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The Determinants of Chinese Muslim's Consumption of Halal Products: Implications for Malaysia's Halal Export to China

PhD thesis submitted by

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Abstract

Integrating aggregate and disaggregate analyses, this study examines the determinants of Malaysia's export of halal products to China at both macro and micro levels, with a view to developing policy implications that can assist in fostering Malaysia's halal exports to China.

Export has been an essential source of income for economic growth and development throughout Malaysia's history, with manufactures exports accounting for the largest portion. However, during the last decade Malaysia has been losing its price competitiveness due to shortages in labour and natural resources, stagnation in upgrading manufacturing technology, and inadequate development in human resources.

In this context, it is proposed that halal products will become the next export-oriented products of Malaysia, and non-Muslim countries will become the new, targeted markets. On the one hand, Malaysia has an acknowledged reputation in halal credibility and is expanding its export of halal products globally, while on the other hand, China has recently become the world's most eye-catching market for halal products. With a fast growing Muslim population and consumer income, the demand for halal products by Chinese Muslims is expected to grow into a sizeable market.

Despite this potential, there is a lack of comprehensive research into the key determinants of Malaysia's halal exports to China. Also, the preferences of Chinese Muslims in purchasing halal products, particularly halal personal care products, have not been systematically studied. Rather, available studies on Malaysia's exports to China tend to focus largely on the macro factors, such as exchange rates, free trade agreements, and *competitive* advantages. This study fills these gaps.

In more detail, at the macro level, this study examines the determinants of Malaysia's export to China with aggregate data from the UNComtrade. This aggregate study mainly

focuses on the importance of diplomatic relationships in fostering Malaysia's exports to China, using an augmented gravity model. Through utility maximization, institutional aspects, such as diplomatic relationships, and halal related variables are incorporated into the gravity model, which is then estimated using data from Malaysia's exports to China. The estimation uses the fixed effect to capture unobserved commodity characteristics that may be correlated with the error term, and accommodates possible endogeneity, autocorrelation and heteroscedasticity issues.

At the micro level, this study uses disaggregated data to examine the determinants of Chinese Muslims' consumption of halal personal care products. Two types of data are used.

1) Revealed preference data. This study identifies key determinants of Chinese Muslims' demand for halal personal care products, using a logit model. Revealed preference data were collected from five cities in Western China to estimate the signs and magnitude of the influence by each independent variable on consumers' intention to purchase.

2) Stated preference data. This study investigates Chinese Muslim's preferred halal attributes for halal toothpaste, using a stated preference choice model. Stated preference data were used because halal personal care products are not common in China. Using this method, the study captured desired attributes of halal toothpaste preferred by Chinese Muslims, even if they were not using it.

Findings from the aggregate study reveal how diplomatic relationships boost Malaysia's exports to China. In addition, marketing events, such as international halal exhibitions, promote Malaysia's exports to China. While findings from the disaggregated data analysis suggest that apart from faithfulness, reliability of recommendations, product origin and product price, the two most important determinants in influencing the purchase of halal products by the Chinese Muslims are product availability and halal authenticity.

The findings will assist policy makers, industry leaders, business consultants, exporters and importers of halal products in developing their export strategies and strategizing

trade approaches with China. They will also benefit other similar economies that are seeking to improve on, or tap into, the China Muslim market. In addition to the policy implications, this study also contributes to the existing literature from two additional aspects. Firstly, this study contributes to existing literature of institutional aspect of trade, in particular on developing countries (Malaysia and China) that are less explored. Secondly, this study provides an in-depth analysis of the purchase behaviours of Chinese Muslims, contributing to the literature on consumption behaviour.

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CHAPTER 1   INTRODUCTION

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Chapter Outline

1.1 Motivation

1.2 Research Questions and Objectives

1.3 Methodology

1.4 Significance of the Research

1.5 Organisation of the Thesis

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Malaysia's competitive advantage in exporting manufactures has recently declined due to internal weakness and external competition. As a result, unemployment has increased and income per capita has stagnated, prompting a strong need for innovative policy initiatives to sustain existing markets and secure new export markets. In recent years, China has become an important trading partner with Malaysia, providing enormous potential for Malaysia to expand its exports. This study investigates key determinants of Malaysia's exports; in particular exports of halal products to China, with the aim of developing policy that improves Malaysia's export performance in the Chinese market.

As a small economy, participating in international trade is very important for Malaysia. Malaysia has been one of the most open to trade countries in the world (World Integrated Trade Solution, 2014). The Export Propensity Index has been higher than 0.7 for the past 20 years, suggesting a great reliance by domestic producers on foreign markets. Malaysia was ranked the 23rd largest exporting country and the 26th largest importing country by the World Trade Organization (WTO) in 2014 (WTO, 2015). Exports of goods and services grew by 9.5% per annum between 1971 and 1990, and by 13.7% between 1991 and 2000, with the highest growth being 23.7% in 2010 (UNCTADSTAT, 2013).

As an export-oriented country, manufactured goods account for a large share (62%) of Malaysia's total exports (UNCTADSTAT, 2016a). The impressive performance of manufactures exports has, in past decades, contributed importantly to Malaysia's economy; helping to increase employment and reduce poverty (Devadason, 2004; UNDP, 2006). It is noted that much of the manufacturing development since the 1980's has benefited from various economic development plans and innovative government policies. By the 1990s, Malaysia gradually transformed from a large, raw material producer to a manufactures based economy, to become one of the world's largest electrical and electronic product exporters (Malaysian Department of Statistics, 2013).

As a result of rising labour costs, slow upgrading in manufactures technology, and the lack of development in human resources, Malaysia's performance in manufactures

exports has recently subsided – lowering its overall export ranking. Recent data suggest that Malaysia's export ranking has dropped from the 19th in 2006 to the 23rd in 2014. The share of exports in Gross Domestic Product (GDP) has also decreased from 112.2% in 2006 to 79.6% in 2014 (WTO, 2015). In the meantime, Malaysia has been facing stiff competition in manufactures exports from China and the ASEAN (Association of Southeast Asian Nations) countries. These countries export similar products to similar markets but with lower costs (Abidin & Loke, 2008; Devadason, 2008; Loke, 2007; Tham, 2001).

For instance, China's huge labour force, with relatively low costs (20 - 70% lower than Malaysia's) has attracted some key, multinational, manufacturing companies that used to be located in Malaysia, to shift some of their operations to China (UNDP, 2006). This increased Malaysia's unemployment rate and reduced its manufactures exports (UNDP, 2006). Despite the strong competition, China's increased engagement in trade seems to offer a great opportunity for Malaysia to expand its exports to the huge China market. Trends in China's trade in the past decades have shown that not only is it a giant exporter, it has also become a huge importer (Li, 2006; Loke, 2007; Soleymani, Chua, & Saboori, 2011). Malaysia has already started to benefit from China's increased imports and China is likely to become an even more important export destination for Malaysia. In 2014, Malaysia's exports to China reached US$22.9 billion (15.7% of total exports), making China Malaysia's second largest exporting country after Singapore (MITI, 2015). Hooy and Chan (2008a) and Li (2006) found that strong trade complementarities exist between Malaysia and China.

There are avenues where Malaysia's export potential to China exist but they remain generally untapped. One such area is the export of halal products to China. With a large and growing Muslim population, China has recently become one of the most dynamic halal markets in the world. Its halal industry has expanded impressively, and yet is still unable to meet growing demand (Edbiz Consulting, 2013). Some halal goods (e.g. personal care products) are often not readily available and it is even possible that many Chinese Muslims are not aware of halal personal care products. Recently, concerns about product adulteration and halal authenticity have also discouraged the

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consumption of halal goods produced locally in China (Gooch, 2010; Ma, 2014; Yang, 2013).

Although China has made efforts to boost its ability to provide halal products, it will not be able to quickly meet the rising demand for diverse halal products in terms of both quantity and quality. There is a lack of a systematic and well-established halal certification system in China. It is also short of expertise in upgrading its halal certification system (China Daily, 2014; Salama, 2011). On the other hand, as a Muslim majority country, Malaysia has rich expertise in meeting the needs of Muslims for halal products. It has been leading the world in establishing and upgrading various halal certification standards. Through developing proactive strategies to trade halal products with China, Malaysia can produce an important export product to mitigate the impact of falling manufactures exports and to increase its overall exports.

Many factors affect the trade of any products between countries. The forces that affect the trade of halal products can be even more complex. Chinese Muslims are a minority group. The ruling party promote atheism, therefore religion does not play an important part in the lives of the majority of the Chinese population. So the provision of halal products may not seem important to many Chinese. However, understanding China's halal market and the variables that may affect halal trade with China, while limited, is very important. Research is required to analyse China's halal market and its halal trade. This research examines key determinants that affect halal consumption in, and trade with, China. Findings from this study will help countries such as Malaysia develop appropriate strategies to expand halal trade with China.

1.1 Motivation

Few studies examine the role that institutions have played in Malaysia's exports to China. Existing studies have largely focused on:

1 The China effect or competitive advantages between the two countries (Abidin & Loke, 2008; Chan, Lean, & Hooy, 2014; Devadason, 2008; Kung, Li, & Tai, 2016;

Lean & Smyth, 2016; Loke, 2007; Mahani & Loke, 2008; Muhammad & Yaacob, 2008).

2   The impact of exchange rate fluctuations on trade (Hooy & Chan, 2008a, 2008b; Sek & Har, 2014; Soleymani & Chua, 2013; Soleymani & Chua, 2014; Soleymani et al., 2011).

3   Trade interactions within the context of the free trade agreement (Chirathivat, 2002; Devadason, 2010, 2011; Qin, Xu, & Zhang, 2015; Sheng, Tang, & Xu, 2012; Tongzon, 2005; Tyers, Phillips, & Findlay, 1987; Vahalík, 2014; Zi & Zheng, 2007).

4   The complementarities effect of the dispute about Spratly Island on bilateral trade (Lau & Ang, 2016).

This research fills the gap by investigating the role of institutions in Malaysia's trade with China.

Studies evaluating impacts of common language and culture on trade became popular in the late 1990s (Baier & Bergstrand, 2007; Guo, 2004). However, relatively few studies considered religious-related products as a factor to foster export (Helble, 2006). This is especially the case with China. Examining issues concerning the export of halal products to China is important, both for academic exploration, and for trade policy initiatives. This study appears to be the first attempt to embed halal indicators into the study of Malaysia's exports to China, a non-Muslim country.

Researchers have tried to relate purchasing intention with religion. However, empirical research on the role of belief in influencing Chinese Muslims' consumption is rather limited. Indeed, knowledge around Chinese Muslims and their consumption behaviour is still relatively unknown to the world. Research on this topic would provide an important contribution to the literature, helping manufacturers and exporters understand Chinese Muslims and their consumption habits.

Most halal related studies focus on food and edible products. Muslims are becoming more concerned about halalness in their consumption, from edible to daily use products. This has spread to a growing awareness about cosmetics and personal care products (Hunter, 2012). Few efforts have been made to investigate the consumption

of halal personal care products by Chinese Muslims. In an effort to bridge this gap, this study examines Chinese Muslims' decisions on the choice of halal personal care products, including both locally produced and imported.

Available theoretical models in the export literature tend to concentrate only on macroeconomic factors or certain types of shocks and changes. However, there are also diverse microeconomic factors that may affect a country's exports. Examining only at the macro or micro level may be insufficient to provide complete information to improve exports. A more comprehensive approach that accounts for important factors at both the macro and micro levels in analysing Malaysia's exports to China is needed.

Finally, although Malaysia has a very good reputation in producing halal products, its domestic market is considered small. Additionally, most Muslim countries have the ability to meet domestic demand. In contrast, there is much trade potential outside Malaysia that will benefit its halal industry, especially those non-Muslim countries that have huge Muslim populations. However, as most halal producers in Malaysia are operating at the small and medium-sized enterprise level, they are lacking the ability to understand demand from outside the country. Small and medium-sized enterprises may not have sufficient capacity to connect with new buyers, negotiate the business, expand and widen their sales overseas. The situation is more complicated when it comes to exporting to non-Muslim countries. Hence, this study intends to help Malaysia's halal industries explore the potential of the halal market in China, including factors that will increase Chinese Muslims' consumption of Malaysian halal products.

1.2   Research Questions and Objectives

The primary research question this study asks is; what are the key determinants that affect Malaysia's halal export to China? The over-arching research question is answered through the following sub-questions:

1   What is the potential for, and what are the challenges of, Malaysia's halal industry in exporting to China?

2   Would institutional factors, such as diplomatic events, foster Malaysia's exports to China?

3   What are the key determinants of Chinese Muslims' consumption of halal personal care products in relation to their religious practices and beliefs?

4   What attributes of halal personal care products preferred by Chinese Muslims, that possible to attract more demand in the future?

The main objective of this study is to empirically identify the key determinants of Malaysia's halal exports to China with a view to developing Malaysian policies that foster and expand its halal product exports to China. Specific objectives are:

1   To identify the potential and challenges facing Malaysia's halal industry in exporting to China.

2   To examine the role played by institutions in promoting Malaysia's exports to China.

3   To investigate the determinants of Chinese Muslims' consumption of halal personal care products.

4   To identify the attributes of halal personal care products preferred by Chinese Muslims.

5   To develop policy implications that boost Malaysia's halal exports to China.

1.3   Methodology

To respond to the research questions and achieve the stated objectives, first, a contextual study on the potential and challenges facing Malaysia's manufacture exports was completed (in Chapter 2). Next, a comprehensive diagram depicting possible influential forces on exports, based on extensive surveys of the literature, was constructed to understand the dynamics of export determinants (in Chapter 3). According to this diagram, export determinants should be investigated from both exporter and importer points of view and be analysed both at the aggregate and disaggregate levels. From this diagram, key relevant factors, that believed to be relevant in affecting Malaysia's halal exports to China, are selected for analysis. In order to answer the research question through investigations from both exporter and importer

points of view, and analyses at both the aggregate and disaggregate levels, three separate but inter-related empirical studies were undertaken. Details on methodological issues for each of them are provided in Chapters 4, 5 and 6.

Chapter 4 responds to the second specific research question. Based on consumer utility maximisation, institutional and halal related variables were incorporated into an augmented gravity model. The model was estimated in the context of Malaysia's exports to China. Some econometric issues, such as possible endogeneity, autocorrelation and heteroscedasticity, were observed and dealt with.

Research Question 3 is explored in Chapter 5. Factors influencing Chinese Muslims' consumption of halal products, especially halal personal care products, were investigated. Special attention was given to examining the influence of religiosity on such consumption. A logit model was employed to analyse survey data obtained through personal interviews with respondents from northwest regions of China, where the majority of Chinese Muslims live.

Chapter 6 responds to Research Question 4. Through random utility choice modelling, with some regularity assumptions, the probability of how a halal product is chosen by Chinese Muslims was estimated using survey data. This is related to its attributes and the socio-economic and demographic factors of consumers. Based on this choice modelling exercise, attributes that consumers desire in a product, and the price they will pay for the products, are identified.

1.4 Significance of the Research

The findings of this research are expected to generate valuable implications for developing proactive trade policies that could promote mutually beneficial halal trade. The findings are also important to industries in their efforts to devise effective trade strategies. The findings are equally beneficial to policy makers and industry leaders in both Muslim-dominant and non-dominant countries. This study also fills several

research gaps and contributes to the halal trade literature in various ways. Specific significances are as follows.

Many researchers have emphasized the role of macroeconomic analysis in examining Malaysia's trades with China. However, this study identifies export determinants from two perspectives: at the aggregate level (macro level), such as the importance of institutional factors; and at the disaggregate level (micro level), such as product attributes.

This study also investigates the magnitude of halal merchandise exports to China. Such information is expected to benefit producers from exporting countries, such as Malaysia and other similar economies, who seek to improve trade in halal products with China, assisting them in strategizing trade approaches and improving competitive advantages.

Empirical research on halal consumption in China is limited (Rehman & Shabbir, 2010; Zhu, 2011). This research identifies Chinese Muslims' consumption using empirical methods. It also contributes to the research literature by presenting a clearer picture of Chinese Muslims' purchasing habits, still relatively unknown outside China, but important, unique background information for future studies in this area.

In terms of determinants of Muslim consumption for halal products, most research concentrates on edible items, financing, halal certification issues, and broad problems facing the halal food industry. This research adds to the literature by investigating the consumption behaviour of Chinese Muslims for halal personal care products.

1.5 Organisation of the Thesis

Chapter 2 documents the development and importance of exports to Malaysia's economic growth, and discusses the importance of the Chinese market to Malaysia. It also presents the potential and challenges of Malaysia's export of halal products.

Chapter 3 reviews existing studies on the determinants of export. An export determinants diagram is developed to give an overview of all possible export determinants. This diagram serves as a basis for identifying research gaps in the Malaysia-China trade.

Chapters 4, 5 and 6 present the methodologies used, data analysis and report on the research findings. Chapter 4 presents the analysis of determinants of Malaysia's exports to China at the aggregate level using a gravity model. This chapter also presents an overview of the development of the diplomatic relationship and trade intensity between Malaysia and China.

Chapter 5 examines the Chinese Muslim's determinants of halal personal care product purchasing behaviour at the disaggregate level with revealed preference data. Data collected from surveys were analysed using the logit model. Background of Chinese Muslims is also provided in this chapter.

Chapter 6 investigates the Chinese Muslims' preferred attributes around halal personal care products with the stated preference data. Random Utility Theory and a multinomial logit model were applied to estimate Chinese Muslims' choices of halal toothpaste.

Chapter 7 summarizes the results of the research, presents policy implications, and recommendations for future research.

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Chapter 4	Chapter 5	Chapter 6
Malaysia's exports to China: does diplomatic relationship matter? (Aggregate analysis)	Determinants of Chinese Muslims' consumption of halal products: evidence from revealed preference data	Chinese Muslim's choice of halal products: evidence from stated preference data

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CHAPTER 2 MALAYSIA'S EXPORT CHALLENGES AND TRADE POTENTIAL WITH CHINA

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Chapter Outline

2.1 Trade, Industrialisation and Economic Growth in Malaysia

2.2 Recent Trends and Challenges of Manufactures Exports

2.3 Trade with China

2.4 Competitive Advantages of Malaysia's Halal Export and Challenges to Halal Export to China

2.5 Conclusion

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This chapter begins with an overview of the importance of trade to Malaysia's industrialisation and economic growth with an emphasis on the role played by manufactures exports. Section 2.2 highlights trends in Malaysia's manufactures exports and identifies challenges the manufactures industry is facing. In Section 2.3, the dynamics and potential of Malaysia's trade with China is discussed. In particular, the potential and prospects of trade in halal products with China is raised. Section 2.4 addresses the strengths and competitive advantages Malaysia has in exporting halal products and potential challenges it may face in its venture to expand its export of halal products to China.

2.1 Trade, Industrialisation and Economic Growth in Malaysia

Export plays a vital role in Malaysia's economic growth (Mahadevan, 2007; Rasiah, 2002). Ever since the colonial period, the Malaysian economy has experienced high production and exportation of tin and rubbers. According to Sundaram (1994), Malaysia was the most profitable British colony. Trade intensity (trade measured as a share of GDP) was higher than 50% five decades ago as shown in Figure 2.1. In 1987, trade intensity was over 100%, reaching a peak at 192.1% in 2000. In 2004, the portion of trade to GDP dropped slightly. However, it has been maintained at levels between 100% and 150% since 2008.

Figure 2.1 shows that Malaysia enjoys a substantial trade surplus most of the time. Occasionally, trade deficits occur due to global economic downturns. For instance, trade incurred a slight deficit in 1982, for the first time since Independence Day in 1957. Similar to many other primary commodity producers, Malaysia's exports were impacted by the prolonged recession in industrial nations, which weakened the price of tin, rubber, crude oil and palm oil (Encyclopedia of the Nations, 2016). Malaysia also recorded a few years of trade deficit in the mid 1990s, due to the rise in production costs and the emergence of attractive investment venues to multinational corporations, such as China and the Philippines (Rasiah, 2002). To cope with this situation, Malaysia raised import duties on construction machinery and durable goods to curb imports, and the strong growth in manufactures exports prevented Malaysia's trade from continuing in

deficit. Finally, Malaysia managed to register trade surpluses in 1997, mainly due to the rise in electronics and machinery exports (Devadason, 2002).
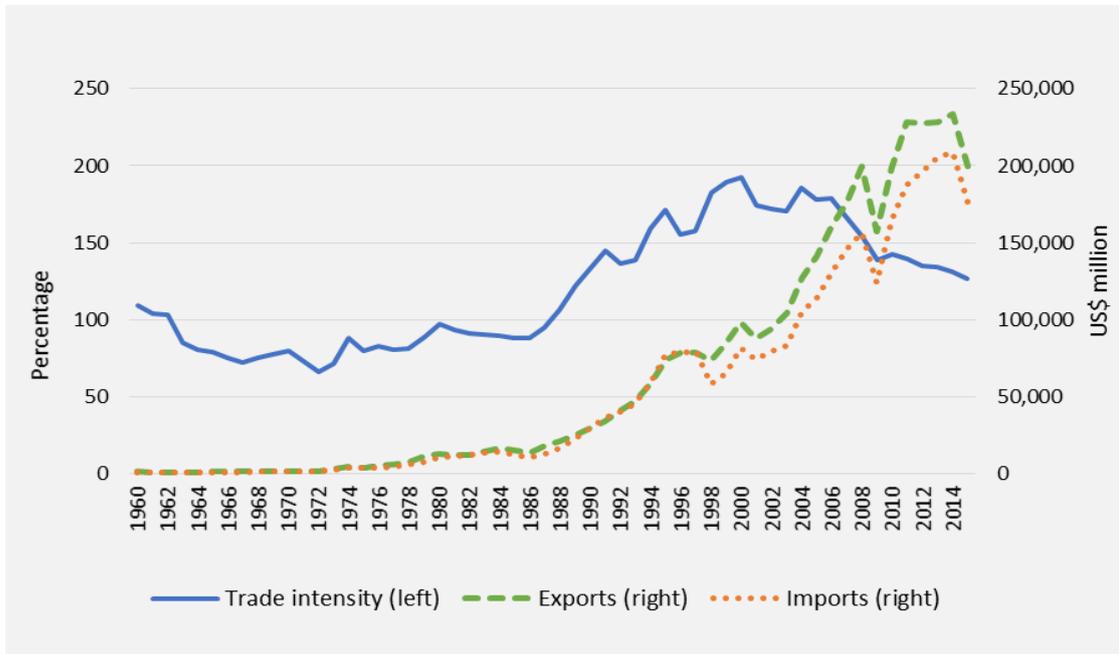
Figure 2.1 Malaysia's trade intensity, exports and imports values, 1960-2014
Source: The World Bank (2016a); UNCTADSTAT (2016b).

Manufactures account for the biggest portion of Malaysia's exports. As shown in Figure 2.2, in terms of export markets, Singapore, the United States (US) and Japan were the three largest importers of Malaysia's products prior to 2010. Malaysia was a favourite electrical assembly venue for Japan, and electronics and semiconductor sub-contractor for the United States. Additionally, collaboration between China and ASEAN countries, in a free trade agreement (ASEAN-China Free Trade Area) that took effect in 2010, boosted Malaysia's exports to China. Exports to the US and Japan have reduced since 2005 due to a global economic slowdown in the 2000s and the growth of more cost effective investment countries. Singapore continues to be the largest export destination of Malaysia, partially due to re-exports.
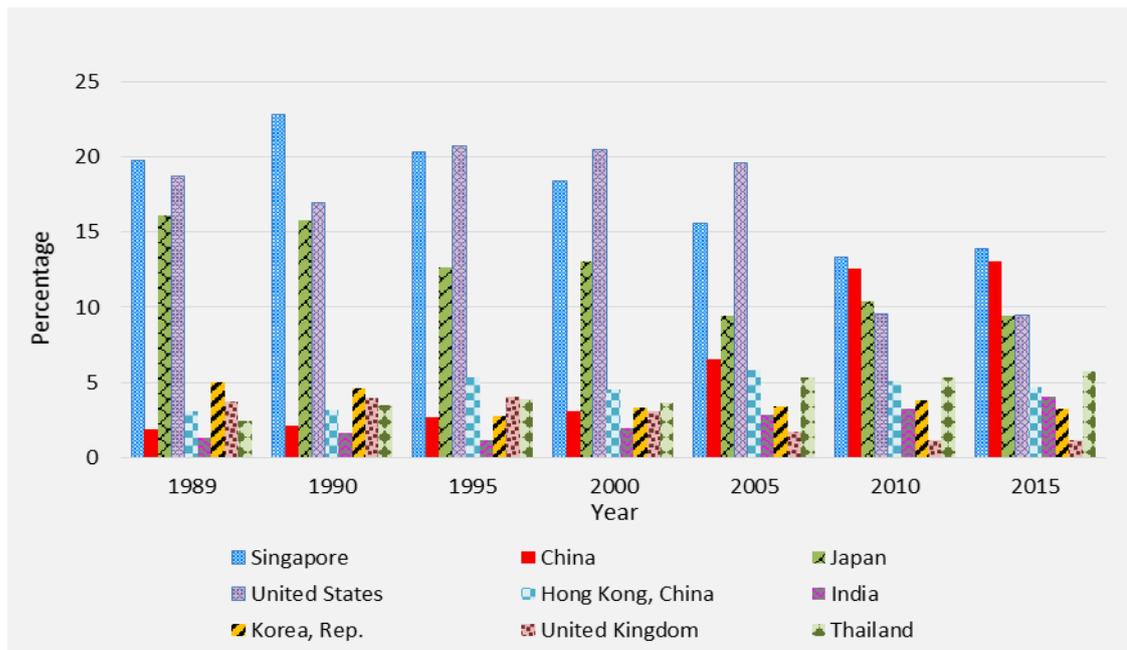
Figure 2.2 Top export destinations of Malaysia since 1989

Note: Data available from 1989.

Source: World Integrated Trade Solution (2016a).

For most developing countries, industrialisation is a rapid path to achieving economic diversification and modernisation, and utilising surplus labour. Malaysia's export led industrialisation began in the 1960s with the objective of developing labour-intensive industries (McNabb & Said, 2013). It was mainly achieved by import substitution, mining development, and agriculture industries. Nonetheless, the import substitution industrialisation was only sustained for a decade, due to the limited size of the domestic market, low purchasing power of the people, labour surplus issues, and the relatively low skilled, labour intensive aspects of production (Athukorala, 2005; McNabb & Said, 2013).

At the same time, deterioration of natural resources, as well as the instability of primary commodity prices, affected the export of agriculture and resource based products in the 1980s. The New Economic Policy (1970-1990) was enacted in Malaysia with the objectives of poverty eradication and restructuring the society. It focused on achieving inter-ethnic parity in education, occupations and corporate wealth ownership. The policy legitimately increased government's intervention and public sector expansion for

inter-ethnic redistribution and rural development. It successfully reduced the poverty rate from 49% (1970) to 16 % (1990) (UNDP, 2006). Hence, in conjunction with the New Economy Policy, the government progressively shifted from import substitution to outward economic orientation, with aims to foster economic growth and to suppress unemployment. In the 1980s, export oriented industrialisation led to a rapidly growing proportion of manufactures exports in total exports, and increasing utilisation of an excess labour force (Economic Planning Unit, 2013).

With the rapid economic growth, modernisation and industrialisation became national economic priorities, and the import substitution industrialisation policy was readopted drastically to develop state promoted heavy industries in the 1980s. The purpose was to cater for the increasing demand in infrastructure development and macroeconomic policy that focused on achieving the status of a developed country by 2020 (Athukorala, 2002). However, according to Chander and Welsh (2015), the import substitution oriented heavy industry was developed against the growth of foreign investment. Due to high production costs, and the lack of expertise and technology capacity in heavy industries, the government had to fund most investments through the privatisation of government agencies. As a result, the import substitution industrialisation failed for the second time, and was the main reason for the budget deficit in the 1980s (Athukorala, 2005). The World Bank considered it a failed industrial policy (Lall, 1995).

Meanwhile, a substantial export oriented manufacturing sector was developed. Industrial Master Plans (the first plan was introduced in 1986) and Vision 2020 (launched in 1991) highlight the government's emphasis on industry exports. In the late 1980s, the appreciation of currencies in some Northeast Asian countries and the depreciation of the Malaysian ringgit enhanced the attractiveness of Malaysia as a manufacturing location (Sundaram & Wee, 2013). The stable political conditions, relatively modern infrastructure, and high literate human capital attracted foreign direct investment (FDI) from northeast Asia, especially Japan and Taiwan (China), to establish their industries in Malaysia to take advantages of lower production costs, as well as several incentives offered by the government. Malaysia received close to 28% of total FDI entering the ASEAN region in 1990 (Drabble, 2000).

The 1980-1990s saw the growth of FDI, FDIs leading the manufactures sector, free trade zones, and the promotion of joint ventures between multinational companies (MNCs) with local, small and medium-sized enterprises. A free trade zone is a customs free, industrial zone with facilities for the development of export oriented factories. During the 1990s, Malaysia transformed from a large, raw material producer to an industrial based economy, and become one of the world's largest electrical and electronics exporters (Malaysian Department of Statistics, 2013). Malaysia registered impressive economic track records in the early 1990s due to its abundant resource endowments, export led manufacturing industries, and favourable external conditions.

Because of export led industrialisation, the export structure of Malaysia changed drastically to less dependence on primary commodities and natural resources, as shown in Figure 2.3. Manufactures exports contributed about three quarters of total exports in 2012, compared to about one fifth of total exports in 1970. As mentioned by Woo (2009), Malaysia moved from producing banana chips to exporting computer chips. At its peak in 2000, the proportion of exported manufactured goods, to total exports, was almost seven times that of agriculture and resource based exports.

The structural change in export has also been reflected in employment. Export led industrialisation, as well as public sector expansion, succeeded in reducing unemployment and raising real wages from 1970 to 1990, especially for women (Sundaram & Wee, 2013). Unemployment rates reduced from 7.4% of total labour force in 1970 (Malaysian Economic Planning Unit, 2013) to 2.1% in 1980 (EconStats, 2013), and further declined to 1.3% in 1990 (The World Bank, 2016b). The manufacturing industry also played a significant role among a range of rural, nonfarm activities, providing an increasingly vital component in the incomes (remittance) of rural dwellers (Drabble, 2000).
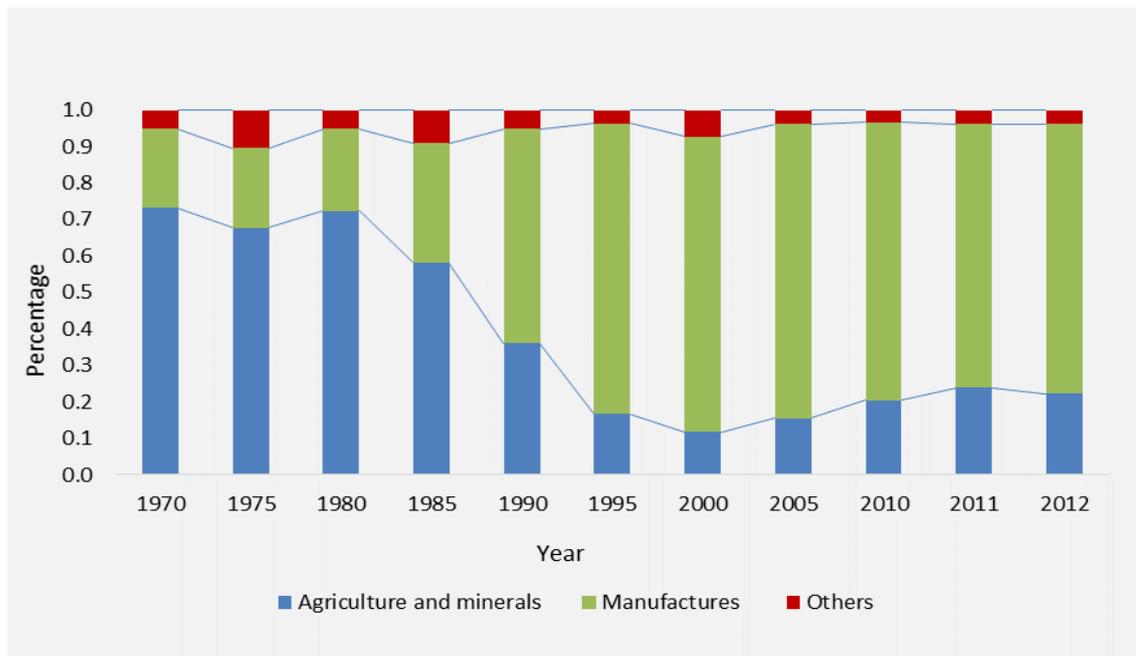
Figure 2.3 Structure of exports of Malaysia, 1970-2012

Source: Sundaram and Wee (2013).

Between 1970 and 1975, the employment creation rate in the manufacturing and construction sectors increased 107% and 126.4% respectively. In contrast, as shown in Figure 2.4, it was less than 10% in agriculture, forestry, and the mining sector. Although the employment creation rate in the manufacturing sector dropped from 21.2% between 1976 and 1980 to 9.7% between 1980 and 1985, due to the global economic downturn, it increased more than 50% between 1985 and 1995 owing to industrialisation and export led FDI. In short, Malaysia saw a significant transformation of its export structure in terms of the rapid growth of export led manufacturing in the 1990s. Agriculture continued steady after 2000.
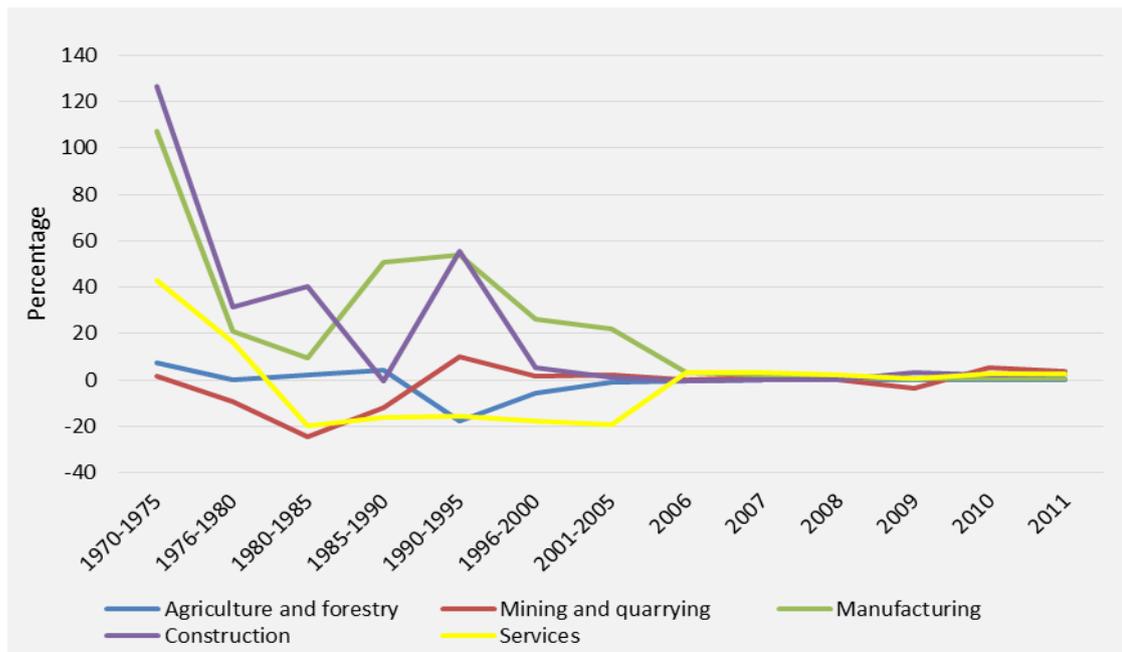
Figure 2.4 Employment creation rate by sector (percentage increase), 1970-2011

Source: Sundaram and Wee (2013).

2.2 Recent Trends and Challenges of Manufactures Exports

Unfortunately, Malaysia's manufactures exports started to subside a decade ago in the face of an increasingly globalised and competitive world economic environment. The manufacturing sector's share of GDP declined from 30.9% in 2006 to 23% in 2015, the lowest since the early 1990s; while the sector's annual growth rate dropped from 6.1% in 2006 to 4.7% in 2015 (Malaysian Economic Planning Unit, 2010, 2015). Malaysia's international export ranking dropped from the 19th in 2006 to the 23rd in 2014 (WTO, 2015). Figure 2.4 also shows how employment creation in the manufacturing sector dropped drastically in 2006, from 22.1% between 1976 and 1980 to 3% in 2006, and has remained below 1% since 2009. As a result a large number of factory workers were retrenched (Zulkifly, 2016).

At the same time, the unemployment rate increased to 4.1% in 1993 (the highest rate in the last 20 years), dropping to 3.1% in 2015 (The World Bank, 2016b). Other sources predicted that the unemployment rate was under reported, and it was forecast to be more than 9% in 2014 (EconStats, 2013). Real wages have not substantially increased in

decades, especially in the manufacturing sector (Woo, 2009), which was the second largest unemployment sector in 2015 (MalaysiaKini, 2016).

Many argued that the decline in Malaysia's manufactures exports was partially due to stiff competition from producers in other ASEAN countries, who export similar products with the advantage of lower production costs (Abidin & Loke, 2008; Devadason, 2008; MITI, 2013). With the rise of ASEAN countries such as Thailand, Vietnam, and Indonesia in the manufactures industry, Malaysia is losing its competitive advantage in labour intensive and resources based industries (Loke, 2007; Tham, 2001).

In general, the public believe that the withdrawal of FDI is the main reason for export slowdown. Some researchers are concerned that the rise of China as a world factory may be a threat to Malaysia's manufactures exports (Devadason, 2008; Eichengreen, Rhee, & Tong, 2004). Emerging China, with cheaper labour costs and a huge domestic market, has become a very attractive investment venue for global foreign direct investors. Key labour intensive manufacturing plants that used to be located in Malaysia, such as Motorola, Sony Electronics, Philips Electronics, Seagate Storage Products, and Fairchild Semiconductor, have shifted some operations to China to exploit China's huge, cheaper, labour market (UNDP, 2006).

Tham (2001) argues that Malaysia may still possess a relatively high comparative advantage in high technology products, but the future depends on its capacity to attract FDI. Nonetheless, Malaysia should be able to export world standard products at this stage even with fewer foreign direct investors. The real problem is that domestic enterprises perform fewer high value added and technologically demanding tasks, such as research and development (Rasiah, 2014).

On the other hand, Malaysia's industrialisation depends heavily on electrical and electronics industries. It is the largest, single contributor to the manufacturing sector, accounting for 59.1% of manufactures output, and it is also the largest employer, hiring more than 40% of total manufacturing labour (Malaysian Economic Planning Unit, 2010). Electrical and electronics industries are very sensitive to the global economic situation

and they are highly labour intensive. Before the 1990s, most FDI was attracted by the industrial environment and cheap labour resources in Malaysia. The nature of foreign direct investors is to invest in venues that provide a friendly business environment with low production costs, and, because of this, they sometimes move to another country with lower labour costs after a short period of time.

Figure 2.5 shows that, in addition, manufactured goods, machinery, and transport equipment are top export products for Malaysia. A very high degree of concentration and reliance on a few manufactured products as export drivers has not been a good long term solution. Exports to both US and Japan were not sustainable and were sensitive to the fluctuations of global demand, because Malaysia actually re-exports assembled products to these countries. In addition, over dependence on such exports also makes Malaysia easily affected by fluctuations in the US dollar and Yen currencies (Kadir et al., 2013). Malaysia used to be the country where US exports experienced the greatest share of product concentration because Malaysia was a favourite offshore assembly location for US semiconductor firms in the 1980s, and disk drive manufacturers in the 1990s (Ernst & Guerrieri, 1998). Although this generated large exports to the US, it did not actually reflect the real export of products made by Malaysia, but rather, the re-export of assembled products. In this situation, value-added created, or contribution to GDP, is small.
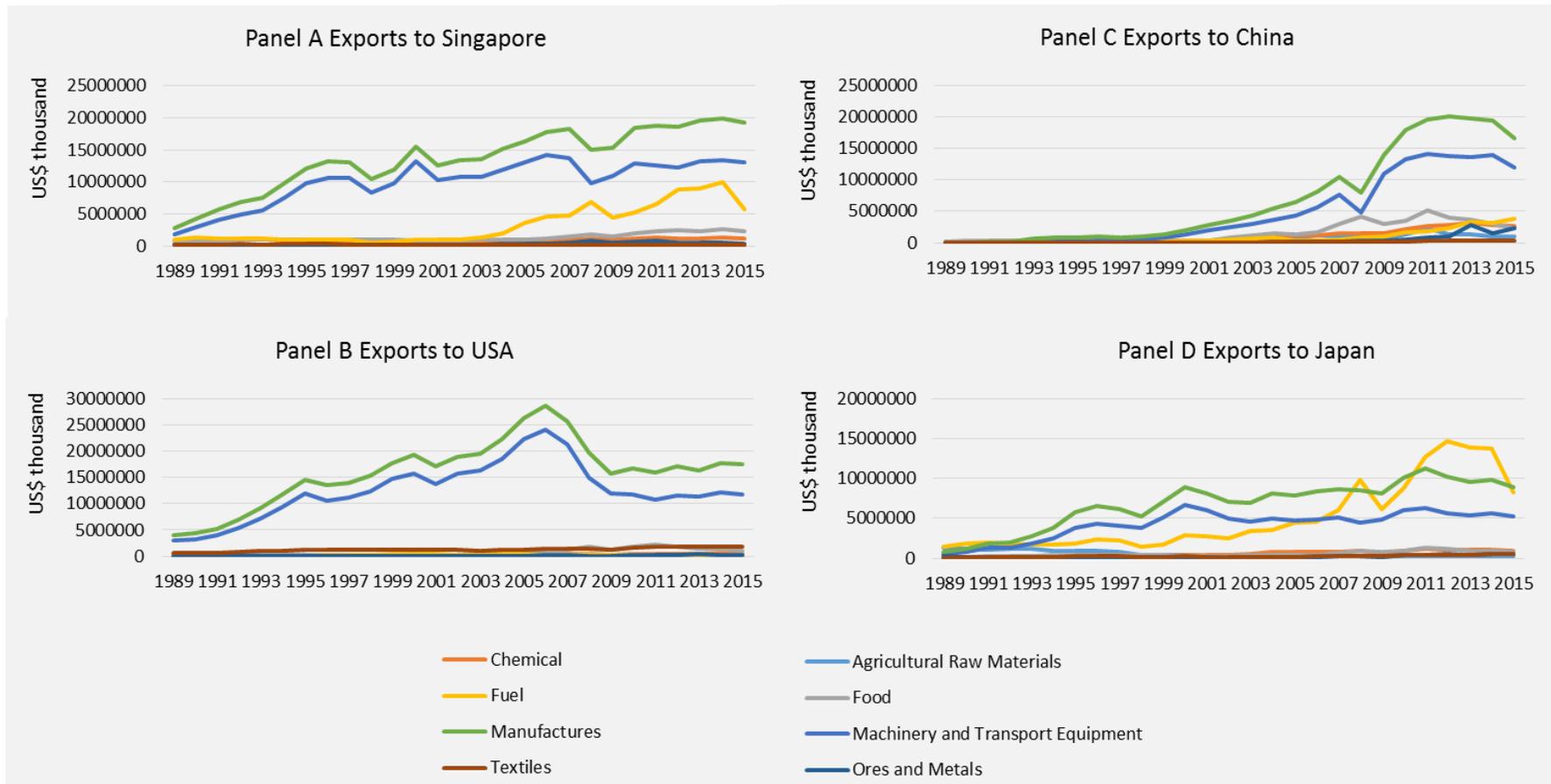
Figure 2.5 Malaysia's top export destinations by products

Source: World Integrated Trade Solution (2016b).

According to Sundaram and Tan (2008), export led industrialisation makes a significant contribution to an economy, but it provides limited potential to sustain and integrate industrial development. The life cycle of electronic products is short and they become obsolete fairly quickly. Without significant research and development, and innovation in product advancement, this type of export is not sustainable. Over dependence on the electrical and electronics sector, as highlighted by Kadir et al. (2013), increases the vulnerability of the Malaysian economy to changes in global demand.

According to Rasiah (2014), the decline in manufactures exports since 2008 is a consequence of falling competitiveness resulting from the slow upgrading of Malaysia's manufacturing technology. In contrast, the economies of Taiwan, Korea, and Singapore managed to successfully pursue industrialisation with more efficient and sustainable strategies for leveraging FDI strengths, and they also managed to change from labour intensive assembly industry to producing higher level technology products. Malaysia's total factor productivity has not grown much compared with these economies (Cherif & Hasanov, 2015).

Moreover, these countries also invest elsewhere (namely outward FDI) as a result of prolific industrialisation (Ernst & Guerrieri, 1998). Although Malaysia had an early start in electronics and was seen as having a strong manufacturing core, it has not been able to build on its technological advantage and move up the value chain in any substantial or sustainable manner (Chander & Welsh, 2015). Industrialisation that relies heavily on foreign capital, markets, and technology without improving in domestic manufacturing capabilities does not usually last long (Sundaram, 2014).

Many economic observers also believe that a drop in FDI leads to a decline in private investment. However, the evidence generally supports otherwise, suggesting that domestic investment leads and foreign investment follows (Sundaram & Wee, 2013). According to Woo (2009), Malaysia's economy has not fully recovered since the financial crisis in 1997. Malaysia was only able to maintain around half their growth rate (5% in 2015) compared to before the crisis (9.2%) (The World Bank, 2016c). The level of confidence among domestic investors fell sharply after the 1997-98 crisis. The portion

of the private investment in gross national product (GNP) fell from 32.7% in 1995 to 12.7% in 2005, and settled at 20.2% in 2012 (Sundaram & Wee, 2013). The weak confidence of domestic investors has affected the confidence of foreign investors towards Malaysia's economy.

Malaysia needs to ramp up investment. Nonetheless, the domestic business environment has not been very friendly, despite many incentives offered to private investors (Chander & Welsh, 2015). Various cycles of economic policies, implemented from 1991 to 2003, emphasised income distribution rather than income generation, the government link companies (GLCs), and political interest related investment that lacked quality and efficiency, had negative impacts on the economy (The World Bank, 2010). Similarly, Chander and Welsh (2015) assert that government link companies have crowded out private investments in many sectors, and have prevented small to medium-sized enterprises from growing. Woo (2011) claims that this intensification leads to a worse investment climate and further slows the country's economic growth.

Furthermore, the role of knowledge as an economic instrument for the greater prosperity of the nation has not been achieved (Woo, 2009). The export led industrialisation policy that focused on low, labour wage conditions has neglected the importance of human capital development, and research and development. Although the number of graduates entering the workforce has been increasing, many companies are struggling to obtain qualified candidates who match the requirements for their positions. As innovative culture can only be created if the education system produces more thinkers than merely followers (Ramasamy & Yeung, 2007), a lack of education in innovation and creative thinking in the education system has limited the performance of the labour force.

Moreover, Malaysia has seen the trend of moving back to relying on processing primary commodities (wood, petroleum refining, and palm oil), and relying heavily on government funded construction works (Sundaram & Wee, 2013). These activities have not only further hampered electronics exports; they have also led to a reduction in demand for highly skilled workers in the electrical and electronic sectors, and increasing

dependence on foreign labour for lower level jobs. The public sector has been absorbing those graduates who are unemployable in the private sector, while domestic demand has been stimulated with debt, to continue as the driver of the economy. This situation is vulnerable.

As a small country with an open door policy, the expansion of the Malaysian economy has always been sensitive to global demand and supply. The economic crises in the mid 1980s, 1990s and 2008 provided lessons to be learned, but also a huge cost to pay. Additionally, the emergence of the Vietnamese economy and the strengthening of Indonesia in agriculture and manufacturing sectors will overshadow Malaysia's exports very soon. Further, faced with reduction in demand from developed economies due to the global recession, Malaysia's exports should not purely rely on machinery and electronics as export cornerstones. For Malaysia, stable and export led industry with a combination of good knowledge, innovation, skills, and reputable products are certainly important for the economy to succeed. There is no alternative for Malaysia apart from strengthening products and export capacities, and looking for new potential markets. As emphasised by Woo (2009), Malaysia has an urgent need to look locally for entrepreneurial talents to keep Malaysian industries internationally competitive.

In other words, the competitive advantage of Malaysia's manufacturing industry must be improved if it is to become competitive. If Malaysia could quickly absorb advanced technologies and become innovative, it would be able to find lucrative niches within the international manufacturing production chains (McKibbin & Woo, 2003). Opportunities to support vibrant and innovative companies should be created. Ramasamy and Yeung (2007) emphasise that supporting strategies include achieving higher value added and total factor productivity in manufactures, generating new sources of wealth in technology and knowledge intensive sectors, and expanding the international market for Malaysian goods and services. These strategies are imperative if Malaysia is to move up the value chain. In addition, Masron, Azman and Fujikawa (2015) suggest diversifying production and export locations.

Hence, Malaysia's effort should be focused on enhancing research and development in high value added products, and products with potential to sustain a market demand that is not too sensitive to global recession. Although exports are likely to be sluggish, given the overall slow growth of global economies, exports could be generated if a product fills an essential need for consumers' livelihoods, especially in emerging foreign markets, such as China and India. The ability to meet huge global demand might be a difficulty for Malaysia's manufacturing capability, however, this strategy could be promising.

2.3   Trade with China

Economic interaction between Malaysia and China can be traced back to the 1970s when the diplomatic relationship between present day Malaysia and China was officially formalised with a consular agreement signed in 1971. Malaysia's exports increased drastically after the agreement was signed, especially from 1970 to 1980 when exports to China increased more than eight times, clearly shown in the insert in Figure 2.6. Export volume rose from US$217 million in 1980 to US$619 million in 1990, then shot up to US$3028 million in 2000. Since the 1980s China has become the major purchaser of Malaysia's commodities. This is related to China's modernisation programs (Leong, 1987; Wong, 1984). Malaysia's major exports to China are manufactures, machinery and transport equipment, shown in Panel C in Figure 2.5. Exports of food have been declining since 2013, replaced by fuel, ores and metals.
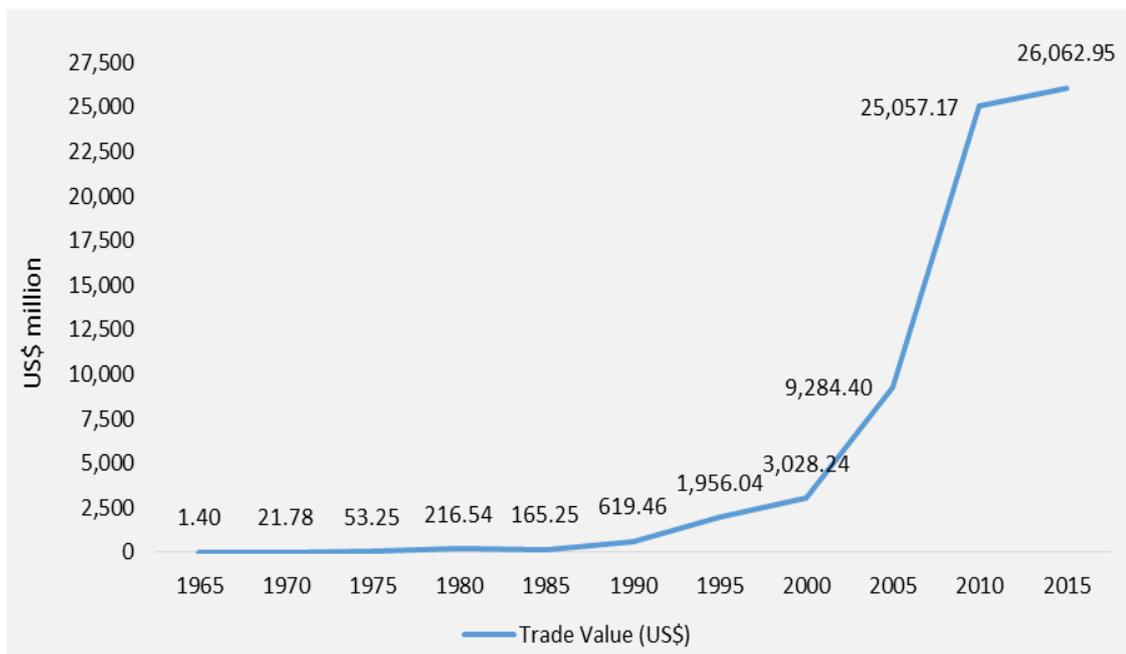
Figure 2.6 Malaysia's exports to China

Source: UNComtrade (2015).

The emergence of China as a world factory over the last two decades has been taken as a threat by many developing countries, especially those associated with manufactures exports. Earlier studies by Tyers et al., (1987) and Fukasaku and Lecomte (1998) show that China and ASEAN countries tend to compete directly in labour intensive, manufactures exports. Malaysia and China share some export markets, such as the United States. The potential for China to crowd out Malaysia has brought Malaysian exports under pressure (Chan et al., 2014). Fear was further intensified when China joined the WTO officially at the beginning of the 21st century (Eichengreen et al., 2004). Nonetheless, collaboration in the ASEAN-China Free Trade Area (ACFTA) has seen an increase in bilateral trade between Malaysia and China.

Prior to 2000 (before ACFTA was initiated), the Trade Intensity Index between Malaysia and China was below unity, as seen in Figure 2.7, which indicates that the bilateral trade could be further expanded. The Trade Intensity Index reflects the ratio of the share of Country A's trade with Country B, relative to the share of world trade destined for Country B. An index of greater (less) than unity indicates a larger (smaller) than expected trade flow between the two countries concerned (Zhou, Wu, & Si, 2007). The

negotiation and launch of ACFTA from 2000 to 2010 led to substantially higher bilateral trade between Malaysia and China (Sheng et al., 2012). During this period the trade intensity rate increased from 0.88 to 1.34, and export value rose 727%, as seen in Figure 2.7.
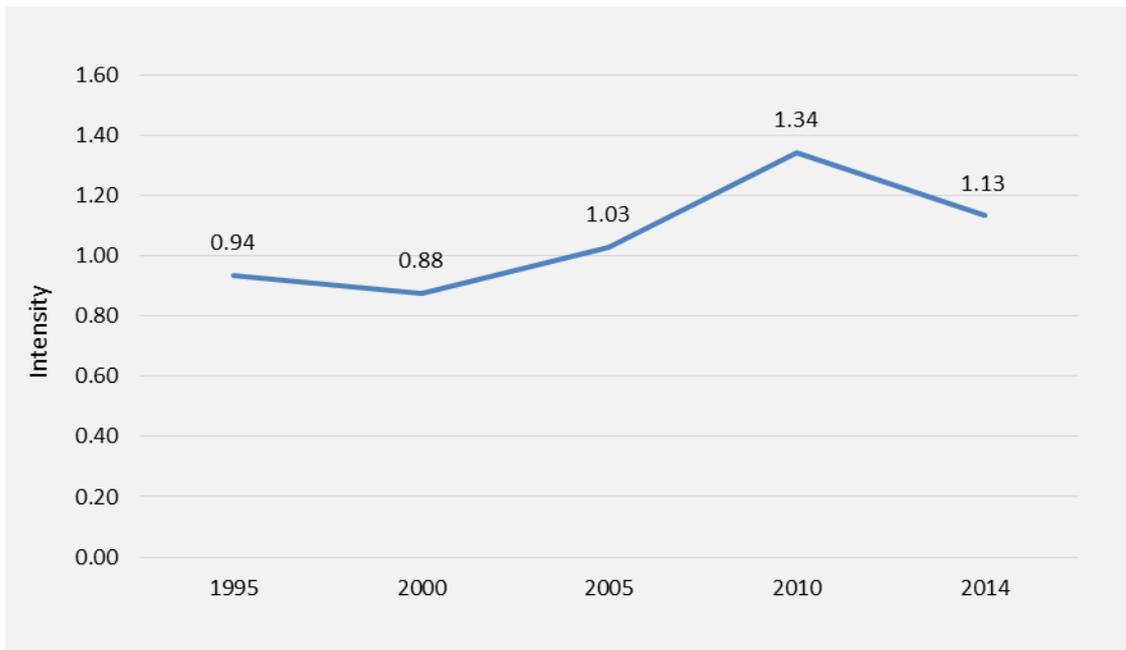
Figure 2.7 Trade intensity index between Malaysia and China, 1995-2014
Source: UNComtrade (2015).

Nonetheless, trade intensity has been dropping since 2010 (from 1.34 to 1.13 in 2014). This could be due to a fall in the export of electrical and electronic products, and crude petroleum to China (MITI, 2013; Zhu, 2013). On the other hand, it could be a temporary occurrence owing to the global economic slowdown. According to Devadason (2014), slow improvement in the level of exports was the major reason for the decline of trade potential for major products traded by Malaysia with China.

That said, Malaysia remained China's largest trading partner in ASEAN for seven consecutive years (Lai, 2016). The public in general still believes there is plenty of room for bilateral trade between both countries. Malaysia and China could seize opportunities for trading, where political and socio-cultural links between both countries are believed to be supportive in facilitating bilateral cooperation in the various areas (Devadason,

2014). In particular, with most ASEAN nations recently experiencing a deteriorating trade balance with China, more export opportunities open up for Malaysia (Salidjanova, Koch-Weser, & Klanderman, 2015). Malaysia is one of two countries from ASEAN nations that consistently register trade surpluses with China (Abbate & Rosina, 2016).

Further, with China quickly becoming more active in international trade, its import demand increases as well. It may also shift some manufacturing industries to ASEAN countries for lower production costs in the near future, due to the increase in real wages as a consequence of demographic transitions and structural changes in the labour force (Banister, Bloom, & Rosenberg, 2012; Cai & Wang, 2006). The world will experience the rise of a consumer oriented, middle class in China, which could shift economic activity from export oriented manufacturing toward domestic consumption (Salidjanova et al., 2015).

To improve and sustain Malaysia's exports to China, broader economic cooperation is needed. It could be extended to the areas of education, science, and technology. Also, Malaysia could improve its exports to China by specializing in high quality goods, or diversifying in export composition. Trade in products that have not yet saturated the Chinese market and which Malaysia can produce to an international standard, could be the way forward. For instance, Malaysia's halal products and the Chinese halal market is a potential trade area. A number of Malaysian companies have started exporting accredited halal goods to China, from spices, frozen seafood, and palm oil based products, to pharmaceuticals and cosmetics (Gooch, 2010). Due to the current lack of halal products from ASEAN countries into Muslim provinces in China, Malaysian halal products and services exporters have the potential to create an early market presence and take the lead in exporting halal products and services.

Although it is a non-Muslim country, China has the ninth largest Muslim population and possesses one of the most dynamic halal markets in the world (Edbiz Consulting, 2013). The halal market is growing at an average rate of 10% per annum, energizing US$2.1 billion worth of market values (Edbiz Consulting, 2013; Hu, 2012; Yang, 2013). Ahmad, Oxenham and Preston (2008) suggest that 3% of the Chinese population are Muslim,

while the World Factbook (2013) estimates that there are 27 million Muslims living in China. Ma (2014) estimates the number at 30 million (as large as Malaysia's population), whereas Imarat (2005), has projected the number to be as many as 39.1 million. Certainly, the size of this Muslim population reveals the clear potential of the halal market in China. In addition, halal food is gaining increasing acceptance among non-Muslim Chinese who are looking for better quality and more hygienic food (Jin, 2010). Chapter 5, Section 5.2, provides further, in-depth detail about Chinese Muslims.

The Chinese Muslim market is not merely an emerging market. It is also an opportunity for Malaysia's outward, FDI in the halal industry to benefit from cheaper raw ingredients. China's Ningxia Light and Textile Industrial Bureau sealed an agreement with Malaysia's East Economic Region to seek investment opportunities in the global halal food industry; while Gansu province and Malaysia Kelantan established the Economic and Trade Cooperation Committee to strengthen cooperation in agriculture, culture, tourism and other industries (Bao, 2013; China Daily, 2014). China can leverage Malaysian expertise in halal certification to expand its market to Muslim countries all over the world, and Malaysia can export more varieties of halal products to the Chinese market.

While Malaysia's history of monitoring halal products dates from the 1960s, China's halal certification system is at an early stage of development. The Chinese halal industry and certification system is relatively new and less established than Malaysia's (Gooch, 2010). Although there are a large number of halal certification agencies in China, they do not work collaboratively and do not follow a unified halal standard and certification system (Edbiz Consulting, 2013). As a result, Chinese halal producers do not share common understandings and compliances on halal production standards and regulations. China's halal industry also lacks integrity in supply chain management; it does not have adequate technology, and human capital, and is lacking in global credibility (Wu, 2006). Mislabelling incidents, such as substituting non-halal ingredients in the production of halal products, are not uncommon in China. An extreme case was selling pork as halal beef (Khaliq, 2013).

The need for a credible halal sector in China is overarching. Concerns of product adulteration have urged Chinese Muslims to pursue authentic halal products that are produced with pure halal ingredients using halal production processes. The Chinese authority is aware of the issues and has recently sought global expertise in organising and upgrading its halal certification system, as well as collaboration in halal trade (China Daily, 2014; Salama, 2011). The Chinese government is making great efforts in the preservation and development of the cultures of ethnic minorities, protecting freedom of religious belief and upholding their needs, to satisfy the National Minorities Policy (Information Office of the State Council, 2000). This presents great opportunities for halal exporters to enter this emerging and potentially huge market (Information Office of the State Council, 2000). Certainly, this is a great opportunity for Malaysia's halal exporters.

2.4 Competitive Advantages of Malaysia's Halal Export and Challenges to Halal Export to China

Malaysia has been recognised as the world's best halal implementer (El-Gohary & Eid, 2015). The success of Malaysia's halal industry is largely attributed to the development of halal standards and a systematic halal assurance system ahead of other Muslim countries. Malaysia developed the first world Halal Standard Guideline in the 2000s, which was later adopted by the United Nations' Codex Alimentarius Commission as a guideline for the Codex Halal Standard of the Food and Agriculture Organization of the United Nations (El-Gohary & Eid, 2015; Malaysian Economic Planning Unit, 2015).

To date, Malaysia has published more than ten Halal Standards ranging from production, preparation, handling and storage of food to general guidelines on halal pharmaceuticals (Malaysian Department of Standards, 2008). As of May 2015, a halal logo and standards have been accepted by 57 international halal certification bodies (Malaysian Economic Planning Unit, 2015). The United Nations' Codex Alimentarius Commission cited Malaysia as the best global example for halal food production (El-Gohary & Eid, 2015).

Malaysia's halal ecosystem is equipped with comprehensive and proactive policy frameworks. Malaysia, United Arab Emirates (UAE) and Bahrain lead the Global Islamic Economic Indicator (GIEI) composite index. Table 2.1 indicates that Malaysia stood out as having the healthiest Islamic economy ecosystem, relative to its size, in 2015. The State of Islamic Economic Report (Thomson Reuters, 2015) clearly outlines details of the GIEI. As shown in Table 2.1, Malaysia scored the highest score on the GIEI (at 116) out of 15 participating countries, with the highest scores in halal food, Islamic finance and halal tourism (Thomson Reuters, 2015).

Table 2.1 Highest Score of the Global Islamic Economy Indicator Countries

Top 15 Countries	GIEI score	Halal food	Islamic Finance	Travel	Fashion	Media & recreation	Pharma & Cosmetics
Malaysia	116	78	176	86	20	40	50
United Arab Emirates	63	53	78	70	29	61	42
Bahrain	58	38	84	40	17	43	36
Saudi Arabia	49	40	66	36	12	28	37
Pakistan	47	56	51	20	18	9	48
Oman	45	49	51	24	16	31	38
Kuwait	38	40	43	24	14	36	28
Qatar	37	41	38	38	10	40	32
Jordan	35	44	29	45	19	26	45
Indonesia	34	40	35	34	20	8	40
Singapore	34	40	21	58	27	88	56
Sudan	29	33	33	19	10	11	23
Egypt	27	41	16	28	17	24	56
Iran	27	28	30	34	11	17	27
Bangladesh	27	26	31	10	22	3	26

Source: Thomson Reuters (2015).

According to the 11th Malaysia Master Plan (2016-2020), the halal industry will be further developed as a source of competitive advantage in exports, and as a catalyst for economic growth (Malaysian Economic Planning Unit, 2015). As Figure 2.8 shows, the Holistic Halal Industry Master Plan has been put forward by the government to support Malaysia as a global reference centre for halal integrity, and as a global hub for production and trade in four key, halal sectors; processed food, cosmetic and personal care products, animal husbandry, and halal ingredients. The result is a business friendly

ecosystem with enhanced collaboration between certification and auditing agencies, while local halal industries have been incentivised to obtain halal certifications (Arif Shah, 2016).
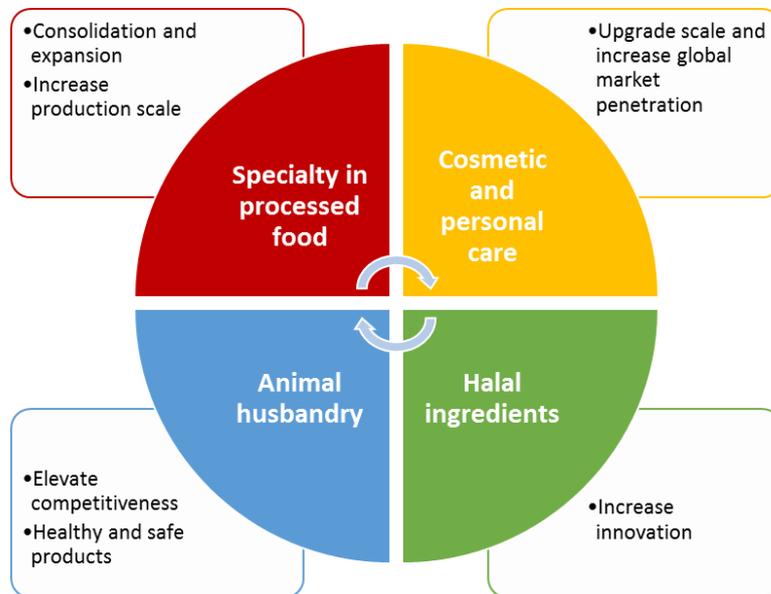
Figure 2.8 Areas to be developed as global references for halal integrity
Source: Edbiz Consulting (2013); Halal Industry Development Corperation (2016a).

Malaysia's exports of halal certified products have recorded an upward trend since 2010. They more than doubled, increasing from RM15.2 billion in 2010 to RM39.4 billion in 2015 (Halal Industry Development Corperation, 2016b). Halal exports accounted for approximately 5.1% of total exports from Malaysia in 2015 (Halal Industry Development Corperation, 2016b). This contribution is targeted to increase to 8.7% by 2020 (Malaysian Economic Planning Unit, 2015). The halal food & beverages sector accounted for the largest portion of halal exports (49.2%), followed by palm oil derivatives (27.8%), and halal ingredients at 13.1% (Figure 2.9). Exports of halal cosmetics and personal care products only accounted for 5% of the exports, due to the very strict regulations of halal certification imposed by the Department of Islamic Development, Malaysia (JAKIM) on these products (Joni, 2016).
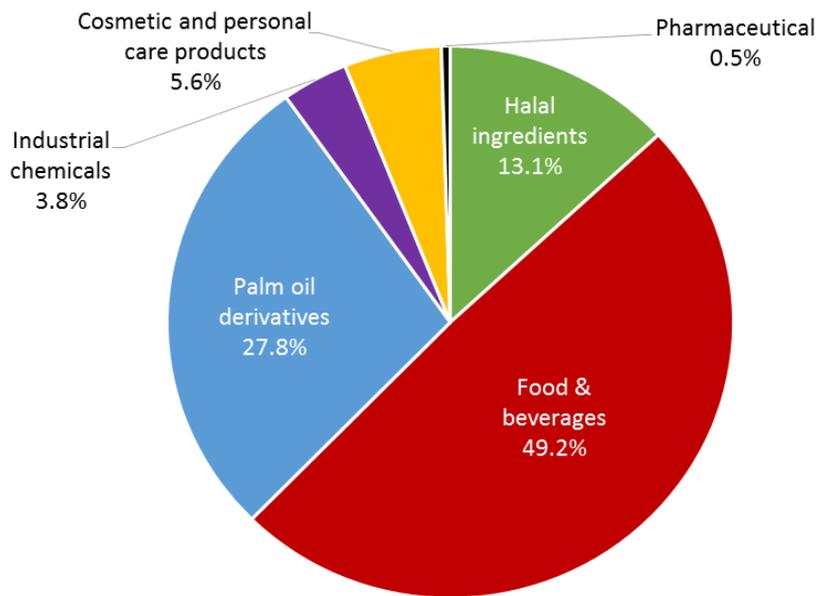
Figure 2.9 Composition of Malaysia's halal export, 2015

Source: Halal Industry Development Corperation (2016b).

More than three quarters of halal exports came from the multinational corporations. The medium size, and the micro, small to medium-sized enterprises, contributed 20.5% and 1.9% respectively (Malaysian Economic Planning Unit, 2015). Figure 2.10 indicates that China was the biggest buyer with a value of RM4.8 billion in 2015, followed by Singapore, United States, Indonesia and Japan.
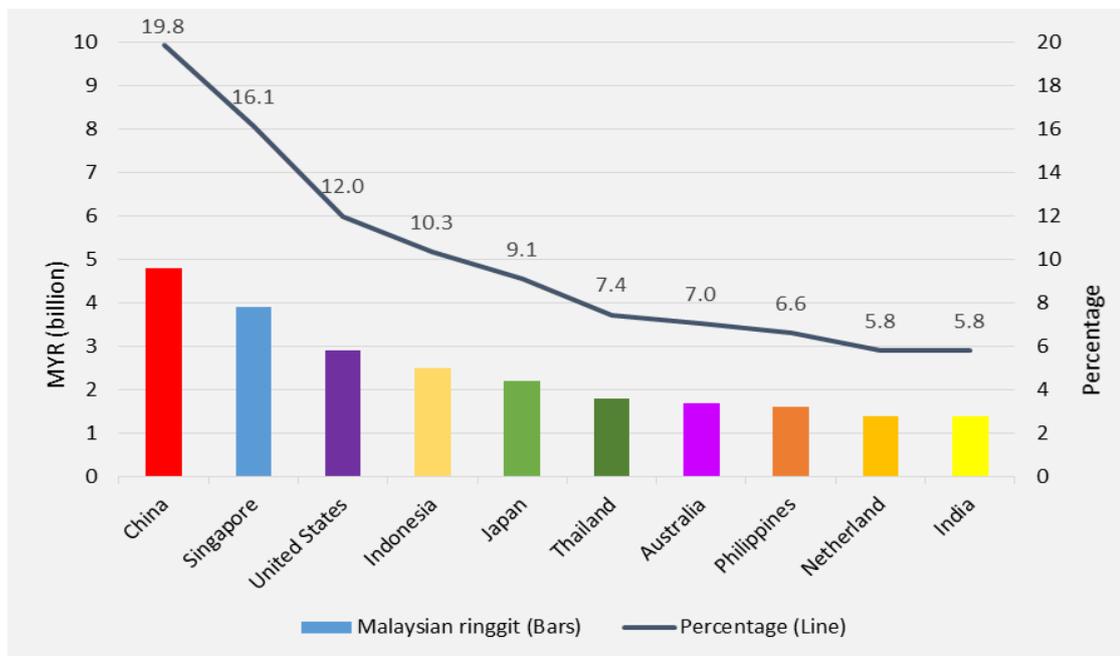
Figure 2.10 Top halal Markets for Malaysia's halal export, 2015

Source: Halal Industry Development Corperation (2016b).

Production in the halal industry is a knowledge intense activity. It requires a high number of skilled workers to enable the innovation and adoption of new technologies (Malaysian Economic Planning Unit, 2015). Growth in this sector may ease unemployment issues, strengthen capacities in research and development, uplift small to medium-sized enterprises, attract FDIs, and improve the national economy. As mentioned earlier, the expansion of the international competitiveness of domestic firms can influence the performance of international trade, where strong domestic investments generate confidence and attract foreign investors. Similarly, improvement in the halal industry may increase Malaysia's attractiveness to FDIs. For instance, the reputation of the Malaysia Islamic finance system has attracted foreign Islamic banks to establish branches in Malaysia. In 2008, Malaysia issued three Islamic banking licenses to foreign Islamic banks (Parker, 2008), and two domestic Islamic banks were ready to compete in the Malaysian market.

In 2015, there were 5,726 certified halal companies in Malaysia, of which about 75% operated at the small to medium-sized enterprise level (Malaysian Economic Planning Unit, 2015; Mohamed, 2016). Malaysia currently has 21 halal industrial parks, and has

attracted RM8.1 billion of investments comprising local and foreign investors (Malaysian Economic Planning Unit, 2015). Clearly, Malaysia possesses a clear competitive advantage in halal exports.

However, utilising Malaysia's halal industries' competitive advantages to boost exports to China will not be without challenges. Firstly, most halal enterprises are operating at the small to medium-sized enterprise level and do not have sufficient export capability (Ayob & Freixanet, 2014; Mahajar & Yunus, 2006). The halal, small and medium-sized enterprises are lacking capabilities in acquiring market information, and networking and negotiation skills with business partners. The need for excessive documentation, credit terms and transactions creates crucial procedural barriers to exporting (Ismail & Kuivalainen, 2015), and makes businesses less likely to venture into unfamiliar markets without support from government (Durmuşoğlu, Apfelthaler, Nayir, Alvarez, & Mughan, 2012; Wilkinson & Brouthers, 2006).

Secondly, Malaysia's halal industry has not yet developed independent marketing capabilities, constraining their ability to upgrade into higher, value added products and markets. The local halal industry has not been able to utilise the resource of a good reputation that Malaysia has in the halal sector in marketing their products, being unsure about appropriate strategies to use to enter new markets, and not knowing the requirements and preferences of international buyers (Abdul, Ismail, Mustapha, & Kusuma, 2013). Since halal is a credible, quality attribute based on trusted information, the acceptability of halal products depends very much on information received by buyers. Appropriate marketing strategies are required to attract and gain trust from new buyers in the foreign market, especially to increase the confidence of buyers. According to Awan, Siddiquei and Haider (2015), halal marketing makes the highest contribution towards factors influencing halal purchase intention. Small and medium-sized halal enterprises could develop into multinational corporations in the future if they can implement appropriate strategies to communicate and brand their products and services.

More importantly, Chinese Muslims' requirements regarding halal products are little known to the world. In addition, geographical distances, lack of mediators, language and cultural differences may further complicate the penetration process into the Chinese Muslim market. Despite the fact that they live in China, a non-Muslim country, Chinese Muslims' consumption behaviour is influenced by Islamic teaching, and they look for halal authenticity. Without knowledge of Chinese Muslims' demand for halal products, Malaysia may not be able to achieve the goal of increasing exports of halal products to China.

Further, it is not just Malaysia that is witnessing the emergence of the Chinese halal market. Other halal exporters with large production capacity of halal products, especially food, are seeking to fulfil China's demand for halal food imports, and are eyeing this *blue sea* market.

Malaysia needs effective solutions to these challenges because if it can overcome these obstacles Malaysia's halal industry has great prospects. Firstly, in order to compete with other exporters, Malaysia could use its competitive advantages in halal credibility to promote its halal exports to China. Secondly, Malaysia could use its advantage of having good diplomatic relationships with China to overcome the export capability barrier. The government may be helpful in initiating and establishing connections with the Chinese government, facilitating the export process by expediting documentation and customs clearance procedures, and negotiating and securing business contracts through diplomatic relationships.

Finally, good connection strategies between halal exporters and buyers are needed, especially to understand buyers' preferences and market information. On the other hand, it would also be helpful for the Malaysian halal industry to understand the Chinese Muslim market. Information about product usage, requirements regarding halalness, magnitude of demand, and preferences could be very useful to the local Malaysian halal industry in producing products that are appreciated and approved by Chinese Muslims.

2.5   Conclusion

This chapter provides an overview of the importance of manufactures exports to Malaysia's economic growth. It also identifies the potential of the halal industry as the next export catalyst, China as the potential market, and challenges in exporting to China. It is clear that more investigation is required to identify solutions to overcoming challenges faced by Malaysia's halal exporters to China. This investigation includes a survey of the research literature to identify studies that have been carried out in this increasingly important research area, and what is lacking from the literature.

Thesis Outline

Chapter 1
Introduction

Chapter 2
Malaysia's export challenges and trade potential with China

Chapter 3
Literature review and research framework

Chapter 4
Malaysia's exports to China: does diplomatic relationship matter? (Aggregate analysis)

Chapter 5
Determinants of Chinese Muslims' consumption of halal products: evidence from revealed preference data

Chapter 6
Chinese Muslim's choice of halal products: evidence from stated preference data

Chapter 7
Synthesis and discussions

CHAPTER 3   LITERATURE REVIEW AND RESEARCH FRAMEWORK

Chapter Outline

3.1 Determinants of Exports

3.2 Malaysia-China Trade Studies and Literature Gaps

3.3 Concluding Remarks

This chapter begins with a review of important theories of trade. Selected studies that evaluated hundreds of articles related to export determinants between the 1980s and 2010s, are discussed. Following this discussion, an overview of potential export determinants is developed, synthesised and displayed in a diagram. The diagram is useful in identifying research gaps and establishing further research directions.

3.1   Determinants of Exports

Export and import form the important, yet complex, international trade. Through trade, nations exchange goods, services, knowledge, and technologies; while firms increase their competencies, expertise, knowledge and revenues. To improve and utilise the benefits of trade, there have been many trade models and theories developed over the past 600 years. For instance, Mercantilism dominated trade practice in Europe in the 16th century. It emphasised wealth accumulation through exports and colonisation, and discouraged imports (LaHaye, 2008). This model was implemented for a period before the emergence of anti-mercantilism economists, such as Adam Smith and David Ricardo.

Smith and Ricardo developed renowned formal and standard international trade theories in the 18th century. Adam Smith's Absolute Advantage Theory provides the basis for lowering labour costs, emphasising effective competition across countries (Sen, 2010). The theory suggests that a country should import goods that are produced more cheaply in other countries, than it can produce itself, and a country should export goods it produces at a relatively cheaper cost compared with other countries. Through the Absolute Advantage Theory, Adam Smith notes that trade should be allowed to be free flowing according to market demand, and a nation's wealth should be measured by its standard of living and not merely using monetary aspects (Sen, 2010).

David Ricardo took Smith's theory of free trade further by developing the Theory of *Comparative* Advantage (Sen, 2005). Ricardo's Theory of Comparative Advantage demonstrates that the ability to produce one good efficiently, relative to another within the country, is more important than absolute production ability. It brings opportunity cost into the equation. In other words, although if a country does not have an absolute

advantage in anything, it is always have something that better, which provides chances to a better national income prospects through trade and specialisation. Hence, a country should produce and export the product that incurred relatively lower production costs compared with other goods produced in the country.

Ricardo's Comparative Advantage remains an important theory in explaining most of international trade. In some cases, however, it seems to be counterintuitive in explaining some international trade patterns (Case & Fair, 1996; Deardorff, 1994; Suranovic, 2015). This is because Ricardo's theory assumes that the comparative advantage could only arise due to differences in labour endowment between trading partners. In reality, international trade reflects differences in all production factors, not merely the labour. The Heckscher-Ohlin model (H-O model) advances to explain international trade by the endowment of all factors. According to Krugman and Obstfeld (2003), the H-O model is the most influential theory in international trade.

The H-O model suggests that international trade arises from the uneven geographic distribution of productive resources. Given different factor endowments, the H-O model shows that countries shall specialize in producing and exporting goods that are produced more intensively with factors that the country is relatively more endowed, assuming trading partners adopt the same production technologies. Such trading pattern increases the welfare of all trading countries.

If a country has abundant labour endowment, firms in the country are likely to have competitive advantage in exporting those labour-intensive products through international trade. Similarly, if a country has abundant endowment of any other factors, firms in the country are likely to have competitive advantage in exporting products that make more intensive use of such factors. The concept of competitive advantage was put forward by Michael Porter in the 1980s (Porter, 1990). Comparative advantage and thus competitive advantages, or the lack of, can also be attributed to some other influences such as a country's governance and institutions, distribution networks, skills and technologies, and culture and history. It is possible for countries to export more by creating their competitive advantages by paying attention to such areas.

Today, trade has become a vital economic activity with the accelerating globalisation of the world economies. Correspondingly, research and development into trade theory is also expanding. The continuing growth of research in this area implies that there is still room to improve the efficiency of trade, frequency and quantity of trade, and income generation from trade. In particular, research in exporting is of vital interest to public policy makers, producers, managers, and other researchers (Sousa, 2004).

Export is the most popular foreign market entry mode used globally (Zhao & Zou, 2002). Most countries are looking for ways to penetrate competitive markets, and establish demand for their products through export. In the following sections, only the export literature is reviewed.

Trade theories (Mercantilism, absolute advantage, comparative advantage, etc.) implicitly reveal that exporting is influenced by many factors, and it cannot be detached from institutional factors, such as governance. Numerous export studies have been conducted since the pioneering work of Tookey (1964), who first attempted to identify factors influencing export performance (Miesenbock, 1988). Since then, more than 700 export determinants have been identified (Beleska-Spasova, 2014; Gemunden, 1988). Many studies have built their theoretical foundations by reviewing the export literature from different perspectives. For instance, Zou and Stan (1998) reviewed empirical studies to identify trends and determinants in manufacturing industry exports between 1987 and 1997. Sousa, Martínez-López and Coelho (2008) reviewed and synthesized articles on export performance between 1998 and 2005. Mysen (2013) reviewed and analysed the export determinants literature from 1995-2011, particularly the role of control mechanisms that coordinate exports.

To help identify research gaps for this study, the works of Zou and Stan (1998), Kalirajan (2008) and Mysen (2013) are used to construct an export determinants diagram. They encompass empirical studies from the 1980s to 2010s to capture important export determinants during this period. In addition, these reviews also identify export constraints and prospects that took place during different phases of the economic trends towards the globalisation era, and they also identified research gaps for future

studies. More importantly, there is coherency among these studies, and export determinants are distinctly classified.

From the review of export literature, export determinant studies can be classified into two groups; studies conducted at the country or global level, and studies conducted at the firm or industry level. At the country or global level, the most frequent determinants are usually related to macroeconomic factors; for instance, currency exchange, free trade agreement, GDP, etc. While at the firm or industry level, microeconomic factors, such as product or industry characteristics, industry competitiveness, firm specific variables, export strategy, and marketing policies are commonly studied.

Basically, determinants of export are classified into two broad dimensions; factors *behind* the border and factors *beyond* the border based on economic theories (Zou & Stan, 1998). Factors behind the border refer to export constraints within the home country; for instance, firm characteristics, strategies such as price and product development; services such as ports, customs, infrastructure and transport; and regulatory policies that impede competition etc. In contrast, factors beyond the border refer to institutional rigidities of partner countries, non-tariff barriers, characteristics of domestic markets, and demand (Aaby & Slater, 1989; Kalirajan, 2008; Mysen, 2013; Sousa et al., 2008; Zou & Stan, 1998). For simplicity in this discussion, the word internal is used to describe behind the border, and external to indicate beyond the border.

After reviewing 50 empirical studies on the determinants of export performance between 1987 and 1997, Zou and Stan (1998) further classified internal factors and external factors into controllable and uncontrollable groups. Altogether, there are 33 export determinants identified by Zou and Stan (1998) as shown in Table 3.1. They are grouped under seven sub-topics; 1) export marketing strategies, 2) management attitudes and perceptions, 3) management characteristics, 4) firm's characteristics and competencies, 5) industry characteristics, 6) foreign market characteristics, and domestic market characteristics within the four main categories; 1) internal-controllable, 2) internal-uncontrollable, 3) external-controllable and 4) external-uncontrollable.

Zou and Stan (1998) discovered that most export studies emphasize internal-controllable factors, and less attention has been paid to internal-uncontrollable factors. Internal-controllable factors, such as product strength and adaptation, distribution channels, and price competitiveness appear to be major variables employed by researchers. Only 10% of studies reviewed by Zou and Stan (1998) employed characteristics of export markets (an external-uncontrollable factor) as export determinants. They did not identify any studies that discussed external-controllable factors and this is clearly seen in Table 3.1.

Table 3.1 Determinants of Export

Internal determinants	External determinants
Controllable factors	
Export marketing strategy	
General export strategy	
Export planning	
Export organisation	
Market research utilisation	
Product adaptation	
Product strengths	
Price adaptation	
Price competitiveness	
Price determination	
Promotion adaptation	
Promotion intensity	
Distribution channel adaptation	
Distribution channel relationships	
Distribution channel type	
Management attitudes and perceptions	
Export commitment and support	
International orientation	
Proactive export motivation	
Perceived export advantages	
Perceived export barriers	
Uncontrollable factors	
Management characteristics	*Industry characteristic*
Management international experience	Industry's technological intensity
Management education/ experience	Industry's level of instability
Firm's characteristics and competencies	*Foreign market characteristics*
Firm's size	Export market attractiveness
Firm's international competence	Export market competitiveness
Firm's age	Export market barriers
Firms technology	*Domestic Market Characteristics*
Firm's characteristics and competencies	Domestic Market Characteristics
Firm's capabilities/ competencies	

Source: Zou and Stan (1998).

The external-uncontrollable determinants shown in Table 3.1 are of particular interest to firms' management. This category, which comprises external industry and market characteristics, is helpful for companies in establishing strategic export marketing plans. Although marketing disciplines have not developed their own comprehensive theory of the firm (Trivedi, 2009), marketing theories have emerged in the disciplines of

economics, finance and management. This situation has actually diminished the role of marketing at higher levels. Keynesian economists believe that a well-functioning and flourishing economy may be created with a combination of private sector and government assistance. After all, producers and consumers are the basis of all transactions. Therefore, Zou and Stan's (1998) classification of export determinants into internal-controllable, internal-uncontrollable, and external-uncontrollable categories is of strong practical relevance to both researchers and industries.

The empty section of column in Table 3.1, the external-controllable factors, might include business partners or distributors, business control stations and marketing channels in the importing country. It may also involve marketing and advertising of the exported products in the importing countries. These factors have not appeared in the other three broad categories. Controllable means that exporters can somehow decide who to collaborate with, through which channel their product should be sold, marketed and advertised, and the standard and quality of advertisements or marketing events to be organised. All these factors are highly dependent on the budget and financial status of the exporters, and their negotiation abilities with local business channels.

The classification of external-controllable determinants varies across studies. For instance, Sousa et al. (2008) believed that these variables, such as distribution channels, are relational. But with only two studies that examined these relational variables, they concluded that research into the implications of relational factors has not been sufficient. On the other hand, according to Mysen (2013), external-controllable factors might be described or classified into governance structures.

Governance structures might not necessarily have to be from the importing countries. Those factors that have been categorised under the governance structure are distributors/importers, specific investment, relative dependence, etc. These factors can be internal, or even international. This can also be described as a control function. For those companies that lack internationalisation experience, this control function will be set up by the exporting company in the importing country, to control the marketing and distribution chains in the host country (Yeung & Liu, 2008). In other words, it might not

be accurate to categorise these factors as external-controllable factors. In fact, these factors are playing more of a mediation role by connecting the seller and the buyer.

Sousa et al. (2008) divided export determinants into four groups; 1) external factors, 2) internal factors, 3) moderating variables and 4) control variables. Compared with Zou and Stan (1998), the export determinant classification developed by Sousa et al. (2008) is ambiguous. For instance, foreign market characteristics are placed in the control variables group, and foreign market characteristics and firm characteristics are considered as moderating variables. There is a lack of clear definition for each category, and no explanation about how the classifications were decided.

Nonetheless, Sousa et al. (2008) have pointed out the importance of marketing strategies and management characteristics in export. This was neglected in export studies during the 1980s. From about 50 studies conducted between 1998 and 2005, elements related to the firm's export marketing strategy were the most frequently cited export determinants. The review by Sousa et al. (2008) also asserts that a good match between a firm's skills and resources with environmental opportunities and managerial preferences can significantly affect export performance. A large number of studies explored the importance of export marketing strategy on export performance between 1998 and 2005, particularly the extent to which the elements of the marketing program (product, price, promotion and distribution) were adopted across markets (Sousa et al., 2008).

Sousa et al. (2008) reveal an important message by suggesting that towards the era of globalisation export becomes more competitive. The number of participants in export markets is increasing, and as a result, price and marketing strategies are becoming vital in order to stand out from the competition. Similarly, the role of local business channels as a medium to connect exporters and importers is growing. Rising liberalization and competition in the world economy and subsequent difficulties in improving export performance encountered by exporters, may explain the scholarly interest in marketing strategy (Sousa, 2004; Sousa et al., 2008).

The twenty first century has seen a growth in studies that employ variables related to the external market environment (Beleska-Spasova, 2014). This circumstance appeared with the accelerating globalisation of trade, when world business activities increasingly accentuated the importance of understanding the behaviour of foreign markets. At this time Mysen (2013) found that the control mechanisms that connect internal and external export determinants are still lacking in the export literature. Besides consumer, producer, and market characteristics, Mysen (2013) also emphasised the importance of macro level factors, such as the relationship between trade partners and countries, flexibility in trade, and trade investments.

Control mechanisms consist of a wide range of bureaucratic, cultural and informal mechanisms. According to Mysen (2013), control mechanisms energise and stimulate the decision making process of both exporters and importers, and also influence the mediators in order to achieve the business objectives of both parties. Although there is no consensus in defining control mechanisms, they are commonly accepted as a governance mechanism. Mysen (2013) argues that exporting involves various forms of non-integrated foreign operations because works are delegated to foreign business partners. Hence, control mechanisms are needed to control and influence decisions and actions among intermediate agencies, coordinators and distributors to ensure sales profits and business integrity.

Mysen reviewed and analysed the literature of export determinants from 1995 - 2011, and particularly focused on the control mechanisms in export relationships. In addition to internal-controllable and internal-uncontrollable, and external-controllable and external-uncontrollable categories, Mysen's review initiated two additional dimensions of determinants; relationship atmosphere (such as the quality of the relationship between traders) and governance structure (distributors/antecedent). The control mechanisms are used to connect these six groups together, as shown in Figure 3.1.
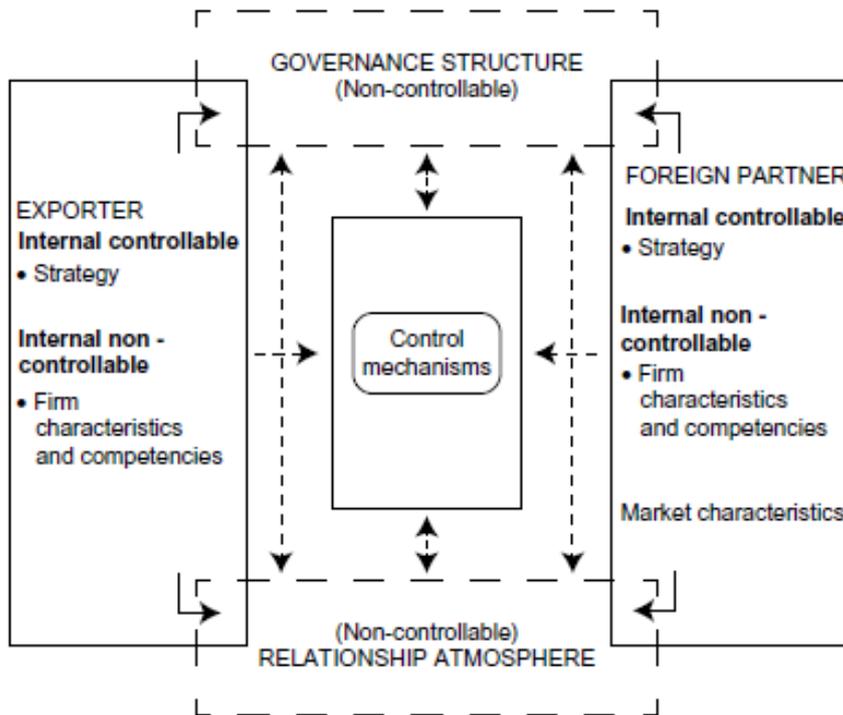
Figure 3.1 Internal, external and relational determinants of export performance

Source: Mysen (2013).

The concept of trust and commitment are the most frequently included factors from the relationship atmosphere categories. However, Mysen (2013) finds no consensus among studies on the definition of the concept of relationship atmosphere, and no consensus on the effect of relationship atmosphere on export performance. Nevertheless, Mysen's (2013) findings suggest that governance structure (distributors/importers) received the most attention in studies related to export control mechanisms. Distributors and sales agents are the most used export modes, particularly in the early phases of internationalisation within small and medium-sized firms. Interestingly, distributors sometimes have more dominant roles in the international supply chain than exporters (Mysen, 2013).

Reviews from Zou and Stan (1998), Sousa et al. (2008) and Mysen (2013) show there has been an evolution in the importance of export determinants. The internal-controllable factors served as important determinants of exports in the period between 1980 and 1995 (Kalirajan, 2008; Zou & Stan, 1998). Characteristics of the domestic market in

importing countries (external-uncontrollable factors) continued to be neglected between 1998 and 2005 (Sousa et al., 2008). However, the governance structure, or the mediator factors, were increasingly used as export determinants between 1995 and 2011 (Mysen, 2013). These situations reveal external factors are becoming more significant in the era of globalisation. Consequently, export strategy and export orientation received more attention in export determinant studies in the 2000's (Shepherd, 2010).

Also, Dubé, Zhao, Yang and Huang (2015) argue that a successful process of firm internationalisation does not depend only on government intervention, but many external factors also play a fundamental role, such as the international business environment, target market, international and national trade policies etc. Dubé et al. (2015) argue that a well-targeted and well balanced export promotions policy is a major asset that can help firms overcome obstacles that are inherent in a transition towards international markets.

Empirical investigations of developing countries' exports by the UNCTAD (2005) display another dimension of export factors, with their findings highlighting the importance of both demand and supply side factors. According to Miankhel, Kalirajan and Thangavelu (2014), countries are diverse in political and cultural background, level of development, trade openness and production strategies. Therefore exporters will be sensitive to differences in consumption patterns, market structures and information accessibility by consumers in importing countries. These micro factors play equally significant roles in defining the size of the market of an exported product.

In addition, factors such as free trade agreements, tariffs, financial constraints, currency exchange rates, countries' relationships, investments, the China effect, and control mechanisms are also becoming popular in recent export studies (Autor, Dorn, & Hanson, 2013; Chan et al., 2014; Creusen & Lejour, 2012; Engel & Procher, 2012; Fabling & Sanderson, 2014; Freund & Pierola, 2008; Friberg & Wilander, 2008; Jongwanich, 2010; Kalirajan, 2008; Kepaptsoglou, Karlaftis, & Tsamboulas, 2010; Leonidou, Palihawadana, & Theodosiou, 2011; Yakop & van Bergeijk, 2009; Yakop & van Bergeijk, 2011).

The globalisation era has also seen the important roles of international market entry costs, geographical spread of trading countries (Shepherd, 2010), perceived competitive advantages, export commitment (Navarro, Losada, Ruzo, & Díez, 2010), internationalisation and globalisation (Papadopoulos & Martín Martín, 2010), trade facilitation reform, hard and soft infrastructure, aid of trade (Portugal-Perez & Wilson, 2012; Vijil & Wagner, 2012), small and medium-sized enterprises, and manufacturing strategies (Singh & Mahmood, 2014; Wilkinson & Brouthers, 2006) in determining export performance.

The survival of firms and the economic growth of many countries are due to their export performance. With the steady rise of international business and the emergence of global competition, an understanding of the determinants of export performance has become particularly important. To examine the determinants of export, Zou & Stan (1998) suggest that researchers should investigate a few perspectives, rather than just focus on one aspect. Relationship atmosphere and control mechanisms are aspects that future researchers should consider (Mysen, 2013; Sousa et al., 2008). Singh and Mahmood (2014) call for more research on manufacturing strategy as an export determinant, while Masron, Azman and Fujikawa (2015) suggest that choosing the right production location will be more convenient for market penetration.

After synthesizing reviews of export determinants, a diagram was constructed to integrate the categories of export determinants (see Figure 3.2). In addition to internal and external factors, the categories of control mechanisms, relationship atmosphere and governance structure (the mediators) from Mysen (2013) are also adopted. To avoid confusion between control mechanisms and governance structure, institutional mechanisms is used to replace the control mechanisms, while mediators is used to represent the governance structure in the rest of the discussion. Institutional mechanisms, mediators and relationship atmosphere are grouped into a broader category called *Intermediators*. The controllable and uncontrollable classifications have been dropped, because it might be ambiguous for some factors to be categorised in to these two groups. In addition, the diagram is further expanded to segregate export determinant categories into microeconomic and macroeconomic segments.
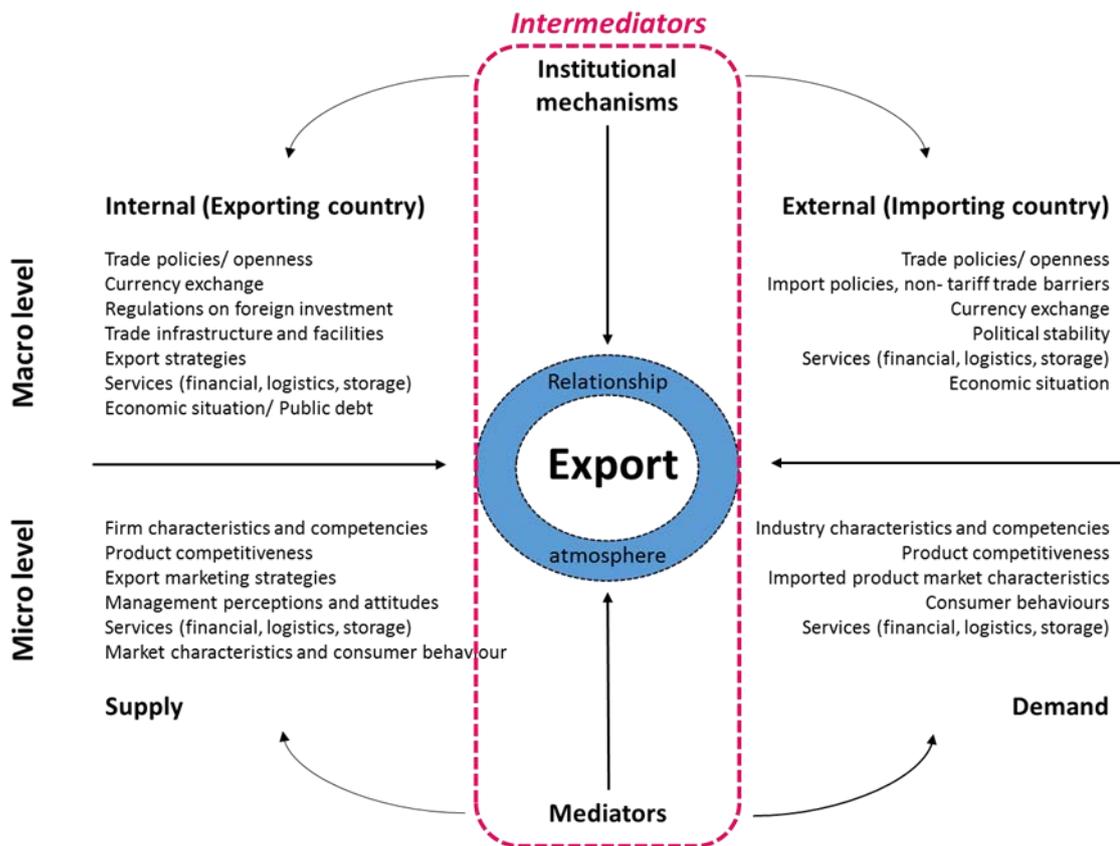
Figure 3.2 Export determinants diagram

Figure 3.2 shows that export is influenced by many types of factors, and these factors are often integrated for export to happen. Demand and supply in the market need a set of collective actions by the institutional mechanisms and the mediators to support the operations of trade, undertaking and developing international activities (Singh & Mahmood, 2014). All these activities need a good foundation of relationship and trust among traders. The next section presents how these determinants have been investigated in relation to Malaysia's exports to China, and where there are gaps in the literature.

3.2 Malaysia-China Trade Studies and Literature Gaps

In considering the China effect on developing countries, studies have emerged that predict the impact of the China effect on trade relationships between Malaysia and

China. Most Malaysia-China trade studies emphasise the comparative advantages between these two countries (Abidin & Loke, 2008; Chan et al., 2014; Devadason, 2008; Kung et al., 2016; Lean & Smyth, 2016; Loke, 2007; Mahani & Loke, 2008; Muhammad & Yaacob, 2008), the impact of exchange rate fluctuations on trade (Hooy & Chan, 2008a, 2008b; Sek & Har, 2014; Soleymani & Chua, 2013; Soleymani & Chua, 2014; Soleymani et al., 2011), and the context of the free trade agreement (Chirathivat, 2002; Devadason, 2010, 2011; Qin et al., 2015; Sheng et al., 2012; Tongzon, 2005; Tyers et al., 1987; Vahalík, 2014; Zi & Zheng, 2007).

Trade studies mentioned above are hugely lean to examine macroeconomic factors of export. They show the potential and challenges of Malaysia's trade with China, however, ignore the importance of how and what factors can help to improve trade between these two countries. Additionally, most of these studies employed aggregate data in their analysis. Aggregate data is a feature rich data set, with the assumption that the hypothesized relationship between the economic variables is homogenous across all individuals. However, 'aggregation bias' may sometimes occur when heterogeneity is found instead in the behaviour of economic agents (Garrett, 2002).

The aggregate bias issue is common in economic data. Aggregate data generalises information across time and observations, which may in some way restrict the accuracy of analysis on an individual product or industry. Soleymani et al. (2011) suggest that research should not employ aggregate data alone because not all industries respond to changes in exchange rates. They found that aggregate trade data alone do not capture the full picture of the impact of currency fluctuations on the trade balance. Therefore, disaggregated data should also be used to examine Malaysia's exports to China.

Also, there is a lack of studies that investigates the role of products in Malaysia's exports to China. Many studies assert that as Malaysia moves towards being less labour intensive and more high skill intensive in the manufacturing sector, product quality and performance should be its key focus in maintaining market competitiveness, instead of just manipulating the currency and other microeconomic factors, such as over or under valuation of currency (Abidin & Loke, 2008; Devadason, 2007, 2008). Likewise,

Soleymani et al. (2011) suggest that the export of quality goods will have a stronger position in capital intensive product markets and is more resilient to external shocks. Hence, research should also look into the aspect of product competitiveness, which is important in fostering Malaysia's exports to China.

Further, there is a shortage of studies on non-macroeconomic factors. The important role of institutional mechanisms, relationship atmosphere, mediators and external microeconomic factors are largely neglected in studies related to the Malaysia-China trade. It could be argued that institutions determine the performance of macroeconomic factors, such as GDP, FDI and exchange rates and, therefore, macroeconomic factors are sufficient to reflect the contribution of institutions. However, in this globalisation era, institutions matter more than that.

Institutional mechanisms are important in assisting exporters to mitigate export barriers in foreign countries (Dubé et al., 2015). Strong institutional mechanisms and relationship atmosphere could generate, promote and protect trade cooperation, ensure product excellence, develop mutual trust, and maintain elastic trade relationships. Based on the trade development history between China and Malaysia, the institutional context has also played a substantial role in determining the volume of trade, in addition to price and product variety. Furthermore, Malaysia and China's 40 years of diplomatic relationships should have developed trust between both countries, and Malaysia's government can play a very important role in Malaysia's exports to China.

More importantly, Malaysia-China trade studies have not considered consumption in the importing countries as an important factor. Consumption and trade are highly related in this globalisation era. According to Regmi (2001), trade acts to balance the difference between production and consumption in a country and at the same time connects countries in the international economy. For instance, instead of eating canned food in winter, consumers can obtain fresh food and fruits from other continents. This indicates that changes in food consumption in one region may have implications for production and trade in other countries. Shifts in demand of food may cause major impacts on global food markets (Gehlhar & Coyle, 2001).

There have been some studies showing the importance of consumption in driving trade. Regmi (2001) reveals that the rise in global migration has resulted in an increase in products traded in the United States. Migrants from many different countries, with diverse ethnic backgrounds, have increased the demand on products from their home countries, which consequently increases the trade. Lohr (2001) notes that increasing demand for organic food in Europe has increased demand on trade in organic ingredients. Hanser (2004) asserts that the consumer revolution increases Chinese consumers' demand on imported products; for example, the melamine incident in China has illustrated the complexity of international trade in food products (Gossner et al., 2009).

Specific ethical, consumption behaviour has affected products and types of trade (Brenton, 2013; Perry & Grace, 2015). This has been observed in many ethical niche markets, such as organic food, meat substitutes, ethical banking, the coffee industry, and the halal industry (Connolly & Shaw, 2006; Verbeke, Rutsaert, Bonne, & Vermeir, 2013). It has also witnessed the case for halal consumption in Malaysia (Lai, Chong, Sia, & Ooi, 2010). Finally, recent studies on consumer preferences in low and middle income countries indicate that product adulteration is one of the major areas of interest to consumers (Brenton, 2013), and it is one of the most important concerns in the halal industry.

Dubé et al. (2015) make a comparison of the effectiveness of promotion policies of the halal food industry between China and Malaysia, and comment that there are no clear policies and methods on how to attend to specific export barriers in the halal industry. They believe that lack of knowledge about the target markets and inability to meet administrative and bureaucratic requirements are the main barriers for halal export firms. With a lack of such insider knowledge about a foreign market, a firm will find it difficult to seize opportunities abroad and this might also delay their internationalization. They will expect public institutions to somehow assist in mitigating these barriers and facilitate the export process.

Research in understanding the determinants of Malay Muslims' consumption behaviour of halal products is prolific, but there is very little research around the consumption behaviours of Chinese Muslims. From the research point of view, Chinese Muslims' consumption ideology and demand for halal products have not been systematically and empirically studied (Zhu, 2011). According to Dubé et al. (2016), information and halal certification are two main public resources at play in the process of halal firm internationalization. Information related to foreign consumer demand is the most important factor when entering foreign markets. Network strength, public resources and knowledge sharing are the three main areas that need policy intervention for market penetration. Dubé at al. (2015) also call for more empirical research to identify efficient export and internationalisation promotion models for the halal industries in Malaysia, China and the Philippines.

3.3   Concluding Remarks

In order to examine the determinants of exports, it has been suggested that researchers should investigate a few perspectives rather than focus on just one aspect (Zou & Stan, 1998). Mysen (2013) stresses that more efforts are needed to explore the degree of influence of the integration between relationship atmosphere and controls on export performance. Successful market segmentation requires knowing who your customers are and ensuring that they are getting exactly what they want (Cui & Liu, 2000). From the background study in Chapter 2 and this literature review, it is clear there is a lack of research around institutional mechanisms, relationship atmosphere, and the external microeconomic aspects of the Malaysia-China trade. In particular, the role of diplomacy in fostering trade is not sufficiently understood, and there is insufficient information about the consumption behaviour of Chinese Muslims.

Also, there is a lack of understanding and research around market characteristics and consumer behaviours for halal products in countries, such as China, where Muslims are in the minority. There is also a lack of research around understanding what halal product attributes Chinese Muslims prefer.

Based on the development of the economic relationship between Malaysia and China, considering halal export conditions, including the lack of understanding of Chinese Muslim's halal consumption, it is necessary to identify how both macro and micro level factors affect halal exports from Malaysia to China, in order to develop effective export policy. To this end, three research questions have been formed to address these issues:

1 Would the institutional factors, such as diplomatic events, foster Malaysia's exports to China?

2 What are the key determinants of Chinese Muslims' consumption of halal personal care products in relation to their religious practices and beliefs?

3 What attributes of halal personal care products preferred by Chinese Muslims, that possible to attract more demand in the future?

Research methodology and data used to respond to each of these questions, together with findings and implications from the research, are presented in Chapters 4, 5 and 6. They are presented in paper/publication format with abstracts (Consents to the inclusion of these papers in this thesis have been obtained from co-authors). Some minor changes were made to fit this thesis, for instance, the sections numbering. In each chapter, a separate, focused literature review is provided. Since the three chapters are self-contained, it is possible there is some repetition between them. Titles of the three submitted papers are:

1 Malaysia's Exports to China: Does Diplomatic Relationship Matter? (Chapter 4)

2 Determinants of Chinese Muslims' Consumption of Halal Products: Evidence from Revealed Preference Data. (Chapter 5)

3 Chinese Muslim's Choice of Halal Products: Evidence from Stated Preference Data. (Chapter 6)

Thesis Outline

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│        Introduction         │
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Chapter 4
Malaysia's exports to China: does diplomatic relationship matter? (Aggregate analysis)

Chapter 5
Determinants of Chinese Muslims' consumption of halal products: evidence from revealed preference data

Chapter 6
Chinese Muslim's choice of halal products: evidence from stated preference data

Chapter 7
Synthesis and discussions

CHAPTER 4   MALAYSIA'S EXPORTS TO CHINA: DOES DIPLOMATIC RELATIONSHIP MATTER?

This chapter continues to investigate the role of institutional mechanisms (export determinants at the macro level), mainly the diplomatic relationship in exports from Malaysia to China. This chapter has been submitted to the China Economic Review for publication.

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Chapter Outline

4.1 Introduction

4.2 An Overview of the Political and Economic Relationships Between

Malaysia and China

4.3 Literature Review

4.4 Model, Variables and Data

4.5 Results and Discussion

4.6 Concluding Remarks

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Abstract

This study examines the importance of diplomatic relationships in fostering trade by using the gravity model approach. The institutional aspects, especially the role of diplomacy, have been widely studied for developed economies, but largely overlooked for developing economies. Through consumer utility maximization, institutional aspects such as diplomatic relationships and halal related variables are incorporated into a gravity model, and the model is estimated in the context of Malaysia's exports to China. This estimation allows the fixed effect to capture observed and unobserved characteristics that may be correlated with the error term, and accommodates the possible endogeneity, autocorrelation and heteroscedasticity issues. Findings reveal that intense diplomatic relations are essential to trade collaboration. Thus, this empirical study contributes to the literature of institutional aspects of trade in developing countries. It is expected that the findings will assist producers in developing their export strategies and assist in strategizing trade approaches with China. It will also benefit other, similar economies that are seeking to improve on, or tap into, the thriving opportunities that exist in China.

4.1 Introduction

As a small open economy, Malaysia's domestic producers and economic growth are greatly reliant on foreign markets, and the People's Republic of China (henceforth referred to as China) represents a significant export market for Malaysia (Zhao, 2013). Its increasing demand for imports in the past 10 years has made a huge contribution to Malaysia's exports of manufactured goods (Yusof, 2003). China was the largest importer of Malaysia's products in 2011, contributing 13.1% of Malaysia's total export income (MITI, 2011; UNComtrade, 2015). Growth in China's demand for raw materials has also helped mitigate the impact of the 1997-1998 Asian Financial Crisis on the financial situation of many countries in Southeast Asia (Hooy & Chan, 2008b).

In 2012, Malaysia's exports to China recorded a 6.8% decline, year-on-year, to 60.01 billion ringgit (US$20.23 billion) (Zhu, 2013). This fall was partially due to stiff

competition from producers in other countries within ASEAN, which export similar products but with the advantage of cheaper production costs (Abidin & Loke, 2008; Devadason, 2008; Loke, 2007; MITI, 2013; Tham, 2001). The rise of industrialising countries as well as structural changes to the Malaysian economy has affected Malaysia's competitive advantage in labour intensive industries (Abidin & Loke, 2008; Devadason, 2008; Loke, 2007; Tham, 2001).

Nevertheless, Malaysia is still competitive in producing high-technology and high-skill labour intensive manufacturing products, such as electrical and electronic products (Mahmood, 2000). Manufacturing products accounted for 90% of Malaysia's total exports to China in the past decade (Liang, Ghani, Jusoh, & Chin, 2011). A number of studies indicate that Malaysia could improve its exports to China by specializing in high quality goods, diversifying in export composition, or introducing new products that have not yet saturated the Chinese market, such as halal products (Azhar & Elliott, 2006; Devadason, 2007; Hooy & Chan, 2008a, 2008b; Li, 2006). The halal industry is growing rapidly in Malaysia (MITI, 2013), and it has been suggested that Malaysia should further intensify its exports by boosting halal trade with Muslims globally (Ismail & Mawar, 2012).

In this competitive era, understanding factors that motivate Malaysia's exports to China is crucial. Many studies on trade between Malaysia and China have investigated the effect of regional trade agreements, comparative advantages between Malaysia and China (Abidin & Loke, 2008; Devadason, 2008; Loke, 2007; Mahani & Loke, 2008; Muhammad & Yaacob, 2008), and the influence of exchange rate fluctuations on trade (Hooy & Chan, 2008a, 2008b; Soleymani & Chua, 2013; Soleymani et al., 2011). However, these studies have not examined the impact of non-economic factors on total exports. As explained by China, politics and economics cannot be detached (Li, 2006). Based on the history of trade development between China and Malaysia, clearly the institutional context also plays a substantial role in determining the volume of trade, in addition to price and product variety.

Thus, this study explores the role of institutional factors on exports, in particular the diplomatic relationship between China and Malaysia, by analysing UNComtrade data within the gravity model framework. The role of diplomacy in trade has been widely studied for developed economies, but has been largely overlooked for developing economies (Yakop & van Bergeijk, 2009). Also investigated is the magnitude of exports of halal merchandise to China. The findings are expected to benefit producers from Malaysia, and other similar economies, who seek to improve trade with China, assisting them in strategizing trade approaches and improving competitive advantages. Hence this study is of not only academic importance, but also has policy implications.

The next section presents a brief overview of the diplomatic relationship and trade intensity between Malaysia and China. Subsequently, the determinants of exports are examined empirically using the gravity model. Finally, results and concluding remarks are discussed.

4.2 An Overview of the Political and Economic Relationships Between Malaysia and China

Economic interaction between the Malay region (Peninsula Malaysia, the eastern coast of Sumatra, and the northern coast of Borneo) and China stretches back almost two millennia, when Malay traders, together with traders from the Middle East and the coast of the Indian Ocean, shipped and traded small quantities of goods using ports in China (Heng, 2009). The diplomatic relationship between present-day Malaysia and China was officially formalised with the consular agreement signed in 1971. Malaysian exports to China rose by 50% in the year after the agreement was signed, and increased drastically by 275% in 1973 (UNComtrade, 2015). In the 1980s, China became the major purchaser of Malaysia's primary commodities, in conjunction with its modernisation programs (Leong, 1987; Wong, 1984). Official exchange visits by high level leaders from both countries in 1984, which marked the tenth anniversary of diplomatic ties between Kuala Lumpur and Beijing, also saw the establishment of business cooperation between the Chinese government and Malaysian private companies. The summary of events is in Table 4.1.

Table 4.1 Important Diplomatic Events Between Malaysia and China

Year	Diplomatic Event	Important Trade Collaborations and Export Pattern
Before 1970	Malaysia did not get recognition from China due to the grouping of the Federation of Malaya, Singapore, Sarawak and Sabah in 1963, where Malaysia was labelled as a "product of neo-colonialism". Non-official (people-to-people) interaction with China was prohibited amidst distrust and suspicion.	Total traded value was less than US$15 million in 1969.
1970 – 1980s Beginning of a partnership	First unofficial exchange visits in 1970, followed by official visits by leaders of both countries.	China was the main buyer of Malaysia's rubber, timber and palm oil. Highest export value in the history of China-Malaysia relations happened in 1987.
1974	Kuala Lumpur established official diplomatic ties with Beijing.	
1984	Tenth anniversary of the first diplomatic ties.	Multimillion-dollar project cooperation signed between Chinese and Malaysian governments and private companies. Export value doubled from 1984 to 1989.
1990 – 1999	Six visits by Beijing and four visits by Kuala Lumpur further strengthen diplomatic ties; bilateral trade soars.	Memorandum of Understanding (MoU) on trade and business cooperation worth more than US$2 billion signed. Export value increases from US$995 million in 1990 to US$2.6 billion in 1999.
2000 - 2012	Negotiation and Establishment of ACFTA.	Trade between China and ASEAN expands more than 10% to US$400 billion in 2012. Malaysia's exports to China reached US$33.5 billion in 2010.
2013 - 2015	The East Coast Economic Region Development Council - Ningxia Light and Textile Industrial Bureau (ECERDC-NLTIB) international halal industry cooperation MoU signed in 2013.	Malaysia-China Kuantan Industrial Park attracts investment commitments worth US$3.5 billion and creates 8,500 jobs. A further US$783 million will be invested in halal product manufacturing in both countries. Bilateral trade between Malaysia and China has reached US$102 billion in 2015.

The 1990s saw four visits by a Malaysian Prime Minister to Beijing, and six high level Chinese leaders on reciprocal visits to Kuala Lumpur. These exchange visits signified the improvement in, and the importance of, collaboration between the two nations. Among the many agreements made, the Framework for Multidimensional Cooperation was one of the most comprehensive in establishing cooperation on trade and investment between the two countries (Liow, 2000).

Highlighting the importance of good diplomatic relations between trading countries, a ban on Malaysian bird's nest products by China in 2011 caused profit losses of around US$300 million to Malaysian bird nest producers (Leong, 2013). Bird's nests are the nests created by swiftlets, believed to have high nutritional value by the Chinese. Malaysia is the second largest bird's nest producer in the world, and China is the largest importer of Malaysia's bird's nest products. Several dialogues were held with Chinese authorities on this issue and finally, the ban was lifted in June 2013 (Sipalan, 2013).

Recently, Malaysia and China extended their collaboration by exploring and creating investment opportunities in international halal industries. Malaysia emerged as one of the leaders in developing the halal economy in the 2000s. The export value of halal products accounted for 5% of total Malaysian exports in 2011 (Halal Industry Development Corperation, 2013). Malaysia has also taken note of the growing demand for halal products in China. China imported US$1.2 billion of halal products from Malaysia in 2011, or 12.8% of total exports of halal products, making it Malaysia's largest halal market (Halal Industry Development Corperation, 2013).

During the official launch of Malaysia-China Kuantan Industrial Park in the state of Pahang, Malaysia, in 2013, Malaysia's Prime Minister emphasized that the economic relationship between Malaysia and China rests on established diplomatic foundations. Considering the historical development of the Malaysia-China economic relationship, it appears that the political dimension is a critical factor in the study of Malaysia's exports to China.

4.3   Literature Review

Much of the existing literature on trade relations between China and Malaysia has focused on economic factors. Many researchers believe that as an export-led growth economy, Malaysia is sensitive to external shocks at the macro level (Mahadevan, 2007). Considering the 'China effect' on developing countries, studies have emerged to predict the impact of the 'China effect' on trade relationships between Malaysia and China. Most studies emphasize the comparative advantages between these two countries (Abidin & Loke, 2008; Devadason, 2008; Loke, 2007; Mahani & Loke, 2008; Muhammad & Yaacob, 2008), the impact of exchange rate fluctuation (Hooy & Chan, 2008a, 2008b; Soleymani & Chua, 2013; Soleymani et al., 2011) and the context of the ASEAN-China Free Trade Area, ACFTA (Chirathivat, 2002; Devadason, 2010, 2011; Sheng et al., 2012; Tongzon, 2005; Tyers et al., 1987).

For example, Soleymani, Chua and Saboori (2011) investigated the responses of the exchange rate in the Malaysia-China trade, assessing both the short run and long run effects of the real depreciation of the ringgit/yuan on the trade balance of each industry, by using disaggregated industry data from 1993 to 2009. The results reveal two important findings. Firstly, to examine the impact of real depreciation of currency on the trade balance, research should not employ aggregated industry data alone because not all industries respond to the change of exchange rate. Secondly, the aggregated trade data themselves do not capture the full picture of the impact of currency fluctuations on the trade balance, especially in the case of Malaysia.

Some studies state that as Malaysia moves towards being less labour intensive and more high skill intensive in the manufacturing sector, the over or under valuation of the currency may become less important in maintaining the price competitiveness of its export industries, compared to product quality and performance, which should be the key focus for Malaysia in maintaining market competitiveness (Abidin & Loke, 2008; Devadason, 2007, 2008). This suggests that exports of quality goods are more resilient to external shocks and have a stronger position in capital intensive product markets (Soleymani et al., 2011). In fact, studies found that Malaysia's exports to China seem to

be moving up the value chain where the quality of products and production scales appear to be more prominent (Devadason, 2007, 2009; Soleymani & Chua, 2013).

One may argue that institutions determine the performance of macroeconomic factors, such as GDP, FDI and exchange rates; so therefore macroeconomic factors are sufficient to reflect the contribution of institutions. However, in reality, institutions matter more than that. Strong institutions can generate, promote and protect trade cooperation, ensure product excellence, develop mutual trust and maintain elastic trade relationships.

Despite the importance of institutions, the literature examining the role of institutions and diplomacy in Malaysia-China trade relations is limited. However, there is a significant body of literature, which examines the importance of institutions and diplomacy in determining and influencing trade between various countries, for example, the diplomatic infrastructure of embassies and consulates, and exports among developing countries (Rose, 2007; Yakop & van Bergeijk, 2011); export promotion agencies and trade missions, and exports and imports (Head & Ries, 2010; Veenstra, Yakop, & van Bergeijk, 2010); political ideologies, trade openness and regional trade agreements and trade performance (Carrère, 2006; Christie, 2002; Morrow, Siverson, & Tabares, 1998; Tinbergen, 1962); bilateral official state visits and international trade (Nitsch, 2007); and bilateral tensions and trade (Fuchs & Klann, 2013).

North (1990) asserts that current economic theory does not fully appreciate the role of institutions in economic performance and economic history. Institutions can be defined in several ways. North (1990) describes institutions as formal and informal rules, and norms that organise social, political and economic relationships. Hodgson (2006) points out that institutions constrain and shape human interaction and behaviour, while Decuir-Viruez (2003) states that the institutional long lasting collective forces, such as rules, laws and constitutions shape the economy.

Diplomacy is a very prominent dimension of political institutions. Pollins (1989) emphasises that diplomacy and economic policy cannot be separated. Economic policy

has been an explicit tool of national strategic and diplomatic concern (Pollins, 1989). According to van Bergeijk (1992), the founding fathers of international trade theory, including Adam Smith, David Ricardo and John Stuart Mill, noted the strong interrelation between political and economic relations. Since its original formulation, Tinbergen (1962) has acknowledged the need to include political factors when formulating the mathematical gravity model.

The representation of government in economic relationships with other nations is essential for several reasons. First, national leaders are the forerunners in information gathering and market access. Second, these leaders have responsibility for connecting local suppliers with export markets, and for promoting national goods and services to new trade partners, including signing trade agreements and memorandums of understanding. Third, and importantly, the representation of government is essential for goods and services that require huge amounts of investment such as construction and infrastructure, or security and commitment such as military equipment and hazardous chemicals (Yakop & van Bergeijk, 2009).

Pollins (1989) tested the empirical relevance of trade and political interactions and found that trade flows are significantly affected by the broad diplomatic climate between nations, whether such relations are friendly or hostile. He incorporated 'resistance' variables, such as geographic distance, economic union and measures of conflict and cooperation, into an augmented gravity model to explain the level of trade using pairs of 25 countries from 1955-1978. The findings showed that the effect of cooperation and hostility in bilateral political ties on trade flows is as important as economic variables, such as prices.

A study by van Bergeijk (1992) on the effect of diplomatic climate on foreign trade yielded similar results. He constructed diplomatic climate indicators by classifying 'events' data for 40 countries from the Conflict and Peace Data Bank (COPDAB), and 'newsworthy' data from the *Keesings Historisch Archief,* into two categories; hostile activities and cooperative activities, with each category assigned a weight ranging from three (high intensity) to one (low intensity). Events involved in the study span a range of

positive to negative events, including non-military economic agreements, initiation of official diplomatic relations, technical and scientific cooperation, verbal support, minor official exchanges, recall of ambassadors, breaking off diplomatic relations, support for guerrilla activities and bombing of civilian targets.

Then the number of events with high, medium and low cooperation-intensity and conflict-intensity was calculated for each country. Later, the weighted events were summed up for each area of cooperation and conflict, and diplomatic climate indicators were constructed. Finally, these indicators were added into a gravity equation as explanatory variables. The study found some relationships between world trade structures and political variables; the diplomatic climate influences the patterns of trade for some Western market economies. Interestingly, Western market economies adjust exports in reaction to diplomatic events, while centrally planned economies adjust imports.

In addition to the diplomatic climate, exchange visits by a countries' leaders, ambassadors, appointed diplomats and delegates are another symbolic diplomacy element. Official visits have shown to be effective in improving nation-to-nation relationships and achieving national economic goals. The purposes of the visits range from dialogue on political issues, participation in ceremonies, celebration of cultural and sporting events, collaborative discussion, to signing of agreements. Regular meetings and other communication are crucial to understand the needs of trading partners and the favoured ways to trade, fortify mutual trust, enhance cooperation and strengthen diplomacy. Trade liberalization agreements could be shaped through these efforts, and sustainable trade partnerships could be more assured. It is thus important that economists, as well as politicians and business people, seek to understand the close connections between politics and business.

According to Nitsch (2007), state visits are the highest form of diplomatic contact that facilitate further improvement in bilateral economic relationships, because they are usually accompanied by high-ranking delegations of business people and investors. Nitsch investigated the empirical relationship between export and foreign visits by the

presidents of France, the United States, and the chancellors of Germany from 1948 to 2003. He categorized the visits into state visits and official visits, which were differentiated by the protocol and formality of the trip. The gravity model was applied and the results showed that a state visit typically promotes export.

Numerous diplomacy-trade studies have been undertaken for developed countries. Recently, studies on economic diplomacy in Southeast Asia and other developing countries have also started to emerge. Some studies adopt the framework and data set from Rose (2007; 2002), who examined the association between exports and diplomatic representations abroad (Yakop & van Bergeijk, 2009). Oh and Selmier (2008) take a different approach by employing highly disaggregated diplomatic events data to examine the roles of regional trade agreements in the globalisation of trade for ASEAN countries. They constructed diplomatic relationship indicators by dividing diplomatic meetings into several levels; summits, ministerial, forums and committee meetings based on the diplomatic rank of the key participants at each meeting. They differentiated between committee meetings and forum meetings by considering what the agenda covered. Other non-economic variables used in the study were common borders, common language, and common colonial histories. Their findings show a strong positive relationship between diplomatic meetings and international trade. Their study also reveals that diplomatic relationship consistently raises directional trade flow.

Yakop and van Bergeijk (2009) developed a research framework on diplomacy and trade connection by focusing on the effects of economic diplomacy upon trade between different country groups, according to different income levels. Their subsequent study (2011) applied this framework and discovered that the impact of diplomacy on trade flows is strongly subject to the maturity of the markets. Their findings demonstrate that diplomatic facilities influence trade flows originating or ending in developing countries, but are less relevant to trade between developed economies. Similarly, a study by Saner and Yiu (2001) finds that the participation of non-governmental institutions/organisations (non-state actors) in foreign policy and international relations is more pronounced in industrial countries and less so in developing countries.

Markets in developing countries are incomplete; public intervention, infrastructure and trade facilities are imperative in establishing market access and correcting market failure (Yakop & van Bergeijk, 2009). Yakop and van Bergeijk (2009) also point out that the emergence of India and China with very diverse institutional and cultural settings may influence global norms and values, and invisibly control the rules of global trade. Decuir-Viruez (2003) also holds that norms and values are elements of soft institutional factors, and a higher intensity of soft institutional factors in a society will enhance confidence in relationships between entities, encourage entrepreneurial capacity and strengthen roots of local economic activity. Therefore, diplomacy would be a good way to understand the socio-characteristics of trade partners from developing countries.

On the other hand, exploring the norms, rules and cultures of countries is part of diplomacy. Baier and Bergstrand (2007) claim that studies exploring the impact of a common language and culture on trade have become popular since the 1990s. Knowing and mastering of these soft institutional elements of trade partners is fundamental to a good relationship between countries. Despite an expanding literature examining the impact of culture, norms and rules on trade, theoretical interest in the role of religious products as an indicator of trade promotion in the gravity model is rather limited.

In fact, relatively few studies have examined religion as a determinant of trade (Helble, 2006). While language is a means of communication, carrying ideas, customs and values, an increasing number of studies have shown that religion also carries great significance, determining the behaviour of its devotees and their pattern of life, in addition to deciding rules and the nature of societies and institutions, consumption and livelihoods.

Religion can both create and suppress trade (Lewer, 2005). Guo (2004) observed the cultural similarities between the United States and China with their trading partners, constructing an index to measure the linkage between cultural indicators and trade. His study reveals that religious similarities have little impact in nurturing foreign trade among industrialised democratic countries; however, evidence suggests that there is an indication that religious dissimilarity tends to hinder trade among developing countries.

This indication suggests that the religious aspect still fosters trade among developing countries.

Helble (2006) included bilateral religious variables into the gravity model. He also embraced common border, common language, colonial links, common ex-colonizer and membership in regional trade agreements with the purpose of disentangling the effects of religions on trade. Interestingly, Helble (2006) also added a dummy variable for the exports of the nine OPEC countries; Algeria, Indonesia, Iran, Kuwait, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. The reason for this is because oil is traded predominantly by Muslim countries. He found that a shared religious belief influences trade behaviour, enhances trust and stimulates trade, especially among Islamic countries. This is particularly important for goods that are susceptible to trust (Helble, 2006; Yakop & van Bergeijk, 2009).

Malaysia's trade with the members of the Organization of Islamic Conferences (OIC) is an example of religion-based trading. Ismail and Mawar (2012) highlight that there is ample room for improving trade between Malaysia and the OIC members. Malaysia and the Islamic countries should actively develop and participate in an integrated market, reduce tariff and trade barriers while working towards an Islamic Common Market. The Islamic Common Market is important in promoting and encouraging the sourcing of authentic halal goods and services from Muslim countries, where demand is currently expanding extensively (MITI, 2013).

Helble (2006) points out that reliability and availability of religious data is rather limited. One of the first studies by Ismail and Mawar (2012) on the implications of halal development on Malaysian food exports to the Middle East and African (MEA) countries compared constructed indicators based on the yearly data of the total food exports from Malaysia to each MEA country. They also constructed indicators for halal development with the cumulative volume of halal certificates being released yearly, the number of halal industrial parks developed yearly, and number of firms operating in the halal industrial parks yearly. Their result reveals that halal development plays a vital role in exporting halal food, and promoting halal food could further enhance Malaysia's food

industry and trade. Later in this study, the impact of religious products on exports will be captured by examining the total exports of halal-able products on total Malaysia's exports to China.

Diplomacy has been seen as a mechanism of representations, communication and negotiation through which states and other international actors conduct their business (Melissen, 1999). Indeed, in an increasingly globalised era, where international organisations that regulate economic behaviour, such as the WTO, are increasingly influential, many states have realized that diplomats specializing in economic issues can effectively promote a country's interests in international trade (Saner & Yiu, 2001). Therefore, it appears that incorporating institutional factors, especially diplomacy dimensions of state/exchange visits, and soft institutional elements such as religious related factors, will help to provide an enhanced understanding of Malaysia's exports to China.

4.4 Model, Variables and Data

4.4.1 Augmented Gravity Model

The basic gravity model of trade between two countries (*i* and *j*) takes the reduced form of $T_{ij} = \frac{GDP_i GDP_j}{D_{ij}}$, where *T* is the trade flow, *GDP* denotes the gross domestic product, and *D* is the distance between the two countries. This model has not only proven to be useful in describing social phenomena such as migration patterns, and the flow of goods and information between entities (Ismail & Mawar, 2012), but also handles dummy variables well (Azman & Masron, 2012). Anderson (1979) carried the model forward by providing a micro-economic foundation based on a constant elasticity of substitution (CES) utility function, to explain the bilateral trade with economic size and distance between importing and exporting countries.

The gravity model was employed for this study as it is adept at explaining both empirical final goods trade and intermediate goods trade (Bergstrand & Egger, 2010), and Malaysia's exports to China are mainly final products (World Integrated Trade Solution,

2016c). In the following study, a CES utility function is used to derive China's demand for Malaysia's products (namely Malaysia's exports to China). The CES utility function has the benefit of allowing for substitution among products consumed.

Chinese consumers consume goods from Malaysia to maximize their utility as follows:

$$\max_{\{C_{it}\}} u = \sum_{i=1}^{I} e^{Z_{it}} C_{it}^{\rho} \tag{1}$$

where I is the number of products that Malaysia exports to China, C_{it} denotes the quantity of consumption of the product i imported from Malaysia in year t, Z_{it} represents a set of factors that, even though not chosen by the consumers (namely consumers take Z_{it} as given), affect the utility derived from consuming product i, and ρ (0< ρ<1) is the preference parameter (namely the elasticity of substitution is 1/(1-ρ)). The vector Z can include distance as a conventional gravity model will have. However, since the focus is on Malaysia's exports to China, there is no variation in the geographical distance between Malaysia and China and it subsequently will drop from the empirical estimation.

Consumers are faced with the following budget constraint:

$$Y_t = \sum_{i=1}^{I} P_{it} C_{it} \tag{2}$$

where Y represents the income of a representative Chinese consumer that is spent on the imported Malaysian goods and P_{it} is the unit price of product i in year t.

To obtain the optimal quantity of consumption (C_{it}), first, the Lagrangian equation below was set up:

$$L\,(C_{it}, \lambda_t) = \sum_{i=1}^{I} e^{Z_{it}}\, C_{it}^{\rho} + \lambda_t \left(Y_{it} - \sum_{i=1}^{I} P_{it} C_{it} \right) \tag{3}$$

where λ denotes the Lagrangian multiplier. Differentiating the Lagrangian with respect to C_{it} and setting the derivative to zero, the first order conditions were obtained as follows:

$$\frac{\partial L}{\partial C_{it}} = e^{Z_{it}} \rho\, C_{it}^{\rho-1} - \lambda_t P_{it} = 0 \tag{4}$$

Differentiating the Lagrangian with respect to λ_t, the above budget constraint was then obtained. Manipulating Equations (4), Equation (5) as below:

$$C_{it} = \frac{e^{\frac{1}{\rho-1}z_{1t}} P_{it}^{\frac{1}{\rho-1}}}{e^{\frac{1}{\rho-1}z_{it}} P_{1t}^{\frac{1}{\rho-1}}} C_{1t} \tag{5}$$

Equation (5) was then substituted into the budget constraint to derive the quantity of consumption of goods 1 as follows:

$$C_{1t} = P_{1t}^{\frac{1}{\rho-1}} e^{\frac{1}{1-\rho}z_{1t}} \frac{Y_t}{P_t} \tag{6}$$

where the aggregate price index $P_t \equiv \sum_{i=1}^{I} \frac{P_{it}^{\frac{\rho}{\rho-1}}}{e^{\frac{z_{it}}{\rho-1}}}$. Finally, combining (6) and (5) the optimal consumption of the Malaysian product i (C_{it}) by Chinese consumers was found, as follows:

$$C_{it} = P_{it}^{\frac{1}{\rho-1}} e^{\frac{z_{it}}{1-\rho}} \frac{Y_t}{P_t} \tag{7}$$

Equation (7) is the Marshallian demand function for Malaysian product i by Chinese consumers, which suggests that Malaysian exports to China (namely Chinese demand for the Malaysian products) depend on the real income (Y_t/P_t), the price of the product (P_{it}) and a set of other factors (Z_{it}).

As mentioned at the beginning, Z_{it} captures a set of factors that are assumed to influence the Chinese consumption of Malaysian products (namely openness, diplomatic relationship, number of countries and delegates who participated in the International Halal Week, and *Halalability*). To operationalize the estimation of the Equation (7), a functional form for Z_{it} was further assumed, as follows:

$$\frac{Z_{it}}{1-\rho} = \beta_0 + \beta_1 Openness_t + \beta_2 lnDip_t + \beta_3 lnIHWC_t + \beta_4 lnIHWD_t +$$
$$+ \beta_5 Halalability_i + \varepsilon_{it} \tag{8}$$

Equation (8) was plugged into Equation (7), and take the natural logarithm on both sides to obtain the following gravity equation

$$lnC_{it} = \beta_0 + \beta_1 Openness_t + \beta_2 lnDip_t + \beta_3 lnIHWC_t + \beta_4 lnIHWD_t$$

$$+ \beta_5 Halalability_i + \beta_6 lnP_{it} + \beta_7 ln\frac{Y_t}{P_t} + \varepsilon_{it} \qquad (9)$$

where the variables are defined as follows; *Openness* is the ratio of the Malaysia's import from the world (excluding China) to the country's GDP; *lnDIP* is the number of diplomatic visits (in natural logarithm form) that captures the diplomatic relationship between Malaysia and China; *lnIHWC* and *lnIHWD* denote the number of countries and delegates who participated in the yearly International Halal Week, organized by Malaysia since 2006; *Halalability* is a dummy variable that takes the value of 1 if the commodity is edible or animal based, and 0 otherwise. The error term $\mathcal{E}$ captures the measurement errors, and $\varepsilon_{it} \sim N(0, \sigma_\varepsilon^2)$.

4.4.2 Variables and Data

This sub-section describes how the variables used in Equation (9) and the sources of data were constructed. Chinese consumption of Malaysian products (namely Malaysia's exports to China), C_i and the price of the products (P_i) were gathered from the United Nations Commodity Trade Statistics Database (UNComtrade) disaggregated by the Harmonized system (HS) 6-digit product categories. This provided 32,537 observations covering the period from 1990 to 2012. Further, P_i is calculated by dividing the export values by export quantity, and is expressed in constant 2005 prices.

The real GDP per capita of China is used to measure the real income (Y/P). The Chinese real GDP per capita from 1990 to 2012 is obtained from the World Bank database, which is in constant 2005 U.S. dollars. The impact of income on the trade between China and Malaysia has been confirmed by Hooy and Chan (2008b) in their study of China-Malaysia bilateral trade using high frequency monthly data, based on the autoregressive distributed lag (ARDL) bound testing procedure and generalized impulse response analysis. The result shows that China's demand for Malaysian exports is significantly affected by income.

Openness is the ratio of the Malaysia's import from the world (excluding China) to the country's GDP, and the data were collected for 1990-2012 from the World Bank and the

UNComtrade. As identified by Neumayer (2002), an open economy exposes its people to foreign goods and services, and enriches them with knowledge, information and technology that may not exist in their own country. With an open economy, Malaysia has gained benefits from imports, foreign investment, regional trade agreements, and trade collaboration. Therefore this study will examine if *Openness* also fosters exports to China.

The number of exchange visits by high level leaders is one of the widely used variables to measure diplomacy. It is measured as the natural logarithm of the cumulative number of official visits of China's high-level leaders to Malaysia from 1970 to 2012 (*lnDip*). High-level leader in this study refers to the Premier, Vice-Premier, President, Vice-President, Prime Minister, Deputy Minister, Country Ambassadors and Ministers of the Cabinet. One of the most important reasons for the politicians' travel is to improve relationships (Nitsch, 2007). In addition, it takes time and effort to develop and strengthen the diplomatic relationship. Thus, accumulative visits are used in this estimation to account for the fact that the outcome of a visit may not blossom initially, but into the next few years. Data were compiled from published journal articles, and compared with data from the Ministry of Foreign Affairs of the People's Republic of China, the Ministry of Foreign Affairs of Malaysia, and the Embassy of the People's Republic of China, from Malaysia's archive files. These departments provide the most complete and reliable information about countries' diplomatic activities.

IHWC and *IHWD* was obtained from the World Halal Forum managed by the Malaysian Halal Industry Development Corporation (HDC). The data are only available from 2006 to 2012. Zero indicates the years before 2006. The data are useful to tell whether international marketing events were efficient in attracting international buyers for Muslim markets. International marketing events are also a tool to measure the business relationship between trading countries.

Since disaggregated halal export data are not available, we created a dummy variable, *Halalability*, which takes a value of 1 if a product is edible and animal-based and 0 otherwise. Edible commodity includes food, food ingredient and beverages. In other

words, we treat the edible and animal-based commodities as a proxy for halal products for the purpose of this study. Besides things or actions, which are not permitted by the Shariah law, such as pork and alcohol, all other edible or animal-based products can be halal or non-halal, depending on the ingredients and method of preparation. For example, a jelly can be a halal food if it is made with halal bovine-based gelatine, but not if it is made from pig-based gelatine. It would be useful to investigate if *Halalability* has positive or negative impact on Malaysia's exports to China. If the impact is positive, Malaysia is performing well in promoting halal products to China, but if it is negative then clearly more effort is needed.

4.4.2.1 Descriptive statistics

Table 4.2 summarizes the variables used in the model. The total number of observations is 33,232 for *Openness, lnDip*, *lnY/P* and *lnP*. The quantity of consumption (*lnC*), and price (*lnP*) has fewer observations due to missing values from the original source of the data. At a glance, there exists significant variation in the data. *C* ranges from 0 to almost 8.9 billion kilograms, and the magnitude of the standard deviation is 1,745% of the mean. Likewise, the large standard deviation of *lnP* suggests substantial variations in commodity prices. This is because a large variety of products are covered that are disaggregated down to the 6-digit level of the HS for the past 22 years.

Table 4.2 Descriptive Statistics of Explanatory Variables

Variable	Observations	Mean	Std. Dev.	Min	Max
C	32537	5209065	90900000	0	8880000000
Openness	33232	1.830365	0.1794715	1.35	2.12
lnDip	33232	10.96994	3.114542	5	20
lnIHWC	33232	22.5186	31.19007	0	113
lnIHWD	33232	327.7817	417.7524	0	1190
lnP	26584	418.1586	23636.06	0.0001	2356868
lnY/P	33232	1796.968	834.4696	463.08	3348.01
Halalability	33232	0.1915022	0.3934892	0	1

The first Malaysia International Halal Week was held in 2004, and the first data were recorded in 2006, which means the data for *lnIHWC* and *lnIHWD* were 0 before 2006, and the minimum value of these variables is 0 for both variables. Chinese GDP per capita

(*lnY/P*) has increased seven times from US$463.08 in 1990 to US$3,348.01 in 2012, with a mean of US$1,796.97.

Table 4.3 presents the correlation matrix between independent variables. Besides the high correlation between *Openness* and *lnY/P* (-0.9072), the rest of the correlations between variables are moderate.

Table 4.3 Correlation Matrix of Explanatory Variables

	Tradeop	*lnDip*	*lnIHWC*	*lnIHWD*	*lnP*	*lnY*	*Halalability*
Openness	1						
lnDip	-0.6267	1					
lnIHWC	-0.6092	0.4014	1				
lnIHWD	-0.0882	-0.3893	-0.3364	1			
lnP	-0.0438	0.0453	0.0365	-0.0068	1		
lnY/P	-0.9072	0.842	0.5728	-0.153	0.0486	1	
Halalability	-0.0067	0.0079	0.0023	0.0012	-0.2488	0.0091	1

4.5 Results and Discussion

4.5.1 Endogeneity of Explanatory Variables

To estimate equation (9) consistently, the explanatory variables need to be exogenous, that is, the independent variable must be uncorrelated with the error term. While on the one hand, the openness of the Malaysian economy promotes its exports to China; it is less likely that exports to China will affect Malaysia's total imports (excluding imports from China). Hence, the openness (*Openness*) of the Malaysian economy, measured by imports (excluding those from China) divided by GDP, is uncorrelated with the error term.

However, *lnDip* might be endogenous. Conceptually, it can be argued that export and diplomacy are interdependent (Afman & Maurel, 2010), as per van Bergeijk (2009), where trade might stimulate the demand for diplomacy between two countries. This results in the estimated coefficients by the OLS regression to be inconsistent (Miroudot, Lanz, & Ragoussis, 2009). Therefore, the instrumental variable approach is used in the estimation.

An instrumental variable was constructed, *lnDip_4yrlater*, which is the accumulated number of China high-level diplomatic visits to Malaysia in the future (four years forward). Conceptually, it is not surprising that the accumulated number of diplomatic visits four years in the future (*lnDip_4yrlater*) is correlated with the current accumulated number of diplomatic visits (*lnDip*). We tested the correlation between *lnDIP* and *lnDip_4yrlater* and the result shows that they are highly negatively correlated (-.8210). Therefore, *lnDip_4yrlater* is a relevant instrument. In addition, one cannot expect that diplomatic visits in the future aim at addressing trade issues of the current year. Hence, the accumulated number of diplomatic visits four years in the future is uncorrelated with the error term, namely the instrument is valid.

In estimating the demand function, the price is generally endogenous as the prices observed are the equilibrium outcome (namely supply is equal to demand, or in other words, price depends on demand). The endogeneity of *lnP* is an econometric concern because it leads to inconsistent coefficient estimates. However, as Malaysia's products only account for less than 4% of China's total imports (World Integrated Trade Solution, 2016d), the reverse causality of Malaysia's export to prices is unlikely, and hence it is reasonable to assume the exogeneity of prices. Similarly, exports to China only account for a small portion of China's imports. Hence, China's GDP per capita (*lnY/*P) should not be correlated with the error term.

Further, the International Halal Week is organised to promote halal products in Muslim markets. It targets Muslim buyers as a whole (namely, it does not just focus on customers from a particular country). Hence, *lnIHWC* and *lnIHWD* are uncorrelated with the error term. Finally, *Halalability* is a dummy variable that classifies commodities into two categories, namely those that can be halal and those that cannot. So it is expected to be uncorrelated with the error term as well.

4.5.2 The Regression Results

To consistently estimate the parameters, a fixed effect generalised method of moments instrumental variable (FE GMM IV) estimator was applied. Table 4.4 reports the results of the Ordinary Least Squares (OLS) estimator and the fixed effect GMM estimator.

Table 4.4 Regression Results

	OLS IV			Fixed Effect GMM IV		
	Coefficient		Robust Std Err	Coefficient		Robust Std Err
Openess	1.8216	***	0.5965	2.4644	***	0.3416
lnDip	0.4285		0.3379	0.9074	***	0.1932
lnIHWC	0.1695	*	0.0886	0.2271		0.0497
lnIHWD	0.0321		0.0820	0.1216	***	0.0450
lnP	-1.0593	***	0.0185	-0.9892	***	0.0191
lnY/P	0.9104	**	0.3907	0.3982		0.2216
Halalability	-0.3976	***	0.0740			
Constant	1.8195		2.2995			
No. of Obs			13716			13052
F		F(7, 13708) =	472.62		F(6, 10379) =	457.52
Prob > F			0.0000			0.0000
Underidentification test						
Kleibergen-Paap rk LM statistic			4489.127			3303.638
Chi-sq(1) P-val			0.0000			0.0000
Weak identification test						
Cragg-Donald Wald F statistic			1.30E+04			9.35E+03
Kleibergen-Paap rk Wald F statistic			1.00E+04			7699.416

Besides *lnIHWC* and *lnY/P,* the coefficients of all the other variables are significant at the 1% level in the fixed effect GMM estimation. The positive and significant estimated coefficient of *Openness* confirms that non-protectionism and reduction in trade barriers promote exports. A one percent increase in *Openness* results in nearly 2.5% improvement in export. Given the significantly positive estimate, a small economy like Malaysia will benefit from being more open to trade and less protectionist.

In the fixed effect GMM estimation, the significantly positive estimate of the coefficient of the number of diplomatic visits (*lnDip*) is consistent with prior expectations. A one percent increase in the number of official visits generates around 0.9% increase in exports from Malaysia to China. This almost unitary elasticity shows that strong diplomacy fosters exports substantially. The significant and positive estimate of the impact of diplomacy also suggests that further efforts to explicitly construct and incorporate variables concerning political relations into trade models are justified. This requires detailed data covering the types of Memoranda of Understanding signed, transaction amounts involved, purpose of visits and total number of exchange visits by both trading countries, which may be available in the future. Meanwhile, price is another important factor in determining trade flows. The coefficient of *lnP* carries a negative sign, which is consistent with the law of demand.

Further, the coefficient of *lnIHWD* is significantly positive. This suggests that Malaysia's exports to China appear to be stimulated by the number of delegates who participated in the International Halal Week. This is notably true because when 7-Eleven in China decided to increase Malaysian product lines in their outlets from two to ten, it was an outcome of the international buying program of the 2013 Malaysia International Halal Week exhibition (The Borneo Post Online, 2013).

Given the statistical significance of the number of delegates who participated in the International Halal Week exhibition (*lnIHWD*), marketing halal products through conferences and exhibition showcases is evidently effective in presenting and transferring product information to new customers. Since trust towards adherents of the same religion seems to be an important element of trading with Muslim communities, halal producers should incorporate clients' religious elements into their production planning and marketing strategies. This involves carefully selecting the ingredients and materials used in the production of halal goods, halal packaging and storage, and halal certification by agencies that are recognized and trusted by their clients.

Alternatively, showcasing of halal products could also be held in partner countries. As is the case for China, the showcase could be organized in the inland provinces, especially in the west regions where Islamic culture is more prevalent. This is an efficient move to get closer to customers, and to introduce new products to retailers, religion leaders and consumers at the local level. The GDP per capita (*lnY/P*) appears not to significantly affect China's imports from Malaysia. This is possibly due to the fact that Malaysia's exports to China only account for a small portion of China's total imports and hence an increase in income does not significantly translate to an increase in imports from Malaysia.

Finally, the OLS estimation in Table 4.4 reveals that exports of products that are edible or animal based is around 39% less than products that are not. As mentioned previously, it would be useful to assess if halal products could be an export catalyst. The negative sign indicates that exports of edible or animal-based products to China are at a lower level than other products. This interesting finding shows that although *IHWD* has successfully promoted Malaysia's halal products to Chinese retailers, Chinese consumers do not favour edible or animal-based products from Malaysia. On the more optimistic side, it also suggests that there is still plenty of room to increase the export of such products to China in the future, given that the export of edible, or animal-based products is still at a low level.

As consistent and reliable data of the halal industry are scarce, data on edible or animal-based products may not be good predictors for representing halal products as a whole. Future research may apply more specific export data to halal products when they are available. Notably, halal product exports accounted for only 5% of total Malaysian exports in 2011, which means the volume exported to China was small compared to non-edible industry products such as electrical, electronic and palm oil products (Halal Industry Development Corperation, 2013). In short, this finding signals that exploring Chinese consumption behaviour of halal products using more disaggregated data is a useful direction for future research.

4.5.3   Discussion

In addition to using the accumulated number of China high-level diplomatic visits to Malaysia in the future (four years forward) as an instrument, other instrumental variables were also tried, such as the accumulation of the total number of Chinese high-level diplomatic visits to Malaysia two years forward (*lnDip_2yrlater)*, three years forward (*lnDip_3yrlater)*, and five years forward (*lnDip_5yrlater)*. The regressions using instrumental variables of *lnDip_2yrlater and lnDip_3yrlater* yielded similar results to that of *lnDip_4yrlater*. However, the instrument, *lnDip_5yrlater*, is not applicable due to a multicollinearity problem.

Results were also obtained similar to the regressions using *lnDip_4yrlater* as an instrument, where the total number of wars in the world (*Wars)* from 1990 to 2012, and the percentage of military spending (*Military)* in Malaysia's GDP were used as instruments. Nonetheless, the interpretation was not based on these regressions due to the following reason. According to Anderson and McKeown (1987), interstate conflict and war reflect the level of interaction between two states. Owing to Malaysia's pro-peace foreign policy, *Wars* and *Military* might not be significant in Malaysia's diplomacy with other countries.

Malaysia is one member of ASEAN. As China signed free trade agreement with ASEAN, one expects to have both trade creation and diversion for Malaysia. On the one hand the free trade agreement boosts Malaysia's exports to China (trade creation), while on the other hand Malaysia is faced with more competition from other ASEAN countries (trade diversion). To account for this, a dummy variable (*ACFTA)* into the regressions was also tried. ACFTA took effect in 2010. Hence, the dummy variable (*ACFTA)* takes the value of 1 if the year is 2010 and onwards, and 0 otherwise. However, *ACFTA* was dropped from the regressions due to a multicollinearity problem.

4.6   Concluding Remarks

The augmented gravity model estimation confirms that openness, diplomatic relationship, participation in International Halal Week (in particular in terms of the number of delegates attended), and product prices are significant factors in explaining Malaysian exports to China. This study demonstrates that it is possible to integrate economic and institutional factors into an international economic exchange model. The issues presented in this study intend to stimulate discussion and prompt policy makers and stakeholders to arrive at a tentative prioritization of their efforts in this arena. For this to happen, Malaysia should utilise established international diplomatic relationships in trade and optimize its export structure so as not to lose existing export markets.

In addition to contributing to existing studies on Malaysia's trade issues, this study serves as a useful reference for global trade modelling, especially in modelling trade collaborations that are related to diplomacy. This study also adds to existing literature by introducing new variables into the gravity model, such as religion related variables. The limitations, mostly due to lack of sufficiently disaggregated data on halal exports, leave knowledge gaps for future research in this area.

Thesis Outline
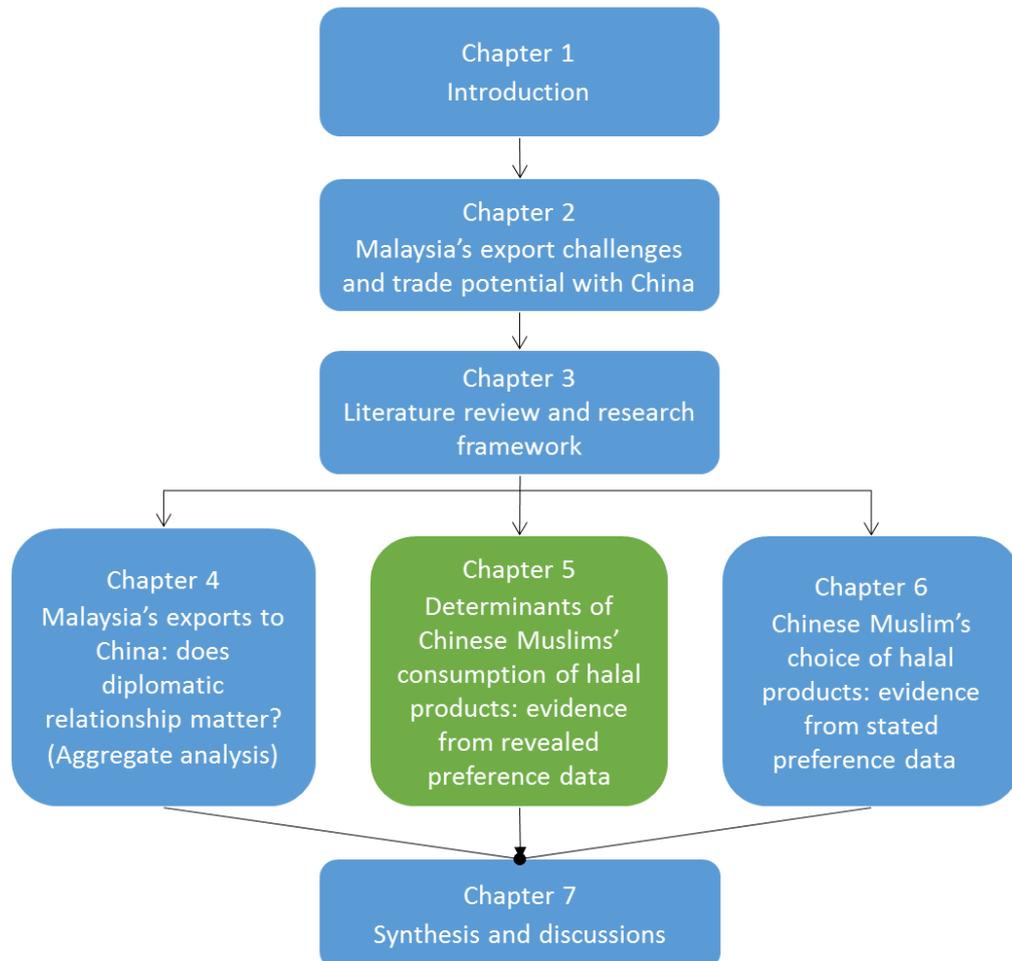
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                    │     Chapter 1       │
                    │    Introduction     │
                    └─────────────────────┘
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                    ┌─────────────────────┐
                    │     Chapter 2       │
                    │ Malaysia's export   │
                    │ challenges and trade│
                    │ potential with China│
                    └─────────────────────┘
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                    ┌─────────────────────┐
                    │     Chapter 3       │
                    │ Literature review   │
                    │ and research        │
                    │ framework           │
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Chapter 4	Chapter 5	Chapter 6
Malaysia's exports to China: does diplomatic relationship matter? (Aggregate analysis)	Determinants of Chinese Muslims' consumption of halal products: evidence from revealed preference data	Chinese Muslim's choice of halal products: evidence from stated preference data

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                    ┌─────────────────────┐
                    │     Chapter 7       │
                    │ Synthesis and       │
                    │ discussions         │
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CHAPTER 5   DETERMINANTS OF CHINESE MUSLIMS' CONSUMPTION OF HALAL PRODUCTS: EVIDENCE FROM REVEALED PREFERENCE DATA

This chapter continues to investigate the determinants of Chinese Muslims consumption of halal personal care products (export determinants at the micro level) with revealed preference data. This chapter has been submitted to The China Journal for publication.

Chapter Outline

5.1 Introduction

5.2 Chinese Muslims; Origin, Composition and Customs of Consumption

5.3 Literature Review

5.4 Method and Data

5.5 Results and Discussion

5.6 Conclusions and Implications

Abstract

Worldwide, the demand for halal products by Muslims has expanded rapidly. In 2014, the total value of global halal products reached almost US$ 2 trillion. With a fast growing Muslim population and consumer income, the demand for halal products by Chinese Muslims is also expected to grow and is potentially sizeable. However, literature addressing Chinese Muslims' consumption is scarce and their demand for halal products is little understood. An understanding of the determinants of Chinese Muslims' demand for halal products is invaluable in forming government and industry policies to better meet such needs. This study represents an early attempt to investigate what affects Chinese Muslims' demand for halal products, with a focus on halal personal care products. Based on surveys in several Muslim populated regions in northwest China, findings utilising logit modelling suggest that, apart from faithfulness, reliability of recommendations and product price, product availability and halal authenticity are the two most important determinants influencing the purchase of halal products by Chinese Muslims. Implications are discussed.

5.1   Introduction

This study identifies key determinants that affect Chinese Muslims' demand for halal products with a focus on halal personal care products. In the MS 2200:2008 Islamic Consumer Goods Standards, halal personal care products are defined as: "Any substance or preparation intended to be placed in contact with various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with teeth and mucous membranes of the oral cavity. The functions of these items are exclusively or mainly for cleaning them, perfuming them, changing their appearance and/or correcting body odours and/or protecting them or keeping them in good condition. The products are not presented as treating or preventing disease in human beings" (Malaysian Department of Standards, 2008, p. 2).

Worldwide, Muslims seek halal integrity from edible goods, non-edible goods, and services (Hunter, 2012). To meet the demand, the halal industry has expanded to supply cosmetic and personal care products, pharmaceutical and health products, tourism, logistics and finance services (The Halal Journal, 2014). Indeed, the halal industry has become one of the fastest growing consumer segments in the world (Elasrag, 2016). Growing at an annual rate of around 20% (Edbiz Consulting, 2013), the global Muslim market amounted to US$2.3 trillion in 2014 (excluding Islamic Finance) (Thomson Reuters, 2015). Many producers of world class consumer goods have joined the halal industry in order to secure a share of the strong demand from the 1.7 billion Muslim consumers globally (Thomson Reuters, 2015).

In 2014, Muslims spent US$1128 billion on halal food (which accounted for 17% of the global food market). Globally, they also spent US$680 billion on halal non-food products and services (Thomson Reuters, 2015). Out of the expenditure on non-edible products, an estimate of some US$54 billion was spent on halal cosmetics and personal care products in 2014 (about 7% of global expenditure). According to Thompson Reuters (2015), the spending on halal cosmetics and personal care products is forecast to further increase and will reach US$80 billion by 2020.

The demand for halal products in China is also sizable even though it is not a Muslim-dominant country. China has the ninth largest Muslim population in the world and its halal markets are also very dynamic (Edbiz Consulting, 2013). China's halal industry has grown at an annual rate of 10% and is worth US$2.1 billion (Edbiz Consulting, 2013). The total population of Chinese Muslims is projected by Ma (2014), at 30 million, indicating the enormous potential of the halal market in China.

However, the halal industry and certification system in China is immature and less established than in Muslim countries (Gooch, 2010). While there is a large number of halal certification agencies in China, they do not work collaboratively and do not follow a unified halal standard and certification system (Edbiz Consulting, 2013). Likewise, Chinese halal producers do not share common understandings and compliances on halal production standards and regulations. China's halal industry is also lacking integrity in

its supply chain management; it does not have adequate technology or human capital, and is lacking global credence (Wu, 2006). Incidents involving the substitution of non-halal ingredients in the production of halal products are not uncommon in China; an extreme case was selling pork labelled as halal beef (Khaliq, 2013).

Concerns of product adulteration have urged Chinese Muslims to pursue authentic halal products that are produced with pure halal ingredients and production processes. The need for a credible halal sector in China is overwhelming. The Chinese authority is aware of issues related to halal products and has recently sought global expertise to organise and upgrade its halal certification system, as well as collaboration in the halal trade (China Daily, 2014; Salama, 2011). This represents great opportunities for halal exporters to enter this emerging and potentially huge market.

However, to date, little is known about Chinese Muslims and their halal consumption. Halal consumption is strongly associated with Islamic practice. Nonetheless, China is a socialist country, where active religious activity has substantially reduced since the Cultural Revolution in the 1960s and 1970s (Yang, 2009). Unlike Muslims in Islamic countries, Chinese Muslims wear more than one hat. They are born as Muslims, but grow up in a Confucian society. They live in a country where religion is not the primary ideology of life, and they are regarded as an ethnic minority within a large population. They wear different styles of clothes and consume specific foods that differ hugely from those of Han. Living in a diverse cultural setting and possessing a different ethnic background, Chinese Muslims' consumption behavior cannot be assumed to be cultivated purely based on Islamic values like those in Muslim-dominated countries.

This study provides insights into the consumption of halal products by Chinese Muslims. Major questions this study attempts to answer include; who are Chinese Muslims? How eagerly do they want halal products? What does the term 'halal product' mean to them? While the study contributes to the literature by adding improved understanding of Muslim consumption in general, it also focuses on revealing the needs and determinants of Chinese Muslims for halal personal care products.

A background of Chinese Muslims is given in the next section. Section 5.3 reviews studies concerning the theory of consumption behaviour and Chinese Muslims consumption ideologies. The approaches used to identify the determinants of Chinese Muslims for halal personal care products are elaborated in Section 5.4. In Section 5.5, the findings are presented and discussed. The last section concludes.

5.2   Chinese Muslims; Origin, Composition and Customs of Consumption

The Chinese term for Islam (*Yi Si Lan Jiao*) is derived from an Arabic term meaning "peace" or "submission" (Gladney & Ma, 1989). Chinese Muslims originally belonged to the Hanafi school of jurisprudence of the Sunni sect in Islam (Allès, 2005). Islam was brought into China by Muslim traders from Arab and Persia during the dynasties of Tang (618-907) and Song (960-1279) (Daftari, 1999). Throughout the Middle East and Europe, traders from Arabian countries exchanged herbs and spices for silk and Chinese porcelain. In those days in China, Muslim traders from Arab and Persia lived apart, in separate quarters from local Chinese, maintaining their Muslim way of life (Ma, 1994).

Hui became the standard title for Chinese Muslims during the Tang dynasty, and they started to adopt Chinese names, languages and costumes (Zhu, 2011). Hui, literally means 'return' in Chinese. It is not derived from the Al-Quran or from Arabic. The Chinese character of Hui consists of two squares. The outer square means the universality of Islam, whereas the inner square refers to the Ka'bah in Mecca (Ma & Ma, 2009). Thus, Hui also means 'to return us to Allah'.

Muslims obey rules that are very different from local Chinese customs, especially in the diet. However, Hui and Han have been living harmoniously for over a millennium. Hui have established unique, indigenous, Islamic culture in a non-Islamic country, contributing to every aspect of the country, and they continue to prosper (Zhu, 2011).

For Muslims in China, the mosque is a centre for spiritual inspiration and social activities. It is a place for worshiping and chanting, religious meetings, Islamic education, ceremonies, funerals and it is a judicial court. The mosque is the most holy place with

the most symbolic significance in Chinese Muslims' culture (Yang, 2010). The mosque is led by a chief religious head called *ahong*, assisted by a *Khatib*. *Ahong* leads prayer during wedding ceremonies and funerals, and works together with three to seven committee members in managing the mosque property, financial matters, and the Islamic judicial court. *Khatib* is responsible for congregation and Friday prayers (Cowen, 1985). As a minority, Muslims lean towards the common practices of their own communities. They live around the mosques, forming their communities with the mosque at the centre.

Chinese Muslims speak the dialects of their respective regions. Muslim culture encourages connection with God, charity, pilgrimage, sisterhood and brotherhood. They do not enshrine ancestors or worship gods other than Allah, or practise superstitious belief. In Islam, white colour represents purity and green symbolises life. Therefore, Muslims like to use white and green for their clothing, especially when attending religious activities. Long robes, referred to as "dessert dress" are not suited to Chinese conditions, and many Muslims found them too extreme (Gillette, 2000a).

Chinese Muslims are more varied than the Muslims of any other nation in the world (Lawton, 1985). Ten ethnic groups form Chinese Muslims, shown in Table 5.1. Hui, the Muslim minority that originated from Chinese Han, make up almost half of the Chinese Muslim population. All Hui are Muslims, but not all Muslims are Hui (Chuah, 2004). The other half of the Chinese Muslim population is formed from nine minority groups; Urghurs, Kazaks, Kyrgyzs, Tatars, Salars, and Uzbeks from the Turkic Origin, Dongxiangs and Baoans with Mongol origins, and Tajiks with an Iranian origin (Li, 2008; Wang, 2008). According to the last population census in 2010, the total number of Muslims in China was a little over 23 million (China National Bureau of Statistics, 2014). The World Factbook (2013) estimates that about 27 million Muslims live in China. Others believe the number is even higher, e.g., Masron, Azman and Fujikawa (2015) estimate there are 89 million Muslims in China.

Table 5.1 Muslim Ethnic Groups Population in China, 2010

Origin	Ethnic	Distribution area	Population	%
Chinese (Han)	Hui	All provinces in China, but mainly in Ningxia, Gansu, Henan, Xinjiang, Qinghai, Hebei and Shandong	10586087	45.74
Turkic	Uyghur	Southern Xinjiang	10069346	43.51
	Kazak	Northern Xinjiang	1462588	6.32
	Kyrgyz	Western Xinjiang, Heilongjiang	186708	0.81
	Salar	Qinghai, Urumqi, Xining, Gansu	130607	0.56
	Tatar	Qitai and Northern Xinjiang, Urumqi	3556	0.02
	Uzbek	Northern and Southern Xinjiang	10569	0.05
Mongol	Dongxiang	Linxia Hui Prefecture, Yili in Xinjiang	621500	2.69
	Baoan	Linxia Hui Prefecture, Qinghai	20074	0.09
Iranian	Tajik	Southwest of Xinjiang	51069	0.22
Grand Total			23142104	100

Source: China National Bureau of Statistics, 2014.

Records for Muslims in China are based on their ethnicity, rather than religion. Except for Xinjiang, Chinese Muslims are not attached to any particular territory, such as Mongols in Mongolia or Tibetans in Tibet. Instead, they are scattered all over the country (Hui, 2009). Their distribution is believed to be widely dispersed but concentrated in small groups – something which dilutes them into an insignificant minority in spite of their large, absolute numbers (Zhu, 2011).

This vast distribution of Muslims all over the country means there is a diversity of creeds and customs in different regions of the country. This variety has created many sects and sub-sects, some of which are unique to China (Israeli, 2012). Such vast distribution and diversification, however, does not seem to greatly affect the Chinese Muslims' food consumption customs. They follow strict commandments for food they consume. For hygienic reasons and in order to form kind and good habits, Muslims are forbidden from consuming or using pork, alcohol, naturally dead animals, some seafood and wild animals, animals slaughtered by non-Muslims, blood, omnivorous animals, poultry which eats meat, smoking, and the use of narcotics. In some areas, it is a custom for

local governments to provide cows and sheep to Muslim communities and the Muslim butchers prepare the meat (Wu, 2006). Pork is not allowed to be sold, or consumed, in Muslim restaurants, but wine is tolerated in some Muslim restaurants for non-Muslim customers. Usually, wine is served in special cups that are kept separately. To ensure all goods served are halal, there are halal stores, bakeries, and restaurants in Muslim communities.

Being part of China, Chinese Muslims' consumption behaviour is influenced by the majority, the Chinese. Ancient Chinese culture stresses balance, moderation and interpersonal harmony. Confucian moral standards encourage less desire and thrift. People would rather "save for a rainy day" than "live for today" (Gong, 2003). Similarly, thrift and simplicity are also encouraged among Chinese Muslims. For them, consumption should be moderate, legitimate and charitable.

In studies in cross-cultural psychology, Han ethnicity has long been considered collectivistic; individuals are group oriented and seek to comply with the aims of the in-group rather than fulfil personal goals (Harb & Smith, 2008; Morris & Peng, 1994; Sun, Horn, & Merritt, 2004; Xiao & Kim, 2009). Group orientated Chinese rely heavily on word-of-mouth communication as a reliable source of product information (Xiao & Kim, 2009). The individual experience and product information are shared easily and quickly between group members. Therefore, products favoured by group members have significant positive effects on Chinese consumers' purchasing intentions (Gong, 2003). This in-group influence also has great persuasive power in influencing purchasing decisions among Chinese Muslims.

Muslims' consumption has several features. Firstly, the 'minzu' ethnic characteristics, such as production pattern, housing, food, marriage, religion, and lifestyle are essential characteristics of Chinese Muslims' economies. Secondly, it is regional. Muslims live around the mosque, inter-married with local ethnics. Muslims usually settle on the land where their ancestors started. Therefore, Muslims' are usually economically prosperous within their region. Thirdly, it is a religion-based consumption, where they only consume

halal food produced by religious leaders, family members, or trusted friends and relatives (Wu, 2002).

While Chinese Muslims are encouraged to be moderate, spend for those in need, avoid wastage and extravagance, there are events where they will spend generously. For example, they purchase and slaughter sheep and cows for charity during the Eid Al Adha, or give out Zakat (donations) to the mosque during Friday prayers. Likewise, Muslims' weddings are extravagant. They are willing to pay for an expensive dowry, house renovations, modern electrical items and furniture, similar to the Han majority (Gillette, 2000a) They are also willing to pay higher prices for authentic, trusted halal food (Zhu, 2011).

Over time, Muslims' consumption patterns are changing, with the growth of the Chinese economy and modernisation. In the early 1990s, Muslims in cities were experiencing entrepreneurships (Gillette, 2000a). They enjoyed an abundance of new consumer goods imported but available locally, and they also spent on house and mosque renovations. Muslims started to imitate fashion from the Middle East, and the younger generation began to pick up western fashion styles, while many of them have integrated into Han culture (Gillette, 2000b). In short, Chinese Muslims are vibrant, dynamic and cosmopolitan. They represent a potentially huge market for diverse varieties of halal products. However, as far as their consumption of halal personal care products is concerned, little is understood in the literature. Hence, what influences and determines their demand for halal personal care products warrants investigation. The next section surveys how existing studies contribute to knowledge about Muslim consumption in general, and Chinese Muslims' consumption in particular.

5.3   Literature Review

Literature on consumer behaviour suggests that shoppers' choices are influenced by employment, social, religious, educational and recreational activities (Essoo & Dibb, 2004). Xiao and Kim (2009) explain that many market choices are influenced by social values that attach to a product due to its association with social groups. Wienholtz,

Zerres, Bratting and Marcyzk (2003) state that consumption behaviour is directly influenced by social factors, psychological factors and cultural factors. Social factors refer to family and the personal reference group. Psychological factors include motivation and perception. Cultural factors are values, perception, faith, characteristics, and/or everything that is socially learned and shared by the members of a society. Among the three, culture is the most fundamental determinant of consumption behaviour (Wienholtz et al., 2003).

Culture is a strong milieu force in affecting consumer choice (Gong, 2003). According to Jung and Kau (2004), culture is one of the major factors that influence consumer behaviour in the multiracial Singapore. Zhang, Grigoriou and Ly (2008) state that there is divergence in values and attitudes of Chinese consumers in different regions in China, due to different traditions, religions, languages and infrastructure, and different levels of economic development and purchasing power. Religious belief is a pivotal cultural factor that forms individual's attitudes, values and behaviours (Mokhlis, 2009). Essoo and Dibb (2004) claim that religion influences the way people shop. Bailey and Sood (1993) also find support for religion as an important construct of consumer behaviour. Religion influences the attitude of its devotees towards owning and using goods and services.

Differences in religious affiliations tend to influence the way people live and the choices they make (Kim, Waller, & Erdogan, 2002). Bailey and Sood (1993) reach a significant conclusion finding that people from different religious affiliations have different consumption behaviours in a given situation. Essoo and Dibb (2004) argue that religion influences behaviour in two ways: (1) the effect of a religious code on personal choice (for example, alcohol consumption is prohibited in Islam), and (2) religion's influence on attitudes and values. They also find that consumers with different degrees of religiosity (religious commitment) have notably different shopping behaviours.

Patock-Peckham et al. (1998) suggest that it is religious norms, and not merely affiliation, that determine consumption behaviour. They demonstrated the distinction between religious norms and affiliation using the concepts of intrinsic and extrinsic

religiosity. Extrinsic religiosity refers to individuals who use religion for their own utilitarian interest. This group of individuals is described as behavioural, or exhibiting interpersonal religiosity, by later researchers. Intrinsic religiosity denotes a person who uses the moral teachings of peace, brotherhood, and forgiveness in their thinking and actions. They live their religion, and have been recognised as exhibiting intrapersonal religiosity. According to Vitell, Paolillo and Singh (2005), intrinsic religiosity has a significant impact on consumer ethicality in the Muslim market.

When investigating religiosity effects, Mokhlis (2009) holds that both the cognitive dimension (an individual's belief or intrapersonal religiosity) and the behavioural dimension (interpersonal religiosity, e.g. participation in religious activities) of religiosity must be considered. For example, individuals may perceive themselves to be highly religious; but not behave spiritually for some reason. Likewise, an individual may be active in promoting religion, but only with an ulterior purpose. Thus, consumers with higher degrees of cognitive religiosity view price, impulsive shopping and quality as having greater importance in shopping criteria; while consumers with higher degrees of the behavioural dimension (interpersonal) have two further concerns; fashion and brand.

Clearly, religious belief plays a significant part in sculpting behaviour. However, it is highly personal in nature, and therefore its impact on consumer behaviour is vastly dependent upon an individual's level of religiosity and devoutness (Bailey & Sood, 1993; El-Bassiouny, 2014; Mokhlis, 2009). This inference apparently applies significantly to Muslims, with Muslims being found to be more practical in their shopping behaviour (El-Bassiouny, 2014; Essoo & Dibb, 2004). According to Wilson and Liu (2010) and El-Bassiouny (2014), Muslims tend to have higher involvement in their consumption of goods to ensure that the products are compliant with the Islamic code of conduct. Findings from Ansari and Mohammed (2015) also suggest that religiosity is important in determining Muslims' purchasing intentions on non-food items.

On the other hand, a subjective norm, referring to perceived social pressure (from family, friend or society) to perform, or not perform, a behaviour (Ajzen, 1991; Mahon,

Cowan, & McCarthy, 2006), has been shown to be one of the most influential drivers of intention to consume halal products (Ansari & Mohammed, 2015; Awan et al., 2015; Vohra, Bhalla, & Chowdhury, 2009). Since social solidarity and social responsibility receive high attention in the Islamic paradigm, this subjective norm of social pressure is also one of the important aspects of Muslim consumption behaviour (El-Bassiouny, 2014).

Lada et al. (2009) find that the decision to choose a halal product is determined by a positive attitude and the subjective norm of social pressure. Alam and Sayuti (2011) draw a similar conclusion through their exploration of the relationship between halal purchasing intention and attitude, subjective norm and perceived behavioural control. The analysis, based on the Theory of Planned Behaviour (TPB), shows that attitude, subjective norm, and perceived behaviour control have substantial and positive effects on halal purchases.

As asserted by Alam and Sayuti (2011), subjective norm is more influential in a collectivistic culture, such as in Muslims' communities. People tend to perceive themselves as interdependent with their groups. In collectivism, it is important that an individual is judged as well behaved and meets social expectations. Group influence promotes conformity and so any deviation from these expectations is seen as a failure to achieve an acceptable standard of behaviour, resulting in loss of face and shame (Tynan, Heath, Wang, & Sun, 2010). Chinese Muslims share the same social characteristics with mainstream Chinese, where maintaining personal status in society depends on meeting expectations from the society more than from one's self (Gillette, 2000a).

Besides situational factors, the nature of the product, the amount of available information, store location, product assortment and store images are also important factors that determine consumption behaviour. For Muslims, the knowledge that a consumer has about the product, product attributes, and benefits the product offers, are all important consumption criteria (Wilson & Liu, 2010). Tarak and Kilgour's (2015) examination of the demand characteristics of Muslim consumers of New Zealand halal

meat in the United Kingdom shows that availability, transparency and trust were vital attributes pursued by Muslim consumers. The authenticity of the halal attribute itself is the most important, and the trust between buyer and seller forms the foundation for a successful transaction.

Abdul et al. (2009) also find that trust and confidence are key features in selecting halal food. Customers will ensure that the business premise is certified halal with a logo before making any purchases. A genuine halal certification logo is the primary attribute that will satisfy Muslims. Essoo and Dibb (2004), and Rehman and Shabbir (2010) conjecture that Muslims may try out new brands or new retail stores as long as they are halal. Additionally, Tarak and Kilgour (2015) assert that the slaughter method is the basic guideline that drives Muslims' purchasing behaviour. In addition, the halal logo, a halal endorsement from a trusted halal certification agency, verification of the slaughter premises by an authorised halal organisation, and halal separation in the supply chain, are emerging attributes that play an almost equal and significant role in the process of Muslim decision making.

Studies of halal product consumption by Muslims are many; for example, Abdul et al. (2009), Abdul et al. (2013), Bonne and Verbeke (2008), Hanzaee and Ramezani (2011), Lada et al. (2009), Rajagopal, Ramanan, Visvanathan, and Satapathy (2011), Rethel (2011), Salman (2011), Tieman, Ghazali, and Vorst (2013), and Verbeke et al. (2013) all contribute to this issue. These studies, however, were conducted mainly in Muslim-dominant countries, such as Malaysia, Indonesia and various countries in the Middle East. Few efforts have been devoted to examining relationships between consumption intention and religion in China, and to empirically identifying the role of Chinese Muslim belief in determining consumption behaviour.

Additionally, when verifying determinants of Muslim consumption for halal products, most existing studies concentrate on edible items (Ariss, 2010; Bonne & Verbeke, 2008; Bonne, Vermeir, Bergeaud-Blackler, & Verbeke, 2007; Hanzaee & Ramezani, 2011; Rajagopal et al., 2011; Rethel, 2011; Rezai, 2008; Tieman et al., 2013; Verbeke et al., 2013). Studies around consumption of halal personal care products are sparse (Ansari &

Mohammed, 2015). This study intends to fill the void in the literature through empirically identifying key determinants affecting Chinese Muslims' consumption of halal personal care products.

5.4　Method and Data

5.4.1　Conceptual Considerations

During purchasing, the consumer is actually buying a bundle of benefits. The utility maximization rule states that a consumer chooses a product from their set of available alternatives to maximise utility. Generally, a typical economic individual emphasizes self-interest and acts rationally to maximize personal utility, and associates utility with cost and benefits. According to Ramli and Mirza (2007), there are differences between conventional and Islamic consumer behaviour. From an economics perspective, conventional consumer behaviour focuses on maximizing self-interest; while Islamic consumer behaviour takes into account morality and responsibility as a Muslim during consumption (Ramli & Mirza, 2007). Muslim evaluates 'consume-halal' as the highest form of utility, although halal products may be more expensive than ordinary products (Dali, Nooh, Nawai, & Mohammad, 2009).

Conceptually, utility is derived from the goods consumed, with different consumers tending to derive different levels of utility from the same product. This indicates that factors influence the level of satisfaction beyond the product itself. For a devout Muslim, utility is also affected by the religiosity, socio-economic, and demographic characteristics of the consumer. Muslims demonstrate devoutness through lifestyle, such as consuming halal products. For example, when a Muslim purchases a bottle of halal shampoo, their utility comes from both the function of the shampoo and their feeling of devotion to God. If a Muslim is religiously highly committed, they will search for halal attributes during purchasing. According to Khan (2014), this is an integral part of the consumer choice for a Muslim, but it is hard to value it with a price tag.

Therefore, a Muslim individual is hypothesized to weigh the utility of halal purchases with their level of religiosity (religious commitment), social preferences (subjective norm), product attributes, and the halal credibility of the product itself. In addition, two other factors can also be very important; (1) socio-economic and demographic characteristics, and (2) product availability. Usually, socio-economic and demographic characteristics are of little use in halal studies (Verbeke et al., 2013). However, socio-economic and demographic characteristics can affect an individual's religiosity and their reactions to the subjective norm. Income level may influence how consumers perceive price levels. Including product availability as one of the variables under investigation is uncommon in studies on halal consumption. Product availability is not an issue for most studies that focus on halal, edible items in Muslim countries. For China, however, it is different. The availability of halal products is always a major concern in China; halal food products in general, and halal non-food products in particular (Rahim, Shafii, & Shahwan, 2013).

Thus, through utility maximization, with some regular assumptions, major forces that can influence a Chinese Muslim buying a halal personal care product, i.e., religiosity, subjective norm, product attributes, product availability and the socio-economic and demographic characteristics of the consumer, are summarized in Figure 5.1.
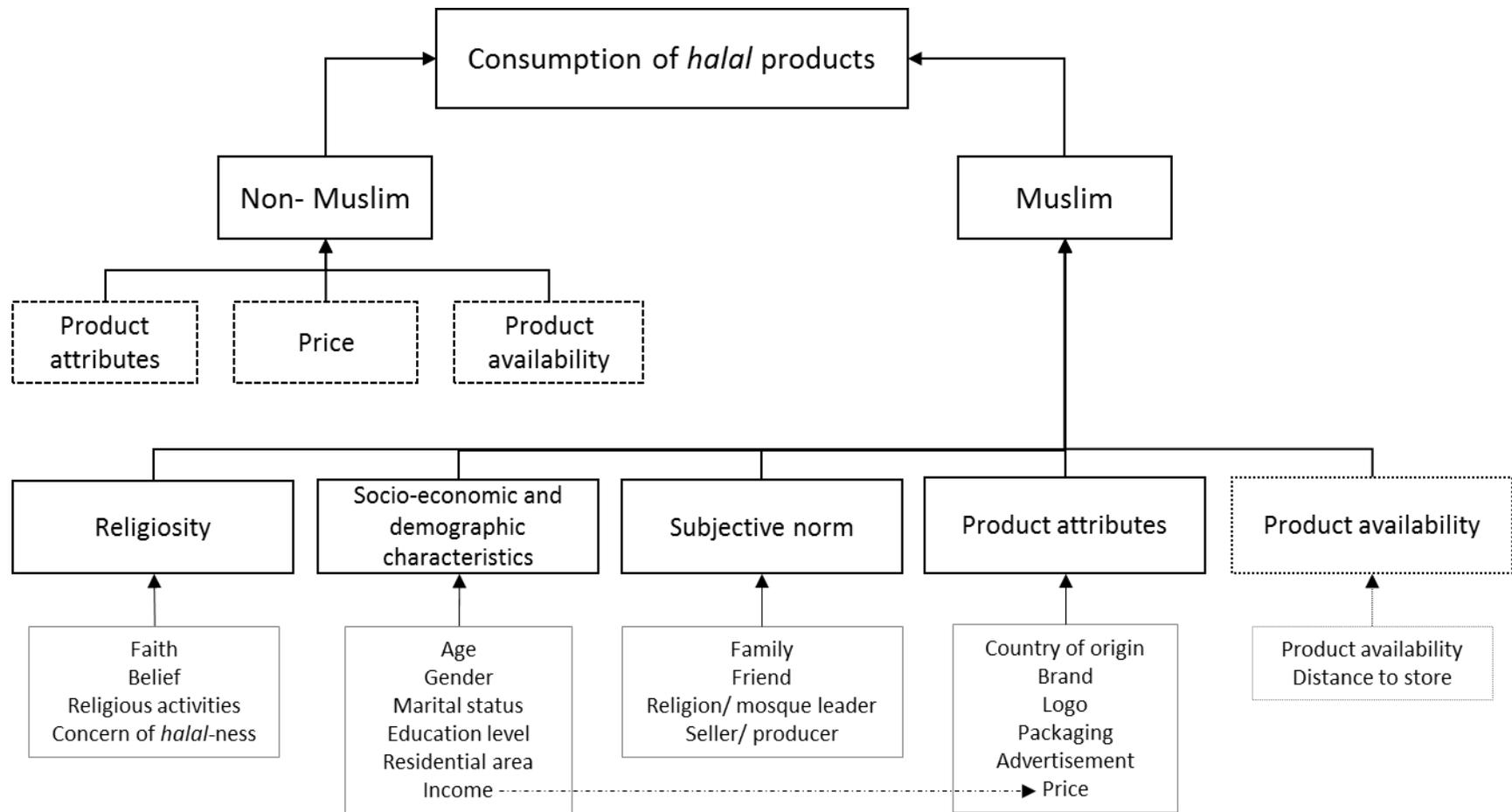
Figure 5.1 Possible determinants of Chinese Muslims' consumption of halal personal care products

Both Muslim and non-Muslim Chinese may buy halal personal care products. For non-Muslim Chinese, buying such halal personal care products is not essential. It would be largely influenced by their personal preferences for the product attributes, product availability, price of the product etc. For Muslims, the potential determinants are more diverse and complex. Some forces may also impact on each other. For example, as noted earlier, socio-economic and demographic characteristics may affect religious commitment or subjective norms. A person's income level may affect their perception of the price levels of a product.

The relationships, illustrated in Figure 1, provide a useful framework to identify important determinants affecting Chinese Muslims' purchases of halal products. These relationships are quantitatively estimated using data from a survey conducted in China.

5.4.2 Data, Propositions and the Model

A survey was conducted in China to collect data using a structured questionnaire. Limited availability of resources did not allow for formal, random sampling. Nonetheless, due considerations were given to the following important aspects in selecting the sample. Chinese Muslims are concentrated in the northwest of the country shown in Figure 5.2. Halal products may only be available in Muslim populated communities. The respondents to the survey need to have access to halal products to ensure that our research is relevant and meaningful. Subsequently, through geographical cluster sampling, cities with a strong Muslim presence were identified for the survey. They include the Muslim quarter in the Xi'an city in Shaanxi province (the place where Islam began in China), Linxia Hui Autonomous prefecture (over 50% of its population are Muslims) and Lanzhou city (with the most flourishing Muslim seminaries in China) in Gansu province, and the cities of Yinchuan and Wuzhong in the Ningxia Hui Autonomous Region (the Region is home to almost three quarters of Hui in China).

Figure 5.2 Survey areas

Note: Degree of shading indicates the size of the Muslim population; it is highest in the darkest provinces. Survey sites are outlined in green.

Source: Map is produced by the investigator.

Data and information collected using the questionnaire survey belong to five distinct sections:

1. Halal purchasing details: the types of halal products purchased by the respondents, total amount spent, places of purchase, and their perceptions of local and imported halal products.

2. Religiosity: religiosity includes belief and practical aspects of religious commitment. Questions are related to specific religious values, ideals, and Islamic ways, including actions held or practised by the respondent. Halal consumption is central to an Islamic lifestyle. Therefore, data and information gathered for this section are crucial when examining the influence of religion on halal consumption.

3. Subjective norm: items such as channels of product information and purchasing references.

4. Product attributes: the importance of a halal logo, colours in packaging, product origin, publicity, market situation and price.

5. Socio-economic and demographic data and information: ethnicity, gender, education level, marital status, place of residence, employment and income.

Following pilot surveys and instrument improvements, a total of 500 subjects were interviewed during September-October in 2014. Interviewees were selected by chance and independent of one another at mosques, squares and gardens, Al-Quran classes and Muslim shopping areas. This element of randomness was unavoidable because statistics on Chinese Muslim households are not available, and such randomness does not adversely affect the empirical results (because there is no sample selection issue here). Survey produces rich, self-reported information about religious beliefs, affiliation and activities (Iannaccone, 1998). A further advantage is that this method saves time and money. According to Krejcie (1970), sample size increases at a diminishing rate as the population size increases, and sample size remains relatively constant, at slightly more than 380, when the population reaches one million. The Muslim population in the surveyed regions is well above one million and therefore, the sample size of 500 is adequate.

Of the 500 responses, 457 were usable. The sample consisted of slightly more female respondents (52.4%). The largest proportion of respondents was in the 17 to 25 years age group (47%), closely followed by those in the 26 to 55 years age group (43.2%). About 60.8% were urban dwellers. Slightly more than half (50.4%) were adults with a tertiary degree. In terms of income, the majority (55%) have an annual income equal to, or above RMB40, 001. Overall, the sample is slightly biased towards younger people, shown in Table 5.2.

Table 5.2 Descriptive Statistics of the Sample, in Percentage

Socio-economic and demographic factors	Attributes	%
Gender	Male	48
	Female	52
Marital status	Single	49
	Others	50
Area	Urban	61
	Rural	39
Education	Graduates	50
	Non-graduates	50
Age	17 to 25	47
	26 to 55	43
	Above 55	10
Annual Income (¥)	≤ 18, 000	23
	18, 001 to 40, 000	22
	≥ 40, 001	55

Of the 457 usable responses, 29% reported purchasing halal personal care products. Of those who purchased halal personal care products, 56% were from Gansu, 11% from Ningxia and 33% from Xi'an city. Toothpaste was the halal personal care product that was bought most frequently, followed by halal soap. About 71% of respondents did not purchase halal personal care products. Major reasons for making no purchase are given in Table 5.3. Product unavailability is the overwhelming deterrent.

Table 5.3 Reasons of No Purchase of Halal Personal Care Products, in Percentage

Reasons of no purchase	%
Not necessary	18.4
Higher price compared to ordinary products	3.3
Unavailable in the market	46.9
Less confidence in the products	5.0
Not a common practice	23.7
Other	2.7
Total	100

Responses collected from the survey are used to verify the following propositions – important to the understanding of key determinants that affect Chinese Muslims' purchase of halal personal care products (hereafter, "halal purchases" will be used to represent "purchase of halal personal care products"):

- In halal purchases, a more religiously committed person has higher tendency to purchase halal products;

- Subjective norm has a positive influence on halal purchases;

- Product attributes affect halal purchases;

- Availability of halal personal care products is positively related to halal purchases; and

- Socio-economic and demographic characteristics affect halal purchases.

Data and information collected from the survey were first sorted into 24 items and placed under five groups. Each group corresponds to one of the above five propositions (Table 5.4).

Table 5.4 Questions and Variables

Variable	Descriptions	Abbreviation
Religiosity		
Faithfulness	Rate one's faithfulness towards Islam. 0 the least faithful, and 10 complete faithful. A continuous variable	FAITH
Belief (Devoutness)	1 if the respondent practised Islamic teaching; 0 otherwise	DEVOUTNESS
Participating in religious activity	1 if the individual participated in religious/mosque activities; 0 otherwise	REL-ACT
Halal ingredients in non-food items	1 if halal in non-food items was important to the respondent; 0 otherwise	NON-FOOD
Subjective norm		
Relationship with the seller	1 if the relationship with the seller was one of the three most important halal purchasing criteria; 0 otherwise	RELATION
Recommendation of family	1 if family's recommendation was one of the three most important halal purchasing criteria; 0 otherwise	FAMILY
Recommendation of a Muslim friend or *Ahong*	1 if one's confidence towards a *halal* product increased if it is recommended by Muslim friends or *Ahong*; 0 otherwise	FRI-AHONG
Product attributes		
Country of origin	1 if country of origin was one of the three most important halal purchasing criteria; 0 otherwise	ORIGIN
Brand	1 if brand was one of the three most important halal purchasing criteria; 0 otherwise	BRAND
Halal certification logo	1 if halal certification logo was one of the three most important halal purchasing criteria; 0 otherwise	LOGO
Packaging with Arabic wording	1 if one tended to purchase products packed with Arabic wording; 0 otherwise	ARABIC
TV advertisement	1 if one's confidence increased towards halal purchases due to advertisements in ethnic TV channels; 0 otherwise	TV
Local produces	1 if one's confidence increased if a halal product is produced by local companies; 0 otherwise	LOCAL
International halal exhibitions	1 if one's confidence increased towards a halal product if exhibited in an international halal expo; 0 otherwise	EXHIBITION
Product price	1 if price was the most important factor that influences one's halal purchasing; 0 otherwise	PRICE

Product packaging in green colour	1 if green packaging prompted or reminded the respondent of "halal" or "Islam"; 0 otherwise	GREEN
Product availability		
Availability	1 if halal personal care products were commonly available at places where the respondent lives; 0 otherwise	AVAILABILITY
Distance to the halal store	1 if distance was one of the three most important halal purchasing criteria; 0 otherwise	DISTANCE
Socio-economic and demographic characteristics		
Age	AGE1 if one was between 17 to 25, and AGE2 if 26 to 55; otherwise above 55	AGE1 AGE2
Gender	1 male; 0 otherwise	GENDER
Education	1 college education or higher; 0 below college	EDUCATION
Marital status	1 for single; 0 otherwise	MARITAL
Annual income	INCOME1 if annual income ≤RMB 18,000, and INCOME2 if between RMB 18,001 and 40,000; otherwise ≥ RMB40,001	INCOME1 INCOME2
Place of residence	1 if residence is in urban area; 0 rural area	HOME

Formulating most of the 24 items as listed in Table 5.4 is straightforward. One exception is the religiosity-related question about one's belief or devoutness, which requires some detailed explanation. Devoutness is not tangible and it is hard to measure. Religiosity means fulfilling the requirements of Islam; faith, belief and charity in words and deeds. External influences on one's religiosity are highly dependent upon an individual's degree of observance of belief or devoutness (Alam & Sayuti, 2011). "Measuring" religiosity, however, is not easy. Empirical studies of Muslims' religiosity are extremely sparse (Krauss et al., 2005; Raiya, Pargament, Mahoney, & Stein, 2008), and religious data are limited and unreliable in general (Iannaccone, 1998). One major reason for the lack of such empirical research is the unavailability of relevant, valid and reliable scales to measure religiosity and the spirituality of Muslims (Raiya et al., 2008). The Psychological Measure of Islamic Religiousness (PMIR) developed by Raiya et al. (2008) has been one of the major measures used in the literature. The Muslim Religiosity-Personality Measurement Inventory (MRPI) developed by Krauss, et al. (2005) is another useful measure. The Psychological Measure of Islamic Religiousness consists of theoretically based, multidimensional measurement scales that are rigorous, valid and reliable. In this study the PMIR is used.

Initially, 26 statements from the PMIR were included in the pilot survey. These statements were presented to Muslim university students in Australia, and Chinese Muslims for comments and suggestions. To avoid impoliteness and sensitivity, only nine of the more moderate and relevant statements were selected for inclusion in the final questionnaire (Appendix 1- Question E1). Of the nine statements, four are from the Beliefs Dimension Subscale, two are from the Practical Dimension Subscale, two are from the Positive Coping Dimension Subscale, and one is from the Universality Dimension Subscale.

Respondents were asked to rate their level of agreement with the nine statements using a five-point Likert-type scale. The scale ranges from *Strongly Disagree* (1) to *Strongly Agree* (5). A Likert-type Scale is preferred rather than responses such as *yes/no, true/false,* or *satisfied/dissatisfied*. In psychological studies, researchers found that positive options, such as *yes, true* or *satisfied*, are more likely to be chosen by

respondents over negative options such as *no, false* or *dissatisfied*, resulting in bias (Berg & Rapaport, 1954; Heerden & Hoogstraten, 1979). The use of the Likert scale can help reduce such response bias. The Likert scale also has the advantage of capturing the grey (or in-between) areas compared to the use of answers such as *Yes* and *No*. It also allows one to express varying degrees of opinion, including a neutral option. The responses were then converted into binary format to feed into the logit model: *strongly disagree, disagree* and *neutral* into 0 (No), and *agree* and *strongly agree* into 1 (Yes).

Neutral was included into the *No* category for the following considerations. In general, people tend to say *yes* when answering a survey instead of *no* (Berg & Rapaport, 1954). To a large extent, people in collectivistic societies have a tendency to avoid disagreement, or they try to be vague when it comes to refusal, to be polite and avoid disappointing others (Liao & Bresnahan, 1996; Monfret, 2011; Yang, 2008). Thus, those who chose *Neutral* were most unlikely to be in agreement with the statement, but they were reluctant to disagree with it.

Finally, the nine statements were combined to form one variable, *DEVOUTNESS*, using Principle Component Analysis (PCA). PCA is most often used as a data reduction technique for selecting a subset of highly predictive variables from a larger group of variables. It is very sensitive to variance differences between variables. The PCA suggests that all the nine statements could be combined into one variable, *DEVOUTNESS*. The result from the PCA is also supported by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (see Appendix 2).

The dependent variable for this study is dichotomous, namely taking a value of 1 or 0. Hence, a logit model is used to verify our propositions, as follows:

$$log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots\cdots + \beta_k X_k$$

where P is the probability of a respondent's halal purchases; the Xs are explanatory variables hypothesized to influence the probability of halal purchases (see Table 5.4 for the explanatory variables); the βs are the coefficients to be estimated. The dependent variable measures whether the respondent purchases halal personal care products

(value = 1), or otherwise (value = 0). In this empirical study, a distinction is made between purchase and non-purchase, making no attempt to measure the quantity or the number of times an individual purchases a product. Thus, $P/(1 - P)$ is the odds ratio that the respondent will purchase against that they will not.

The explanatory variables (Xs) are assumed to be exogenous. It is hard to imagine that a respondent's purchase of halal personal care products (the dependent variable) will affect the Xs (explanatory variables). If it does (namely reverse causality), there will be an endogeneity issue in the estimation. For example, one would not expect the respondent's purchase of halal personal care products to affect their devotedness, as such devotedness will be conceptually more related to other major events, such as praying in the mosque, than purchasing a personal care product. In other words, if the purchase of halal personal care products affects religiosity, then one would observe that such a purchase would convert a non-Muslim to a Muslim, which, to the best of our knowledge, does not occur.

In the estimation, the correlation among explanatory variables were checked for a possible multicollinearity issue. Except for *AGE1* and *AGE2* (-0.8121), and *AGE1* and *Marital* (0.7623), correlations between most variables are modest (less than 0.5). As the survey covers a large sample of different individuals, heteroskedasticity may be present. Therefore robust standard errors were used in the estimation. Hosmer and Lemeshow's goodness-of-fit test was also applied to check how well the model fits a set of observations. Results show no significant difference between the observed proportions and the specified proportions, indicating that the model fits the data well.

5.5   Results and Discussion

5.5.1   Reporting Odds Ratio

The estimated coefficients and odds ratio, with their robust standard errors, are reported in Table 5.5.

Table 5.5 The Coefficient Estimates and Odds Ratio

Variable	Reporting coefficient			Reporting Odds ratio		
	Coefficient		Robust std. err	Odds ratio		Robust std. err
COSTANT	-4.5476	***	1.2357	0.0109	***	0.0135
Religious commitment						
FAITH	0.2218	**	0.0999	1.2541	**	0.1269
DEVOUTNESS	-0.3702		0.0855	0.9623		0.0823
REL-ACT	0.0250		0.4050	1.0318		0.4164
NON-FOOD	1.4437	***	0.3329	4.2573	***	1.4187
Subjective norm						
RELATION	-0.4025		0.6525	0.6370		0.4372
FAMILY	-0.5037		0.3641	0.6084		0.2213
FRI-AHONG	0.7776	*	0.4401	2.1540	*	0.9499
Product attributes						
ORIGIN	0.7323		0.4511	2.0411		0.9205
BRAND	-0.1755		0.3415	0.8349		0.2852
LOGO	0.5970	*	0.3262	1.8181	*	0.5912
ARABIC	0.2314		0.3187	1.2365		0.3921
TV	0.1540		0.3828	1.1808		0.4558
LOCAL	-1.5700	***	0.4259	0.2090	***	0.0892
EXIBITION	0.3420		0.3826	1.4083		0.5421
PRICE	0.8059	**	0.3939	2.2552	**	0.8928
GREEN	-0.1419		0.31486	0.8689		0.2749
Product availability						
AVAILABILITY	1.9063	***	0.3414	6.7540	***	2.3263
DISTANCE	-0.9853	*	0.5768	0.3722	*	0.2149
Socio-economic & demographic characteristics						
AGE1	-0.5031		0.6866	0.6087		0.4175
AGE2	-0.9734	**	0.4715	0.3818	**	0.1775
GENDER	-0.1959		0.3394	0.8304		0.2919
EDUCATION	-0.2921		0.4596	0.7277		0.3335
MARITAL	0.4905		0.4812	1.6303		0.7965
INCOME1	0.1696		0.3775	0.9872		0.4563
INCOME2	0.3413		0.3932	1.3240		0.6380
HOME	-0.4141		0.3262	0.9666		0.3129
Number of observation			437.0000			437
Wald χ^2 (28)			113.1800			112.9500
Prob > χ^2			0.0000			0.0000
Pseudo R^2			0.3257			0.3252
Log pseudolikehood			-156.8412			-156.9440

Note: *** Significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.

In the fourth column, the odds ratio is given[1], and the fifth column reports the standard errors that are robust to some kinds of misspecification. The Wald χ^2 statistic is 113.18 with a p-value of 0.0000, suggesting that the estimation is overall significant. The *linktest* was implemented immediately after the logit regression for model specification. The test reveals no problems with the specification.

Nine explanatory variables are statistically significant in affecting China's Muslim's halal purchases. Two are from the Religiosity category, *FAITH* and *NON-FOOD*, and one is from the Subjective norm category. In terms of product attributes, three explanatory variables, namely, *PRICE*, *LOGO* and *LOCAL*, are statistically significant. Both *AVAILABILITY* and *DISTANCE* are statistically significant in the Availability category. For explanatory variables in the Socio-economic and Demographic category, there do not seem to be clear patterns in the relationships between the probability of halal purchase and the chosen independent variables. *AGE2* is the only variable that is statistically significant, but with a negative sign. Hence, six variables seem to have positive impacts on halal purchases; faithfulness (*FAITH*), concerns about halal ingredients used in non-food products (*NON-FOOD*), prices (*PRICE*), product availability (*AVAILABILITY*), halal logo (*LOGO*) and recommendations by friends or *ahong* (*FRI-AHONG*). Lack of confidence in locally produced halal products (*LOCAL*), distance to the store (*DISTANCE*), and the age group between 26 and 55 years (*AGE2*) all have negative impacts on halal purchases.

The literature tends to suggest that Islamic teachings have a great influence on Muslim consumption behaviour. Devoutness is one of the most direct influencers of halal purchases. However, in our study, the relationship between *DEVOUTNESS* and halal personal care products purchases is not obvious. Therefore, it cannot be confirmed that devoutness explains the general behaviour of Chinese Muslim's halal purchases. For Chinese Muslims, it seems that action and faith are better impetuses to manifest religiosity in their halal purchases. This prompts a question. Even though Chinese

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[1] $Odds = \frac{Prob\ (Y=1)}{Prob\ (Y=0)} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+\cdots\cdots+\beta_k X_k}$, and $odd\ ratio = \frac{odds\ (x_1+1,x)}{odds(x_1,\ x)} = \frac{e^{\beta_0+\beta_1(X_1+1)+\beta_2 X_2+\cdots\cdots+\beta_k X_k}}{e^{\beta_0+\beta_1 X_1+\beta_2 X_2+\cdots\cdots+\beta_k X_k}} = e^{\beta_1}$, where x denotes all explanatory variables other than x_1.

Muslims practise the Islamic lifestyle and code of conduct, is it not enough that believing in Islamic teaching and attending religious activities will raise their awareness about the importance of using halal personal care products? Further investigations into this question are warranted.

Chinese Muslims who value themselves as highly faithful in their religion, and are concerned about halal ingredients used in non-food products are more likely to purchase halal personal care products. The odds of halal purchases increase by 25.4% for one degree of increase in faithfulness (Column 4 in Table 5.5). The odds of halal purchases rise by 325.7% for individuals who care about halal ingredients used in non-food products, compared to those who are not are about halal ingredients used in non-food products.

From the subjective norm category, *FRI-AHONG* is the only variable statistically significant (at the 10% level) in affecting one's halal purchases. Subjective norm is an important social practice in Oriental collectivist cultures, such as China (Wang, 2006). People often feel more comfortable trying something new if it has been used or recommended by someone they trust. But these results show that close relationships with the seller, or recommendations from family members, did not seem to have a significant impact on halal purchases. However, respondents in this survey tended to have higher confidence towards the product if it was recommended by friends or an *ahong*. The odds of halal purchase rise by 115.4% if the halal product is recommended by friends or an *ahong* (Table 5.5). This is consistent with findings from Phuah and Jusoh (2013) indicating that friends are the most significant personal source of halal cosmetics and personal care product information for Malaysian Muslims. However, this study was not able to separate whether the higher odds of halal purchases are due to friends only, an *ahong* only, or both, because friends and *ahong* were placed in the same question. It would be useful to separate them in future studies.

Three variables, authenticity (*LOGO*), location (*LOCAL*), and product price (*PRICE*) are shown to affect Chinese Muslim's halal purchases in the product attributes category. The survey tried to capture how Chinese Muslims perceive halal certification. The survey

results tend to suggest that the concept of halal is still quite new to many Chinese Muslims and they also interpret halal certification quite differently from other Muslims. In China, *qingzhen* has been used to indicate Islamic culture and Muslim food. According to Hong and Liu (2010), *qingzhen* means pureness of Islamic teachings and the Oneness of God and was introduced to the Chinese in the beginning of Islam in China. It has become a unique word that indicates Muslim food and Muslim restaurants, and has been a religious icon that is widely employed to describe Muslim culture in China. The term *qingzhen*, however, is often related to Muslim food only, the restaurant where religion happens (Cheng, 2012).

Chinese Muslims have gradually been exposed to the term halal since the late 1990s (Hong & Liu, 2010). Halal is phonetically translated as "*haliangli*" or "*hala*". To some extent, it is merely known as an Arabic version of *qingzhen*. In China, so far *qingzhen* has been recognised and applied only to food and not to other non-food products. To date, the portion of Chinese Muslims who are aware of the concept of halal still small. Among those who are aware of the concept, they chiefly relate halal to food. Halal non-food products, such as face powder, or specifically, personal care products, do not register in their minds. This lack of understanding of the halal concept and lack of knowledge of halal personal care products may partially explain why devout followers in China are not likely to purchase halal personal care products.

Many Chinese Muslims have limited exposure to halal certification. They also tend to interpret halal certification quite differently from other countries' interpretation. Major answers and corresponding proportions of the 389 respondents who interpreted the meaning of halal certification are given in Table 5.6. Only 1% of the respondents understand that products with halal certification, such as food, medicine, cosmetic and additives, are produced according to Islamic teachings with halal ingredients, and that they are certified halal by authorities. Among the 19% that provided other answers, some interpreted halal certification as a gimmick to promote sales and profits. Clearly, Chinese Muslims do not share a common understanding of halal certification.

Table 5.6 Respondents' Interpretation of Halal Certification, in Percentage

Interpretation	%
It is a symbol of authenticity of halal products, where the products are produced according to Islamic rules and rightful to be consumed by Muslims	41
Do not know or understand halal certification	21
It is only applied to animal slaughtering process	4
It shows that the product is allowed and permitted to be consumed by Muslims/ permitted to consume	6
It is a symbol of products produced by Muslims and sold only to Muslims	5
Is not reliable or has no confidence in the certification	3
It indicates products with halal certification, such as food, medicine, cosmetic and additives, are produced according to Islamic teachings with halal ingredients, and certified halal by authorities	1
Other	19
Total	100

Despite the fact that the concept of halal and halal certification logo is relatively new to Chinese Muslims, it seems these concepts have started to play a role in influencing halal purchases. According to Bakar, Lee and Rungie (2013), the halal certification logo helps Muslims be assured of the wholesomeness of halal products. Such a religious symbol helps Muslims justify their purchase. Often, the influence is beyond advertising and packaging. Our results confirm that the odds of halal purchase increase by 1.8 times if the halal logo is one of the most important purchasing criteria of the respondent. In the survey, the certification logo is one of the most important halal purchasing criteria for approximately 41% of the respondents.

Answers to various other questions in the survey also show that Muslims in China attach high importance to the authenticity of halal products. They prefer to buy halal products from familiar and trusted sellers in their community to ensure authenticity than products produced by large-scale commercial suppliers. Of 416 respondents who answered the question about how to ensure the product is halal, about 15% believe the best way to ensure the authenticity of halal products was to purchase from trusted sellers or familiar producers, regardless of brands or production companies.

Respondents also expressed a strong desire for more transparency in the whole supply chain of authentic halal products. Over a quarter of the respondents wished there existed effective surveillance over the halal standards certification process to enhance

the legitimacy of halal products. Some 6% hoped the halal product supply chain would become more transparent, fully managed and controlled by Muslims. About one third preferred products from Muslim-majority countries, such as Malaysia, Arab and Turkey, because they have higher confidence in the halal certification process from those countries. The respondents' strong demand for authenticity perhaps partially explains why the variable, *ORIGIN*, is not statistically significant, as much of its effect may be explained by other closely related variables.

The majority of Chinese Muslims lack confidence in commercial halal products produced in China. They reported they could not obtain reliable information about the producers and sources of ingredients. There is a highly statistically significant negative relationship between halal purchases and locally produced products. The odds of halal purchase would be 79% lower if local Chinese companies produced the products. Chinese Muslims are sceptical of locally certified commercial products; many of them, around 83.2%, think that the halal certification logo for locally produced halal products has been widely misused for marketing purposes.

While they do not trust those large-scale produced, commercial, halal products, Chinese Muslims tend to feel comfortable with products that are produced locally by those people in their close community they know and trust. Such locally produced products are those produced by Muslims who live in the same community. They are usually small-scale local operators and their halal foods do not go through a formal halal certification process. This again reflects the fact that Muslims in China do care about the authenticity of halal foods but they lack confidence in large-scale, commercially produced, halal products.

Price also affects halal purchases by Chinese Muslims. If the price of halal products is competitive compared with non-halal products, they will buy more halal products. The odds of halal purchase are 2.3 times higher for those who perceive price as one of the most important purchasing criteria.

Some other variables included in the product attributes category are not shown to have significant impacts on halal purchases, such as brand, advertisements from local, ethnic television, and international halal exhibitions. Earlier studies argue that religious people are conservative, reasonable, and less impulsive in decision making, therefore they are not highly influenced by brands and trends (Alam, Mohd, & Hisham, 2011; Essoo & Dibb, 2004). At the same time, faithful Muslims are practical, they are disciplined and price conscious (Essoo & Dibb, 2004). Word-of-mouth from trusted people is frequently more influential than advertisements, particularly for people of a collectivist community. Packaging using Arabic words or green colours has also been found to be of limited impact in stimulating halal purchases by Chinese Muslims. Similar observations were obtained by Bakar, Lee and Rungie (2013).

Product availability, however, is one of the most important determinants of Chinese Muslims' halal purchases of halal personal care products. Other studies have also found that availability is one of the most important reasons affecting the consumption of halal personal care products, compared with halal, edible products (Hunter, 2012; Kamaruzaman, 2011; Rahim, Shafii, & Shahwan, 2015). Lack of availability often leads to low awareness of such halal personal care products and hence the low level of consumption. In China, it is a fact that halal personal care products are not widely available, even in Muslim populated areas.

This indicates that had such personal care products been readily available to Chinese Muslims, they would have been made more aware of them and may have consumed more of these products. Survey results confirm that around 86.2% of respondents did not find halal personal care products available in places where they live. If such products were available, the odds of purchase would increase by 6.7 times.

Longer distances to the shop for halal purchases can be a deterrent for some Chinese Muslims. The odds of halal purchase decrease by 62.7% if a person thinks the distance to the store is one of the three most important criteria for halal purchases. Making halal personal care products readily available within reasonable distances will encourage their acceptance and consumption among Chinese Muslims.

Not many variables in the Socio-economic and Demographic category seem to have a significant impact on halal purchases. Alam et al. (2011) found that variables such as age, income, and marital status play almost no role in the Muslims' purchasing behaviour. This was due to the obligation to consume halal for all Muslims, regardless of social or economic status. In this study, the variable income did not show a statistically significant relationship with halal purchases either, which is consistent with previous studies. Phuah and Jusoh (2013) suggest that Muslims with more education would have more intentions to use halal cosmetic and personal care products. However, such a relationship was not confirmed in this study. Future studies may further test this relationship.

AGE2 (respondents between the ages of 26 and 55) is the only variable that has a statistically significant estimate of coefficient. The odds of halal purchases drop 64% if the respondent is from this age group. A study by Phuah and Jusoh (2013) obtained similar observations. They found that the younger generation tends to spend more on personal care products compared to their older counterparts. In addition, Phuah and Jusoh (2013), and Verbeke et al. (2013) concluded that more acculturated young female Muslims attach more importance to halal certification label. These arguments suggest that people in middle age use fewer personal care products compared with youngsters. Further verification of this may be carried out in future studies.

5.5.2 Probabilities and Marginal Effects

An advantage of the logit model is that it allows us to compute the probability of a respondent's purchase of halal personal care products, through coefficients obtained from the model. Once this probability is computed, the marginal impact of each explanatory variable on the probability of a typical respondent's halal purchase can be evaluated. For example, the values of the explanatory variables for a 'typical' respondent are as follows:

- an urban non-single female over 55 with college/university degree;
- annual income over RMB 40,000;

- faithfulness is 10 and she is a devout follower;

- participates in religious activities;

- thinks that halal ingredients in non-food products are important;

- relationships with sellers, recommendations from family members, recommendations from friends and *ahong*, distance to the store, country of origin, brand, price, and logo are all important halal purchase criteria;

- locally produced products, advertisements from ethnic television and the international halal exhibition increases her confidence towards halal products;

- Arabic wording and green colour on packaging remind her of halal products; and

- halal personal care products are available in her community.

Entering these characteristics into the estimated equation, the predicted log odds of halal purchase for this 'typical' respondent is 4.3779. The associated probability of halal purchase is 98.8% ($P(Y=1) = e^{4.3779} / (1 + e^{4.3779}) = 79.6705/ (1 + 79.6705) = 0.9876$). The change in probability for halal purchases when each characteristic is changed, one at a time, with respect to the 'typical' respondent is shown in Table 5.7. For instance, retaining all other characteristics, unchanged, the probability of halal purchases would fall by 10.7% if the respondent is aged between 26 and 55; the probability would increase by 17.4% if halal in non-food products is important to the respondent; the probability would drop by 32.8% if halal personal care products are not available in the community where the respondent lives.

The marginal effect analyses also confirm that product availability (*AVAILABILITY*), not *DEVOUTNESS*, has the largest positive effect on halal purchases by a typical Chinese Muslim. Further, halal purchases are most discouraged when products are commercially produced by local companies, due to the lack of confidence by Muslims in their authenticity. Hence, to boost the consumption of halal personal care products by Chinese Muslims, in addition to attention to several other key determinants, what is more crucial is to ensure such products are made available with convenient access, and to gain full confidence by the Chinese Muslims in the authenticity of such products.

Table 5.7 Marginal Effects of Halal Purchases

Variable	Marginal effect
Religious commitment	
FAITH	0.0258
DEVOUTNESS	-0.0043
REL-ACT	0.0029
NON-FOOD	0.1738
Subjective norm	
RELATION	-0.0409
FAMILY	-0.0540
FRI-AHONG	0.0756
Product attributes	
ORIGIN	0.1027
BRAND	-0.0202
LOGO	0.0728
ARABIC	0.0270
TV	0.0180
LOCAL	-0.1786
EXHIBITION	0.0384
PRICE	0.1106
GREEN	-0.0165
Product availability	
AVAILABILITY	0.3277
DISTANCE	-0.0849
Socio-economic and demographic characteristics	
AGE1	-0.0585
AGE2	-0.1073
GENDER	-0.0227
EDUCATION	-0.0339
MARITAL	0.0572
INCOME1	0.0204
INCOME2	0.0426
HOME	-0.0048
Marginal effects after logit,	
y = Pr(C1_BuyHalPC) (predict)	0.1347

5.6 Conclusions and Implications

Based on these surveys in several Muslim-populated regions in northwest China, this study examines key determinants that affect Chinese Muslims' demand for halal products with a focus on halal personal care products. Findings confirm that Chinese Muslims do care about halal authenticity beyond product brands, functions and designs.

Nine potential influential factors were found to significantly affect Chinese Muslims' halal purchases. Six factors have significantly positive impacts on halal personal care product purchase; that is, faithfulness towards Islam, halal ingredients used in non-food products, competitive prices, product availability, trustworthy halal certification, and favourable purchase recommendations by friends or *ahong*. Lack of confidence in locally, large-scale produced halal products, distance to the shopping outlet for halal personal care products, and being in the 26 and 55 age group were found to have significant, negative impacts on halal purchases.

The two most influential determinants are product availability and the lack of trustworthiness in locally, large-scale produced halal products. Different from Muslim-dominant countries, halal products in general and halal personal care products in particular are not always available in China for the Muslim population to buy. This must have deterred their consumption of such products. Even if some halal products are made available, they are not generally trusted by the Muslim consumers. This would also discourage Muslim consumers to care less about halalness in their use of personal care products.

Making trustworthy halal products easily available and accessible to Chinese Muslims is likely to notably boost their consumption. While this helps Muslims in China to fulfil their religious obligations, it also helps to increase economic and market activities. When the Muslim population benefits from improved employment and income opportunities, it can make their community more prosperous and harmonious. It would be highly desirable for industries and government departments in China to work together towards increased provision of trustworthy halal products for Chinese Muslims.

The reality implied by the survey results is that there is a serious supply shortage of halal products, and Chinese Muslims do not trust most of what is available. It is unlikely that governments and industries in China will be able to rectify this situation soon. Although China has sought global expertise and collaboration to increase its halal product output, this will take some time. China's lack of supply of halal products, however, can render

opportunities to Muslim dominant countries, like Malaysia and Indonesia, where halal product production and certification are well established.

For foreign halal products to successfully enter the Chinese Muslim market, the key, according to this survey, is to build, or rebuild, the trust of Chinese Muslims in the halal certification system. Foreign halal producers will have to effectively communicate their legitimate, halal production process to Chinese Muslims using approaches that are acceptable to them (e.g. through channels such as mosques, religious authorities or during mosque festivals). Although these survey results suggest that some marketing tools, such as advertisement and exhibition, do not seem to effectively increase halal purchases, they can still function as valuable educational tools. They can be used to convey crucial messages such as the halal ingredients used in products, the spiritual value that such products offer, and the importance of consuming halal products for Muslims. Building and gaining the trust and confidence of Chinese Muslims is likely to be costly. However, given the potential, such an investment may well be justified. Once trust and confidence are developed, the demand for products will follow and could be substantial.

Some issues concerning Chinese Muslims' consumption of halal products require further research. The literature tends to suggest that Islamic teachings have great influence on Muslims' consumption behaviour. Devoutness is supposed to be one of the determinants that have the most direct influence on halal purchases. This was not confirmed in this study. More studies are needed to provide further verification, or to evaluate whether the effect of devoutness on halal purchases has been explained by other variables. The lack of understanding of the halal concept, and the lack of knowledge of halal certification by Chinese Muslims, also require further research. Given that Chinese Muslims do care about the authenticity of the halal products they consume, future studies of their halal consumption will add to current understandings of this important and growing market.

Thesis Outline

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Chapter 4	Chapter 5	Chapter 6
Malaysia's exports to China: does diplomatic relationship matter? (Aggregate analysis)	Determinants of Chinese Muslims' consumption of halal products: evidence from revealed preference data	Chinese Muslim's choice of halal products: evidence from stated preference data

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┌─────────────────────────────┐
│         Chapter 7           │
│   Synthesis and discussions │
└─────────────────────────────┘
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CHAPTER 6   CHINESE MUSLIM'S CHOICE OF HALAL PRODUCTS: EVIDENCE FROM STATED PREFERENCE DATA

This chapter continues to investigate the attributes of halal personal care products preferred by Chinese Muslims with stated preference data. This chapter has been submitted to the Journal of Asia Pacific Economy for publication.

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Chapter Outline

6.1 Introduction

6.2 A Brief Overview of Muslim Consumers in China

6.3 Literature Review

6.4 Conceptualizing and Designing the Choices

6.5 Method and Data

6.6 Results and Discussion

6.7 Conclusions

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Abstract

This study investigates Chinese Muslims' choices of halal personal care products using choice modelling. Through utility maximization, consumers' choice of halal personal care product is related to their socio-demographic characteristics and product attributes. Then we collect stated preference data from surveys in five cities in western China, in order to test insights provided by this framework. We find that Chinese Muslims prefer low price products to high price products, and favour imported products rather than locally made. However, consumers with experience in purchasing halal personal care products, and who are more faithful to their beliefs are willing to pay more for halal personal care products. This study constitutes an addition to the body of knowledge on halal consumption behaviour, and its findings provide implications for producers intending to enter the Chinese Muslim market.

6.1   Introduction

This study examines the choice of halal personal care products by Chinese Muslims through random utility choice modelling, particularly their preferred attributes regarding halal toothpaste. The Chinese Muslim market is large and lucrative. The total number of Chinese Muslims was projected to be as many as 89 million by 2015 (Masron et al., 2015), and the halal market is growing at an average rate of 10% per annum with the value worth US$2.1 billion in 2013 (Edbiz Consulting, 2013; Yang, 2013). Muslim traders and tourists from all over the world who visit China (estimated 200,000 Arab traders visit the coastal cities to source wholesale consumer goods) are also creating halal demand and opportunities in this country (Simpfendorfer, 2014). This suggests that the halal market is becoming significant with the increasing number of consumers and their purchasing power (Fleishman-Hillard, 2011).

However, alongside these immense opportunities, China's Muslim market is underserved compared with other markets in China. Little is known to date about the magnitude of demand for halal products, or preferences of Chinese Muslims. Producers

face challenges when approaching this market. With limited information and data, preconceptions and misinformation sometimes hinder consumers' positive response to products (Haden, 2015). Helble (2006) states that it is essential to understand the spiritual needs of the market, as it is strongly connected to belief. Thus, as halal enters the realm of business and international trade, understanding consumers and their preferences is indispensable for successful market penetration.

Recently, demand for halal beauty and personal care products is expanding meteorically in Asia (Future Market Insights, 2015). Increasing understanding of halal values and product experience, and sharing by users via social media, have increased Muslims' awareness and demand for non-edible halal products in developing countries (Haden, 2015). However, current demand for halal personal care products in China has not been examined, and empirical research on halal consumption is limited for China (Rehman & Shabbir, 2010; Zhu, 2011).

Thus, this study makes two important contributions to current knowledge about halal consumption in China; firstly, it contributes to the sparse literature in halal consumption studies employing a stated preference data approach and secondly, it identifies halal demand and halal product attributes preferred by Chinese Muslims. Findings from this study will provide important information for policy makers, markets, industry and future studies looking at similar products and markets. The information will help producers identify their market, production and business strategies.

This study is structured as follows; the next section provides an overview of Chinese Muslims, followed by a literature review. The conceptualizing and designing of the choices is presented in Section 6.4. It justifies the use of a stated preference data approach and provides a theoretical background for including socio-economic and demographic characteristics, and other variables, in studies around halal consumption. A discussion of the model and data, and the empirical results follows. The study concludes with policy implications for the halal personal care products market.

6.2   A Brief Overview of Muslim Consumers in China

As a non-Muslim country, China has the ninth largest Muslim population and possesses one of the most dynamic halal markets in the world (Edbiz Consulting, 2013). Chinese Muslims are composed of 10 minority ethnics. Hui, a Muslim minority originated from Chinese Han that makes up almost half the Chinese Muslim population. Uyghur, Kazak, Kyrgyz, Tatar, Salar and Uzbek from Turkic Origins, Dongxiang and Baoan from Mongol origins, and Tajik from Iranian origins make up the other half of the Chinese Muslim population (Li, 2008; Wang, 2008). Most Muslims live in the northwest provinces of the country; Ningxia, Gansu, Qinghai, Xinjiang and Shaanxi (China National Bureau of Statistics, 2012). The availability of halal products is limited in other regions of the country.

Muslim families are patriarchal and traditional. Their lifestyle is more conservative than other ethnic people in China. Their economic ideologies are heavily influenced by Islamic teaching. Wu (2002) summarizes the Islamic economic ideologies into strive production, fair trade, rational allocation and moderate consumption. Halal, thrift and eco-friendliness are three main concerns in Muslim consumption, while wasteful and excessive consumption are considered sinful (Zhu, 2011).

Muslim communities are relatively poor compared to the Chinese Han in Gansu and Xinjiang Province (Mu & Xie, 2009). In Ningxia province, urban Muslims earn 21% less than the Han, however, there is no such gap in rural households (Gustafsson & Sai, 2012). Rural Muslim households earn more than the Han households due to the remittance sent home by young, male Muslims who migrate and work away from the farms (Gustafsson & Sai, 2014). The GDP of Chinese Muslims at purchasing power parity (PPP) was estimated at US$211.5 billion, and GDP per capita at PPP was estimated at US$5300 in 2009 (Hunter, 2012). In general, food expenses account for the biggest portion of total household expenditures (Gillette, 2000a). They will pay higher prices for halal products that are believed to be authentic (Zhu, 2011).

6.3　Literature Review

From an economic point of view, Chinese Muslims' consumption behaviour has not been systematically and empirically studied (Zhu, 2011), though there have been a number of studies from sociology and anthropology perspectives (Chuah, 2004; Cowen, 1985; Dillon, 2000; Gillette, 2000b; Hu, 2012; Israeli, 2012; Mansoor, 2014; Ting, 1958; Wang, 2009; Zhang, 2004). Similarly, the significance of religious values has long been recognized in Chinese Muslims' culture, but has yet to be acknowledged in relation to their consumption behaviours (Rehman & Shabbir, 2010). In addition, most halal consumption studies are conducted in Muslim majority countries, such as Malaysia and Middle Eastern countries (Abdul et al., 2009; Abdul et al., 2013; Lada et al., 2009; Salman, 2011), rather than in non-Muslim countries.

Furthermore, examination of consumption behaviour for halal personal care products is sparse (Ansari & Mohammed, 2015; Husain, Ghani, Mohammad, & Mehad, 2012). Halal consumption research concentrates more on edible items, Islamic finance and halal certification issues (Ariss, 2010; Bonne & Verbeke, 2008; Bonne et al., 2007; Hanzaee & Ramezani, 2011; Rajagopal et al., 2011; Rethel, 2011; Rezai, 2008; Tieman et al., 2013; Verbeke et al., 2013), and most of these studies used a revealed preference (RP) data approach and behavioural study methods (Alam & Sayuti, 2011; Bakar et al., 2013; Kamaruddin, Iberahim, & Shabudin, 2012; Rezai, Mohamed, & Shamsudin, 2012; Salehudin & Luthfi, 2011).

Most economists used revealed preference data to obtain information about choices (Viney, Lanscar, & Louviere, 2002). Revealed preference data (market data) are information gathered based on actual events or life choices (Hensher, Rose, & Greene, 2005). They respond to several important economic behaviour questions, such as what did people buy, how did they use goods and services, how does a rational person react to price change, corporate identity, information, and distribution channels, and the underlying characteristics that created these responses (East, Wright, & Vanhuele, 2013).

In the traditional consumption behaviour study, a consumer is assumed to have well-defined preferences over all feasible alternatives, and will select the most preferred bundle from those available (Miller, 2006). The traditional analysis involves modelling and estimating a consuming process based on memories of consumers and their consumption experience (East et al., 2013; Louviere, Hensher, & Swait, 2000). Analysts use this approach to model the trade-off between various choices, subsequently predicting behaviours.

Nevertheless, the rationality of consumers has sometimes been overemphasized (Grossklags, Johnson, & Christin, 2009). Rationality is defined as "endowed with the capacity to reason" by the Oxford Dictionary (2014). Shugan (2006) argues that consumers may not always have sufficient time and conditions to be reasonable during a purchase. At the same time, choices made are bound by the real constraints that limit choices (Hensher et al., 2005). Moreover, there are consistent choices that cannot be derived using the revealed preference based model (Miller, 2006).

The revealed preference data approach is beneficial for studies that are conducted in a situation where products are common, and are consumed by the community. To the contrary, this approach is less effective in a market that has a non-stable market equilibrium with the possibility of new entrants (Hensher et al., 2005). Sometimes, producers need to estimate demand for a new innovation that has never been traded in the market. However, the properties of the revealed preference data approach that collect data based on consumers' memories and experiences, sometimes limit the obtaining of valid and reliable inferences for real market behaviours (Louviere et al., 2000).

For instance, Salehudin and Luthfi (2011) examined consumer intention on switching from products without a halal label within a wide array of purchasing contexts, by comparing fitness and path coefficients of the structural model between groups of observations using multi-group structural equation modelling. The study shows that the effect of halal labelling on consumer intention varies by product categories, however, the study is unable to identify the differences within product categories that affect the

change of intention. Likewise, many halal purchase intention studies have only focused on factors that influence purchase behaviour, but did not discover details on how a consumer makes choices, and product attributes/specifications that impact the choice decisions (Karim, Rahman, & Ariffin, 2011; Lada et al., 2009; Malai & Pitsuwan, 2005).

Recently, Borzooei and Asgari (2015) conducted a participatory observation in a simulated shopping environment to identify the effect of country of origin on Muslims' purchasing behaviour. Also, a semi-structured, in-depth interview was conducted to elicit perceptions of Muslims for products produced by different countries. Borzooei and Asgari (2015) have taken a step further by applying a simulation method, however, the data was analysed using qualitative methods. They were unable to predict change in choice due to the change in consumers' characteristics, which they considered to be a limitation of their study.

The disadvantages of the revealed preference data approach can be overcome using a stated preference data. The stated preference data approach is employed to study, describe, explain and predict choices among alternatives that have been pre-determined. It is a self-reported decision protocol, where a person is asked about choices that might be made in hypothetical situations, regardless of the presence of goods and services, or real purchases and consumption (Hensher et al., 2005). The stated preference data approach is useful when there are limitations in data availability due to new goods or services, or fewer, provided in a market context, or there is insufficient variety in actual choices to allow analysis of the attributes of interest (Viney et al., 2002).

Additionally, the stated preference data approach has the advantage of robustness compared to the revealed preference data approach. According to Mangham (2009), consumers attach different values to different product attributes, and derive utilities associated with product composing attributes and attribute levels, which in turn affects the motivation to purchase. With the hypothetical properties of stated preference data, attributes can be easily introduced or removed from products and services, which is almost impossible with actual markets (Adamowicz & Deshazo, 2006). Hence, the

flexibility of stated preference data allows the analyst to decide attributes according to the objectives of the research, or attributes that are within the interest of the producers.

6.4   Conceptualizing and Designing the Choices

This is an attribute-based discrete choice (DC) technique, based on the assumption that an individual's valuation of a product depends upon levels of product attributes (Hanley & Wright, 2001). Hence, conceptualizing the choice process is a crucial part of discrete choice modelling (Viney et al., 2002). Through this process, the decision-making context of the study objectives (Chinese Muslims and their backgrounds) was investigated, using products and their attributes, which are likely to be familiar and available to respondents. Methods around how to present choices to the respondents, how respondents would interpret the alternatives, and factors that were likely to be important in the whole decision-making process were carefully considered. Reasons for employing this method for this study are justified in the following paragraphs.

6.4.1   Choice Modelling with Stated Preference Data

"Choice study supports the view that heuristic rules are the proximate drivers of most human behaviour" (McFadden, 2001, p. 362). Understanding human choice behaviour is an essential part of Economics (McFadden, 1974). Choice modelling has become increasingly popular in choice behaviour studies since the 1980s (Lazari & Anderson, 1994). It is also becoming a common research technique in logistics, health economics and environmental economics studies, addressing a wide range of policy matters (Bekker-Grob, Ryan, & Gerard, 2012; Ben-Akiva & Boccara, 1995; Hanley, Mourato, & Wright, 2001), but it is yet to be used in studies of halal consumption. The purpose for undertaking a choice study is to explain the reasons why individuals reside at different points along the same distribution (Hensher et al., 2005). In other words, the ultimate goal is to be able to predict the decision making behaviour of a group of individuals (Adamowicz, Louviere, & Swait, 1998).

Choice is unburdened by supply constraints in a stated preference data approach (Hensher et al., 2005). In choice modelling with a stated preference data approach, the researcher designs and decides what data to collect. Through choice modelling with stated preference data, an analyst is able to understand how individuals' value elected attributes of products or services by getting respondents to state their choice for different hypothetical alternatives (Mangham et al., 2009). The task of the analyst is therefore, to make the hypothetical scenarios as realistic as, and as meaningful, as possible (Hensher, Rose, & Packett, 2009).

Further, choice modelling with stated preference data is efficient in producing predictions that are consistent with economic theory (Louviere et al., 2000). It's strong theoretical foundation relies on assumptions of economic rationality and utility maximization (Mangham et al., 2009). According to McFadden (2001), consumers are heterogeneous in their unobserved characteristics (ε_{ij}). It is only possible to predict and explain choices by consumers, up to the probability of an alternative being chosen, given the available information. It is impossible to measure or observe every single characteristic that influences behaviours in the real world, due to some randomness which exists across individuals (Louviere et al., 2008). Therefore, random utility hypothesis is applied in the choice model to resolve this randomness (Brown & Walker, 1989).

The random utility choice model assumes that choice is a discrete event (choice is not a continuous dependent variable), and utility towards a product varies across individuals as a random variable. The random utility choice model has been fully developed and applied in previous literature. Random Utility Theory assumes that, given a set of alternatives j = 1, 2, ..., j, a rational consumer will choose the alternative that provides the highest utility. Although utility cannot be directly observed, it can be estimated by observing individuals' choices through data.

6.4.2   Why Stated Preference Data?

Characteristics of Chinese Muslims are related to product attributes through random utility choice modelling by employing the stated preference data. Stated preference data was employed for the following reasons:

First, the choice modelling with stated preference data approach allows simulated and hypothetical scenarios, which is efficient in predicting preferences of consumers, even though the product has not been used or exists in the market (Louviere et al., 2000). In choice modelling with stated preference data, the stated preferences of individuals are derived from surveys designed to simulate market-based choices. Scenarios are constructed from combinations of attributes or elements (Viney et al., 2002). Halal personal care products are not common and have not been widely used by Chinese Muslims. Hence, the stated preference data approach can predict their consumption choice more efficiently compared to the revealed preference data approach.

Second, the product is associated with religious belief. Apart from the functional values, market choices are also influenced by social values that are attached to a product due to its association with social groups (Xiao & Kim, 2009). Religious belief is not a tangible product that can be quantified, but it is a very important, unobserved characteristic in determining Muslim consumption behaviour.

Third, almost all Chinese consumers use personal care products, but not all Chinese Muslims use halal personal care products. There are both observed and unobserved characteristics of consumers that use halal personal care products. To deal with the unobserved characteristics, the random utility choice model is the most suitable to tackle the randomness.

6.4.3   Selection of Appropriate Product for the Study

There are plenty of halal personal care products available in the market, such as soap, toothpaste, perfume, shampoo, body lotion, hair gel, shaving gel, face cleanser and many more. Through the most common online shopping websites in China, such as

Taobao and Tianmao, halal toothpaste is one of the most commonly known and available halal personal care products to Chinese Muslims.

Also, most consumers are familiar with the attributes of toothpaste, regardless of whether they have experience in consuming halal toothpaste or otherwise. This will help in simplifying the survey process. Further, toothpaste has low symbolic religious value, which means its attributes, such as packaging, price, halal logo, brand and corporate image, play significant roles as visual cues in influencing the purchase intention (Bakar et al., 2013). On the other hand, halal toothpaste is significantly different from common toothpaste in terms of ingredients. In general, toothpaste is made with gelatine extracted from pig or unknown animal-based sources, while halal toothpaste is produced with halal gelatine from bovine sources.

6.4.4   Selection of Attributes and Assignment of Elements

Attributes and elements, reflecting the range of possible situations that respondents might expect from the products, describe the hypothetical scenario of the research. According to McFadden (2001), selecting and using the most appropriate attributes for the study is the first step in the choice modelling. As mentioned before, the application of choice modelling to halal consumption is rare. So toothpaste attributes were constructed based on halal consumption studies that employed revealed preference data approaches. From these studies, important halal product attributes were categorized into price and non-price related categories, illustrated in Figure 6.1.
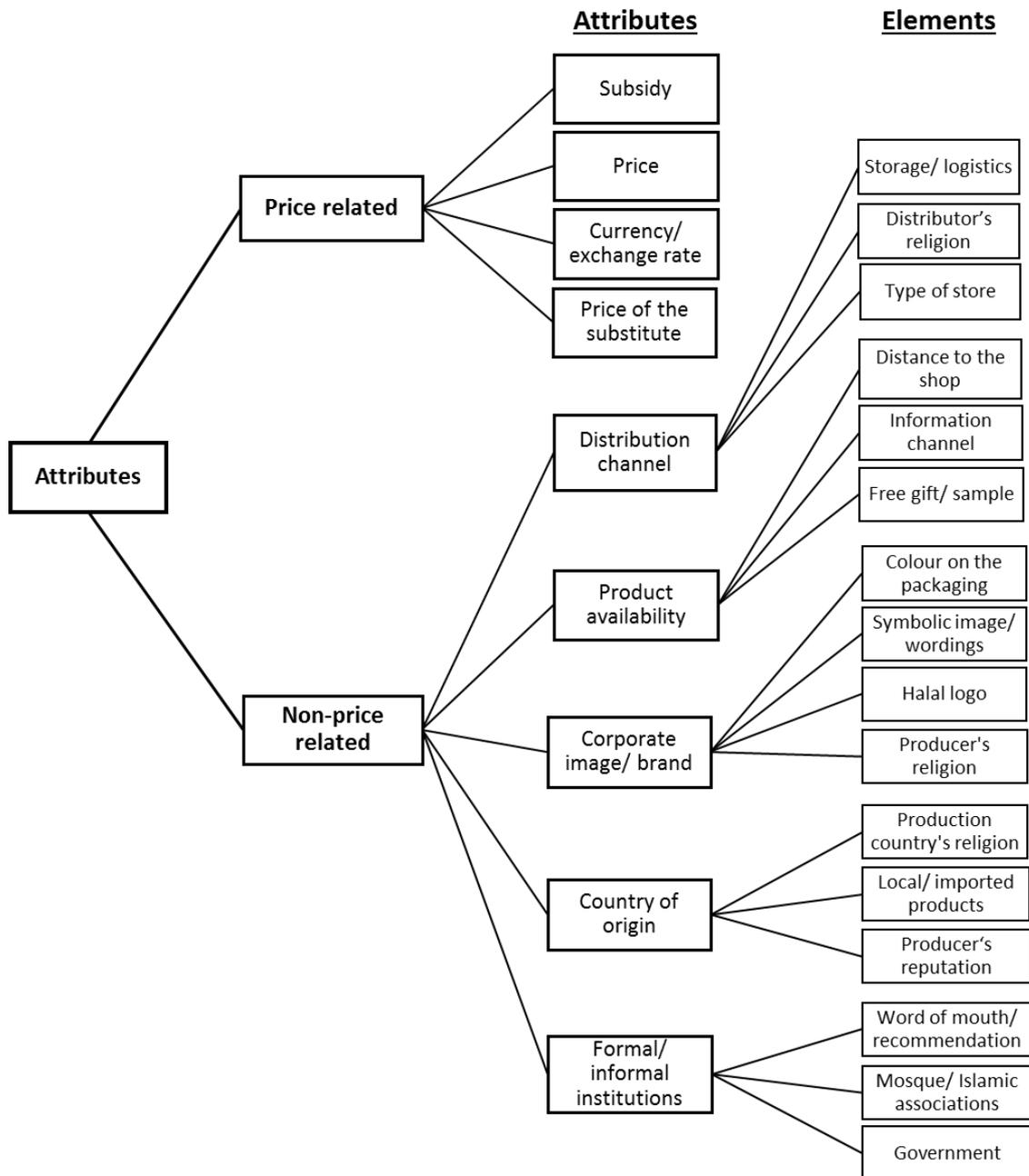
Figure 6.1 Summary of halal toothpaste attributes from literature

The framework in Figure 1 is based on studies by Abdul et al., (2009); Alam et al., (2011); Bakar et al., (2013); Borzooei & Asgari, (2015); Haque et al., (2011); Kamaruddin et al., (2012); Karim et al., (2011); Lada et al., (2009); Lai, et al., (2010); Majid et al., (2015); Malai & Pitsuwan, (2005); Mohtar et al., (2014); Phuah & Jusoh, (2013); Rahim et al., (2015). A summary of these studies are listed in Appendix 3.

The price category consists of subsidies, price, currency or exchange rates, and prices of substitutes. While the non-price category involves a wider scope of attributes; distribution channels, product availability, corporate image or brand, country of origin, and institutions. Each attribute has elements that influence consumers' choice under difference circumstances.

Figure 6.2 illustrates attributes and elements that were shortlisted for this study; price, type of store, and the country of origin. These final attributes and elements were chosen according to the objectives of the study. Also, they are relevant to consumers, and pertinent to producers. The trade policy context has been considered as well (Hanley et al., 2001). These attributes and elements are useful in predicting how Chinese Muslims choose halal toothpaste under different circumstances, and respond to the concerns of halal producers. At the same time, although there is no restriction on the number of attributes and elements that can be included in the choices, for practical purposes, they were limited to a number (three) that is easy for respondents to consider within a reasonable time frame. The levels within each attribute are mutually exclusive, and collectively exhaustive.
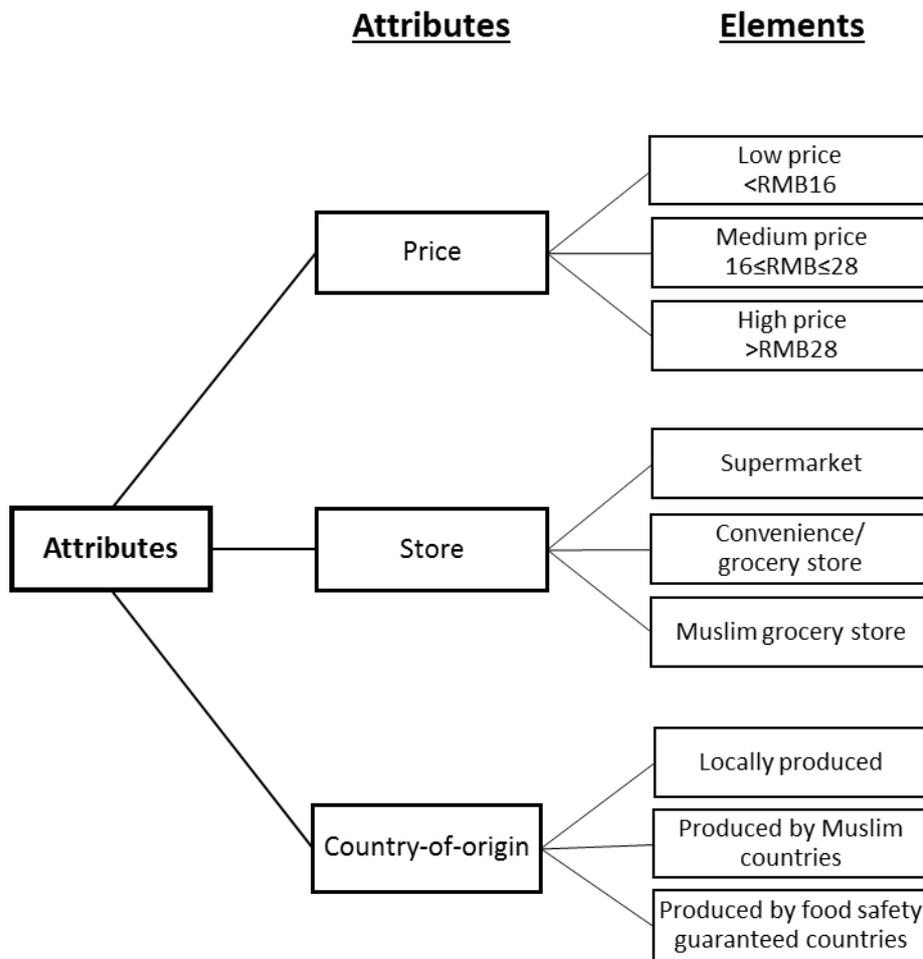
Figure 6.2 Attributes and elements of toothpaste considered in the Study

6.4.4.1 Price

Price is an important attribute, especially for a new product entering a competitive market. Appropriate pricing strategy will help the product penetrate the market more quickly. The classical law of demand suggests that price is one of the most important attributes evaluated by consumers. In addition, some Muslims may associate price with quality and authenticity for a halal product (Alam et al., 2011; Borzooei & Asgari, 2015).

Through several online shopping websites in China, prices were collected for toothpaste sold in China, including imported halal toothpaste. The collected information was classified into three categories:

1. Low price: less than 16 yuan (< US$2.50)
2. Medium price: 16 yuan to 28 yuan (2.50≤ US$ ≤ 4.30)

3. High price: more than 28 yuan (>US$4.31)[2]

6.4.4.2 Store

In China, halal products are only available in Muslim shops. Chinese Muslims associate the venue of consumption with the authenticity of halal products, so Muslims believe that only Muslim shops sell authentic halal products (Kamaruddin et al., 2012). However, the market size of halal toothpaste will be constrained if halal toothpaste is only available in halal shops that are only accessible to Muslims who live in the Muslim majority regions in China. Therefore, this study will also investigate if Chinese Muslims would also purchase halal toothpaste that is sold in supermarkets and ordinary stores. Three types of store are included:

1. Supermarket
2. Convenience/ grocery store
3. Muslim grocery shop

6.4.4.3 Country of Origin

Muslims may also associate halal authenticity with the country of origin of a product. Country of origin is usually represented by the phrase "Made in…" (Bilkey & Nes, 1982). Country of origin sometimes carries a message of product quality, durability and authenticity (Hooley, Shipley, & Krieger, 1988). For example, consumers prefer machines made in the US, rather than Brazil (Bilkey & Nes, 1982). Country of origin information affects product evaluations, and influences consumer purchasing decisions.

Muslim consumers are not always aware of the authenticity of halal products from international brands, because companies do not always advertise or communicate this through advertising or packaging (Fleishman-Hillard, 2011). According to Borzooei and Asgari (2015), Muslims may perceive products made in Muslim countries as being more Shariah (Islamic law) compliant than products from non-Muslim countries. Islam's

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[2] At the time of administration, there was a minor mistake on the questionnaire, which the price was stated as equal to or above 29 yuan.

centricity causes Muslims to have a tendency to buy products from Muslim countries (Karim et al., 2011). Similarly, study by Malai and Pitsuwan (2005) found that a halal logo attached to a halal product issued by Muslim and non-Muslim countries has a different level of influence on Muslim's intention to buy that particular product. Therefore, three elements were included in the research:

1. Locally produced
2. Produced by Muslim countries, such as Turkey, or an Arab country
3. Produced by food safety guaranteed countries, such as Australia.

6.4.5 Construction of Choices (Alternatives)

Altogether, 27 sets of alternatives were generated by a full factorial design using three attributes with three elements for each attribute. The questionnaire was pretested on 21 Muslim respondents living in Townsville, Queensland. Pretesting a questionnaire provides an opportunity to observe how cognitively demanding the questionnaire is for respondents to complete. The pretesting suggested that 27 sets of alternatives were too many to be evaluated by a respondent. Therefore, the 27 sets of alternatives were randomly assigned to nine groups of sets of alternatives via the RAND function in Excel (for randomness), with each group having three sets of alternatives. Each respondent then had to choose one set of alternatives, from one of the nine groups of sets of alternatives.

6.4.6 Demographic Characteristics

As mentioned previously, this study examines Chinese Muslims' choice of halal toothpaste by relating their socio-economic and demographic characteristics with product attributes using random utility choice modelling. First, it is necessary to decide what significant characteristics to include in the model so the relative influence of different attributes of alternatives, and characteristics of decision makers, may be determined (Koppelman & Bhat, 2006).

Classical consumer theory states that an individual derives utility of consumption based on the functional value of the product. In belief related consumption, consumer's choice

involves the emotional value that can be obtained from consuming a product, which also reinforces commitment and values to the belief. Muslim consumption behaviour is influenced heavily by religion (Cheng, 2012), where religiosity affects the way Muslims shop and the consumption ethic in Muslim markets (Mokhlis, 2009; Vitell et al., 2005). Religiosity also leads consumers to look for religious symbolism and increases the tendency of Muslims to buy products with religious symbols on the packaging, particularly for low symbolic value products (cosmetics, tobacco, etc.) (Bakar et al., 2013). Further, religiosity also determines the Muslim's purchasing intention on non-food items (Borzooei & Asgari, 2015).

Nonetheless, the level of religiosity varies across individuals with the same belief. Individuals with different levels of religiosity perceive consuming halal differently. Shaari and Arifin (2010) argue that halal purchase intention is influenced by seven dimensions; solidarity, certainty, universality, purity, conformity, halalness, the venue where consumption takes place, and information about products. In addition, types of formal education, family influences, culture, exposure and participation in religious related activities and environmental backgrounds are also found to be influential (Krauss et al., 2005; Mokhlis, 2009; Vitell et al., 2005). Mu and Xie (2009), Lada et al. (2009), and Shaari and Arifin (2010) emphasize that regularity of attendance at religious services, religiosity, age, type of education, household income, family influence, and size of the family are important socio-economic and demographic factors that influence Muslim household consumption.

A study by Phuah and Jusoh (2013) on the roles of socio-economic and demographic factors on the consumption of halal cosmetics found that only people who studied religion were likely to use halal cosmetics and personal care products, compared with those who had actually attended formal, religious school. Similarly, Haque et al. (2011) and Kamaruddin et al. (2012) conclude that Muslim ethnocentrism plays a greater role in halal consumption than religiosity.

Additionally, as a collectivist community, Muslim consumption behaviour also varies according to ethnic background and local norms (Alam & Sayuti, 2011). For research

conducted in a multicultural community, ethnicity and nationality are also important factors (Abdul et al., 2009; Borzooei & Asgari, 2015; Lada et al., 2009; Phuah & Jusoh, 2013; Shaari & Arifin, 2010). Similarly, consumption studies have found that socio-economic and demographic factors, such as age, gender, marital status, and income are most commonly found to affect consumers' purchasing decisions (Abrahamse & Steg, 2009; Ajzen, 1991; Lancaster, 1966). In addition, many studies reveal that socio-economic and demographic characteristics are related to halal purchasing (Borzooei & Asgari, 2015; Kamaruddin et al., 2012; Malai & Pitsuwan, 2005; Shaari & Arifin, 2010).

Further, as specified by the Marshallian demand function, consumer's choice is assumed to be defined by prices and income (Zaratiegui, 2002). Finally, one demographic factor that makes the Muslim market particularly attractive to a variety of companies is the large number of young and emerging middle class consumers looking to increase their consumption (Fleishman-Hillard, 2011). Hence, in this study demographic factors including faithfulness (self-rated), age, income, marital status, distance to the halal shop, size of family, and purchase of halal personal care products were included.

6.5   Method and Data

6.5.1   The Model

Let M denote the set of consumers and J denote the set of available alternatives of different toothpastes. A rational consumer m ($m \in M$) derives utility from consuming toothpaste j in the following way:

$$U_{mj} = V_{mj} + \varepsilon_{mj}, j = 1, \dots, J; m \in M \tag{1}$$

where U is the utility; V is a determinant component, and $V_{mj} = X'_m \beta_j$, where X is a vector of consumer characteristics; and ε is a random component that is observed by the consumer, but not observed by researchers, and is identically and independently distributed across all m and j. The rational consumer will compare the utilities of purchasing all available alternatives (U_{mj}) and choose the one that yields the highest utility. Subsequently the probability of consumer m purchasing toothpaste j can be written as follows:

$$Prob(Y_m = j) = \text{Prob}\left[(V_{mj} + \varepsilon_{mj}) > (V_{mi} + \varepsilon_{mi})\right], \forall j \neq i \in J$$

where Y_m is a random variable that denotes the choice that consumer m selects. Further assume ε_{mj} to be type 1 extreme value distribution, the probability of consumer m purchasing toothpaste j can be written as:

$$Prob(Y_m = j) = \frac{e^{X'_m \beta_j}}{\sum_{j=1}^{J} e^{X'_m \beta_j}} \tag{2}$$

$$Prob(Y_m = j) = \frac{e^{X'_m \tilde{\beta}_j}}{1 + \sum_{j=2}^{J} e^{X'_m \tilde{\beta}_j}}, \; j = 2, \ldots, J \qquad , \; j = 1 \text{ is the base category; } \beta_1 = 0$$

where the alternative 1 is chosen as the base option, and $\tilde{\beta}_j = \beta_j - \beta_1$.

Equation (2) is the multinomial logit model to which data were fit subsequently to estimate the parameters $\tilde{\beta}_j$s. The vector X_m includes age, marital status, annual income, level of faithfulness, a consumer's experience in purchasing halal personal care products, distance from home to the nearest halal shop, and total number of household members shown in Table 6.1.

Table 6.1 Definition of Independent Variables

Explanatory variables	Definitions
Age	Age, 1 = Age of 25 or below, 0 otherwise
Single	Marital status, 1 = Single, 0 otherwise
AnIncome	Annual income, 1 = < RMB12000, 0 otherwise
Faith	Level of faithfulness, that takes a value between 0 and 10 with 0 denoting being least faithful and 10 denoting being most faithful
PurchHPC	Purchase of halal personal care products, 1 = Purchase, 0 = otherwise
DistKM	Distance from home to the nearest halal shop (in kilometers)
HsMem	Total number of household members

One important assumption of the multinominal logit model is the independence of irrelevant alternatives (IIA). In subsequent empirical exercises, the IIA assumption was also tested for. Results show that all odds (Outcome-J vs Outcome-K) are independent of other alternatives.

6.5.2 Survey and Data

Surveys were conducted in five cities (Xi'an, Wuzhong, Yinchuan, Linxia, and Lanzhou) in Shaanxi, Gansu and Ningxia provinces in China. As statistics for Chinese Muslim households are not collected by the government, respondents were selected by chance, and therefore are independent of each other, at mosques, squares and gardens, *Quran* classes, and Muslim shopping areas. With this process of selection, some element of randomness was produced.

Precise and concrete statements were created about a hypothetical situation. A Chinese Muslim was asked to choose their preference for medium sized, halal toothpaste weighing approximately 125g. Rational Chinese Muslims were presented with the nine groups of alternatives. Again, RAND from Excel was applied to pick an alternative group from the nine groups. Then the respondents were asked to choose the best alternative out of three sets of alternatives from the group. Holding everything else constant, it is presumed the consumer will choose the alternative that provides the highest utility.

Altogether, 506 surveys were collected; 200 from Xi'an city, 198 from Gansu province, and 108 from Ningxia province. After filtering, 86% of surveys were usable. Of the 435 responses from the survey, only 22% reported to have experience in purchasing halal personal care products. A survey of students' awareness and usage intentions towards halal labelled cosmetics and personal care products in Malaysia by Phuah and Jusoh (2013) found that only 74.6% of respondents reported using halal cosmetics and personal care products. This situation shows that, although Malaysia is a Muslim majority country, awareness of consuming halal personal care products is not universal. Among halal personal care products, toothpaste was the most popular purchase by respondents, followed by soap.

The sample consisted of slightly more female respondents (52.3%) and 49.7% of respondents were single (Table 6.2). The largest proportion of respondents were in the 17 to 25 age group (47% of the total sample), and slightly more than half the respondents (50.4%) were adults with college or university degrees. In terms of income,

55.6% of the respondents have an annual income below RMB12,000 per year. This figure coincides with the average annual income of families in northwest China (Wong, 2013).

Table 6.2 Summary Statistics of Independent Variables

Variables	Obs	Mean	Std. Dev.	Min	Max
Age	453	0.4857	0.5003	0	1
Single	455	0.4967	0.5005	0	1
AnIncome	448	0.5558	0.4974	0	1
Faith	454	7.5837	2.3475	0	10
PurchHPC	455	0.2242	0.4175	0	1
DistKM	407	3.1724	7.8816	0	80
HsMem	452	4.5708	1.4806	1	10

6.6   Results and Discussion

The choice of halal toothpaste was estimated using a multinomial logit model by collapsing 27 sets of alternatives into two, four, six and nine categories to increase the precision of the estimation. Finally, it was decided that six categories of alternatives give the best estimation for this case, so *Store* was aggregated. Table 6.3 displays a summary of the frequency for the six categories of alternatives. Among the responses, imported, low price, toothpaste (C1) is the most-popular choice, followed by locally produced, low price, toothpaste. In contrast, locally produced, high price toothpaste is the least chosen option. In short, the survey shows that most people prefer low price toothpaste, and are more likely to choose an imported rather than a locally produced product. This indicates that price is an important consideration in the choice of halal personal care products by Chinese Muslims.

Table 6.3 Summary of Alternatives, in Percentage

Category	Dependent variables	Frequency	%
C1	Imported, low price	113	24.84
C2	Imported, high price	58	12.75
C3	Imported, medium price	80	17.58
C4	Locally produced, low price	103	22.64
C5	Locally produced, high price	34	7.47
C6	Locally produced, medium price	67	14.73

6.6.1.1   Reporting Coefficients

Table 6.4 presents the estimates of the multinomial logit model coefficients for the different alternatives. The likelihood ratio (LR), which is chi-square distributed, is 61.07 with a *p*-value of 0.0041, suggests the model is overall significant. The estimated coefficients of three variables (*Single*, *Faith* and *PurchHPC*) are positive and significant at the 5% level in C2. In C3, the coefficients of *Age*, *Single* and *HsMem* are statistically significant. For alternatives of locally produced toothpaste, the coefficients of *Age* and *HsMem* are statistically significant for low price alternative (C4), while the coefficient of *PurchHPC* is statistically significant for high price alternative (C5). For the medium price alternative (C6), the coefficients of *Age*, *Single*, *AnIncome* and *Faith* are statistically significant. Overall, distance is not a significant characteristic influencing Chinese Muslims' choice of halal toothpaste.

Table 6.4 Model Coefficients for the Different Combinations of Outcomes

Category	Imported High price (C2)			Imported Medium price (C3)			Locally produced Low price (C4)			Locally produced High price (C5)			Locally produced Medium price (C6)		
Variables	Coef		Std. Err	Coef		Std. Err	Coef		Std. Err	Coef		Std. Err	Coef		Std. Err
Age	-0.2837		0.5585	-1.0918	**	0.5038	-0.9830	**	0.4764	-0.0199		0.6349	-1.2486	**	0.5258
Single	1.1663	**	0.5603	1.1834	**	0.5026	0.5631		0.4724	-0.5639		0.6433	0.9804	*	0.5269
AnIncome	-0.1798		0.4181	-0.0970		0.3737	0.4311		0.3503	0.7513		0.4947	0.7512	*	0.3888
Faith	0.1898	**	0.0894	0.0274		0.0707	0.0485		0.0688	0.1143		0.1033	0.1607	**	0.0811
PurchHPC	0.9546	**	0.3874	0.4424		0.3832	-0.1208		0.3894	1.0332	**	0.4614	0.1817		0.4084
DistKM	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000
HsMem	-0.1331		0.1137	-0.1881	**	0.1057	-0.2369	**	0.0998	-0.2262		0.1421	-0.0862		0.1053
Constant	-2.1365		0.8960	0.1761		0.7154	0.5816		0.6898	-1.5391		1.0119	-1.7271		0.8184

Base category	Imported, Low price (C1)
No of obs	435
LR chi2(35)	61.07
Prob > chi2	0.0041
Pseudo R2	0.0406
Log likelihood	-721.655

Note: significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.

From equation (2), $\partial \ln\left(\frac{Prob(Y_m=j)}{Prob(Y_m=1)}\right)/\partial x_{mk} = \tilde{\beta}_{jk}$, can be derived, where x_{mk} is the kth component of the consumer characteristic vector X_m which is a continuous variable and $\tilde{\beta}_{jk}$ is the associated coefficient. If x_{mk} is a discrete dummy variable, $\ln\left(\frac{Prob(Y_m=j|x_{mk}=1)}{Prob(Y_m=0|x_{mk}=1)}\right) - \ln\left(\frac{Prob(Y_m=j|x_{mk}=0)}{Prob(Y_m=0|x_{mk}=0)}\right) = \tilde{\beta}_{jk}$. In other words, the estimated coefficients $(\tilde{\beta}_{jk})$ in Table 4 can be interpreted as the relative log odds of choosing alternative j against choosing alternative 1 (base set) that occurs due to a change in x_{mk}.

In C2, the coefficient of *Single* (a dummy variable) is estimated to be 1.1663. In other words, holding everything else constant, a single Chinese Muslim will have 1.1663% higher log odds of choosing C2 (an imported, high price toothpaste) against choosing C1 (an imported, low price toothpaste), than a non-single Chinese Muslim. Similarly, the coefficient of *Faith* is estimated to be 0.1898, which suggests that a one degree increase in faith results in 1.2% higher log odds of choosing C2 (an imported, high price toothpaste) over C1 (an imported, low price toothpaste), holding everything else constant. Finally, the coefficient of *PurcHPC* (a dummy variable) is estimated to be 0.9545. In other words, holding everything else constant, a Chinese Muslim purchasing halal personal care products will have 0.9545% higher log odds of choosing C2 (an imported, high price toothpaste) than choosing C1 (an imported, low price toothpaste), compared to a Chinese Muslim who does not purchase halal personal care products.

In C3, the coefficient of *Age* (a dummy variable) is estimated at -1.0918. In other words, holding everything else constant, a Chinese Muslim, 25 years or younger, has 1.0918% lower log odds of choosing C3 (an imported, medium price toothpaste) than choosing C1 (an imported, low price toothpaste), compared to a Chinese Muslim who is older than 25 years. Additionally, the coefficient of *Single* (a dummy variable) is estimated to be 1.1834. In other words, holding everything else constant, a single Chinese Muslim has 1.1834% higher log odds of choosing C3 (an imported, medium price toothpaste) than choosing C1 (an imported, low price toothpaste), compared to a non-single Chinese Muslim. Finally, the coefficient of *HsMem* is estimated to be -0.1881, indicating that the log odds of choosing C3 (an imported, medium price toothpaste), rather than C1 (an

imported, low price toothpaste) is 0.1881% lower if the number of household members increases by one person, holding everything else constant.

In C4, the coefficient of *Age* (a dummy variable) is estimated to be -0.9830. In other words, holding everything else constant, a Chinese Muslim aged 25 years or below will have 0.9830% lower log odds of choosing C4 (a locally produced, low price toothpaste) compared to C1 (an imported, low price toothpaste), than a Chinese Muslim older than 25 years. Similarly, the coefficient of *HsMem* is estimated to be -0.2369, indicating that the log odds of choosing C4 (a locally produced, low price toothpaste) rather than choosing C1 (an imported, low price toothpaste) will be 0.2369% lower if the number of household members increases by one person, holding everything else constant.

In C5, the coefficient of *PurcHPC* (a dummy variable) is estimated to be 1.0332. In other words, holding everything else constant, a Chinese Muslim who already purchases halal personal care products will have 1.0332% higher log odds of choosing C5 (locally produced, high price toothpaste) against choosing C1 (an imported, low price toothpaste), compared to a Chinese Muslim who does not purchase halal personal care products.

Lastly, the coefficient of *Age* (a dummy variable) is estimated at -1.2486 for C6 (a locally produced, medium price toothpaste). In other words, holding everything else constant, a Chinese Muslim aged 25 years or younger will have 1.2486% lower log odds of choosing C6 (a locally produced, medium price toothpaste) compared with choosing C1 (an imported, low price toothpaste), than a Chinese Muslim older than 25 years. In contrast, the coefficient of *Single* (a dummy variable) is estimated to be 0.9804. In other words, everything else being constant, a Chinese Muslim who is single will have 0.9804% higher log odds of choosing C6 (a locally produced, medium price toothpaste) against choosing C1 (an imported, low price toothpaste), than a non-single Chinese Muslim.

Similarly, the coefficient of *PurcHPC* (a dummy variable) is estimated at 0.1817; which means, holding everything else constant, a Chinese Muslim who purchased halal personal care products will have 0.1817% higher log odds of choosing C6 (a locally

produced, medium price toothpaste) against choosing C1 (an imported, low price toothpaste). Finally, the coefficient of *Faith* is estimated to be 0.1607, suggesting a one-degree increase in faith leads to 0.1607% higher odds of choosing C6 (a locally produced, medium price toothpaste) compared to C1 (an imported, low price toothpaste), holding everything else constant.

6.6.1.2 Analysis of predicted probabilities

As discussed by Wulff (2014), the sign of coefficient from a multinomial logit estimation does not determine the direction of the relationship between an independent variable and the probability of choosing a specific alternative. Therefore, the predicted probabilities need to be computed, as shown in Table 6.5. The probability of a Chinese Muslim choosing an imported, low price halal toothpaste is 0.25. Among the six alternatives of toothpastes with different attributes, locally produced, high price halal toothpaste has the least probability (0.08) of being chosen.

Table 6.5 Predicted Probabilities

Categories	Dependent variables	Obs	Mean	Std. Dev.	Min	Max
C1	Imported, low price	435	0.2506	0.0872	0.0589	0.7005
C2	Imported, high price	435	0.1287	0.0709	0.0107	0.3867
C3	Imported, medium price	435	0.1770	0.0521	0.0471	0.3779
C4	Locally produced, low price	435	0.2184	0.0636	0.0228	0.3859
C5	Locally produced, high price	435	0.0759	0.0448	0.0121	0.3098
C6	Locally produced, medium price	435	0.1494	0.0521	0.0400	0.3574

6.6.1.3 Marginal effects

Table 6.6 reports the marginal impact of X_m on the probability of choosing a particular alternative of toothpaste. Marginal effects provide more intuitive information that is not available from the interpretation of coefficients (Wulff, 2014). Table 6.6 shows that when a consumer is aged 25 or below, the tendency to choose imported, low price toothpaste increases by 16.1%. However, this likelihood reduces by 9% when it comes to choosing locally produced, medium price toothpaste for the same consumer. Similarly, when the consumer is a single, Chinese Muslim, the likelihood they will select imported, low price toothpaste decreases by 14.5%.

Table 6.6 Marginal Effects

Category	Imported Low price (C1)			Imported High price (C2)			Imported Medium price (C3)			Locally produced Low price (C4)			Locally produced High price (C5)			Locally produced Medium price (C6)		
Variables	dy/dx		Std. Err	dy/dx		Std. Err	dy/dx		Std. Err	dy/dx		Std. Err	dy/dx		Std. Err	dy/dx		Std. Err
Age	0.1605	**	0.0704	0.0413		0.0504	-0.0804		0.0593	-0.0747		0.0647	0.0432		0.0389	-0.0900	*	0.0542
Single	-0.1448	**	0.0686	0.0679		0.0505	0.1065	*	0.0600	-0.0054		0.0642	-0.0818	**	0.0400	0.0576		0.0551
AnIncome	-0.0552		0.0526	-0.0482		0.0395	-0.0578		0.0472	0.0463		0.0485	0.0365		0.0280	0.0784	*	0.0402
Faith	-0.0180	*	0.0103	0.0142	*	0.0083	-0.0079		0.0088	-0.0050		0.0100	0.0031		0.0062	0.0136		0.0090
PurchHPC	-0.0724		0.0488	0.0914	**	0.0439	0.0238		0.0479	-0.0857	*	0.0451	0.0619	*	0.0368	-0.0191		0.0404
DistKM	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	*	0.0000	0.0000		0.0000
HsMem	0.0334	**	0.0142	-0.0001		0.0107	-0.0102		0.0136	-0.0234		0.0147	-0.0066		0.0086	0.0069		0.0118

Note: significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.

Of an individual's overall expenses, the share of toothpaste cost is small and income appears not to make a significant impact on the choice of toothpaste, except for locally produced, medium price toothpaste. The likelihood of choosing locally produced, medium price toothpaste increases by 7.8% when an individual's income increases by one Renminbi. However, compared to income, faith plays a more important role. The likelihood of choosing imported, high price toothpaste increases by 1.4% with a one degree increase in faith; however the likelihood decreases by 1.8% when it comes to choosing imported, low price toothpaste. This result suggests that more faithful Muslims are more willing to pay for imported, higher price halal toothpaste.

On the other hand, consumers who purchase halal personal care products (*PurchHPC*) have a higher tendency to choose high price categories (C2 and C5). The likelihood rises by 9.1% and 6.2% for selecting imported and locally produced high price toothpastes; however, the tendency decreases slightly (4.5%) when it comes to choosing a locally produced, low price toothpaste. The distance to a shop has a comparatively small, marginal effect on the choice of halal toothpaste, compared to other independent variables in this study. Muslims are obliged to use halal, and so distance may not be an important consideration in their purchasing behaviour. Finally, the likelihood of choosing imported, low price toothpaste increases by 3.3% when the number of household members increases by one person.

6.7   Conclusions

This study examines the consumption behaviour for halal toothpaste by Chinese Muslims, using stated preference data and a multinomial logit model. Results show that Chinese Muslims prefer imported, halal toothpaste to a locally produced product. It could be that, due to the widespread product counterfeiting and food safety issues that have been bothering the Chinese since the 1990s, Chinese Muslims have higher trust on the authenticity and product safety of imported products. For both low, and high price toothpastes, Chinese Muslims are likely to choose imported toothpaste rather than a locally produced product. On the other hand, Chinese Muslims' choice of toothpaste does change with changes in price. Even though toothpaste is not a high price product,

a few yuan of changes is enough to change consumers' choice. This study found that low price toothpaste is favoured more by Chinese Muslims than high price toothpaste, holding everything else constant. However, Chinese Muslims with strong faith in their beliefs, and who have previously purchased halal personal care products, are still willing to pay a higher price for halal toothpaste.
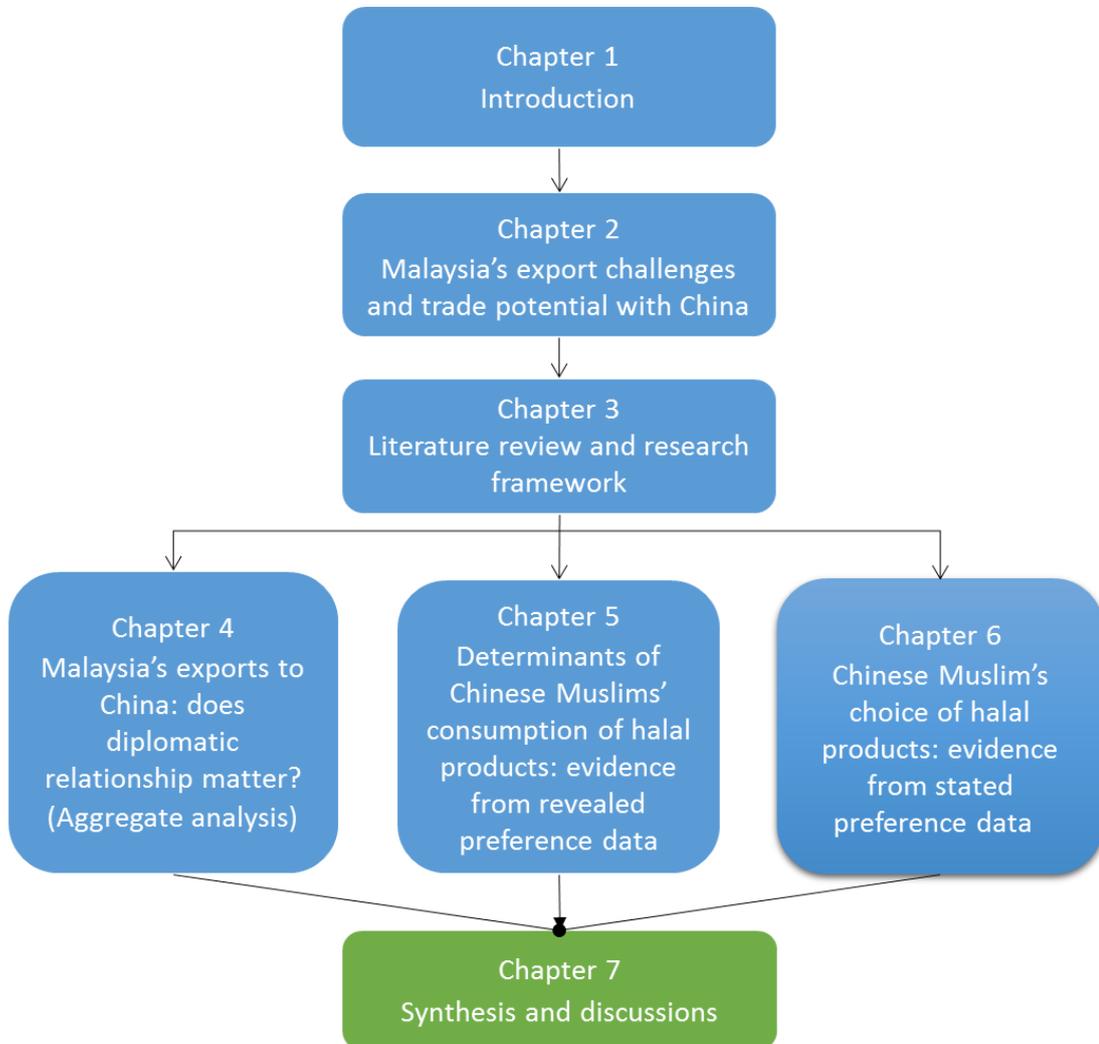
Policies makers and industry leaders might have to cultivate a genuine understanding of Chinese Muslims' choice of halal personal care products. Companies need to understand and learn new skills and methods in order to communicate information about their products, using various marketing tools, including 'product languages'.

Product language involves the design of packaging, branding and marketing processes. A halal product should be packaged in appropriate colours, and most importantly, display information about the country of origin and ingredients. Recently, Auntie Anne's, an American chain of pretzel shop, advertised a popular product, Pretzel Dog. Pretzel Dog was certified not halal by the Department of Islamic Development, Malaysia (Jakim) due to the use of the word, 'dog', in the product name for their famous sausage. In Islam, dogs are considered *mughallazah* (unclean) and the name cannot be related to halal certification. The name of the sausage has violated the *Tayyib* (to be clean) section of the halal certification rules. The use of 'hotdog' as a name for sausage has not been an issue before, but it has recently attracted concern from some Muslims in Malaysia. This incident clearly shows that policy makers and industry leaders should be sensitive to the requirements of the market, and using appropriate product language is very important.

Also, policy makers and industry leaders may need to carefully set the price of halal personal care products in order to attract more consumers. As consuming halal personal care products is not a common practice among Chinese Muslims, halal personal care products attract a lot of competition from other commercial brands. Chinese Muslims have many choices to pick from the supermarket shelves. Therefore, prices of halal personal care products should be reasonable and competitive with other commercial brands. Most importantly, prices should reflect the quality and standard of the products.

This study did not investigate some other important attributes of toothpaste that influence the choice of Chinese Muslims, such as packaging, branding, taste and importance of ingredients. However, these factors should be included in future studies. It is also recommended that if choice modelling, with stated preference data, is used, the sample size of the study should be increased to achieve more accurate estimates.

Thesis Outline

Chapter 1
Introduction

Chapter 2
Malaysia's export challenges and trade potential with China

Chapter 3
Literature review and research framework

Chapter 4
Malaysia's exports to China: does diplomatic relationship matter? (Aggregate analysis)

Chapter 5
Determinants of Chinese Muslims' consumption of halal products: evidence from revealed preference data

Chapter 6
Chinese Muslim's choice of halal products: evidence from stated preference data

Chapter 7
Synthesis and discussions

CHAPTER 7   SYNTHESIS AND DISCUSSIONS

Chapter Outline

7.1 Key Findings and Conclusions of the Study

7.2 Implications and Contributions

7.3 Limitations and Future Research Directions

Key findings and conclusions of this study are summarised in Section 7.1. Implications and contributions are then presented in Section 7.2. Section 7.3 discusses the limitations of this study and offers suggestions for further research.

7.1 Key Findings and Conclusions of the Study

The overall aim of this study is to examine the determinants of Malaysia's halal export to China, by using aggregate and disaggregate data to investigate both macroeconomic and microeconomic level determinants.

At the macro level, this study examines the relationship between diplomacy, international halal exhibitions, income, price and halal commodity exports with total exports using aggregate panel data. It takes time for diplomacy to develop and flourish, so using aggregated level, panel data is more appropriate for this study. An instrumental variable was also constructed to control for the endogeneity problem in this analysis. The empirical estimation of the augmented gravity model confirms that openness, diplomatic relationships, participation in International Halal Week (in particular in terms of the number of delegates who attended), and product prices are significant factors when examining Malaysia's exports to China. In particular, the halal related variable, such as the number of delegates who visited the halal exhibition, has a significantly positive influence on Malaysia's exports to China. This finding suggests that the exhibition is useful in promoting Malaysia's halal products to the world and in generating business networks. Notably, the success story of this international event has not been previously evaluated.

At the micro level, revealed preference and stated preference data were employed to explore the determinants of halal consumption for Chinese Muslims.

Results from the revealed preference data suggest that, apart from faithfulness, product availability and halal authenticity are the two most important determinants influencing decisions by Chinese Muslims to purchase halal products. Result indicate that Chinese Muslims are more concerned about halal authenticity than product brands, functions

and designs. On the other hand, the study also shows that brand, packaging and advertising are not very influential regarding halal purchases by Chinese Muslims.

Results from the stated preference data show that Chinese Muslims prefer imported halal toothpaste to locally produced one. This could be due to the fact that Chinese Muslims place more trust on the authenticity and product safety of imported products. The finding also coincides with results obtained from revealed preference data analysis, showing that purchase intention has a negative relationship with locally produced products.

In addition, Chinese Muslims' choice of toothpaste did respond to price changes. The study finds that low price toothpaste is favoured more by Chinese Muslims than high price toothpaste. This also aligns with results from the study of revealed preference data, showing that price is an important criterion for Chinese Muslims when making a halal purchase. Nevertheless, Chinese Muslims, with strong faithfulness of belief and who have previous experience in purchasing halal personal care products, are still willing to pay a higher price for halal toothpaste.

Malaysia takes a holistic approach towards halal goods and services because it realises that the halal sector is a new source for the country's economic growth. A good reputation in producing halal products is beneficial for Malaysia's halal exports. This is an advantage for Malaysia as it diversifies its export products and markets, increases market competitiveness and it puts it well ahead of other exporters in securing a potential of the share of Chinese Muslim market. Malaysia can utilise its good diplomatic relationships with China as a trade partner. Through this established relationship, the government has an advantage in initiating trade communication and networking on behalf of the halal industry of Malaysia. Industry leaders and halal related agencies can design products favoured by the market. Also, collaborations with local Islamic institutions, such as mosques, are a very efficient way to access the market quickly.

Trust and confidence are the main factors for halal trade. Once trust has been established, demand will be created and product availability will be widened. More than

50 countries in the world trust the halal logo produced by Malaysia. Using Malaysia's halal logo will clearly be an effective way to promote Malaysia's halal products in China, and to help Chinese Muslims distinguish between halal and non-halal products. In addition, the Malaysian halal industry needs to communicate to Chinese Muslims that all ingredients are halal, and that legitimate halal production processes are consistently used. With these advantages, Malaysia should be able to increase its halal exports to China quickly and successfully.

Findings generated from the aggregate and disaggregate analyses provide invaluable information on how halal exports can be expanded, especially to Muslim minority countries. Aggregate data analysis emphasises the importance of government agencies as the intermediators connecting the supply country with the demand-side market; while disaggregate data analysis provides information about products preferred by the buyers, and opportunities and factors that will boost halal sales in the market. In conclusion, exportation of halal products does not merely depend on the price of the products; it also involves non-price factors, such as trade relationships, networking, religiosity of consumers and product availability.

7.2   Implications and Contributions

The Malaysian government has established diplomatic relationships with China, which it could use to optimize its export structures without losing existing export markets. This political relationship gives Malaysia an advantage in penetrating the Chinese Muslim market smoothly. Through diplomatic exchange visits, the Malaysian government has an opportunity to introduce products and network with China's halal industries. This will provide policy makers and industry leaders with excellent opportunities to cultivate a genuine understanding of Chinese Muslims' choice of halal products. In addition to collaboration with China in the halal trade, Malaysia may also be able to organize members of ASEAN to develop an ASEAN halal-hub, and expand halal exports to ASEAN-Plus-Six countries (China, Japan, South Korea, India, Australia, New Zealand).

Both the Malaysian and Chinese governments could provide capital and diplomatic assistance to major halal corporations and agencies, to establish halal business collaborations with the Chinese Islamic agencies, and introduce Malaysia's small and medium-sized halal enterprises to the Chinese market through this partnership. Chinese and Malaysian Islamic related institutions could also play important roles in increasing awareness, and improving understanding of Chinese Muslims on halal certification, introduce standardised halal certification processes, and identify genuine halal logos.

According to this study, for foreign halal products to successfully enter the Chinese Muslim market, the key is to build, or rebuild, the trust of Chinese Muslims in the halal certification system. Malaysia's halal logo might be the best product identity to use to help Chinese Muslims distinguish authentic halal products.

Also, collaboration between Malaysian's halal industry development corporations and Chinese mosques could be established to effectively communicate the legitimacy of Malaysia's halal production processes to Chinese Muslims. This study indicates that recommendations from friends or religious leaders are one of the factors that inform Chinese Muslims' halal purchases. To some extent, this implies that Chinese Muslims place high confidence and trust in religious leaders. Thus, the halal industry could cleverly promote their products through trusted channels, such as mosques, religious authorities, and during mosque festivals, before supplying products directly to shops and supermarkets. The mosque is the place where most heads of households meet during prayer, and the household is the most basic level of social institution. Currently, there are about 30,000 mosques in China (Information Office of the State Council, 2000). If samples of halal personal care products were distributed through mosques, markets or Al-Quran classes, this could be a most effective way to connect products with customers.

In addition, companies must understand and learn the skills and methods required to communicate their products using several marketing tools, including design of packaging, branding and marketing processes. Halal characteristics should be clearly tagged on product packaging, as it is essential to clearly specify the ingredients used in

the product. Also, Malaysia's halal industry leaders could collaborate with Chinese business partners to establish halal-specialised supermarkets, which only employ Muslim staff, and which only sells recognised halal certified products. It is suggested that such supermarkets are promoted as places of hygiene, pureness, completeness and safety. These images will form a brand of authentic halal in China. This will satisfy both product requirements and emotional comfort for Muslim buyers.

Awareness on the importance of consuming halal personal care products can be encouraged by stimulus. Although the results of this study suggest that advertisements on television and at exhibitions do not affect purchasing behaviours, other types of promotional channels, such as brochures, or mosque newsletters, are still important communication tools that can be used to implant images and product information in consumers' minds. They can function as educational tools, conveying messages of types of halal ingredients used in products, non-halal ingredients used in common products, the spiritual values that the products offer, and the importance of consuming halal personal care products for Muslims. Eventually, this could raise awareness of the real benefits and satisfaction produced by halal consumption.

Finally, as consuming halal personal care products is not common practice among Chinese Muslims, halal personal care products are actually in competition with other commercial brands. Chinese Muslims have many choices to pick from the supermarket shelves. Therefore, the halal industry will also need to carefully set the price of their halal personal care products in order to attract more consumers. The prices of halal personal care products should be reasonable and competitive with other commercial brands, and should reflect the quality and standard of the products.

This study has generated various other contributions. This study introduced the Intermediators, consisting of institutional mechanisms, relationship atmosphere and mediators. This provides a more comprehensive picture of the determinants of exports than the existing literature. This framework applies to the analysis of export determinants, not only for countries where unique circumstances exist, like Malaysia, but also for any other developing and developed countries.

On the technical side, this study applied an instrumental variable method to address the endogeneity problem in diplomacy and exports. Empirically, it is not easy to find instrumental variables that are correlated with the endogenous variables and completely uncorrelated with the structural error term for the equation (Podsakoff, MacKenzie, & Podsakoff, 2012). Future research may find this study useful when constructing an instrumental variable for diplomacy-export related study.

The findings of the study are equally valuable for countries similar to Malaysia that are seeking to improve their export performance in the thriving Chinese market. The findings could also be most beneficial to the Chinese government, informing it as it develops services for Chinese Muslims and seeks to improve ethnic's well-being.

Also, this study contributes to the literature by providing consumption analyses for Muslims, using both revealed preference and stated preference data collected from China, a Muslim minority country. No similar studies have been carried out. In addition, this study also documents background information about population and ethnicity, socioeconomic status and consumption behaviours of Chinese Muslims. Such information is a very useful reference for future studies on consumption in general, and Chinese Muslim consumption, in particular.

A contribution is also made to the discipline of economics by showing that utility obtained by a consumer is not merely from the product itself, but also related to other personal factors, such as belief and fulfilling commitments to religion. This pioneering study also introduces and characterises the potential for producing halal, non-food consumables into the Chinese market, and Chinese Muslim's consumption of personal care products.

7.3 Limitations and Future Research Directions

As with many other studies, this research is not without some limitations. Diplomacy was used as an indicator to measure the influence of diplomatic relationships in export, which has prompted the possibility of endogeneity. Besides diplomacy, there are many

other institutional factors that can be considered in a future study measuring the impact of institutions on exports, such as a country's democracy index, regulatory rules, social rules, tariff systems, etc. when data become available (Kalirajan, 2008; Kshetri, 2007; Yu, 2010). Besides, as data on the halal industry are limited, this study employed edible commodity export data as the proxy for halal exports from Malaysia. Future research may need to work closely with halal related corporations or customs departments to obtain more accurate data.

Given that friends' and *ahong*'s influences are significant to Chinese Muslims' halal purchases, a study into how friends and *ahong* (within religious institutions) play a role as mediator to foster halal exports is worthwhile. Additionally, from the background of Chinese Muslims, illustrated in Chapter 5, it shows that mosques play important roles in Chinese Muslim communities. This cultural institution somehow has power to decide who can do business and what is to be sold around the mosques, and in the Muslim community. Since Chinse Muslims attached a great deal of confidence to this institution, in-depth interviews and discussions with mosque leaders will be very useful in understanding the operation of the mosque, and methods of access to the value chain of the mosque economy.

As religious related study is sensitive in nature, the process of collecting data using survey interviews is challenging, especially in China. Given the time and resource constraints, convenience sampling methods adopted in this study have limited some elements of randomness. As such, future research could collaborate with relevant authorities to conduct stratified systematic survey methods in China. Information collected in such a manner will be more representative.

The lack of understanding of the halal concept and the lack of knowledge of halal certification by Chinese Muslims also deserves further research efforts. Given that Chinese Muslims do care about the authenticity of the halal products they consume, future studies on their halal consumption will add to our understanding of this important and growing market.

Finally, the number of alternative categories included in the discrete choice modelling was somewhat limited. It is noted that a larger number of alternatives may cause confusion to respondents. Future research may choose to increase the sample size in order to accommodate more alternative categories. Larger sample size allows greater coverage of response surfaces (Louviere et al., 2000). Alternatively, experimental surveys can be set up to replace survey questionnaires, where respondents will be given a longer time to make their choices.

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Appendixes

Appendix 1 Questionnaire

A Survey on Chinese Muslim Halal Product Purchasing Behaviour

Section A. Halal goods purchasing behaviour

Note: In this survey, halal goods refer to all goods permitted to be consumed by Muslims under the Islamic teachings. For example: beef, snacks, cooking oil, beverages, soap, facial cream, toothpaste, medicines, pastry, leather products, spice, perfume, scarf, chemical products, fertilizer, cosmetics, etc.

A1. Do you purchase halal goods (for example: halal beef, Muslim personal care products)?
1. Yes   2. No, why? _____ (Please go to Question no. C3)

A2. Please list 3 halal items you often purchase. 1. _____ 2. _____ 3. _____

A3. If the halal food and non-food items that you want to buy are out of stock in your regular halal store, what would you do? Please tick (√) one only for each category.

	Food item	Non-food item
1. will get it from a supermarket		
2. will come back to purchase at another time		
3. will purchase it at another halal/ Muslim store		
4. will purchase it from a nearest grocery/ convenience store		
5. other, please specify		

A4. Roughly, how much do you spend on halal goods in a month? RMB_____

A5. From a scale of 1 to 10, please rate your confidence towards the quality of **halal food** items you purchased? 1 is the lowest confidence and 10 is the highest confidence.
   a. Overall   1------2------3------4------5------6------7------8------9------10------N.A.(Not applicable)
   b. Locally produced 1------2------3------4------5------6------7------8------9------10------N.A.(Not applicable)
   c. Imported   1------2------3------4------5------6------7------8------9------10------N.A.(Not applicable)

A6. From a scale of 1 to 10, please rate your confidence level towards the quality of **halal non-food** items you purchased? 1 is the lowest confidence and 10 is the highest confidence.
   a. Overall   1------2------3------4------5------6------7------8------9------10------N.A.(Not applicable)
   b. Locally produced 1------2------3------4------5------6------7------8------9------10------N.A.(Not applicable)
   c. Imported   1------2------3------4------5------6------7------8------9------10------N.A.(Not applicable)

A7. How do you get to know about the availability of new halal products in the market? Please tick (√) all that apply.

1. from my family members		4. from the seller		7. from website	
2. from my Muslim friends		5. from ethnic TV channel		8. from printed materials	
3. from Imam		6. from the mosque		9. other (please specify):	

A8. What is the distance between your house and the nearest halal grocery store? _____km

A9. Among halal goods produced in different places, which one would you prefer the most?

    1. Locally produced   2. Imported from Muslim-majority countries, such as Malaysia, Arab, Turkey, etc.

    3. Imported from countries with good reputation in product safety, such as Australia, New Zealand, Europe and the United States.

A10. Regarding Question no.A9, Could you please tell us the reason?

_____
_____

Section B. Halal meat purchase behaviour

Note: In this survey, halal meat refers to fresh and processed halal meats prepared following the halal/ zabihah slaughtering rites. For example: beef, chicken, lamb and goat fresh meats, sausages, chicken nuggets, etc.

B1. Do you purchase halal meat?   1. Yes   2. No (Please go to Question no.B7)

B2. Please tell us your weekly fresh halal meat purchase details, if any.

Halal meat	Weight (Kg)	Price/ kg (RMB)	What do you think about the price (Choose one only for each type of meat)
a. beef			1. High 2. Low 3. Reasonable
b. lamb/ goat			1. High 2. Low 3. Reasonable
c. chicken			1. High 2. Low 3. Reasonable
d. other (please specify):			1. High 2. Low 3. Reasonable

B3. For beef, chicken and goat, what types of the meat you often purchase? Please tick (√) all that apply.

Beef		Goat/ Lamb		Chicken		Processed meats	
1. leg meat		1. leg meat		1. whole chicken		1. sausage	
2. boneless/ loin meat		2. boneless/ loin meat		2. chicken thigh		2. meat patty	
3. minced meat		3. minced meat		3. chicken wing		3. meat ball	
4. ribs part		4. ribs part		4. breast meat		4. barbeque	
5. internal organs		5. internal organs		5. debone chicken		5. meals	
6. other (please specify):		6. other (please specify):		6. other (please specify):		6. other (please specify):	

B4. Where do you buy halal meat? Please tick (√) all that apply for both categories.

	Fresh	Processed
1. meat store in the wet market		
2. supermarket		
3. meat store at the Muslim street market		
4. halal meat store/ Muslim food store		
5. from a farmer and then slaughtered at a processing facility		
6. other (please specify):		

B5. From 1 to 3, please rank in order of your three most important halal meat purchase considerations.

1. halal certification		5. country of origin of the meat	
2. quality of the meat		6. processing methods and storage facilities	
3. price		7. hygiene level of the meat store	
4. slaughterer and seller's belief		8. other (please specify):	

B6. Would you purchase imported ready-made halal food, such as canned food, frozen food, biscuits, etc.?

1. Yes   2. No, why?

_____

B7. Would you purchase imported fresh halal meat, such as beef, chicken and lamb?
1. Yes   2. No, why?

_____

B8. Could you please share your understanding about halal certification?

_____

Section C. Halal personal care products purchasing behaviour

Note: In this survey, halal personal care products refer to body care goods and toiletries permitted to be used under the Islamic teachings. For example: soap, toothpaste, perfume, shampoo, body lotion, hair gel, etc.

C1. Do you purchase halal personal care products?   1. Yes   2. No (Please go to Question no.C5)

C2. What do you usually buy?   1. _____ 2. _____ 3. _____

C3. Do you purchase halal/ Muslim adult toothpaste?   1. Yes   2. No (Please got to Question no.C6)

C4. Details of the halal/ Muslim adult toothpaste purchased

a. size (please circle one answer only)	1. small 2. medium 3. big
b. flavour	1. original 2. mint 3. Other, _____
c. price range	RMB _____ to RMB _____
d. formulated for	1. freshen 2. whitening 3. sensitive gums 4. others,
e. brand	
f. place of origin (choose one only)	1. locally made 2. imported 3. don't know
g. where did you buy it? (choose one only)	1. grocery 2. supermarket 3. Muslim store 4. others,
h. have a halal logo on the packaging	1. yes 2. no

(Please got to Question no.C7)

C5. What is the main reason you do not purchase halal/ Muslim personal care products? (Choose one only)

1. not necessary		4. less confidence in the products	
2. price is relatively higher		5. not a practice	
3. unavailable in the market		6. other (please specify):	

C6. If you were to purchase a halal toothpaste/ Muslim toothpaste, what features would you expect?

a. size (please circle one answer only)	1. small 2. medium 3. big
b. flavour	1. original 2. mint 3. Other, please suggest_____
c. price range	RMB _____to RMB _____
d. formulated for	1. freshen 2. whitening 3. sensitive gums 4. others,
e. place of origin (choose one only)	1. locally made 2. imported 3. don't know
f. sold in (choose one only)	1. grocery 2. supermarket 3. Muslim store 4. others,
g. must have a halal logo on the packaging	1. yes 2. no 3. not necessarily

C7. Where do you usually purchase your toothpaste? Please tick (√) all that apply.

1. grocery/ convenience store		4. online, such as Taobao, Alibaba, etc.	
2. supermarket		5. Muslim street market	
3. halal grocery in my neighbourhood		6. other (please specify):	

C8. What features do you like about your regular toothpaste? Please tick (√) all that apply.

1. reasonable price		5. it is trusted to be 'canonicity' for Muslim use	
2. trusted brand		6. it is an imported product	
3. easy access and widely available		7. the taste and fragrance	
4. it cleans my teeth really well		8. other (please specify):	

C9. Are halal personal care products common and widely available in your community?   1. Yes   2. No

C10. Would you purchase a toothpaste if:

	Yes	No
a. it is made by a Muslim majority country without a halal logo on the packaging?		
b. it is made by a non-Muslim majority country with good reputation in terms of product safety?		
c. it is sold in the halal store or Muslim street market without a halal certified logo?		
d. it is sold in the supermarket with relatively cheaper price compared to halal certified product?		
e. it is not a halal certified but well-known and trusted brand		

C11. From 1 to 3, please rank in order your 3 most important halal personal care products purchasing criteria.

1. place of origin		5. relationship with the seller		9. packaging	
2. price		6. recommended by Muslims		10. taste/ fragrance	
3. trusted brand		7. family influence		11. halal ingredients	
4. halal-certified logo		8. distance to the halal store		12. other (please specify):	

Section D. Expectations and choice on halal products

D1. If you were to purchase a medium size Muslim halal toothpaste with the weight of approximately 125g, which of the following describe your choice the best? Choose one only from the highlighted group.

G	Country of origin	Store	Price	G
	Locally produced	Supermarket	< ¥16	☐
1	Produced by Muslim countries, such as Turkey, Arab	Supermarket	≥ ¥29	☐
	Imported from food safety guaranteed countries, such as Australia	Convenience/ Grocery store	16 ≤¥≤ 28	☐
	Produced by Muslim countries, such as Turkey, Arab	Muslim grocery shop	< ¥16	☐
2	Produced by Muslim countries, such as Turkey, Arab	Muslim grocery shop	16 ≤¥≤ 28	☐
	Locally produced	Supermarket	≥ ¥29	☐
	Locally produced	Convenience/ Grocery store	16 ≤¥≤ 28	☐
3	Imported from food safety guaranteed countries, such as Australia	Supermarket	16 ≤¥≤ 28	☐
	Imported from food safety guaranteed countries, such as Australia	Supermarket	≥ ¥29	☐
	Produced by Muslim countries, such as Turkey, Arab	Supermarket	16 ≤¥≤ 28	☐
4	Produced by Muslim countries, such as Turkey, Arab	Convenience/ Grocery store	< ¥16	☐
	Imported from food safety guaranteed countries, such as Australia	Muslim grocery shop	< ¥16	☐
	Locally produced	Muslim grocery shop	16 ≤¥≤ 28	☐
5	Produced by Muslim countries, such as Turkey, Arab	Supermarket	< ¥16	☐
	Imported from food safety guaranteed countries, such as Australia	Supermarket	< ¥16	☐
	Locally produced	Convenience/ Grocery store	≥ ¥29	☐
6	Imported from food safety guaranteed countries, such as Australia	Convenience/ Grocery store	< ¥16	☐
	Produced by Muslim countries, such as Turkey, Arab	Muslim grocery shop	≥ ¥29	☐
	Locally produced	Muslim grocery shop	< ¥16	☐
7	Produced by Muslim countries, such as Turkey, Arab	Convenience/ Grocery store	16 ≤¥≤ 28	☐
	Imported from food safety guaranteed countries, such as Australia	Muslim grocery shop	16 ≤¥≤ 28	☐
	Locally produced	Supermarket	16 ≤¥≤ 28	☐
8	Locally produced	Muslim grocery shop	≥ ¥29	☐
	Produced by Muslim countries, such as Turkey, Arab	Convenience/ Grocery store	≥ ¥29	☐
	Locally produced	Convenience/ Grocery store	< ¥16	☐
9	Imported from food safety guaranteed countries, such as Australia	Muslim grocery shop	≥ ¥29	☐
	Imported from food safety guaranteed countries, such as Australia	Convenience/ Grocery store	≥ ¥29	☐

D2. On a scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree), please rate the following statements based on your halal purchasing behaviour.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
a. I have a tendency to buy goods packed with Arabic words					
b. I have higher confidence towards the halal-ness of halal goods recommended by Muslim friends or Ahong.					
c. I have higher confidence towards the halal-ness of halal goods advertised in ethnic TV channels					
d. I have higher confidence towards the halal-ness of halal goods made by local companies					
e. I have higher confidence towards the halal-ness of halal goods introduced at international halal exhibitions					
f. I check the ingredients before buying a product					
g. halal-ness in non-food goods is not important to me					
h. the misuse of a halal logo is common					
i. price is the most important factor to influence my decision on halal purchase					
j. I only buy halal certified soap, toothpaste and fragrance					
k. sometimes, I doubt the halal-ness of the meat I bought					
l. sometimes, I doubt the halal-ness of the products sold in Muslim shops					
m. green colour's packaging reminds me of halal and Islamic					

Section E. Respondent profiles

E1. On a scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree), please rate the following statements.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
a. There will be the day of judgment by the God					
b. Fasting can help in self-purification					
c. I have regular discussion with Muslim friends about Islamic teachings					
d. Pilgrimage to Makkah is one of the 5 pillars of Islam					
e. I pay Zakat, because it is one of the 5 pillars of Islam					
f. Brotherhood and sisterhood is one of the basic tenets of Islam					
g. When I face a problem in life, I ask for Allah's love, consolation and forgiveness					
h. When I face a problem in life, I consider that as a test from Allah to deepen my belief					
i. I believe all things have been predestined by Allah					

E2. What is your age?

≤ 17		18 - 25		26 - 30		31 - 38		39 - 45	
46 - 55		56 - 65		66 - 75		≥ 76			

E3. What is your gender?   1. Male   2. Female

E4. What is your highest education level?
1. No education   2. Primary   3. Secondary lower   4. Secondary upper   5. College   6. University

E5. Marital status: 1. Single 2. Married   3. Other

E6. Ethnic: 1. Hui   2. Uyghur   3. Kazak 4. Han   5. Dongxiang   6. Other
_____

E7. Where do you live?   1. Rural   2. Urban

E8. Including yourself, how many people are in your family? _____

E9. Who decides the household expenses and amount in your family? _____

E10. What is your employment?
                 1. Self-employed   7. Priest
                 2. Public service   8. Student
                 3. Labour   9. Retired
                 4. Farmer   10. Housewife
                 5. Craftsman   11.Unemployed
                 6. Professional service   12. Other, _____

E11. In which industry?
                 1. Farming   7. Government
                 2. Catering/ restaurant   8. Animal husbandry
                 3. Tea plantation   9. Religious related
                 4. Leather/ fur   10. Service industry
                 5. Business/ Trading   11. Tourism
                 6. Goldsmith/ jewellery   12. Other, _____

E12. What is your yearly income (RMB)?

< 12,000		12,000 – 18,000		18,001 – 24,000		24,001 – 30,000	
30,001 – 35,000		35,001 – 40,000		40,001 – 50,000		> 50,000	

E13. Do you attend religious activities, such as Al-Quran class, Arabic class, Mosque activities, etc.?
     1. Yes   2. No (Please go to Question no.E14)

     a.   What are those activities? _____

     b.   How frequent? _____
         (Please go to Question no. E15)

E14. What is the main reason that you do not attend any activity?
_____

E15. Usually, which mosque do you go to? _____

E16. Which wing of Islam do you belong to? _____

E17. In your opinion, what is the best way to ensure the halal goods are truly halal?
_____

E18. From a scale of 0 to 10 (0 being the least devout follower and 10 being the most devout follower), how would you rate the level of your religious faith?

0----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Thank you

****
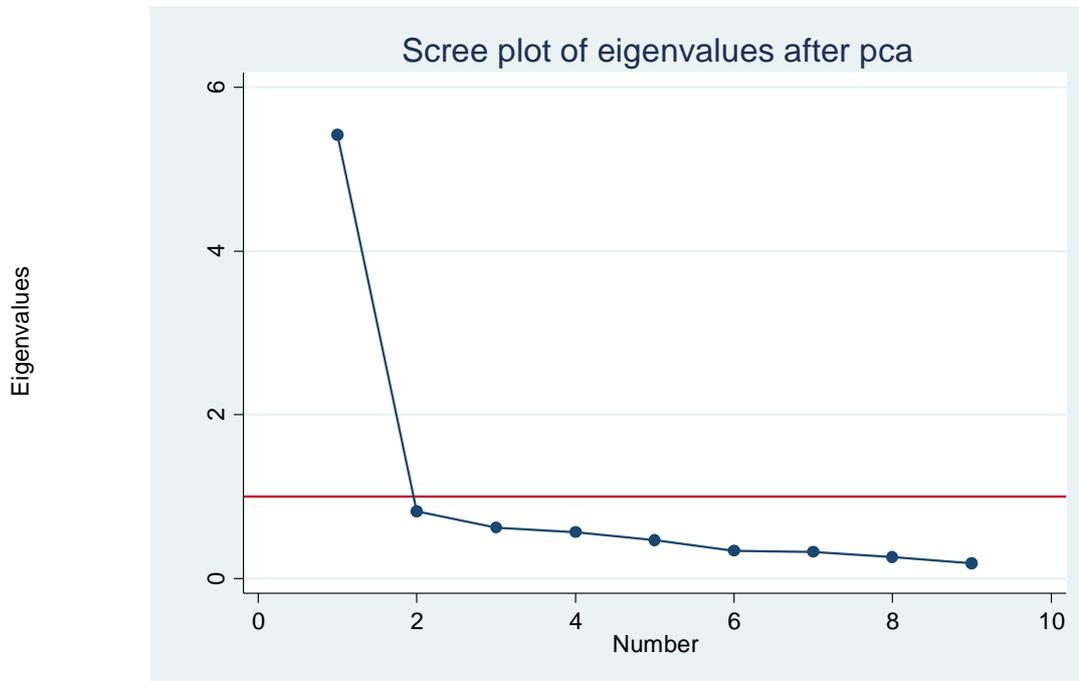
Enumerator: _____   Mosque/ Street: _____

Date: _____   Province: Shaanxi/ Gansu/ Ningxia

Appendix 2 Principle Component Analysis (PCA) and Kaiser-Meyer-Olkin (KMO)

PCA and KMO suggested to group 9 variables into one component.

Scree plot of eigenvalues after pca

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Kaiser-Meyer-Olkin measure of sampling adequacy
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Variable	kmo
E1a_Judgem~3	0.9167
E1b_Fasting3	0.9330
E1c_Discuss3	0.9646
E1d_Pilgri~3	0.9372
E1e_Zakat3	0.9411
E1g_Brothe~3	0.9404
E1h_Love3	0.8708
E1i_Test3	0.8704
E1j_Predes~3	0.9309
Overall	0.9185

Appendix 3 Summary of Key Studies on Determinants of Halal Purchase

Authors (Year)	Methodology	Main assumptions	Determinants examined Attributes	Consumer's Characteristics	Main results
Malai and Pitsuwan (2005)	Factor analysis with Varimax rotation	Halal logo issued by Muslim and non-Muslim countries influence Muslim's intention to buy halal products.	Halal logo	Age	Acceptance of halal logo issued by Muslim and non-Muslims countries does not vary by age. However, younger Muslims have higher tendency to accept halal certification logo issued by non-Muslim countries.
Abdul, Ismail, Hashim and Johari (2009)	Elicit consumers' perception towards halal logo and ingredients in food and beverage with 5-point Likert scale, Anova and focus group discussion.	Halal logo as an assurance label for food quality and halal credibility.	Halal logo, criteria of food purchase-cleanliness, owner's religion, brand, cost, packaging, convenience, trust	Gender, religious, ethnic background	Muslims have higher concern on food ingredients compared to other ethnics, indicates that religion plays an important role in determining the choice of consumption.
Lada, Tanakinjal and Amin (2009)	Predicts intention to choose halal products with the Theory of Reasoned Action (TRA)	TRA is a good predictor of the intention to choose halal products. Attitudes and subjective norm are positively related to intention to purchase halal products.	Attitude, subjective norm	Gender, age, religion, income, race, marital status	Attitudes and subjective norm are positively related to intention to purchase halal products.

Authors (Year)	Methodology	Main assumptions	Determinants examined Attributes	Consumer's Characteristics	Main results
Lai, Chong, Sia and Ooi (2010)	Explaining the intention to switch from products without certified halal labels within a wide array of purchase context, by comparing fitness and path coefficients of the structural model between groups of observation using Multi-group Structural Equation Modelling.	Halal certification influences the behaviour of Muslim consumers.	Origin of the product, availability of alternative, halal logo	Attitude toward halal compliance, subjective norm, perceived behavioural control, actual behavioural control	Theory of Planned Behaviour is less accurate in predicting the Muslim consumers' intention to seek for halal label during purchase, and to cancel a purchase if no halal label was found on the packaging. The effect of halal labelling change across different product categories for a same consumer.
Shaari and Mohd Arifin (2010)	Varimax factor analysis to investigate the roles of marketing concept, awareness, halal certificate and religiosity on halal purchase intention	There are four dimension of halal purchase factors, namely marketing concept, awareness, halal certificate and religiosity.	Brand, price, sales and promotion, venue of purchase, product ingredients, cleanliness	Gender, age, marital status, race, highest level education, occupation, annual income, level of religiosity	The study concludes that halal purchase intention are mainly influenced by 7 dimensions: solidarity, certainty, universality, purity, conformity, halal-ness, place and knowledge.
Karim, Rahman and Ariffin (2011)	Confirmatory factor analysis was applied to test the convergent validity of the eight Centric Ness indicators.	Muslim centric ness influences the purchase intention to buy Muslim products and services.	Origin of products, producers' religious	Muslim centric ness	The greater the Muslim centric ness, the higher the intention to purchase Muslim products.

Authors (Year)	Methodology	Main assumptions	Determinants examined Attributes	Consumer's Characteristics	Main results
Haque, Rahman and Haque (2011)	Principal component analysis, exploratory factor analysis, confirmatory factor analysis and structural equation modelling were employed to measure young Muslim consumers' perceptions in buying foreign consumer products.	Religiosity and ethnocentrism have negative relationship with the intention to purchase foreign products; stronger corporate image affect the intention to purchase foreign products positively.	Corporate image (fulfil social responsibilities, employees' welfare, wishes to capture a favourable public image)	Religiosity (attend religious activities, worship, prayer, listen to religious talk), ethnocentric (buying local made products, involve in community work)	Corporate image and ethnocentrism have higher influence on the intention to purchase foreign consumer products, compared to religiosity.
Alam and Hisham (2011)	A cross-sectional research design to examine the relationship between the level of religiosity and Muslim consumption behaviour.	Religion has greater influence on Muslim consumption behaviour. Religiosity mediates the relationship between independent factors and consumers' buying behaviour.	Price, brand, quality, image, the quality of the sales representative and customer service	Religiosity, contextual factors (trend in fashion, peer pressure)	Consumer with high religiosity are less impulsive when making purchase decision.
Kamaruddin, Iberahim and Shabudin (2012)	A Logit model was employed to measure the willingness to pay for halal logistic services.	Demand, cost and awareness of Muslims on the importance of halal logistic determined the willingness to pay for halal logistic services.	Halal logo, venue of consumption, cost	Residential area, family status, age, number of family members, demand, important of halal logistic	Willingness to pay for halal logistic services is positively related to demand and cost, but negatively related to the importance of halal logistics.

Authors (Year)	Methodology	Main assumptions	Determinants examined Attributes	Consumer's Characteristics	Main results
Bakar, Lee and Rungie (2013)	A quasi-type experiment examined the influence of a symbol on product purchase intention.	Religious symbol on packaging increases Muslim consumers' purchase intention, product's perceived religious symbolic –value, and stronger purchase intention for high religiosity Muslims compared to lower religiosity Muslims.	Religious symbols (Mosque, crescent, green, rosary, sword)		Religious symbols on packaging only influences purchase intention for low symbolic value products (hair colour, cosmetics, tobacco, etc). Religious symbols is important as visual cues.
Phuah and Wan Jusoh (2013)	Reliability test, descriptive statistic and chi-square analysis methods on consumption of halal cosmetics.	Socio-demographic factors determined the consumption of halal cosmetics and personal care products.	Channel/ sources of information	Gender, race, years of education, background of formal and religious school attended	People who attended religious school, with more years of education have higher tendency to use halal cosmetics and personal care products. Friend is the most important information channel.

Authors (Year)	Methodology	Main assumptions	Determinants examined		Main results
			Attributes	Consumer's Characteristics	
Rahim, Shafii and Shahwan (2013)	Factor analysis and least square regression were employed to understand the factors influence the awareness and perception of Muslim consumers on non-food halal products.	Halal information, availability of halal personal care products, halal-related media programme and halal-related course/events influence the awareness and perception of Muslim consumers on non-food halal products.	Halal information, availability, halal-related media programmes, halal-related course/events		Halal information, availability of halal personal care products and halal-related media programme are significantly influence the awareness and perception of Muslim consumers on non-food halal products.
Mohtar, Amirnordin and Haron (2014)	Employed descriptive analysis, Anova and correlation analysis to measure factors that influence consumer decision on the selection of Ayamas products.	Product label, certification bodies, sources of information, company image and product quality affect consumer purchasing's decision.	Product label, certification bodies, sources of information, company image, product's quality (safe, hygienic, healthy, and trustworthy).		Only the certification bodies, company image and product quality have positive impact on consumer's decision in selecting products from Ayamas.

Authors (Year)	Methodology	Main assumptions	Determinants examined Attributes	Consumer's Characteristics	Main results
Majid, Sabir and Ashraf (2015)	Linear regression and descriptive analysis were used to investigate the factors influence the purchase intention on halal cosmetics and personal care products	There are significant positive relationship between awareness, religious belief and halal certification with halal purchase intention.	Ingredients, logo, halal/haram, accreditation of certification bodies, halal certificate		Result shows that awareness, religious belief and halal certified brands of cosmetics positively influence females' intention to purchase halal cosmetics.
Borzooei and Asgari (2015)	A 'simulated market' was created and an observation procedure were conducted to understand the effect of country of origin on consumer choice of halal brand, together with face-to-face interview.	Country of origin (CoO) effects consumer purchase's intention on halal products.	CoO, price, packaging, ingredients, logo	Gender, marital status, age, nationality, education	Result from interview shows that respondents concern about country of origin when selecting halal products, but result from 'observation' shows oppositely. Participants were more interested in halal logo, packaging and price. Brand is more important than CoO.