 16.3 percent are government sponsored, self-sponsored and private sponsored, respectively.

Table 4.1: Characteristics of Respondents

Variable	Frequency	Percentage (%)
Gender (n=400)		
Male	225	**56.3**
Female	175	**43.8**
Total	**400**	**100.0**
Ethnicity		
Malay	266	**66.5**
Chinese	85	**21.3**
Indian	25	**6.3**
Others	24	**6.0**
Total	**400**	**100.0**
Sponsorship		
Government Scholarship	81	**20.2**
Government Loan	174	**43.5**
Private Sponsorship	65	**16.3**
Self-sponsored	80	**20.0**
Total	**400**	**100.0**

Figure 4.1 shows the preferred destination country to migration among the Engineering students surveyed is Japan (17.2%) followed Australia (15.6%), United Kingdom (14.8%), New Zealand (9.7%), Singapore (7.3%) and Canada (7.0%). The other destinations countries include the United States, South Korea, China, Saudi Arabia, Qatar, United Arab Emirate and Egypt.
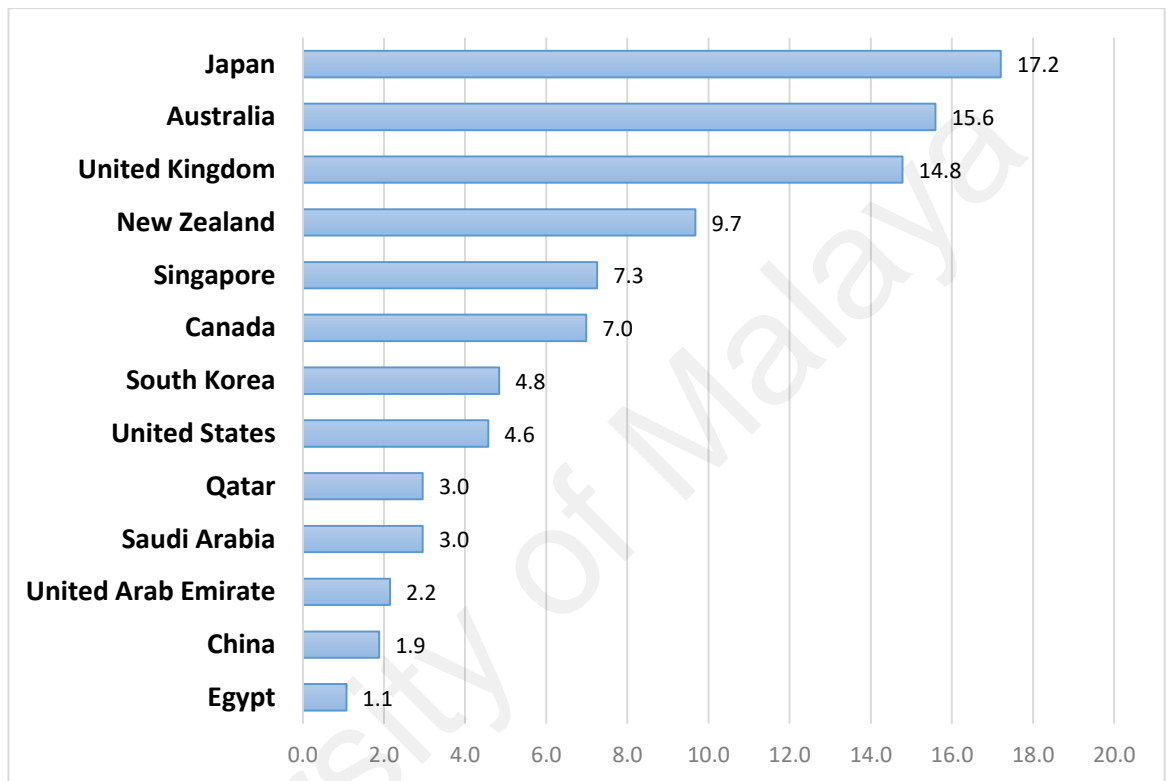
Figure 4.1: Preferred Destination to Migrate Among Engineering Students

4.2 Migration Pattern

This section present the migration pattern of the respondent based on their responses from the survey. Table 4.2 shows that more than half of respondents reported that they have an intention to migrate (53.2%), where most respondents reported plan to migrate in the next 5 years after their graduation (33.5%) while 36.8 percent indicated has no intention to migrate at all. Approximately 60 percent responded that they have travelled to other countries outside Malaysia.

Table 4.2: Respondent's Migration Pattern

Variable	Frequency	Percentage (%)
Intention to Migrate		
Yes	253	53.2
No	147	36.8
Total	**400**	**100.0**
Duration to Migrate		
Within 1 Year After Graduation	66	16.5
Within Next 5 Years After Graduation	134	33.5
Within Next 10 Years After Graduation	53	13.3
No at all	147	36.8
Total	**400**	**100.0**
Have Travelled to other Country		
Yes	239	59.8
No	161	40.3
Total	**400**	**100.0**

Table 4.3 provide an information on the number of students who have the intention and do not have the intention to migrate. Out of 253 students who have the intention migrate, 53.4 percent are male students and 46.6 percent are female. By ethnicity, Malay has higher percentage for having the intention to migrate (69.6%) and no intention to migrate (61.2%). Among engineering student who received sponsorship, 114 students (45.1%) who received government loan has the intention to migrate.

Table 4.3: Respondent's Intention to Migrate

| Variable | The Intention to Migrate | | | |
| | Yes | | No | |
	N	%	N	%
Gender (n=400)				
Male	135	53.4	90	61.2
Female	118	46.6	57	38.8
Total	**253**	**100.0**	**147**	**100.0**
Ethnicity (n=400)				
Malay	176	69.6	90	61.2
Chinese	45	17.8	40	27.2
Indian	18	7.1	7	4.8
Others	14	5.5	10	6.8
Total	**253**	**100.0**	**147**	**100.0**
Sponsorship (n=400)				
Government Scholarship	47	18.6	34	23.1
Government Loan	114	45.1	60	40.8
Private Sponsorship	45	17.8	20	13.6
Self-sponsored	47	18.6	33	22.4
Total	**253**	**100.0**	**147**	**100.0**

Table 4.4 shows migration intentions association with respondents' socio-demographic background. There is a significant association between gender and intentions to migrate (p-value: 0.022 < 0.05). With a higher percentage of female students intend to migrate within 5 years after graduation (41.0%). While male students have a higher percentage for do not have any intention to migrate at all (40.0%) in comparison to their female counterpart (32.6%). Among ethnicity, there is a significant association between intention to migrate and ethnicity (p-value: 0.001 < 0.05). All three major ethnicity; Malay (35.0%), Chinese (32.9%) and Indian (44.0%), has an intention to migrate within 5 years after graduation. Even though Indian students have a higher percentage on intention to migrate, Indian students also have the lowest percentage for no intention to migrate (28.0%) among all ethnicity. Continue with type of institutions, there is a significant relationship between institutions and intention to migrate (p-value: 0.029 < 0.05). Looking through sponsorship, students under government loans has the intention to migrate within 5 years after graduation (37.9%), followed by government-sponsored

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through scholarship (33.3%), privately sponsored (29.2%) and self-sponsored students (27.5%). Self-sponsored students also have a high percentage of students who do not have any intention to migrate at all (41.3%).

Table 4.4: Intention to Migrate Across Socio-Demographic Variables

	Intention to Migrate					
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	Chi-Square (p-value)
Gender						
Male	17.8	27.1	15.1	40.0	**100.0**	0.022*
Female	14.9	41.7	10.9	32.6	**100.0**	
Ethnic						
Malay	19.9	35.0	11.3	33.8	**100.0**	0.001*
Chinese	4.7	32.9	15.3	47.1	**100.0**	
Indian	4.0	44.0	24.0	28.0	**100.0**	
Others	33.3	8.3	16.7	41.7	**100.0**	
Sponsorship						
Government Scholarship	11.1	33.3	13.6	42.0	**100.0**	0.173
Government Loan	16.7	37.9	10.9	34.5	**100.0**	
Private Sponsorship	16.9	29.2	23.1	30.8	**100.0**	
Self-sponsored	21.3	27.5	10.0	41.3	**100.0**	

Significant level $p < 0.05$*

Result in Table 4.5 shows that there is a significant relation between respondent's experience visiting other country and intention to migrate (p-value: $0.037 < 0.05$).

Table 4.5: Intention to Migrate and Respondent's Experience

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Experience Travelled to Other Country						
Yes	15.5	37.4	15.5	31.5	**100.0**	0.037*
No	17.4	29.0	9.7	43.9	**100.0**	

Significant level p <0.05*

4.3 Factors of Migration

This section shows the results of analysis on the factors that can influence engineering students' intention to migrate.

4.3.1 Push Factors of Migration

Push factors that influence the intention of respondents to migrate are measured through their level of satisfaction on several socio-economic & environment factors and personal factors. The respondents were posted with several statements that reflect their level of satisfaction on these aspects based on 5-level Likert scale, ranging from scale 1 refers to "very dissatisfied" to scale 5 "very satisfied". For the purpose of analysis and to avoid too many missing cells, the scale was then re-group into three categories. Scale 1 as "dissatisfied" represents "very dissatisfied and dissatisfied", scale 2 as "neutral" representing "neither dissatisfied nor satisfied" and scale 3 as "satisfied" grouping "very satisfied and satisfied".

4.3.1.1 Economics and Environment Satisfaction

We begin by looking at the respondents' level of satisfaction towards their economics and environment situation in the home country (i.e. Malaysia). From Table 4.6, data shows percentage satisfaction on socio-economics ranges between 45.3 percent and 53.0 percent. Level of satisfaction on the natural environment and public services are the same, which is 56.3% respectively. Less than 50 percent of respondents are satisfied

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with political stability (45.3%), quality of life (47.0%), crime rate (47.0%) and economic stability (49.8%).

Table 4.6: Socio-Economics and Environment Satisfaction

Variables	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Total (%)
Socio-Economics				
Political Stability in Home Country	23.5	31.3	45.3	**100.0**
Quality of Life	22.8	30.3	47.0	**100.0**
Economic Stability	22.3	28.0	49.8	**100.0**
Employment Prospect	13.8	33.3	53.0	**100.0**
Environment				
Safety	14.0	29.0	57.0	**100.0**
Crime Rate in Home Country	22.8	30.3	47.0	**100.0**
Natural Environment	13.5	30.3	56.3	**100.0**
Public Transport	14.0	27.0	59.0	**100.0**
Public Services	15.5	28.3	56.3	**100.0**

In Table 4.7, this research found that respondent's satisfaction toward political stability in employment prospects (p-value: 0.002), public service (0.002), public transport (0.016), home country (0.021) and quality of life (0.046) has a significant association with intention to migrate at 5 percent significant level. Economic stability (0.062) and natural environment (0.063) are significant at 10 percent significant level.

Table 4.7: Intention to Migrate and Economic and Environment Satisfaction

	Intention to Migrate					
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	Chi-Square (p-value)
Political Stability in Home Country						
Dissatisfied	17.0	30.9	17.0	35.1	**100.0**	0.021*
Neutral	12.0	32.8	8.8	46.4	**100.0**	
Satisfied	19.3	35.4	14.4	30.9	**100.0**	
Safety						
Dissatisfied	19.6	35.7	10.7	33.9	**100.0**	0.242
Neutral	12.1	31.9	12.9	43.1	**100.0**	
Satisfied	18.0	33.8	14.0	34.2	**100.0**	
Crime Rate in Home Country						
Dissatisfied	17.6	34.1	15.4	33.0	**100.0**	0.317
Neutral	14.9	32.2	10.7	42.1	**100.0**	
Satisfied	17.0	34.0	13.8	35.1	**100.0**	
Quality of Life						
Dissatisfied	23.1	23.1	17.9	35.9	**100.0**	0.046*
Neutral	7.2	35.1	13.5	44.1	**100.0**	
Satisfied	19.6	34.4	12.4	33.6	**100.0**	
Economic Stability						
Dissatisfied	15.7	29.2	19.1	36.0	**100.0**	0.062**
Neutral	10.7	36.6	7.1	45.5	**100.0**	
Satisfied	20.1	33.7	14.1	32.2	**100.0**	
Natural Environment						
Dissatisfied	14.8	29.6	16.7	38.9	**100.0**	0.063**
Neutral	14.9	33.1	7.4	44.6	**100.0**	
Satisfied	17.8	34.7	15.6	32.0	**100.0**	

Significant level p <0.05*

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Table 4.7: Intention to Migrate and Economic and Environment Satisfaction (Cont.)

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Employment Prospects						
Dissatisfied	16.4	40.0	10.9	32.7	**100.0**	0.002*
Neutral	12.8	26.3	12.0	48.9	**100.0**	
Satisfied	18.9	36.3	14.6	30.2	**100.0**	
Public Transport						
Dissatisfied	16.1	33.9	16.1	33.9	**100.0**	0.016*
Neutral	10.2	30.6	11.1	48.1	**100.0**	
Satisfied	19.5	34.7	13.6	32.2	**100.0**	
Public Services						
Dissatisfied	12.9	33.9	16.1	37.1	**100.0**	0.002*
Neutral	11.5	31.9	7.1	49.6	**100.0**	
Satisfied	20.0	34.2	15.6	30.2	**100.0**	

Significant level p <0.05*

In Table 4.8, the p-value $0.037 < 0.05$ and reject the null hypothesis. There is sufficient evidence at 5 percent significant level to conclude respondent that have the intention to migrate and those who have no intention at all differ in the satisfaction level on a socio-economic and environmental factor.

Vice versa, p-value for gender (0.670), ethnic (0.447), and sponsorship (0.143) are more than 5 percent significant level (0.05). Thus, there are no significant differences in socio-economic and environment satisfaction.

Table 4.8: Mean Score on Socio-economic and Environment Satisfaction

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	3.48	225	0.867	Mann-Whitney: -0.427
Female	3.53	175	0.868	p-value: 0.670
Total	**3.50**	**400**	**0.867**	
Ethnic				
Malay	3.54	266	0.881	Kruskal-Wallis: 2.662
Chinese	3.37	85	0.786	p-value: 0.447
Indian	3.52	25	0.995	
Others	3.62	24	0.853	
Total	**3.51**	**400**	**0.867**	
Sponsorship				
Government Scholarship	3.49	81	0.784	Kruskal-Wallis: 5.427
Government Loan	3.52	174	0.869	p-value: 0.143
Private Sponsorship	3.35	65	0.810	
Self-sponsored	3.64	80	0.977	
Total	**3.51**	**400**	**0.867**	
Intention to Migrate				
Yes	3.57	253	0.923	Mann-Whitney: -2.086
No	3.41	147	0.753	p-value: 0.037*
Total	**3.51**	**400**	**0.867**	

Significant level $p < 0.05$*

4.3.1.2 Personal Satisfaction

From Table 4.9, generally, the majority of respondent are satisfied with their personal satisfaction. Personal health is rated the highest with 80.8 percent are satisfied with this item. 8 out of 10 reported they are satisfied with their relationship with friends, neighbours and people surroundings. The highest feeling of dissatisfaction is on their financial status where 12.3 percent reported so. About 10.7% of the respondents indicated they are working while studying and majority work for a financial reason.

Table 4.9: Personal Satisfaction

Variables	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Total (%)
Personal Health	2.5	16.8	80.8	**100.0**
Financial	12.3	27.5	60.3	**100.0**
Social Life	5.3	22.3	72.5	**100.0**
Leisure/Recreational Activities	6.0	21.8	72.3	**100.0**
Relationship with Friends, neighbors, etc	1.8	20.8	77.5	**100.0**

Personal satisfaction such as respondent's association with friends and neighbours has a significant association with intention to migrate (p-value: 0.002). This can be seen in Table 4.10. Respondents that are dissatisfied with their association with their friends and neighbour has no intention to migrate abroad (57.1%). This is similar with social life (42.9%) and leisure/recreational activities (37.5%) where dissatisfaction of both items does not influence their decision to migrate abroad as there are no significant association.

Table 4.10: Intention to Migrate and Personal Satisfaction

| | Intention to Migrate | | | | | |
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	Chi-Square (p-value)
Personal Health						
Dissatisfied	30.0	10.0	20.0	40.0	**100.0**	0.456
Neutral	16.4	32.8	7.5	43.3	**100.0**	
Satisfied	16.1	34.4	14.2	35.3	**100.0**	
Financial Situation						
Dissatisfied	16.3	32.7	18.4	32.7	**100.0**	0.407
Neutral	11.8	37.3	9.1	41.8	**100.0**	
Satisfied	18.7	32.0	14.1	35.3	**100.0**	

Table 4.10: Intention to Migrate and Personal Satisfaction (Cont.)

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	**Within Next 5 Years After Graduation (%)**	**Within Next 10 Years After Graduation (%)**	**No At All (%)**	**Total (%)**	
Social Life						
Dissatisfied	14.3	19.0	23.8	42.9	**100.0**	0.312
Neutral	13.5	37.1	6.7	42.7	**100.0**	
Satisfied	17.6	33.4	14.5	34.5	**100.0**	
Leisure/Recreational Activities						
Dissatisfied	25.0	25.0	12.5	37.5	**100.0**	0.736
Neutral	16.1	33.3	10.3	40.2	**100.0**	
Satisfied	15.9	34.3	14.2	35.6	**100.0**	
Association with Friends and Neighbours						
Dissatisfied	28.6	0.0	14.3	57.1	**100.0**	0.002*
Neutral	13.3	26.5	8.4	51.8	**100.0**	
Satisfied	17.1	36.1	14.5	32.3	**100.0**	

Significant level $p < 0.05$*

The analysis results in Table 4.11 found that there is no evidence to conclude that there is a significant difference between male and female students with personal satisfaction factor (p-value = 0.552 > 0.05). Similarly, at 5 percent statistical significance level there is no significant difference in ethnic (0.263), sponsorship (0.143), and intention to migrate (0.134) with the personal satisfaction factor.

Table 4.11: Mean Score on Personal Satisfaction

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	2.64	225	0.447	Mann-Whitney: -0.594
Female	2.71	175	0.355	p-value: 0.552
Total	**2.67**	**400**	**0.410**	
Ethnic				
Malay	2.69	266	0.394	Kruskal-Wallis: 3.989
Chinese	2.68	85	0.380	p-value: 0.263
Indian	2.58	25	0.472	
Others	2.48	24	0.556	
Total	**2.67**	**400**	**0.410**	
Sponsorship				
Government Scholarship	2.68	81	0.366	Kruskal-Wallis: 5.427
Government Loan	2.65	174	0.439	p-value: 0.143
Private Sponsorship	2.60	65	0.435	
Self-sponsored	2.76	80	0.353	
Total	**2.67**	**400**	**0.410**	
Intention to Migrate				
Yes	2.70	253	0.391	Mann-Whitney: -1.498
No	2.63	147	0.437	p-value: 0.134
Total	**2.67**	**400**	**0.410**	

4.3.2 Pull Factors of Migration

Pull factors of migration are examined through five dimensions, Salary & Private Benefits, Workplace Environment, Political Factor, Social Capital & Family Factor and Livelihood (Dzvimbo, 2003; Lim, Junaimah & Hasnah, 2004; Fleischer, 2005; Kazlauskienė & Rinkevičius, 2006; Haug, 2008; Junaimah, Yusliza & Khoo, 2009; Junaimah & Yusliza, 2011; Jian et al, 2013; Mastura, 2014; Junaimah et al, 2015; Mohd Safwan et al, 2015; Quah, Siti Rohaida & Guok, 2014) in the destination country. These dimensions measure the factors that influence the respondent to migrate based on the 5-level Likert scale, ranging from scale 1 refers to "strongly disagree" to scale 5 "strongly agree". The scale was then re-group into three categories. Scale 1 as "disagree" represents "strongly disagree and disagree", scale 2 as "neutral" representing "neither disagree or agree" and scale 3 as "agree" grouping "strongly agree and agree".

4.3.2.1 Salary and Private Benefits

The respondents were asked to rate the extent they agree or disagree on the listed statements that can influence people to migrate abroad. Based on Table 4.12, almost 93.0 percent of the respondents agree economics reason defined as salary is the reason for a decision to migrate abroad and 62.3% for unemployment benefit.

Table 4.12: Salary and Private Benefits in Destination Country

Variables	Disagree (%)	Neutral (%)	Agree (%)	Total (%)
Attractive Salary	1.0	6.0	93.0	**100.0**
Unemployment Benefit	7.5	30.3	62.3	**100.0**

The analysis in Table 4.13 found that there is a significant relationship between attractive salary as an important factor of migration and intention to migrate (p-value: 0.001). Half of the respondents that disagree (50.0%) attractive salary as an important factor for migrating abroad no intention to migrate at all. For those who agree, the majority stated that they will migrate within the next 5 years after graduation (34.5%). Majority for those who agree unemployment benefits as an important criterion has the intention to migrate (65.4%), where most of them migrate within the next 5 years after graduation (36.9%).

Table 4.13: Intention to Migrate and Salary and Private Benefits

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Attractive Salary						
Disagree	25.0	25.0	0.0	50.0	**100.0**	0.001*
Neutral	8.3	12.5	8.3	70.8	**100.0**	
Agree	16.9	34.9	13.7	34.4	**100.0**	
Unemployment Benefits						
Disagree	16.7	23.3	10.0	50.0	**100.0**	0.238
Neutral	17.4	28.9	15.7	38.0	**100.0**	
Agree	16.1	36.9	12.4	34.5	**100.0**	

Significant level p <0.05*

The analysis in Table 4.14 shows that at 5 percent significant level there are significant differences between male and female students when it comes to choosing salary and private benefits as an important factor for migration (p-value = 0.003 < 0.05). The analysis continues that at 10 percent significant level there is evidence that there are differences among those who have the intention to migrate and no intention at all in deciding whether salary and private benefits are an important factor to migrate (p-value = 0.060 < 0.10).

Whether it is 5 percent or 10 percent significant level there is no significant differences in ethnic (0.166) and sponsorship (0.511).

Table 4.14: Mean Score on Salary and Private Benefits

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	2.68	225	0.414	Mann-Whitney: -2.958
Female	2.81	175	0.302	p-value: 0.003*
Total	**2.73**	**400**	**0.374**	
Ethnic				
Malay	2.74	266	0.372	Kruskal-Wallis: 5.074
Chinese	2.71	85	0.387	p-value: 0.166
Indian	2.84	25	0.278	
Others	2.60	24	0.416	
Total	**2.73**	**400**	**0.374**	
Sponsorship				
Government Scholarship	2.71	81	0.402	Kruskal-Wallis: 2.307
Government Loan	2.74	174	0.379	p-value: 0.511
Private Sponsorship	2.71	65	0.341	
Self-sponsored	2.77	80	0.364	
Total	**2.73**	**400**	**0.374**	
Intention to Migrate				
Yes	2.77	253	0.329	Mann-Whitney: -1.884
No	2.67	147	0.436	p-value: 0.060**
Total	**2.73**	**400**	**0.374**	

Significant level $p < 0.05$*, $p < 0.10$**

4.3.2.2 Jobs Opportunity and Workplace Environment

From Table 4.15, the majority of the respondent agreed that employment opportunity (90.5%) is an important criterion in making the decision to migrate. This is followed by an opportunity for career development (89.5%), attractive job scopes (83.3%), flexible working hours (66.8%), and less stress in a workplace (65.3%).

Table 4.15: Jobs Opportunity and Workplace Environment in Destination Country

Variables	Disagree (%)	Neutral (%)	Agree (%)	Total (%)
Employment Opportunity	0.8	8.8	90.5	**100.0**
Attractive job scopes	1.3	15.5	83.3	**100.0**
Less stress in workplace	7.5	27.3	65.3	**100.0**
Flexible working hours	4.8	28.5	66.8	**100.0**
Opportunity for career development	0.8	9.8	89.5	**100.0**

Table 4.16 reveals that employment opportunity (p-value: 0.017), attractive job scopes (0.013), and an opportunity for career development (0.014) has a significant relationship with the intention to migrate at 5 percent significant level. Whereas less stress in a workplace (0.693), flexible working hours (0.838) has no significant relationship with intention to migrate.

More than half those who disagree that employment opportunity (66.7%) and opportunity for career development (66.7%) is an important factor for migration has no intention to migrate at all. More than thirty percent for those who agreed that attractive job scope (36.0%), opportunity for career development (35.8%), employment opportunity (35.4%), flexible working hours (34.5%) and less stress in workplace (33.7%) is an important pull factor has an intention to migrate within next 5 years after graduation.

Table 4.16: Intention to Migrate and Jobs Opportunity and Workplace Environment

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Employment Opportunity						
Disagree	33.3	0.0	0.0	66.7	**100.0**	0.017*
Neutral	20.0	17.1	5.7	57.1	**100.0**	
Agree	16.0	35.4	14.1	34.5	**100.0**	
Attractive Job Scope						
Disagree	40.0	20.0	0.0	40.0	**100.0**	0.013*
Neutral	11.3	21.0	14.5	53.2	**100.0**	
Agree	17.1	36.0	13.2	33.6	**100.0**	
Less Stress in Workplace						
Disagree	10.0	40.0	6.7	43.3	**100.0**	0.693
Neutral	14.7	31.2	16.5	37.6	**100.0**	
Agree	18.0	33.7	12.6	35.6	**100.0**	
Flexible Working Hours						
Disagree	0.0	47.4	10.5	42.1	**100.0**	0.838
Neutral	17.5	28.9	15.8	37.7	**100.0**	
Agree	17.2	34.5	12.4	36.0	**100.0**	
Opportunity for Career Development						
Disagree	33.3	0.0	0.0	66.7	**100.0**	0.014*
Neutral	17.9	15.4	10.3	56.4	**100.0**	
Agree	16.2	35.8	13.7	34.4	**100.0**	

Significant level $p < 0.05$*

The analysis in Table 4.17 found that there are significant differences between Malay, Chinese, Indian and other ethnic students in choosing job opportunity and work environment as an important factor for migration (p-value = 0.085 < 0.10).

In contrast, there is no significant differences among sponsorship (0.302), gender (0.201), and the intention to migrate (0.161).

Table 4.17: Mean Score on Jobs Opportunity and Workplace Environment

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	2.74	225	0.351	Mann-Whitney: -1.280
Female	2.79	175	0.297	p-value: 0.201
Total	**2.76**	**400**	**0.329**	
Ethnic				
Malay	2.76	266	0.326	Kruskal-Wallis: 6.615
Chinese	2.75	85	0.363	p-value: 0.085**
Indian	2.89	25	0.201	
Others	2.68	24	0.328	
Total	**2.76**	**400**	**0.329**	
Sponsorship				
Government Scholarship	2.73	81	0.380	Kruskal-Wallis: 3.647
Government Loan	2.77	174	0.327	p-value: 0.302
Private Sponsorship	2.74	65	0.298	
Self-sponsored	2.80	80	0.301	
Total	**2.76**	**400**	**0.329**	
Intention to Migrate				
Yes	2.79	253	0.288	Mann-Whitney: -1.401
No	2.71	147	0.385	p-value: 0.161
Total	**2.76**	**400**	**0.329**	

Significant level p <0.10**

4.3.2.3 Political Factor

Table 4.18 shows that political stability of the destination country (79.0%), free from corruption (77.0%) and freedom of speech (65.0%) is important criteria for the respondent who want to migrate abroad.

Table 4.18: Political Factor in Destination Country

Variables	Disagree (%)	Neutral (%)	Agree (%)	Total (%)
Political stability of destination country	2.0	19.0	79.0	**100.0**
Free from corruption	2.8	20.3	77.0	**100.0**
Freedom of Speech	5.5	29.5	65.0	**100.0**

All items in the political factors in Table 4.19 has no significant relation with the intention to migrate. Though we can see that there is an intention to migrate for those who agreed that political stability in destination country is an important factor when migrating

abroad. The highest are those who intended to migrate within next 5 years after graduation (33.9%), followed by migrating within 1 after graduation (16.8%) and within next 10 after graduation (14.2%). This is similar for those who agreed that free from corruption is an important pull factor. Majority of respondent intent to migrate within the next 5 years after graduation (34.1%), followed by migrating within 1 after graduation (16.6%) and within next 10 after graduation (13.3%).

More than 50 percent of respondents disagree with freedom of speech as an important factor of migration has no intention to migrate at all (59.1%).

Table 4.19: Intention to Migrate and Political Factor

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Political Stability in Destination Country						
Disagree	37.5	25.0	12.5	25.0	**100.0**	0.232
Neutral	13.2	32.9	9.2	44.7	**100.0**	
Agree	16.8	33.9	14.2	35.1	**100.0**	
Free From Corruption						
Disagree	9.1	36.4	27.3	27.3	**100.0**	0.592
Neutral	17.3	30.9	11.1	40.7	**100.0**	
Agree	16.6	34.1	13.3	36.0	**100.0**	
Freedom of Speech						
Disagree	9.1	27.3	4.5	59.1	**100.0**	0.079**
Neutral	9.3	37.3	16.9	36.4	**100.0**	
Agree	20.4	32.3	12.3	35.0	**100.0**	

Significant level $p < 0.10$**

Results of analysis in Table 4.20 found that at 5 percent significant level there is significant differences between male and female students when in choosing political factor as an important factor for migration (p-value = 0.040 < 0.05).

At 10% significant level there is evidence that there are differences between government scholarship, government loan, private sponsorship and self-sponsored

students in deciding whether a political factor is an important factor to migrate (p-value

= 0.071 < 0.10)

Table 4.20: Mean Score on Political Factor

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	2.67	225	0.426	Mann-Whitney: -2.051
Female	2.75	175	0.369	p-value: 0.040*
Total	**2.70**	**400**	**0.403**	
Ethnic				
Malay	2.71	266	0.419	Kruskal-Wallis: 4.007
Chinese	2.67	85	0.367	p-value: 0.261
Indian	2.80	25	0.333	
Others	2.67	24	0.417	
Total	**2.70**	**400**	**0.403**	
Sponsorship				
Government Scholarship	2.65	81	0.475	Kruskal-Wallis: 7.024
Government Loan	2.67	174	0.403	p-value: 0.071**
Private Sponsorship	2.76	65	0.346	
Self-sponsored	2.78	80	0.356	
Total	**2.70**	**400**	**0.403**	
Intention to Migrate				
Yes	2.72	253	0.382	Mann-Whitney: -0.795
No	2.67	147	0.437	p-value: 0.427
Total	**2.70**	**400**	**0.403**	

Significant level p <0.05* and p< 0.10**

4.3.2.4 Social Capital and Family Factor

In Table 4.21, 9 out of 10 respondent agree that better education for children (86.5%) is an important criterion when making a decision to migrate abroad, especially when they are married or they plan for long-term migration. This is followed by obtaining a better salary to help the family (86.3%) and to be near/with family members that already living abroad (65.3%).

Table 4.21: Social Capital and Family Factor

Variables	Disagree (%)	Neutral (%)	Agree (%)	Total (%)
Better education for children	0.8	12.8	86.5	**100.0**
Better salary to help family	0.8	13.0	86.3	**100.0**
To be near/with family members already living abroad	10.5	24.3	65.3	**100.0**

Analysis in Table 4.22, near with family members that already living abroad has a significant relationship with the intention to migrate (p-value: 0.008 < 0.05). Respondents that agree with family members already living abroad as an important factor are more likely to migrate within 5 years after graduation (31.0%).

Table 4.22: Intention to Migrate and Social Capital and Family Factor

	Intention to Migrate					
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	Chi-Square (p-value)
Better Education for Children						
Disagree	33.3	0.0	0.0	66.7	**100.0**	0.322
Neutral	21.6	25.5	9.8	43.1	**100.0**	
Agree	15.6	35.0	13.9	35.5	**100.0**	
Better Salary To Help Family						
Disagree	66.7	0.0	0.0	33.3	**100.0**	0.052
Neutral	15.4	26.9	5.8	51.9	**100.0**	
Agree	16.2	34.8	14.5	34.5	**100.0**	

Table 4.22: Intention to Migrate and Social Capital and Family Factor (Cont.)

	Intention to Migrate					
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	Chi-Square (p-value)
Near with Family Already Living Abroad						
Disagree	23.8	45.2	11.9	19.0	**100.0**	0.008*
Neutral	9.3	35.1	9.3	46.4	**100.0**	
Agree	18.0	31.0	14.9	36.0	**100.0**	

Significant level $p < 0.05$*

Table 4.23 shows that at 10 percent statistical significant level there is a significant difference between ethnics in choosing social capital and family factor as an important factor for migration (p-value = $0.088 < 0.10$). Similarly, there is a significant difference among students that received government scholarship, government loan, private scholarship and self-sponsored students in agreeing that social capital and family are important factors to migrate (p-value = $0.071 < 0.10$).

Table 4.23: Mean Score on Social capital and Family Factor

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	2.75	225	0.374	Mann-Whitney: -0.347
Female	2.76	175	0.305	p-value: 0.728
Total	**2.75**	**400**	**0.346**	
Ethnic				
Malay	2.74	266	0.339	Kruskal-Wallis: 6.541
Chinese	2.80	85	0.345	p-value: 0.088**
Indian	2.81	25	0.409	
Others	2.72	24	0.350	
Total	**2.75**	**400**	**0.346**	
Sponsorship				
Government Scholarship	2.75	81	0.371	Kruskal-Wallis: 7.034
Government Loan	2.72	174	0.372	p-value: 0.071**
Private Sponsorship	2.73	65	0.324	
Self-sponsored	2.85	80	0.254	
Total	**2.75**	**400**	**0.346**	
Intention to Migrate				
Yes	2.76	253	0.324	Mann-Whitney: -0.245
No	2.74	147	0.381	p-value: 0.806
Total	**2.75**	**400**	**0.346**	

Significant level p <0.10**

4.3.2.5 Quality of Life

The following table presents responds on an aspect of quality of life. In this study covers elements related to the environment, healthcare and safety. Referring to Table 4.24, 8 out of 10 respondents agree that low crime rate in destination country (83.0%), attractive health care system (82.8%) and efficient waste management (81.2%) is an important factor for people to migrate.

Table 4.24: Quality of Life

Variables	Disagree (%)	Neutral (%)	Agree (%)	Total (%)
Attractive healthcare system	1.3	16.0	82.8	**100.0**
Low cost of living	10.3	24.5	65.3	**100.0**
Safe neighborhood	2.8	20.3	77.0	**100.0**
Better air quality	2.3	19.8	78.0	**100.0**
Better water quality	2.3	20.8	77.0	**100.0**
Efficient waste management	1.0	17.8	81.2	**100.0**
Low crime rate in destination country	3.0	14.0	83.0	**100.0**

Result in Table 4.25 shows that there is a significant relationship between efficient waste management (p-value: 0.024) and safe neighbourhood (0.032) with the intention to migrate.

Respondents that answer agree for every item in this domain and has an intention to migrate tend to migrate within next 5 years after graduation – low cost of living (31.8%), attractive health care system (32.9%), safe neighbourhood (34.1%), better water quality (34.4%), low crime rate (34.6%), better air quality (34.9%) and efficient waste management (35.7%)

Also, more than 50 percent of respondents who disagree that attractive healthcare (60.0%) and efficient waste management (75.0%) as an important pull factor has no intention to migrate at all.

Table 4.25: Intention to Migrate and Quality of Life

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Attractive Health Care System						
Disagree	0.0	20.0	20.0	60.0	**100.0**	0.153
Neutral	9.4	37.5	7.8	45.3	**100.0**	
Agree	18.1	32.9	14.2	34.7	**100.0**	
Low Cost of Living						
Disagree	26.8	36.6	17.1	19.5	**100.0**	0.053**
Neutral	13.3	36.7	12.2	37.8	**100.0**	
Agree	16.1	31.8	13.0	39.1	**100.0**	
Safe Neighbourhood						
Disagree	27.3	36.4	18.2	18.2	**100.0**	0.032*
Neutral	12.3	30.9	8.6	48.1	**100.0**	
Agree	17.2	34.1	14.3	34.4	**100.0**	
Better Air Quality						
Disagree	11.1	66.7	0.0	22.2	**100.0**	0.087**
Neutral	17.7	24.1	11.4	46.8	**100.0**	
Agree	16.3	34.9	14.1	34.6	**100.0**	
Better Water Quality						
Disagree	22.2	44.4	0.0	33.3	**100.0**	0.512
Neutral	16.9	28.9	12.0	42.2	**100.0**	
Agree	16.2	34.4	14.0	35.4	**100.0**	
Efficient Waste Management						
Disagree	25.0	0.0	0.0	75.0	**100.0**	0.024*
Neutral	14.1	25.4	12.7	47.9	**100.0**	
Agree	16.9	35.7	13.5	33.8	**100.0**	
Low Crime Rate						
Disagree	16.7	41.7	16.7	25.0	**100.0**	0.204
Neutral	19.6	25.0	8.9	46.4	**100.0**	
Agree	16.0	34.6	13.9	35.5	**100.0**	

Significant level $p < 0.05$* and $p < 0.10$**

The analysis results in Table 4.26 shows that there is no evidence to prove that there is a significant difference between male and female students in choosing the quality of life as an important factor (p-value = 0.482 > 0.05). Similarly, at 5 percent statistical significance level there is no significant difference in ethnic (0.979), institution (0.755), sponsorship (0.364), intention to migrate (0.561), and visited a foreign country (0.686) with the quality of life factor.

Table 4.26: Mean Score on Quality of Life

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	2.72	225	0.381	Mann-Whitney: -0.702
Female	2.78	175	0.299	p-value: 0.482
Total	**2.75**	**400**	**0.348**	
Ethnic				
Malay	2.73	266	0.371	Kruskal-Wallis: 0.190
Chinese	2.79	85	0.264	p-value: 0.979
Indian	2.75	25	0.313	
Others	2.71	24	0.388	
Total	**2.75**	**400**	**0.348**	
Sponsorship				
Government Scholarship	2.71	81	0.395	Kruskal-Wallis: 3.188
Government Loan	2.73	174	0.355	p-value: 0.364
Private Sponsorship	2.75	65	0.341	
Self-sponsored	2.81	80	0.277	
Total	**2.75**	**400**	**0.348**	
Intention to Migrate				
Yes	2.76	253	0.322	Mann-Whitney: -0.582
No	2.72	147	0.389	p-value: 0.561
Total	**2.75**	**400**	**0.348**	

Significant level p < 0.05*

4.4 Family and Friend's Migration Behaviour

This section present the results showing respondents' family and friends that are currently living abroad and how it can influence respondents' decision to migrate. This section is part of second objective of this research and is a 'subjective norm' in the Theory of Planned Behaviour.

Result in Table 4.27 shows 57.5 percent of the total respondent has friends that live abroad and 46.5 percent has distance relatives abroad.

Table 4.27: Family and Friends Abroad

Variable	Frequency	Percentage (%)
Family and Friends Abroad		
Father	43	10.8
Mother	25	6.3
Siblings	71	17.8
Other Relatives	186	46.5
Friends	229	57.3

Table 4.28 has shown that there is a significant association between intention to migrate and having relatives abroad (p-value: 0.000). Having friends abroad also influence students to migrate (p-value: 0.016).

Table 4.28: Intention to Migrate and Social Norm

	Intention to Migrate					
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	Chi-Square (p-value)
Father Abroad						
Yes	11.6	48.8	9.3	30.2	**100.0**	0.158
No	17.1	31.7	13.7	37.5	**100.0**	
Mother Abroad						
Yes	8.0	56.0	16.0	20.0	**100.0**	0.061**
No	17.1	32.0	13.1	37.9	**100.0**	

Significant level $p < 0.05$* and $p < 0.10$**

Table 4.28: Intention to Migrate and Social Norm (Cont.)

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	**Within Next 5 Years After Graduation (%)**	**Within Next 10 Years After Graduation (%)**	**No At All (%)**	**Total (%)**	
Siblings Abroad						
Yes	16.9	39.4	12.7	31.0	**100.0**	0.633
No	16.4	32.2	13.4	38.0	**100.0**	
Other Relatives Abroad						
Yes	16.1	37.6	18.8	27.4	**100.0**	0.000*
No	16.8	29.9	8.4	44.9	**100.0**	
Friends Abroad						
Yes	13.1	37.6	15.7	33.6	**100.0**	0.016*
No	21.1	28.1	9.9	40.9	**100.0**	

Significant level $p < 0.05$* and $p < 0.10$**

Table 4.29 shows the association between engineering students who have the intention to migrate and having a family members abroad. At 5 percent significant level, there is significant association between ethnicity and having family members abroad (p-value = 0.028 < 0.05).

Across gender, ethnicity, and type of sponsorship received, majority of students who have the intention to migrate have no family members abroad.

Table 4.29: Family Members Abroad and Socio-Demographic Variable

Students Who Have the Intention to Migrate	Family Members Abroad			Chi-Square (p-value)
	Yes (%)	No (%)	Total (%)	
Gender (n=253)				
Male	30.4	69.6	**100.0**	0.180
Female	22.9	77.1	**100.0**	
Ethnicity (n=253)				
Malay	25.6	74.4	**100.0**	0.028*
Chinese	33.3	66.7	**100.0**	
Indian	5.6	94.4	**100.0**	
Others	50.0	50.0	**100.0**	
Sponsorship (n=253)				
Government Sponsorship	17.0	83.0	**100.0**	0.151
Government Loan	31.6	68.4	**100.0**	
Private Sponsorship	20.0	80.0	**100.0**	
Self-Sponsored	31.9	68.1	**100.0**	

Significant level $p < 0.05$*

Result Table 4.30 shows that there is no evidence of significant association between having other relatives abroad and gender (p-value: 0.127 > 0.05) at 5 percent significant level. Similarly, there are no significant association for ethnicity (0.600) and sponsorship received (0.647) with having other relatives abroad.

Table 4.30: Other Relatives Abroad and Socio-Demographic Variable

Students Who Have the Intention to Migrate	Other Relatives Abroad			Chi-Square (p-value)
	Yes (%)	No (%)	Total (%)	
Gender (n=253)				
Male	48.9	51.1	**100.0**	0.127
Female	58.5	41.5	**100.0**	
Ethnicity (n=253)				
Malay	51.1	48.9	**100.0**	0.600
Chinese	62.2	37.8	**100.0**	
Indian	55.6	44.4	**100.0**	
Others	50.0	50.0	**100.0**	
Sponsorship (n=253)				
Government Sponsorship	57.4	42.6	**100.0**	0.647
Government Loan	50.0	50.0	**100.0**	
Private Sponsorship	51.1	48.9	**100.0**	
Self-Sponsored	59.6	40.4	**100.0**	

Table 4.31 provide an evidence that at 10 percent significant level there is significant association between having friends abroad and gender (p-value: $0.067 < 0.10$). Majority of male (54.8%) and female (66.1%) female students have friends abroad.

Both ethnicity (0.276) and sponsorship (0.555) has no significant association with having friends abroad at 10 percent significant level. Similar with gender, majority of engineering students among ethnicity and among sponsorship have friends staying abroad.

Table 4.31: Friends Abroad and Socio-Demographic Variable

Students Who Have the Intention to Migrate	Friends Abroad			Chi-Square (p-value)
	Yes (%)	No (%)	Total (%)	
Gender (n=253)				
Male	54.8	45.2	**100.0**	0.067**
Female	66.1	33.9	**100.0**	
Ethnicity (n=253)				
Malay	60.8	39.2	**100.0**	0.276
Chinese	64.4	35.6	**100.0**	
Indian	38.9	61.1	**100.0**	
Others	64.3	35.7	**100.0**	
Sponsorship (n=253)				
Government Sponsorship	68.1	31.9	**100.0**	0.555
Government Loan	56.1	43.9	**100.0**	
Private Sponsorship	62.2	37.8	**100.0**	
Self-Sponsored	59.6	40.4	**100.0**	

Significant level $p < 0.10$**

4.5 Migration Policy

Results for migration policy shows the agreeableness of respondents towards migration policy as an important criteria to migrate and how it can influence their decision to migrate. Migration policy are part of the Theory of Planned Behaviour as a 'perceived behavioural control' where it can influence individual's decision.

Table 4.32 shows that more than majority of the students perceived that less stringent migration policy for family members to enter (69.0%), dual citizenship (65.0%), easy to obtain permanent residence (64.8%), and easy entrants without permit (59.5%) agreed as an important criteria when choosing to migrate abroad.

Table 4.32: Migration Policy

Variables	Disagree (%)	Neutral (%)	Agree (%)	Total (%)
Easy to Obtain Permanent Residence	6.3	29.0	64.8	**100.0**
Dual Citizenship	6.5	28.5	65.0	**100.0**
Easy Entrants Without Permit	9.5	31.0	59.5	**100.0**
Less Stringent Migration Policy for Family Members to Enter	4.5	26.5	69.0	**100.0**

The analysis found that there is a significant association between less stringent migration policies for family members to enter and respondent's intention to migrate (p-value = 0.054 < 0.10) as shown in Table 4.33. Similarly, easy entrants without a permit (0.069) are also significant at 10 percent significant level.

Table 4.33: Intention to Migrate and Migration Policy

	Intention to Migrate					Chi-Square (p-value)
	Within 1 Year After Graduation (%)	Within Next 5 Years After Graduation (%)	Within Next 10 Years After Graduation (%)	No At All (%)	Total (%)	
Easy to Obtain Permanent Residence						
Disagree	12.0	44.0	4.0	40.0	**100.0**	0.783
Neutral	20.7	31.9	8.6	38.8	**100.0**	
Agree	15.1	33.2	16.2	35.5	**100.0**	
Dual Citizenship						
Disagree	19.2	30.8	11.5	38.5	**100.0**	0.156
Neutral	14.0	32.5	9.6	43.9	**100.0**	
Agree	17.3	34.2	15.0	33.5	**100.0**	
Easy Entrants Without Permit						
Disagree	5.3	50.0	7.9	36.8	**100.0**	0.069**
Neutral	14.5	29.8	12.1	43.5	**100.0**	
Agree	19.3	32.8	14.7	33.2	**100.0**	
Less Stringent Migration Policies for Family Members to Enter						
Disagree	11.1	44.4	5.6	38.9	**100.0**	0.054**
Neutral	16.0	30.2	7.5	46.2	**100.0**	
Agree	17.0	34.1	15.9	33.0	**100.0**	

Significant level p < 0.10**

The analysis in Table 4.34 found that there is differences between students that have the intention to migrate and no intention to migrate at all in choosing fair migration

as a reason for them to migrate (p-value = 0.015 < 0.05). Likewise, at 10 percent significant level there significance differences between students that received various scholarship and loans in choosing fair migration policy as an important factors (p-value = 0.083 < 0.10)

Table 4.34: Mean Score on Migration Policy

	Mean Score	N	Std Dev	Test Statistics
Gender				
Male	3.05	225	0.587	Mann-Whitney: -0.519
Female	3.08	175	0.572	p-value: 0.603
Total	3.06	**400**	0.580	
Ethnic				
Malay	3.05	266	0.607	Kruskal-Wallis: 2.927
Chinese	3.08	85	0.528	p-value: 0.403
Indian	3.22	25	0.511	
Others	2.96	24	0.504	
Total	3.06	**400**	0.580	
Sponsorship				
Government Scholarship	2.94	81	0.613	Kruskal-Wallis: 6.674
Government Loan	3.08	174	0.557	p-value: 0.083**
Private Sponsorship	3.02	65	0.558	
Self-sponsored	3.19	80	0.591	
Total	3.06	**400**	0.580	
Intention to Migrate				
Yes	3.11	253	0.583	Mann-Whitney: -2.430
No	2.98	147	0.566	p-value: 0.015*
Total	3.06	**400**	0.580	

Significant level $p < 0.05$* and $p < 0.10$**

4.6 Logistic Regression

In identifying which factors influence students' intention to migrate abroad, logistic regression was conducted in identifying which of this factors influence the students' migration intention and what is the likelihood for students to migrate because of this factors. Logistic regression also identifies which of the socio-demographic variables are more likely to have the intention to migrate. These variables include gender, ethnic, institution, sponsorship, and experience visiting other countries.

Refer to Table 4.35, the independent variables are evaluated using the Wald Test. By ethnicity, Chinese students (0.027) are significant at 5 percent significant level and this is similar students that have other relatives living abroad (0.007).

Students that studied in private university (0.081) and students received government loan (0.060) and private sponsored (0.099) are significant at 10 percent significant level.

Table 4.35 also present the respective estimated odds ratios and the 95 percent C.I. for these estimates. Among ethnics, Chinese students are 48.6 percent less likely to migrate compared to Malay and Indian students. Among family members that live abroad, students that has relatives abroad are 2.17 times more likely to migrate. Lastly, students that currently under private sponsored are 2.22 times more likely to migrate and students under the government education loans are 1.75 times more likely to migrate.

It is interesting to highlight that even though gender is not significant but the odds ratio shows that female students are 30.3 percent more likely to migrate than male students. Engineering students are 24.0 percent less likely to migrate when they have close family members abroad such as father, mother or siblings, and 4.6 percent less likely to migrate when having friends abroad.

Students who are dissatisfied with personal satisfaction (36.5%) and socio-economic and environment satisfaction (12.3%) in Malaysia are less likely to migrate than those who are satisfied with both push factors.

In push factors, respondents who are agreed that salary and private benefits (15.4%), jobs opportunity and workplace environment (24.3%) and family factor (35.6%) as an important pull factors are more likely to migrate. Similarly, students that agreed fair migration policy as an important criteria to migrate are 22.9 percent more likely to migrate.

Table 4.35: Summary Statistics of the Binary Logistic Regression Model

Variable Description	Variable	Estimated Beta	P-value	Odds Ratio (Exp(B))	95% C.I. Lower	95% C.I. Upper
Gender	**Ref: Male**					
	Female	0.264	0.260	1.303	0.823	2.063
Ethnic	**Ref: Malay**					
	Chinese*	-0.666	0.019	0.514	0.294	0.898
	Indian	0.123	0.809	1.131	0.416	3.080
	Others	-.0297	0.543	0.743	0.285	1.937
Sponsorship	**Ref: Self-Sponsored**					
	Government Scholarship	0.450	0.222	1.569	0.762	3.232
	Government Loans**	0.558	0.073	1.748	0.950	3.215
	Private Sponsored*	0.798	0.044	2.220	1.023	4.187
Close Family Members Abroad	**Ref: No**					
	Yes	0.278	0.324	1.321	0.760	2.294
Other Relatives Abroad	**Ref: No**					
	Yes*	0.776	0.005	2.173	1.272	3.712
Friends Abroad	**Ref: No**					
	Yes	-0.047	0.861	0.954	0.560	1.632
Personal Satisfaction	**Ref: Satisfied**					
	Neutral	-0.139	0.697	0.870	0.433	1.751
	Dissatisfied	-0.453	0.230	0.635	0.303	1.332
Socio-economic & Environment Satisfaction	**Ref: Satisfied**					
	Neutral*	-0.731	0.046	0.482	0.235	0.988
	Dissatisfied	-0.131	0.756	0.877	0.384	2.002
Salary & Private Benefit	**Ref: Disagree**					
	Neutral	0.436	0.175	1.546	0.824	2.901
	Agree	0.143	0.650	1.154	0.622	2.140
Job Opportunities & Workplace Environment	**Ref: Disagree**					
	Neutral	0.146	0.632	1.157	0.636	2.103
	Agree	0.217	0.569	1.243	0.589	2.623
Political Factor	**Ref: Disagree**					
	Neutral	-0.219	0.505	0.803	0.421	1.531
	Agree	-0.208	0.611	0.812	0.364	1.813
Social Capital & Family Factor	**Ref: Disagree**					
	Neutral	-0.447	0.160	0.640	0.343	1.193
	Agree	0.304	0.454	1.356	0.612	3.003

Significant level p < 0.05* and p < 0.10**

Table 4.35: Summary Statistics of the Binary Logistic Regression Model (Cont.)

Variable Description	Variable	Estimated Beta	P-value	Odds Ratio (Exp(B))	95% C.I.	
					Lower	Upper
	Ref: Disagree					
Quality of Life	Neutral	-0.309	0.380	0.734	0.368	1.464
	Agree	-0.463	0.306	0.629	0.259	1.529
	Ref: Disagree					
Migration Policy	Neutral**	0.562	0.083	1.755	0.928	3.317
	Agree	0.206	0.617	1.229	0.548	2.757

Significant level $p < 0.05$* and $p < 0.10$**

The outcome of testing goodness-of-fit of the socio-demography model with various statistical tests is presented in Table 4.36. The Pearson chi-square test statistics is 50.376 and significant at five percent level. This shows that there is a relationship between the dependent variable and the independent variables.

The Nagelkerke R square is a pseudo r-square which is similar to the R^2 value in regression analysis. It measures how useful the independent variables are in predicting the dependent variable. The Nagelkerke R Square is 0.162 meaning that approximately 16.2 percent of variation in intention to migrate can be explained by the independent variables in the model. However, this is not sufficient in explaining and inform the accuracy of errors associated with the model.

To measure the overall goodness-of-fit the Hosmer-Lemeshow test are applied. Using the following hypothesis:

H_0: the current models fit well
H_1: the current models does not fit well

The Hosmer-Lemeshow test statistic is 10.741 with a significance of 0.217. Thus, the null hypothesis is not rejected and it is concluded that the current model fits reasonably well.

Table 4.36: Test of Significance and Goodness-of-Fit of the Model

Statistical Test	Value of Test Statistic	d.f. (degree of freedom)	p-value
Pearson Chi-Square Statistic	50.376	26	0.003*
-2 Log Likelihood Ratio Test	475.713	-	-
Nagelkerke R Square	0.162	-	-
Hosmer and Lemeshow Test	10.741	8	0.217

Significant level $p < 0.05$*

4.7 Summary

A multiple analysis was employed in investigating the association between socio-demographic variables and respondents intention to migrate. The analysis continues with the association between factors of migration and fair migration policy with the intention to migrate. Furthering the analysis, non-parametric was applied in identifying the differences among socio-demographic when choosing factors of migration and migration policy as a reason for them to migrate. The analysis ends with Logistic Regression in investigating what is the likelihood for engineering students to migrate. Overall 400 engineering students from various public and private universities participated in this survey. Findings revealed that 56.3 percent of respondents are male students. Majority of the respondent is from Malay ethnicity (66.5%) and study in public university (65.5%). Almost half of the engineering students participate in this study received government loan (43.5%).

The Chi-Square test of independence is used in determining is there any relationship between socio-demographic variables and intention to migrate and also between factors of migration including migration policy with the intention to migrate. Gender, ethnic, and institutions are significant with the intention to migrate. Has experience visiting other country and have relatives abroad are also significant. For push factors of migration, students' satisfaction towards their association with friends and

neighbours, political stability in the home country, quality of life, and jobs prospects in Malaysia has a significant association with their intention to migrate. Among pull factors attractive, employment opportunity, attractive job scope, and opportunity for career development which representing economic reason have a significant association with the intention to migrate. A non-economic reason such as freedom of speech, staying near with family members that already living abroad, low cost of living, better air quality, and efficient waste management abroad are also has a significant association with students' intention to migrate. Migration policy such as easy entrant without a permit and less stringent migration policies for family members to enter also has a significant association with intention to migrate.

The analysis continue with Kruskal-Wallis and Mann-Whitney non-parametric test to test significant difference between social background of respondents and scores for domains factors of migration and migration policy scores. There are significant difference between male and female students in choosing salary and private benefit and political factor as an important factors to migrate. Among ethnics also have differences in agreeing that job opportunity and workplace environment and social capital and family factor as an important factors for engineering students to migrate. Between students that received government scholarship, government loan, private sponsorship and self-sponsored there are differences among them in selecting political factor, social capital and family factor, and fair family migration as an important reasons for them to migrate. Finally, between those who have the intentions and no intentions to migrate at all there are differences whether they are satisfied with socio-economic and environment satisfaction in Malaysia and also differences in selecting fair migration policy abroad as an important reason for them to migrate.

Final analysis is Logistic Regression in calculating the likelihood for the respondent to migrate abroad based on their socio-demographic variables, choices made

on factors of migration, and their agreement on the migration policy. By ethnics, Chinese students are likely to migrate compared to Malay and Indian students. Respondents that have relatives abroad are more likely to migrate. Students who are received government loan and private sponsorship to support their tertiary education are more likely to migrate.

Even though gender is not significant but the odds ratio shows that female students are more likely to migrate than male students. Respondents are less likely to migrate when they have friends and close family members abroad such as father, mother or siblings abroad. In factors of migration respondents who are agreed that salary and private benefits, job opportunity and workplace environment, and family factor as important pull factors are more likely to migrate. Similarly, students that agreed with fair migration policy as an important criterion to migrate are also more likely to migrate. This study continues with Chapter 5 in discussing the analysis of the survey.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter discusses key research findings from the data analysis. The objectives of the study are: (i) to identify the intention to migrate among engineering; (ii) to examine the underlying factors that influence engineering students' intent to migrate and (iii) to analyse the likelihood to migrate abroad among the engineering students across different socio-demographic background. Multiple data sources and literature were employed in answering the research questions and objectives. Discussion in this chapter is arranged based on the objective and the framework of this research.

5.1 Destination to Migrate

Analysis from the previous chapter found that 253 students or 63.3 percent out of 400 respondents have the intention to migrate. Majority have the intention to migrate within next 5 years after graduation (33.5%). By countries, Japan were chosen as a favourite country to migrate among engineering students (17.2%). This is understandable as Japan are known for their technological innovation in engineering and information technology (IT).

Other reasons for why engineering students are interested to migrate is because of the Japanese culture. From the culture of grace and discipline of the *Geisha* and *Bushido* to the counter-culture of Japanese pop culture (J-Pop). This is unique for Japan as culture itself can attract not just tourist but also university students and skilled immigrant to stay and embrace the culture. This unique way migration can be found in the study by Liu (2016) where the study highlighted that foreign students in Japan were more likely to stay in Japan due to cultural factors as compared to economic factors.

The Japanese government also attract foreign skilled worker through culture such as The Cool Japan Strategy. The re-branding and re-introduction of Japanese culture globally from fashion, food culture to *Anime* culture. From this policy Japan projected

the right image in promoting Japanese culture through globalization (Japan Ministry of Economy, Industry & Trade, 2012).

In the Malaysian perspective, policy such as The Look East Policy play a role in influencing Malaysian students to migrate to Japan. Since the introduction of this policy in 1982, almost 15,000 Malaysian has migrated to Japan either to enrol in specialized courses of higher education or to receive industry and business training (Yamamoto, 2012).

Another favourite destination is the United Kingdom. Reasons for students were attracted to migrate to the United Kingdom is because of the historical context of Malaysia. Historically, after the colonialism and gaining independence from the British, Malaysia still retain the British education system in public schools and higher education and also recognized English language as a second language. For engineering students the United Kingdom can be a good opportunity to find jobs as most universities in Malaysia provide engineering courses are accredited by Board of Engineering Malaysia (BEM) under the Registration of Engineers Act 1967. Foreign countries such as the United States, the United Kingdom, Ireland and South Africa has recognized BEM accreditation. This can be an advantage for engineering students in Malaysia in finding jobs abroad.

5.2 Individual's Attitude

Ajzen (1991) defined attitude as a predictive determinant influence individual's intention. How individual feel about certain behaviour influence their intention. Individual's attitude towards migration activity can influence the migration intention. Attitude can be the feeling of satisfaction toward surroundings and how students perceived situation abroad. Thus, attitudes are measured through factors of migration and these factors can influence students' intention to migrate.

5.2.1 Salary and Private Benefits

The findings of this study shows that attractive salary is one of a criteria for students when they want to migrate abroad. This show that students are more attracted to find a job that provide higher or attractive salary and benefits. Findings by Junaimah et al (2009) claimed from their study, promising job scopes and job opportunities are not as important as salary. Other scholars also provide similar findings such as by Junaimah and Yusliza (2011) as they found Malaysian skilled workers tend to migrate due to better promotion provided by the firms abroad. Quah et al (2014) also noted that Malaysian abroad will migrate back to Malaysia if local firms can provide a similar or higher than salary provided by foreign firms which include private benefits.

Even though past studies only focus on migration of skilled worker in accounting and business field but the analysis from this study shows that it can happen in other fields such as in engineering, science and IT. Thus, showing that migration do not just occur in specific field but can be happen in a whole sector of economy.

5.2.2 Job Opportunities and Workplace Environment

Majority of the students who were dissatisfied with the employment prospects in Malaysia have the intention to migrate abroad within 5 years after graduation. Those who perceived that employment opportunity, attractive job scope, and opportunity for career development as an important factors to migrate have the intention to migrate within 5 years of migration. An analysis on push factors of migration found that there is significance association between students' satisfaction with employment opportunity in Malaysia and their intention to migrate.

The respondents of this study felt that job prospect in Malaysia are very limited and opportunity abroad could provide them with vast job opportunities and prospects. Jian et al (2013) also found there is significant relationship between job satisfaction and brain drain among the university graduates.

The findings of this study contradict Lim et al (2004) findings, as it show jobs satisfaction is not an important factor for engineers' intention to migrate, where professional engineers who are satisfied with their jobs in Malaysia are less likely to migrate abroad. But, study by Lim et al are focused toward professional engineers that has ten to twenty years of work experience. This differ with this study on engineering students that have not entered the workforce and uncertain about job prospect in Malaysia.

5.2.3 Political Factor

Students' satisfaction towards political stability and its scenario in Malaysia has become a push factor for students to migrate as more than half of those who are dissatisfied with political stability have the intention to migrate. Political stability include the aspect of corruption and discrimination based on race and gender in the country (Dzvimbo, 2003). Students feel that if there is corruption and discrimination in the administration, they will have lesser opportunity to develop their potential. In the Transparency International 2016 Corruption Perception Index reported that Malaysia ranked 56th out of 176 countries. Between 0 (Very Corrupt) to 100 (Very Clean), Malaysia scored 44 out of 100 (Transparency International, 2017).

The analysis also found that engineering students perceived freedom of speech as an important factors to migrate have the intention migrate. Political scenario related to the rights for citizens to voice out their opinion in Malaysia has been documented in a report by The Economist 2017 Democracy Index. In this report Malaysia ranked 59th out of 167 countries and categorized Malaysia as a "flawed democracy" country (The Economist Intelligence Unit, 2018).

Political participation are changing over the time as formal political participation such as voting and participate in political party declining and the youth are more likely to engage in protest and demonstration. A more direct way to express their discontent regarding to social, economic, or political issues to the government (Bahtiar, Shamsu, &

Haslina, 2018), although expressing political views and issues has changed from street to online platform. Social media such as Facebook and Twitter act as information provider and distributing political ideology. Many politician and political party take the advantage of social media as a platform to take down their political opponent. A study by Bahtiar, Shamsu, and Haslina (2018) found that Malaysian youth used Facebook to interact with politicians and political information from Facebook influenced Malaysian youth to participate in demonstration. Using social media to voice their concern and issues related to youth. Thus, other than participating in demonstration and protest, voicing out opinion through social media are also part of freedom of speech.

It is worth to note that even though student's dissatisfaction towards political stability in Malaysia could influence them to migrate abroad, political stability in the destination country is not one of the important criteria for them to migrate abroad. Students were more attracted with the political situations in developed countries that are already stable and safe. The 2017 Democracy Index reported that New Zealand ranked 4th as the best country for democracy, followed by Canada in 7th, Australia in 8th and United Kingdom in 14th. In addition, The 2016 Corruption Perception Index by Transparency International has ranked New Zealand second place for a country that are less corrupt, followed by Canada in 9th, United Kingdom in 12th and Australia in 13th places (The Economist Intelligence Unit, 2018).

In conclusion, political sound and safer environment in the developed country have been the attraction for many especially to those who have never experience going abroad.

5.2.4 Social Capital and Family Factor

Students tend to migrate when they have social capital such as a family members or friend that living abroad. This is shown in the findings in which 81 percent of engineering students who perceived having family members abroad as an important criteria to migrate.

Students will consider to migrate if they have any family members or friends living abroad and this becomes a push factor for students. The study's findings are similar with Haug (2008) who stated regardless the type of migrant i.e. potential long-term migrant, short-term migrant or tourist, the existent of personal connection such as friends and relatives at the place of destination can influence their decision to migrate abroad. Theory on New Economic of Labor Migration (NELM) also support this view where social capital is important for new migrant when entering a new country. This is because prior migrants can provide new migrants valuable information and experiences for them which can reduce uncertainty in the future. At the same time they can provide potential migrants transportation or living arrangements at the intended destination, which reduces expected costs of migration (Garip, 2008).

5.2.5 Quality of Life

Past studies shows that there is pattern that link between quality of life and migration, when people are dissatisfied with their quality of life, their intention to migrate will increase. A literature by Lewer, Pacheco & Rossouw (2009) found that reasons for immigrant from Asia, Africa and Latin America to migrate to OECD countries is because of the quality of life in the OECD countries. Mostly because economic reason rather than non-economic reason. Findings from the analysis shows engineering students perceived both objective and subjective quality of life as an important factors to migrate. The non-economic reason include efficient waste management, safe neighbourhood, and better air

quality which has a significant association with the students' intention to migrate. For economic reason it is only low cost of living are significant with the intention to migrate.

Environmental hazard such as air and water pollution can influence students' decision to migrate abroad as the analysis shows that those who are agree that better air quality is an important criteria to migrate more likely to migrate within five years after their graduation. This is because every year Malaysia facing haze every year due to slash-and-burn method practiced by Indonesia in order to clear for vegetation and to start planting palm oil and paper plantation. World Health Organization (WHO) reported that air pollution in South-East Asia are contributed by the combination of agricultural activities, urban emissions, and atmospheric condition which led to annual periods of extreme air pollution such as haze (WHO, 2018). Migration due to natural or man-made hazard are called 'Environmental Migrants'. This situation drive students to migrate to a country with a less polluted air. Countries such as Japan, Australia, New Zealand, the United Kingdom and Canada which obtained highest score in Environmental Performance Index (EPI) 2018 in their respective region were chosen by the engineering students as a preferred country for them to migrate.

For economic reasons quality of life, cost of living is an important criteria for students to migrate. Students may face challenges in terms of cost of living because the countries chosen for migrate are mainly a developed countries such as Japan, Australia, the United Kingdom, the United States of America and Canada. These countries have higher cost of living compared to Malaysia. Instead it should compare which among developed countries have lower cost of living. For example, using the United States as the based country, Japan has the lowest cost of living index with the index of 97, indicate that in average Japanese good are 0.3 percent cheaper compared to the United States. This is followed by Canada (98.4), Singapore (98.8), the United Kingdom (102.2), New Zealand (107.4), and Australia (113.4) (WorldData.info, 2018).

5.3 The Influence of Family and Friends Abroad

Earlier discussion in Social Capital and Family Factor discusses the intention of engineering students to migrate abroad depends on if they have family members abroad which include distant family members such as uncle, auntie, and cousins. Malay and Chinese engineering students tend to migrate when there are close family members abroad such as father, mother, and other siblings. This is because of the Malaysian culture that promotes family value. Asian countries including Malaysia are known for their family value as it is practiced among society and children since the early age. Vinken (2007) suggests that the reason for this value is because of filial piety practiced by the Asian families. Filial piety is a notion of obligation, respect, and feeling of duty toward the family. Vinken emphasized that religion is also adopted in the family value. Thus, such family values and practices influence students' intention to migrate.

The findings and discussion are aligned with Ajzen's Theory of Planned Behavior where one of the determinant that influence individual's intention are Subjective Norm. Ajzen (1991) refer Subjective Norm as a perceived social pressure when to perform or not to perform certain behavior. Certain behavior are more likely to perform when there is favorable subjective norm. Thus, this study conclude that when there is favorable social pressure from friends or relatives abroad it can influence students' intention behavior to migrate abroad.

5.4 Migration Policy

The study also showed engineering students agreed that attractive migration policies such easy entrants without permit or visa and less stringent migration policies for family member to enter as an important criteria for migration.

Migration policy can change students' decision to migrate abroad as it is out of their control and controlled by government at the destination countries. Strict migration policy can restrict individual's opportunity to migrate abroad. Some sees migration as a

once in a lifetime opportunity, if they break any migration law abroad their name will be blacklisted from entering that particular country and other countries all over the world as criminal record can bar individual from entering the country or when applying for visa.

The analysis found that entrants without working permit is perceived as an important criteria for the students to migrate, but the questionnaire were made based on the hypothetical situations and in reality most countries especially in developed countries are required for migrants to obtained working visa or permit before entering and working in that country. Though, due to Malaysia's status as a member of commonwealth countries, ASEAN, and APEC, citizens can enter a country such as Singapore, Australia, and the United Kingdom with easier visa application or without a visa when visiting these countries at a limited time between 90 to 180 days (GOV.UK, 2018; Australia Department of Home Affairs, 2018).

A less stringent migration policies for family to enter a country are also seen as an important criteria to migrate. Similarly from previous discussion, social capital or connections such as parents, siblings, and other family members play a significance role in student's decision to migrate (Haug, 2008).

The call for less strict migration policies have been answered by the leaders from various countries. Government of the developed countries have recognized that high skilled migrants can contribute their skills and knowledge for the economic and social development of the country, thus they amend their migration to be flexible and attractive to the migrants. For example Canada introduce a program to attract international students and skilled immigrants to stay and work in the country called the Express Entry Program. The purpose of this program is to integrate foreign students in Canada by offering jobs and permanent residency in Canada. This could give Canada an advantage as in 2015 about 218,000 foreign students were enrolled in Canadian universities and colleges and the Canadian government projected that it could help the economic growth and reduce

country dependence on senior citizen (Canada Advisory Council on Economic Growth, 2016).

Migration policies can be identified as Perceived Behavioural Control in Ajzen's Theory of Planned Behaviour. This is because Perceived Behavioural Control is a perception of whether a person can perform certain behaviour based on their ability to do so. The more resources and fewer obstacles individuals perceive, the greater their perceived behavioural control and the stronger their intention to perform behaviours (Hardin-Fanning & Ricks, 2016). When engineering student perceived migration policies as an obstacles, a strict policy can be a challenging obstacles for the students. Thus, students are less likely to migrate abroad.

5.5 Migration Intention among Socio-Demographic Group

This section discusses how different socio-demographic groups such as gender, ethnicity, and sponsorship received act differently when deciding to migrate abroad.

5.5.1 Genders

In general, the number of male students sampled in this research are 56.3 percent and female students are 43.8 percent. The number of sample represent the population as there are more male than female students in the engineering field. It is worth to highlight that female students are more likely to migrate than male students. This findings can be supported by Ravenstein (1885) in which female migrant workers were migrating even then to work in industrial areas.

It is interesting to point out that there is a significance difference between male and female when it comes to politics as a factors of migration. Female respondents find political factor to be an influencing pull factor compared to men. Over the year Malaysian women, especially the younger generations has participated actively in politics. This new generation of women who are more politically aware participate in politics in order to voice out their rights such as equal pay of salary and current issues such as sexual

harassment. Political participation can be done through mass rally or voting for political candidate that represent them in legislative level.

With the increase of collective and private political activism among women in the west (Coffé & Bolzendahl, 2010) and the wide media coverage on this issue may have influence women in the east to be more aware of their political rights. Thus, they are more attracted to migrate to a western influence democratic countries such as United States of America, United Kingdom, Sweden, Denmark, Australia and New Zealand where political participation and activism are more active.

The findings also highlighted that there is significance difference among male and female students in terms of choosing salary and other private benefits as female student prioritized salary and benefits as important factors to migrate. Department of Statistics Malaysia reported that average salary by female employee are RM2,772 per month, whereas male employee earned an average salary of RM2,954 in 2016 (Department of Statistics Malaysia, 2018). Eventhough 55% of professionals are female, only 45% are male, yet female professionals earned 14% less than male professionals (Penang Institute, 2018). Women have been facing wage gap in most countries and many of the respondents felt that working overseas especially in developed countries will give them better opportunities to get higher salary.

Though a study by Rahmah and Zulridah (2005) suggest that wage gap in manufacturing are small and not significant compared to agriculture and service sector, this still shows a small degree of discrimination against female employee. Studies have shown different training received and educational level in the manufacturing sector is the result to wage gap (Rahmah & Zulridah, 2005). However, The Penang Institute suggested otherwise as the organization argue that education or training is no longer a factor for wage gap as 63% of Malaysian female employee are university graduates. The organization suggest that one of the reason of wage gap is because female are less likely

to negotiate for higher salary. This is due to gender stereotype in which female employee who request for raise or higher wages are seen as pushy and demanding, but when a male employee employed the same strategy are seen as professional and assertive (Bowles and Babcock, 2013; Penang Institute, 2018).

In conclusion, female engineering students feel that they are underrepresented in the local political world and discriminatory practice on female worker in the workplace. They received these information through reports and news where it influence their perspective and their intentions to migrate abroad.

5.5.2 Ethnicity

It is interesting to point out that the intention to migrate is higher among Indians students as compared to Malay students and Chinese students. Almost half of Chinese do not have any intention to migrate. It shows that among the non-Bumiputera, Indian had higher intention to migrate than Chinese. It is found that there is differences among ethnics when choosing job opportunity and workplace environment as a factors for migration. The reasons for these finding can be explained through two perspectives: economic and job opportunity.

In the economic context, Chinese have greater economic advantage as compared than Malay and Indian ethnics. A study by Zurina, Norhasni Zainal and Abdul Razak (2009) shows the difference across ethnic in term of income, capitals and properties. From this study, there is no significant differences between ethnicity and income. Both Chinese and Indians had an increase of average income up to 90% between 1970 and 2002. Where average Chinese income increase from RM 394 to RM 4,279 and average income for Indian rises from RM264 to RM3,011.

Zurina et al (2009) continue with the ownership of share capital among ethnicities. In 2002 Chinese owned RM159.8 billion worth of share capital, 40.9% from the total of share capital. In contrast, Indian owned RM5.9 billion worth of shares in 2002, 1.5% from

the total share capital. For real property ownership, in average Chinese owned 70% of the business complex and 71.9% of total commercial building in Malaysia. For Indians, in average they owned 2.1% of business complex and 4.6% of total commercial building in Malaysia in 2005.

For share of ethnic in public sector, Malays who served in public sector increased from 15% in 1970 to 22% in 2000 after the implementation of New Economic Policy. The opposite happen to Chinese and Indian, where Chinese that work in public sector decreases from 7% to 6% and for Indian it decreases from 17% to 12% (Mohd Yusof, Dietzenbacher & Los, 2015).

This support the study findings that Indian are more likely to migrate because of small economic opportunity among Indian community. Chinese have higher number of students who do not have any intention to migrate due to plenty economic opportunities for them.

Because of the large share of Chinese in business complex this can be an advantage for the Chinese engineering students to work in the engineering firms. This situation contributed to the second perspective, the perspectives of different ethnics on job opportunity after graduation. This is because Malay, Indian and other ethnic feels that there is a discrimination when applying for jobs as Chinese graduates are more likely to get a job after graduation. The demand for the ability to speak in mandarin from employers are increasing over the year. This provide an advantage for Chinese students.

This argument can be supported through a study by Lee and Khalid (2016) that investigated on racial and degree discrimination on job hiring in Malaysia. Their study found that among the company that required Chinese language proficiency set by the firm, Chinese applicants were more likely to get call-backs by the firm than the Malays even though the applicants were fluent in Chinese language. The authors also added that Malay applicants proficient in Chinese language are more likely to get call-back by the employer

than Malay without the proficiency. The study also found that in the engineering jobs, Malay applicants face greater degree of discrimination even in Malay-controlled companies relative to Chinese-controlled companies. Thus, Malay graduates did not just face discrimination by other ethnics but also by the Malays themselves.

This study found that low job and economic opportunity have driven the Malays and the Indians to migrate to other countries in comparison to the Chinese. On the contrary, report by the World Bank in 2010 estimated that most Malaysian who migrated abroad were among the Chinese. Study by Yi (2014) reported that Malaysian students in the United States will return to Malaysia if the economic opportunity improves regardless of the ethnic group. In conclusion, this study have shown that ethnicity is an important factor in the decision to migrate.

5.5.3 Sponsorship

The analysis found that government sponsored and private sponsored engineering students are more likely to migrate than those who are self-sponsored. Reason for this is because sponsored students are mostly came from a low income family or household. Unlike self-sponsored students where mostly came from well-off families, usually their tuition fees and accommodations are covered by their parents. For example, in the National Higher Education Fund Corporation (PTPTN) loan policy students can attain full loan sponsorship if the household income are less than RM3,000 or received any *Bantuan Rakyat 1Malaysia* (BR1M) and students can receive only 75% from the maximum possible loan receive if the household earn between RM3,001 to RM5,000 and do not received any BR1M. Lastly, applicant only receive 50% from the maximum possible loan if the household earn between RM5,001 to RM8,000 and do not received any BR1M (PTPTN, 2018; AWANI, 2016).

The process of getting sponsorship is rigid and are only given to those who has the academic excellence and those who came from low income family. The loans are

helpful for those from a low income family that needed external support to continue their study. Government and private sponsored students are bind by government institutions or private firms after they finished their studies, if they decide to not serve the government or private firms, they need to pay a hefty fines if they want to break free from the contract. Thus, in order to repay their loans or scholarship, they migrate to another country that can provide higher salary. The salary from working abroad can be used to pay up their loans or paying back the scholarship. This argument are backed by past studies such as by Friebel & Guriev (2005), Stoll (2010), and Djajic & Vinogradova (2011) where they discuss migration as an exit strategy to pay back their debts in the home country through remittances.

In contrast, self-sponsored students are not bound to any contracts during study and after graduation, this is because their tuition fees and daily expenditure are paid and covered by their parents.

Other interesting finding to point out is that engineering students that received government scholarships have the intention to migrate. It is interesting to discuss about this situation as most of the students who received government scholarship are Department of Civil Service (JPA) Scholarship holder and they are bound to the contract where they need to serve with federal government at least five years. Also this is contradict with findings by Yi (2014) where the author found that sponsored Malaysian students who have migrated to the United States to continue their tertiary education are more inclined to return back to Malaysia after finishing their studies. This is because they are bound to the contract they signed for their sponsorship. The samples of this study were taken in 2016 and 2017, where at that time many graduates were uncertain about the employability in Malaysia, especially in public sector. The graduate tracer study showed that between 2015 and 2017, the numbers of technical students, including engineering students, decreased from 26.9% in 2015 to 22.9% in 2017 (Ministry of Education, 2018).

5.6 Proposed Initiatives

The findings of this study showed that more than half of the respondents have the intention to migrate upon graduating. Respondents felt that salary and job opportunities were top most reasons for them to migrate abroad, followed by the encouragement of family and friends. The issue of migration is further escalated when findings of this study showed students under government loan are more likely to stay abroad after their studies to work. This is a worrying trend as more Malaysian talents will leave the country, thus hindering the country's development agenda.

In order to overcome the shortage of human capital Malaysian government is focusing on attracting Malaysian diaspora and foreign skilled worker to come to the country. The World Bank reported that the REP and RP-T programmes conduct by the TalentCorp are effective in attracting and retaining Malaysian diaspora and foreign skilled worker in Malaysia. However, Malaysia's policies and initiatives to retain Malaysians are inadequate. Thus, this study proposes initiatives that can be implemented by the Malaysian government based on the findings of this study. The proposed initiatives such as 'Brain Circulation Policies' and 'Retaining Future Skilled Worker Policies' are not new or unique and have been implemented in various countries such as China and South Africa with successful results. Their approach can be adapted in Malaysia.

5.6.1 Brain Circulation Policies

The migration of skilled worker and professionals should not be seen as a brain drain, but as an investment for the country. Malaysian government should create a transnational ties with students and professionals who have migrated abroad. This is because new knowledge on technology and R&D can be transferred into the country and exchange with local firms.

This policy have been implemented by the Chinese government to set-up government agencies abroad and websites so that Chinese that have migrated abroad can

communicate with their governments. Policies such as the *Chunhui* Plan help professionals abroad connect with local firm exchanging new knowledge and ideas. Chinese government considered those who have migrate as an "overseas reservoir of talent".

Other countries also implement a similar policies such as the South African Network of Skills Abroad, the Thai Reverse Brain Drain project, and the Colombian Experience.

5.6.2 Retaining Future Skilled Worker

Using forces to retain Malaysia's future skilled worker such as blacklisting students from going abroad because of overdue are not effective. This can be seen from the outcome of the analysis that government and private scholars are more likely to migrate. Government policies to blacklist students who do not pay their loans drive them to migrate abroad. Finding a job abroad that can provide higher salary in order to repay their loans and release from the contract.

Rather imposing a direct and forceful emigration policies, future skilled workers can be retain through indirect economic policies. The reason for engineering students to migrate is because of dissatisfaction towards condition in Malaysia and feel that countries abroad can provide better lifestyle for them. One of the initiatives of the government is to promote our registered engineers. The Malaysian government has invested in infrastructure and organisation in promoting research and development such as Multimedia Super Corridor, Malaysian Technology Development Corporation, Multimedia Development Corporation, and National IT Council. This can be a useful platform for Malaysian engineers and also foreign investor. In Malaysia, engineers are accredited by the Board of Engineers Malaysia (BEM) which are recognized worldwide. Therefore, countries that recognized BEM such as the United States, the United Kingdom, Australia and European Union are attracted to invest their new technology in our country.

At the same time promote Malaysia as a place for green technology as Malaysia is the third largest photovoltaic (solar cell) manufacturers in the world.

Overall, migration can contribute to a positive and negative impacts to the home country. The benefit of migration is the transfer of new knowledge from developed countries as well as the ability to send remittances to support the family at home. However, migration has its downside as migration of workers reduce country's productivity that affects the home country's GDP growth. When there is no improvement in economic growth, more locals would be find a new opportunities abroad and for some will migrate permanently. Thus, the vicious cycle on economic development continues.

Malaysian government are encouraged to propose a policy to retain local professionals and reconnect with Malaysian professionals abroad. By doing so Malaysian professionals abroad can provide knowledge transfer to the local professionals and contribute to the Malaysia's economic development.

5.7 Limitation of Study

The study focus on 400 engineering students in the selected public and private universities in Malaysia, therefore it is cannot be generalised to the other field of study and to working population among engineers. Although in the engineering field the working population may have different perspective on the reasons for migration. Even with the limitations, this study also contributes in understanding the student expectations on their intentions to migrate.

5.8 Recommendation for Future Study

Future study is recommended to extend this research by comparing the intention to migrate among different field of study. This is important because migration pattern may differ for every group of students in different field of study such as science, medicines, arts, and humanities. In addition, it is interesting to extend this study to those who have migrated abroad. Professionals who have migrated may have other reasons to

migrate as compared to those who have not migrated yet. Future study also could extend the current conceptual framework with the addition of Knowledge, Attitude, and Practice (KAP) and to capture in-depth knowledge on migration through interviews with potential respondents. This is also contributing to the growing body of knowledge and expanding theory of migration.

REFERENCES

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Process, 50*, 179-211.

Alleman, J., Hunt, C., Michaels, D., Rapoport, P., & Taylor, L. (1999). Telecommunications and Economic Development: Empirical Evidence from Southern Africa. *International Telecommunications Society*.

Anderson, D. R., Sweeney, D. J., & Williams, T. A. (2012). *Statistics for Business and Economics* (11th ed.). Nashville, Tennessee: South-Western.

Anthias, P. (2006). Student Migration from the Bangladesh to the UK. *Refugee and Migratory Movements Research Unit Occasional Paper*.

AWANI. (2016). *10 perkara anda perlu tahu tentang pinjaman PTPTN*. Retrieved from Astro AWANI: http://www.astroawani.com/gaya-hidup/10-perkara-anda-perlu-tahu-tentang-pinjaman-ptptn-110880

Bahtiar, M., Abdu, S. D., & Haslina, H. (2018). Youth Offline Political Participation: Trends and Role of Social Media. *Malaysian Journal of Communication, 34*(3), 197-172.

Beine, M., Docquier, F., & Rapoport, H. (2008). Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers. *The Economic Journal, 118*, 631-652.

Black, S. E., Schanzenbach, D. W., & Breitwieser, A. (2017). *The Recent Decline in Women's Labor Force Participation.* Washington D.C.: The Hamilton Project.

Board of Engineers Malaysia. (2019). *BEM Background*. Retrieved from Board of Engineers Malaysia: http://www.bem.org.my/web/guest/history

Bowles, H. R., & Babcock, L. (2012). How Can Women Escape the Compensation Negotiation Dilemma? Relational Accounts Are One Answer. *Psychology of Women Quarterly, 37*(1), 80-96.

Brzozowski, J. (2012). International Migration and Economic Development. *Estudos Avancados, 26*(75), 137-156.

Canada Advisory Council on Economic Growth. (2016). *Attracting the Talent Canada Needs Through Immigration.* Advisory Council on Economic Growth. Retrieved from https://www.budget.gc.ca/aceg-ccce/pdf/learning-nation-eng.pdf

Chetsanga, C. J., & Muchenje, T. B. (1998). *An Analysis of the Cause and Effect of the Brain Drain in Zimbabwe.* Zimbabwe: Scientific and Industrial Research and Development Centre.

Choy, W. K., & Glass, H. (2002). Brain Drain in New Zealand: Issues, Evidence and Implications. *Agenda, 9*(1), 65-82.

Coffé, H., & Bolzendahl, C. (2010). Same Game, Different Rules? Gender Differences in Political Participation. *Sex Roles, 62*(5-6), 318-333.

Committee on Communication for Behavior Change in the 21st Century. (2002). *Speaking of Health: Assessing Health Communication Strategies For Diverse Population.* Washington, DC: National Academies Press.

Dawes, R. M., & Smith, T. L. (1985). Attitude and Opinion Measurement. In G. Lindzey, & E. Aronson, *The Handbook of Social Psychology* (Vol. 1, pp. 509-566). Hillsdale, NJ: Lawrence Earlbaum Associates.

De Haas, H. (2010). Migration and Development: A Theoretical Perspective. *International Migration Review, 44*(1), 227-264.

De Jong, G. F., Root, B. D., Gardner, R. W., Fawcett, J. T., & Abad, R. G. (1986). Migration Intentions and Behavior: Decision Making in a Rural Philippine Province. *Population and Environment, 8*(1), 41-62.

Department of Home Affairs. (2018). *Getting a Visa*. Retrieved from Australian Government Department of Home Affairs: https://immi.homeaffairs.gov.au/visas/getting-a-visa/visa-finder

Department of Statistics Malaysia. (2017). *Report of Household Income and Basic Amenities Survey 2016.* Putrajaya.

Department of Statistics Malaysia. (2017). *Statistics on Women Empowerment in Selected Domains, Malaysia, 2017.* Putrajaya.

Department of Statistics Malaysia. (2018). *Labour Force Survey 2017.* Putrajaya.

Department of Statistics Malaysia. (2018). *Salaries and Wages Survey Report 2017.* Putrajaya.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*(1), 71-75.

Djajic, S., & Vinogradova, A. (2011). Migrants in Debt. *Unpublished paper*.

Docquier, F. (2006). Brain Drain and Inequality Across Nations. *IZA Discussion Paper No. 2440*, 1-40.

Docquier, F., & Rapoport, H. (2011). Globalization, Brain Drain and Development. *IZA Discussion Paper Series No. 5590*, 1-62.

Dzvimbo, K. P. (2003). The International Migration of Skilled Human Capital from Developing Countries. *The World Bank Regional Training Conference*, (pp. 1-16). Accra.

Economic Planning Unit. (2015). *Eleventh Malaysia Plan.* Putrajaya: Percetakan Nasional Malaysia Berhad.

EngineeringUK. (2017). *Engineering UK 2017: The State of Engineering.* London: EngineeringUK.

Etikan, I., Sulaiman Abubakar, M., & Rukayya Sunusi, A. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4.

European Communities. (2000). *Push and pull factors of international migration: A comparative report.* Luxembourg: Office for Official Publications of the European Communities.

Eurostat. (2000). *Push and Pull Factors of International Migration: A Comparative Report.* Luxembourg.

Eurostat. (2018). *Quality of life indicators - measuring quality of life*. Retrieved from Eurostat: https://ec.europa.eu/eurostat/statistics-explained/index.php/Quality_of_life_indicators_-_measuring_quality_of_life#B1_dimensions_of_quality_of_life

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research.* Reading, Massachusetts: Addison-Wesley.

Fleischer, A. (2006). Family, obligations, and migration: The role of kinship in Cameroon. *MPIDR Working Paper WP 2006-047*.

Friebel, G., & Guriev, S. (2005). Smuggling Humans: A Theory of Debt-Financed Migration.

Garip, F. (2008). Social Capital and Migration: How Do Similar Resources Lead to Divergent Outcomes. *Demography, 45*(3), 591-617.

GOV.UK. (2018). *Visas and immigration*. Retrieved from GOV.UK: https://www.gov.uk/browse/visas-immigration

Haque, N. U., & Kim, S. J. (1995). Human Capital Migration: Impact of Migration on Income and Growth. *Palgrave Macmillan Journals, 42*(3), 577-607.

Hardin-Fanning, F., & Ricks, J. M. (2017). Attitudes, social norms, and perceived behavioral control factors influencing participation in a cooking skills program in rural Central Appalachia. *Global Health Promotion, 24*(4), 43-52.

Harish, C., Junaimah, J., & Ahmad Bashawir, A. G. (2015). Postgraduates' perception about the causes of brain drain among Malaysian professionals. *Problems and Perspectives in Management, 13*(2), 365-370.

Harnoss, J. D. (2011). Economic Costs of the Malaysian Brain Drain: Implications from an Endogenous Growth Model. *Malaysian Journal of Economic Studies, 48*(2), 117-130.

Hashimoto, Y. (2017). Highly Skilled Immigrants' Occupational Choices and the Japanese Employment System. *RIETI Discussion Paper Series 17-E-059*, 1-35.

Haug, S. (2008). Migration Networks and Migration Decision-Making. *Journal of Ethnic and Migration Studies, 34*(4), 585-605.

Hogg, M. A., & Vaughan, G. M. (2008). *Social Psychology.* Upper Saddle River, New Jersey: Prentice Hall.

International Labour Organization. (2015). *ILO Global Estimates on Migrant Worker: Results and Methodology.* Geneva: ILO Publication.

International Organization for Migration. (2018). *World Migration Report 2018.* Geneva.

Ivlevs, A. (2014). Happiness and the Emigration Decision. *IZA World of Labor*. doi:http://dx.doi.org/10.15185/izawol.96

Japan Ministry of Economy, Trade, and Industry. (2012). *Cool Japan Strategy.* Tokyo.

Jian, A. Y., Poh, K. N., Tee, S. C., & Shi, S. Y.-B. (2013). Brain Drain in Malaysia: Undergraduate Students Perception. *International Conference on Economics and Business Research 2013*, (pp. 1-6). Penang.

Junaimah, J., & Yusliza, M. Y. (2011). Brain Drain: Propensity to Leave by Malaysian Professionals. *International Journal of Innovation, Management and Technology, 2*(2), 119-122.

Junaimah, J., Ahmad Bashawir, A. G., Mohd Hasanur, R. J., Muhammad, S., & Rabiul, I. (2015). Brain Drain to Singapore: A Conceptual Framework of Malaysians' Diaspora. *The Social Sciences, 10*(6), 702-711.

Junaimah, J., Yusliza, M., & Khoo, M. Y. (2009). Factors that Dive Brain Drain of Accountants in Malaysia. *6th International Conferrence on Intellectual Capital and Knowledge Management.* Montreal: McGill University.

Kartini, A. T., Nidzam, S., Suzanna, M. I., & Suhana, S. (2013). Assessing the Look East Policy: Moving Beyond Work Culture and Ethic. *Asian Social Science, 9*(17), 111-119.

Kasravi, J. (2009). Factors Influencing the Decision to Study Abroad for Students of Color: Moving Beyond the Barriers. *Published Thesis*.

Kazlauskienė, A., & Rinkevičius, L. (2006). Lithuanian "Brain Drain" Causes: Push and Pull Factors. *Engineering Economics, 1*(46), 27-37.

Kofman, E., & Raghuram, P. (2009). Skilled Female Labour Migration. *Focus Migration Policy Brief No. 13*, 1-8.

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size For Research Activities. *Educational & Psychological Measurement, 30*, 607-610.

LaMorte, W. W. (2016). *The Theory of Planned Behavior*. Retrieved from Boston University School of Public Health: http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories3.html

Lee, E. (2016). Factors Influencing the Intent to Migrate in Nursing Students in South Korea. *Journal of Transcultural Nursing, 27*(5), 529-537.

Lee, E. S. (1966). A Theory of Migration. *Demography, 3*(1), 47-57.

Lee, H. A. (2017). Labour Discrimination in Malaysia: Passage Out of the Gridlock. *Perspective, 35*, 1-8.

Lee, H. A., & Khalid, M. A. (2016). Degrees of Discrimination: Race and Graduate Hiring in Malaysia. *Journal of the Asia Pacific Economy, 21*(1), 53-76.

Lewer, J. J., Pacheco, G., & Rossouw, S. (2009). Do Non-Economic Quality of Life Factors Drive Immigration? *IZA Discussion Paper Series, 4385*, 1-23.

Li, Z. F. (2010). Bridging the Gap: Intercultural Friendship between Chinese and Americans. *Published thesis*.

Lim, H. K., Junaimah, J., & Hasnah, H. (2004). Brain Drain: The Determinants of Migrant Intention of Professional Engineers in Penang. *International Journal of Organizational Analysis, 7*, 114-124.

Liu, Y. (2016). To Stay or Leave? Migration decisions of foreign students in Japan. *RIETI Discussion Paper Series 16-E-097*, 1-19.

M. Shamsul, H. (2003). The Role of State in Managing Ethnic Tensions in Malaysia. *American Behavioral Scientist, 47*(3), 240-266.

Mafini, C. (2017). Economic Factors and Life Satisfaction: Trends from South African Communities. *Acta Universitatis Danubius. Œconomica, 13*(3), 155-168.

Martínez-Mesa, J., González-Chica, D. A., Duquia, R. P., Bonamigo, R. R., & Bastos, J. L. (2016). Sampling: how to select participants in my research study? *Anais Brasileiros De Dermatologia, 91*(3), 326-330.

Mastura, A. W. (2014). The Occurrence of Brain Drain in Malaysia: Perceptions on to Work or not to Work Overseas in the Future. *Journal of Emerging Trends in Economics and Management Sciences, 5*(5), 480-489.

Ministry of Education. (2018). *Laporan Kajian Pengesanan Graduan 2017.* Putrajaya.

Ministry of Finance Malaysia. (2016). *Annual Budget 2017.* Putrajaya: MOF.

Ministry of Higher Education. (2004). *Pelan Strategik Pengajian Tinggi: Melangkaui Tahun 2020.* Putrajaya.

Ministry of Higher Education. (2007). *National Higher Education Strategic Plan: Laying the Foundation Beyond 2020.* Putrajaya.

Ministry of Higher Education. (2016). *Laporan Kajian Pengesanan Graduan 2015.* Putrajaya.

Ministry of Higher Education. (2017). *Higher Education Statistics 2016.* Putrajaya.

Ministry of Higher Education. (2017). *Laporan Kajian Pengesanan Graduan 2016.* Putrajaya.

Ministry of Higher Education. (2017). *University Transformation Programme (UniTP) Silver Book.* Putrajaya.

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

Mohd Safwan, G., Muhammad Adidinizar, Z. A.-K., Tan, P.-L., Nurul Hafizah, M., & Mohd Rushdan, Y. (2015). Intention to Migrate: Underlying Factors Affecting Malaysian Brain Drain.

Mohd Yusof, S., Dietzenbacher, E., & Los, B. (2015). Sources of Income Growth and Inequality Across Ethnic Groups in Malaysia, 1970–2000. *World Development, 76*, 311-328.

Mohd. Afendi, D., & Junaidi, B. A. (2016). Meninjau kembali Dasar Pandang ke Timur Mahathir: Penelitian aspek perlaksanaan dan implikasi. *Malaysian Journal of Society and Space, 12*(9), 79-91.

Mohyuddin, A., & Ulllah, Z. (2015). System Analysis of Brain Drain Program in Balochistan. *Science International (Lahore), 27*(1), 561-565.

Neugarten, B. L., Havighurst, R. J., & Tobin, S. S. (1961). The Measurement of Life Satisfaction. *Journal of Gerontology, 16*, 134-143.

New Straits Times. (2018). *Successful Malaysians abroad should help build New Malaysia*. Retrieved from New Straits Times: https://www.nst.com.my/news/nation/2018/10/424572/successful-malaysians-abroad-should-help-build-new-malaysia

Organization for Economic Co-operation and Development. (2007). *OECD Insight: Human Capital.*

Organization for Economic Co-operation and Development. (2019). *Life Satisfaction*. Retrieved from OECD Better Life Index: http://www.oecdbetterlifeindex.org/topics/life-satisfaction/

Otrachshenko, V., & Popova, O. (2011). Life (Dis)satisfaction and Decision to Migrate: Evidence from Central and Eastern Europe. *Arbeitsbereich Wirtschaft, Migration und Integration, 306.*

Park, H. A. (2013). An Introduction to Logistic Regression: From Basic Concepts to Interpretation with Particular Attention to Nursing Domain. *Journal of Korean Academy of Nursing, 43*(2), 154-164.

Parliamentary Office of Science and Technology. (2008). *International Migration of Scientist and Engineers.* London.

Penang Institute. (2018). *What Widens the Gender Pay Gap?* Retrieved from Penang Institute: https://penanginstitute.org/publications/issues/what-widens-the-gender-pay-gap/

Prasoon, R., & Chaturvedi, K. R. (2016). Life Satisfaction: A literature Review. *International Journal of Management Humanities and Social Sciences, 1*(2), 25-32.

PTPTN. (2018). *Permohonan Pinjaman*. Retrieved from National Higher Education Fund Corporation: https://www.ptptn.gov.my/permohonan-pinjaman-side

Quah, C. H., Siti Rohaida, M. Z., & Guok, E. C. (2014). Return Intentions of Malaysia's Diaspora: The Push and Pull Factors. *Case Studies in Business and Management, 1*(1), 140-151.

Rahmah, I., & Zulridah, M. N. (2005). Gender Wage Differentials in the Malaysian Manufacturing Sector. *IIUM Journal of Economics and Management, 13*(2), 119-137.

Ramasamy, P. (2001). Politics of Indian Representation in Malaysia. *Economic and Political Weekly, 36*(45), 4312-4318.

Ramoo, B. (2018). Brain Drain Phenomenon in Malaysia - Analysis of the Engineers' Intention to Migrate Abroad Using the Extended Theory of Planned Behavior.

Ratha, D., Mohapatra, S., & Scheja, E. (2011). Impact of Migration on Economic and Social Development: A Review of Evidence and Emerging Issues. *Policy Research Working Paper, 5558*, 1-39.

Ravenstein, E. G. (1885). The Laws of Migration. *Journal of the Statistical Society of London, 48*(2), 167-235.

Royal Academy of Engineering. (2015). *Engineering for a successful nation.* London.

Sijapati, B. (2015). *Women's Labour Migration from Asia and the Pacific: Opportunities and Challenges.* Bangkok and Washington, D.C.: International Organization of Migration & Migration Policy Institute.

Sin, I. L. (2006). Malaysian Students in Australia: The Pursuit of Upward Mobility. *Asian and Pacific Migration Journal, 15*(2), 239-265.

Smith, J. R., & Hogg, M. A. (2008). Social Identity and Attitudes. In W. Crano, & R. Prislin, *Attitudes and attitude change* (pp. 337-360). New York: Psychology Press.

Smith, R. (2011). Migration and the Innovation Agenda.

Stark, O., & Bloom, D. E. (1985). The New Economics of Labor Migration. *The American Economic Review, 75*(2), 173-178.

Stoll, D. (2010). From Wage Migration to Debt Migration? Easy Credit, Failure in El Norte, and Foreclosure in a Bubble Economy of the Western Guatemalan Highlands. *Latin American Perspectives, 37*(1), 123-142.

Suwandi, N. (2015). The Migration Behavior Model of Indonesian Female Migrant Domestic Workers in Egypt. *Corporate Ownership & Control, 13*(1), 774-785.

Tabor, A. S., Milfont, T. L., & Ward, C. (2015). The Migrant Personality Revisited: Individual Differences and International Mobility Intentions. *New Zealand Journal of Psychology, 44*(2), 89-95.

Tan, F. Y., Johanim, J., & Annis Fadilla, M. S. (2015). The Influence of Attitude, Subjective Norms, and Perceived Behavioural Control of Intentions To Return To Work: A Case of SOCSO's Insured Employees. *Kajian Malaysia, 33*(1), 141-154.

The Economist Intelligence Unit. (2018). *Democracy Index 2017.* The Economist.

The World Bank. (2011). *Malaysia Economic Monitor: Brain Drain.* Bangkok: International Bank for Reconstruction and Development.

The World Bank. (2015). *Improving the Effectiveness of TalentCorp's Initiatives: Assessment of Returning Expert Programme & Resident Pass-Talent.*

Theofilou, P. (2013). Quality of Life: Definition and Measurement. *Europe's Journal of Psychology, 9*(1), 150-162.

Transparency International. (2017). *Corruption Perception Index 2016.* Retrieved from Transparency International: https://www.transparency.org/news/feature/corruption_perceptions_index_2016

Ukwatta, S. (2010). *Economic and Social Impacts of the Migration of Sri Lankan Transnational Domestic Workers on Families and Children Left Behind.*

UNCTAD. (2009). *Contribution of migrants to development: trade, investment and development linkages.* Geneva.

Utusan Malaysia. (2011). *500 pelajar JPA tidak pulang dalam tempoh 10 tahun.* Retrieved from http://ww1.utusan.com.my/utusan/info.asp?y=2011&dt=0607&pub=Utusan_Malaysia&sec=Dalam_Negeri&pg=dn_10.htm

Van Houte, M., & Davids, T. (2008). Development and Return Migration: From Policy Panacea to Migrant Perspective Sustainability. *Third World Quarterly, 29*(7), 1411-1429.

Vaughan, G. M., & Hogg, M. A. (2011). *Social Psychology.* Pearson Australia.

Veenhoven, R. (1996). The Study of Life Satisfaction. In W. E. Saris, R. Veenhoven, A. C. Scherpenzeel, & B. Bunting, *A comparative study of satisfaction with life in Europe* (pp. 11-48). Eötvös University Press.

Vinken, H. (2007). Family and Traditional Values in East Asia: Exploring Four Comparative Values Surveys in East Asia. *European Centre for Comparative Surveys Working Paper*.

World Economic Forum. (2017). *Migration and Its Impact on Cities.* Geneva.

World Health Organization. (1996). *WHOQOL-BREF Introduction, Administration, Scoring and Generic Version of the Assessment.* Geneva.

World Health Organization. (2018). *Air pollution and child health: prescribing clean air*. Retrieved from World Health Organization: https://www.who.int/ceh/publications/air-pollution-child-health/en/

WorldData.info. (2019). *Cost of Living in a Global Comparison*. Retrieved from WorldData.info: https://www.worlddata.info/cost-of-living.php

Xiang, B. (2016). *Emigration Trends and Policies in China: Movement of the Wealthy and Highly Skilled.* Washington, D.C.: Migration Policy Institute.

Yamamoto, H. (2012). An Evaluation of and Recommendation for the Look East Policy: Toward the 'Discovery of Japan's Second Wave'. *JAMS Discussion Paper No.2*.

Yi, R. H. (2014). An Econometric Analysis of Post-Study Inclinations Among Malaysian Students in The United States.

Zurina, S., Norhasni Zainal, A., & Abdul Razaq, A. (2009). Ethnic Heterogeneity in the Malaysian Economy: A Special Reference to the Ethnic Group Participation in Financial Planning Activities. *The Journal of International Social Research, 2*(8), 394-401.