UNIVERSITI PUTRA MALAYSIA

COMPETITIVENESS OF THE BROILER INDUSTRY IN PENINSULAR MALAYSIA

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COMPETITIVENESS OF THE BROILER INDUSTRY IN PENINSULAR MALAYSIA

By

ZINEB ABDULAKER M BENALYWA

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

May 2019

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DEDICATION

I dedicated to my beloved late father

Abdulaker Mohamed Benalywa

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

COMPETITIVENESS OF THE BROILER INDUSTRY IN PENINSULAR MALAYSIA

By

ZINEB ABDULAKER M BENALYWA

May 2019

Chairman : Professor Mohd Mansor Ismail, PhD
Faculty : Agriculture

Competitiveness has become a highly sought objective across government and private sectors across many nations. At the national level, the importance of competitiveness is significant to maximise the welfare of its population, while the private sector endeavours to be more competitive by increasing profits, value added, return, and market share. Broiler meat appears to be the most popular and the cheapest source of protein in Malaysia, wherein trade protection has the potential to stimulate local industry and enhance food security. The trade competition is undeniably strong and Malaysia has been working towards becoming an essential exporter nation. Nevertheless, this vision is barricaded by several challenges that have been lurking in the industry, apart from the rising cost of production and associated reductions in profitability, taxation, variability of corn and soybean prices, as well as instability of exchange rate. As such, by employing the policy analysis matrix (PAM), as well as the approaches initiated by Balassa and Vollrath, this present study assessed the competitiveness of the broiler industry within the context of Peninsular Malaysia. The PAM was applied to analyse the comparative advantage of broiler production and the impacts of distortions in domestic prices. Revealed comparative advantage (RCA) and relative trade advantage (RTA) were adopted in this study to evaluate the performance of broiler trade. Both primary and secondary data were examined in this study. Secondary data were retrieved from a range of sources, while primary data were gathered from a field survey that involved 310 farmers (contract and non-contract) in Peninsular Malaysia**.** The study outcomes signified that Malaysia has a robust comparative advantage at all scales of broiler production, particularly amidst contract farmers. The present policy indicators revealed that the broiler industry in Malaysia seems far from being protected. The comparative advantage of the chicken subsector indicated that Malaysia has a relative trade advantage in only a single product group, namely HS020712 (Chickens and Capons, Whole Frozen). As such, this study concludes that despite the increment noted in broiler production, Malaysia appears to depend on import of chickens, regardless whole or cut. Therefore, in order to increase

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competitiveness, the industry should reduce its reliance on imported feeds, but instead, invest more in developing locally-sourced alternative feeds available to farmers at a lower cost, especially when compared to those imported. It is crucial that both the government and private sectors to promote an integrated broiler contract farming. Provision of incentives by the government to producers in support of the broiler industry is one that is of utmost significant. That being mentioned, a viable policy may be implemented to propose lower exchange rates and tax exemption.

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DAYA SAING INDUSTRI AYAM PEDAGING DI SEMENANJUNG MALAYSIA

Oleh

ZINEB ABDULAKER M BENALYWA

Mei 2019

Pengerusi : Profesor Mohd Mansor Ismail, PhD
Fakulti : Pertanian

Daya saing menjadi matlamat yang sering dicari oleh seluruh sektor kerajaan dan swasta di kebanyakan negara. Di peringkat nasional, daya saing adalah penting untuk memaksimumkan kebajikan penduduk, sementara pekerja di sektor swasta berusaha dengan lebih kompetitif dalam meningkatkan keuntungan, nilai tambah, pulangan dan bahagian pasaran. Daging ayam adalah sumber protein yang paling popular dan paling murah di Malaysia; manakala perlindungan perdagangan mempunyai potensi untuk merangsang industri tempatan dan meningkatkan keselamatan makanan. Persaingan perdagangan juga tidak dinafikan kuat dan Malaysia berusaha ke arah menjadi salah satu negara pengeksport yang penting. Walau bagaimanapun, matlamat ini dihalang oleh pelbagai cabaran yang dihadapi oleh industri, selain daripada isu kenaikan kos pengeluaran dan penurunan dari segi keuntungan, cukai, keberubahan harga jagung dan kacang soya, dan ketidakstabilan kadar pertukaran. Dengan menggunakan matriks analisis kebijakan (PAM), pendekatan Balassa dan Vollrath, kajian ini dijalankan untuk menilai daya saing industri ayam pedaging di Semenanjung Malaysia. PAM digunakan untuk menganalisis kelebihan komparatif di antara pengeluaran ayam pedaging dan kesan-kesan distorsi dalam harga domestik. Keunggulan komparatif (RCA) dan kelebihan perdagangan relatif (RTA) digunakan untuk mengkaji prestasi dagangan pedaging ayam. Data primer dan sekunder telah digunakan dalam kajian ini. Data sekunder diperoleh daripada pelbagai sumber, manakala data primer dikumpulkan melalui kajian lapangan yang melibatkan 310 orang petani (kontrak dan bukan kontrak) di Semenanjung Malaysia. Hasil kajian menunjukkan bahawa Malaysia mempunyai kelebihan komparatif yang kuat pada semua skala pengeluaran ayam pedaging, terutamanya dalam kalangan petani kontrak. Penunjuk dasar mendedahkan bahawa industri pedaging ayam di Malaysia tidak dilindungi oleh dasar semasa. Kelebihan komparatif subsektor ayam menunjukkan bahawa Malaysia mempunyai kelebihan perdagangan relatif hanya dalam satu kumpulan produk, iaitu HS020712 (Ayam dan Ayam Kembiri, Beku Keseluruhan). Dapat disimpulkan bahawa walaupun terdapat peningkatan pengeluaran ayam pedaging, Malaysia masih bergantung kepada pengimportan ayam, sama ada secara keseluruhannya atau secara

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potongan. Oleh itu, untuk meningkatkan daya saing, industri harus mengurangkan kebergantungan terhadap pengimportan makanan dan melabur lebih banyak dalam membangunkan makanan alternatif tempatan yang disediakan untuk petani dengan kos yang lebih rendah daripada yang diimport. Sektor kerajaan dan swasta harus mempromosikan pertanian kontrak ayam pedaging bersepadu. Peruntukan insentif daripada kerajaan kepada pengeluar untuk menyokong industri ayam pedaging adalah amat penting. Dasar yang berdaya maju seperti cadangan kadar pertukaran yang lebih rendah dan pengecualian cukai juga boleh dilaksanakan.

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Last but not the least, I would like to thank my country, Libya and our Ministry of Higher Education for giving me the opportunity to pursue my PhD.

Declaration by graduate student

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Signature: _____
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Signature: _____
Name of Member of Supervisory Committee: Professor Dr. Mad Nasir Shamsudin

Signature: _____
Name of Member of Supervisory Committee: Professor Dr. Zulkornain Yusop

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LIST OF ABBREVIATIONS

CIF	Cost, Insurance and Freight
DOC	Day Old Chick
DRC	Domestic Resource Cost
DVS	Department of Veterinary Service
EPC	Effective Protection Coefficient
FAO	Food and Agriculture Organization
FOB	Free on Board
NPC	Nominal Protection Coefficient
NPCI	Nominal Protection Coefficient for Input
NPCO	Nominal Protection Coefficient for Output
PAM	Policy Analysis Matrix
PSE	Producer Subsidy Equivalent
RC	Relative Competitiveness
RCA	Revealed Comparative Advantage
RMA	Relative Import Advantage
RTA	Relative Trade Advantage
RXA	Relative Export Advantage
SCB	Social Cost Benefit
USD	United States Dollar
WOT	World Organization Trade

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CHAPTER 1

INTRODUCTION

This chapter provides the background of the broiler industry in Peninsular Malaysia, as well as giving in-depth discussion related to the issues facing the industry. The problem statement, significance, scope of the study, and the objectives all are presented.

1.1 Background

The Principal objective of this study is to explore the competitiveness of the broiler industry in Peninsular Malaysia. Competitiveness is the government's and private sectors' objective sought for their countries. At the national level, the importance of competitiveness may be important to maximise the population's welfare, while in the private sector they endeavour to be more competitive by enhancing profits, value added, return and market share. The term of "competitiveness" is one of the most commonly used concepts in economics however it is not specific enough, that there is no generally accepted definition of competitiveness. Competitiveness for the company can be defined as the ability to provide products and services as or more effectively and efficiently than the relevant competitors. At the firm level, competitiveness is the ability of the nation's firms to achieve sustained success against (or compared to) foreign competitors, again without protection or subsidies. For the nation, competitiveness means the ability of the nation's residents to achieve a high and rising standard of living (Krugman, 1994; Siudek & Zawojska, 2014; Snowdon & Stonehouse, 2006).

Malaysia is not an exception; both government and the livestock industry as a whole emphasise competitiveness due to its importance and the lack of competitiveness that is associated with food deficits. The focus on the broiler industry is possibly pertinent to its importance to the Malaysian and other countries. Substantial growth in animal protein consumption was apparent in Malaysia. Meat protein consumption increased by 34 per cent in the 1990s as the population rose by 15 per cent. A dramatic increase in protein consumption worldwide was related to the "livestock revolution." Unlike the green revolution for rice production in Asia, which was driven by the supply, the livestock revolution occurred due to demand. From 1970 to 1995 meat consumption in developing countries (77 per cent of the world's population) grew by 70 million metric tons (MMT), compared to that of 26 MMT in the developing world, which represents 23 per cent of the overall population.

Chicken is the primary choice of meat for most families in Malaysia. They include it in their diet once or twice a week at home or in cafeterias. It is as well a core element of the rising fast-food business; KFC, Burger King, and McDonald's together have a rising number of outlets in the country. It is not unexpected that one

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of the goals of the Third National Agricultural Policy (1998-2010), is to ensure a sufficient local supply of eggs and broiler chickens.

1.2 Livestock Industry in Malaysia

The livestock industry is a very important sector because it provides the largest protein source for Malaysians. The sector's ex-farm value was RM 20.1 billion in 2016 (DVS, 2016), of which 80 per cent was contributed by broiler meat. Generally, the production of livestock is inadequate to meet the increased demand due to parallel growth in population and consumption. For instance, Malaysian beef production was about 51,000 (MT), though the demand was over 201,000 MT in 2013 (Department of Statistics Malaysia, 2015). Also, the demand for mutton was about 28,000 MT, whereas the output was only 4,000 MT at the same time. The livestock sector, particularly the non-ruminant sector, is dynamic in speeding growth in the agriculture industry. It contributed to the gross domestic product (GDP) highly, which revealed an increasing trend in which it rose from 9.1 per cent in 2006 to 11.1 per cent in 2017, revealing a yearly growth of 6.6 per cent (DVS, 2016).

1.2.1 Production of Livestock Products

Figure 1.1 illustrates the livestock production trends in Malaysia for the period 2007 until 2017. Most of the product production has stably increased throughout that period. Beef production increased by approximately 32 per cent (from 28,680 MT in 2007 to 42,158 MT in 2017), mutton (from 1,246 MT to 3,106 MT), chicken meat (from 942,600,000 MT to 1,648,491.000 MT), lamb (from 534 MT to 1,503 MT). Given Malaysia's Islamic food orientation, pork production understandably decreased for the same period (from 200,109 MT to 194,375 MT).

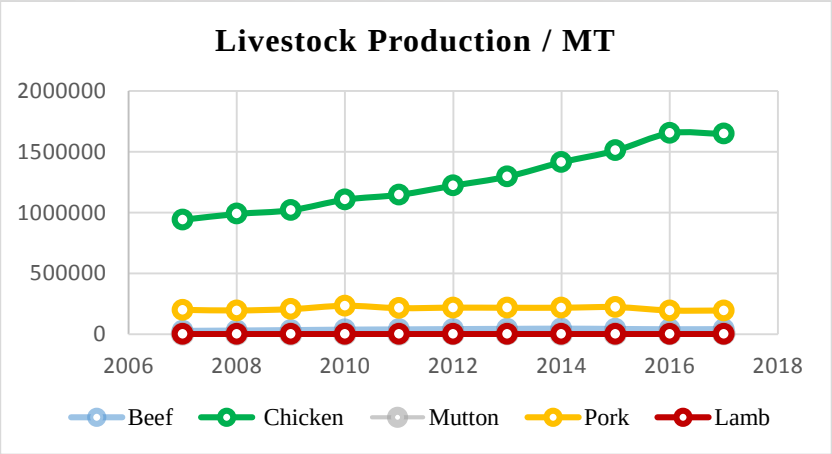

Figure 1.1 : Livestock Production in Malaysia 2007- 2017
(Source: Department of Veterinary Services, Malaysia 2018)

1.2.2 Meat Prices in Malaysian Market

Figure 1.2 shows the prices of various types of meat in Malaysian markets. Lamb, fish and beef are relatively expensive, with prices that range from RM 20 to RM 40 per kg. Chicken is the cheapest among the other types of meat with a range between RM6 and RM1. Although the price of chicken is low compared with different sorts of meat, it has experienced an increasing trend and was not stable during the ten year period. This increase and non-stability are due to the rise in the cost of production, which affects domestic prices (Ismail, Arshad, Yusop, & Noh, 2013).

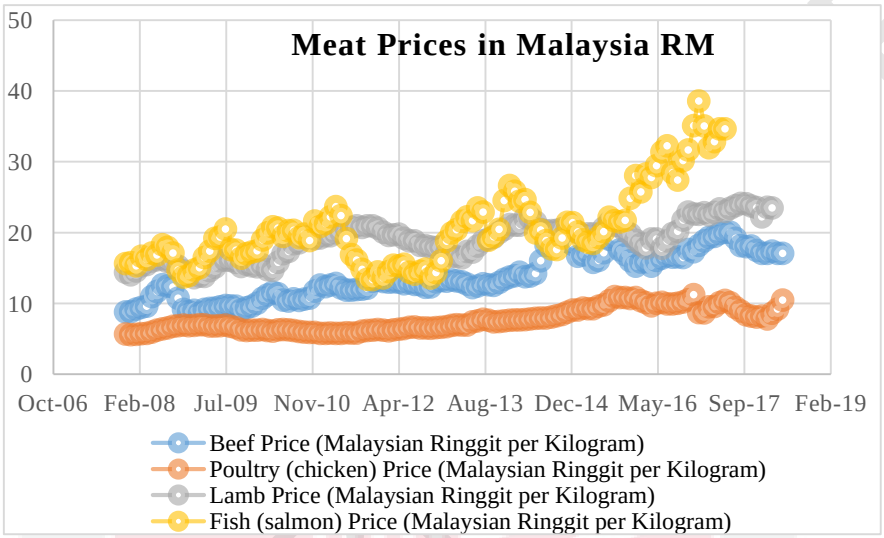

Figure 1.2 : Prices of Meat Products in Malaysia 2006- 2017
(Source: Department of Veterinary Services, Malaysia 2018)

1.2.3 Consumption of Livestock Products

Figure 1.3 displays the consumption trend for livestock products from 2011 to 2017. Beef consumption has increased by 21 per cent (from 167,388 MT to 211,816 MT). The trend shows about a 27 per cent increase for broiler meat (from 1,222,000 thousand MT to 1,668,800 thousand MT). The consumption of mutton increased with a more significant percentage, around 50 per cent for mutton (from 20,179 MT to 40,388 MT). The pork, on the other hand, decreased by 5 per cent (from 266,592 MT to 215, 370 MT).

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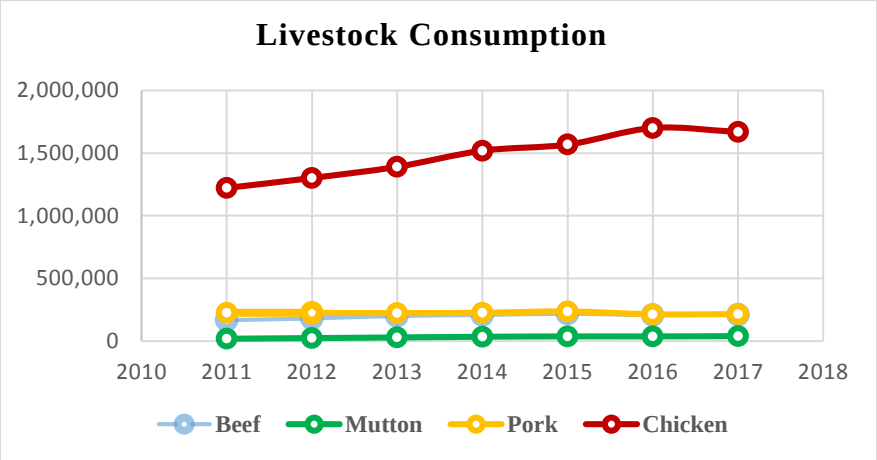

Figure 1.3 : Consumption of Livestock Products in Malaysia 2011-2017
(Source: Department of Veterinary Services, Malaysia 2018)

1.3 Broiler Industry in Malaysia

In Malaysia, chicken is one of the essential industries in the livestock sector, and broiler has become the principal meat for the country. Broiler meat production has improved due to its capability to enhance the self-sufficiency level of the country with developments in animal farming technology, nutrition, chicken breed and an integrated contract farming system that is experienced extensively (Majid & Hassan, 2014). The broiler industry has recorded a massive increase in production, which is mainly determined by effective and structured entities in the sector where big firms regulate a bigger market share. Johor and Perak contribute greater than 50 per cent of Malaysian broiler production (Awad, Elsedig, Ismail, & Arshad, 2015) According to DVS (2017a) self- sufficiency level reach 105.5 in 2011. However, self-sufficiency starts to decline and in 2017 was 103.33. (Table 1.1).

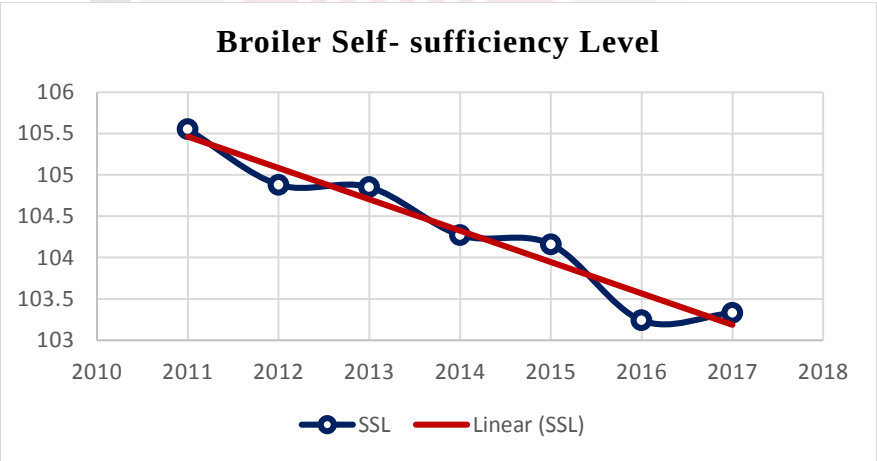

Figure 1.4 : Self-sufficiency Level in Broiler 2011-2017
(Source: Department of Veterinary Services, Malaysia 2018)

The Malaysian broiler industry has experienced significant structural changes, mainly growing vertical integration and increasing market attention at the wholesale level (Kaur & Arshad, 2008). There has been a continuing move in the direction of contract farming with a growing number of broiler growers working in contracts for commercial firms and integrators. These operational growths likely influence the industry's performance, especially in the efficiency of pricing and market integration.

The Malaysian broiler sector has been able to change from low existence positions to highly commercial and effective production schemes. This improvement has been enabled over the improvement of the infrastructure that permitted businesspersons to move into the broiler industry and improve sustainable and robust commerce. Since there are no dietetic preventions or religious restraints in consuming chicken, the industry has been grown significantly. Of the total meat requirements, chicken consumption accounts for 78.12 per cent of meat consumption in the nation (DVS, 2016). In addition, the existence of fast service eateries (QSR) like McDonald's, Kentucky Fried Chicken (KFC), A&W and Nando's Chicken-land has fueled the expansion of broiler meat intake among Malaysians when they eat outside the home or use take-away.

1.3.1 Broiler Industry Structure

The broiler market structure is different from that of the 1990s due mainly to farming integration and consolidation of growers over the past period. It is common now for broilers to be raised by farmers contracted individually with integrators who in turn retain the bird's ownership over their whole life cycle. In the Malaysian broiler industry, there are two sorts of producers: conventional and commercialised farms. Commercial farmers run commerce on a contract farming base besides an integrator, and traditional farms owned by self-entrepreneurs (DVS, 2016).

The structure of the industry is described as follows: "the farm level contains breeding farmhouses (grandparent and parent stock, hatcheries and grower farms)." Four companies control 100 per cent of the breeder birds imported, which commonly come from Canada, EU countries, the US and Thailand, which are sequentially used in producing eggs for the hatching of parental stock production in Malaysia (MoA, 2015). Those corporations are: Ayamas breeder Farm Sdn. Bhd., a subsidiary of the KFC Holdings Bhd., which provides around 36 million day-old chicks every year to supply farm requests and their contract farmers. The second one is Cakaran Corporation Breeding (CAB) Farm Sdn. Bhd., which is an integrated poultry farming and processing company. The third firm is Charoen Pokphand Farm Sdn. Bhd. Lastly, Leong Hup Poultry Farm Sdn Bhd, which controls three grandparent stock farms in Malaysia, generating greater than 130 million day-old-chicks annually that contribute 22.5 per cent of all day-old chicks the Malaysian market needs. The following are the listed companies Table 1.1) involved in poultry farming and related businesses:

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Table 1.1 : Companies Involved in Poultry Farming and Related Business

Company	Business
QL	Broiler, Layer, Feeds
Huat Lai	Broiler, Layer, Feeds
CAB	Broiler, Food, Retail
Lay Hong	Broiler, Layer, Food, Supermarket
Farmbes	Broiler, Layer, Food,
PW	Broiler, Layer, Feeds, Cattle, Food

(Source: DVS 2017)

There are 92 parent stock multiplication farmhouses held by 25 distinct companies. The DVS (2016) report indicated that ten of these enterprises are held and led by integrators, with yearly day-old chicks production capabilities fluctuating from 1.38 to 165.41 million birds. There were more than 3,500 agreements and company-owned grower farms producing around 650 million birds per annum in Peninsular Malaysia in 2013 (DVS, 2016). The integrators and the processing enterprises regulate 50-60 per cent of the over-all production via both contract and ownership of the farms. The DVS (2016) report found that Johor, Kedah, Pulau Pinang and Perak have the highest number of grower farms with a total of 60 per cent of farms producing together meat and eggs in the state.

The term "contract farming" refers to conditions in which a producer produces a commodity for a vertical integration company: Integration broiler contract farming (IBCF) is an integration program between integrators and contract broiler farmer (CBF). In a typical contract farming organisation, there are two parties: the grower and the company integrator. Broiler contracts contain subcontracts in the growing phase (Baluch, Shabudin Ariffin, Abas, & Mohtar, 2017). Contracts may also help growers moderate risks created by instabilities of input prices and offer a secure market channel for their produce. This is essential due to the inadequate facilities that the process broilers produced by noncontract farms. Although recent trends are shifting producers towards vertical integration, there are many growers presently under contract or with unused infrastructure from previous agreements remaining. Many Malaysian integrators participate in contract farming with broiler production farmers (Ariffin, Mohtar, & Baluch, 2014). In the system, it is required to sign a letter of agreement or memorandum of understanding (MOU) with the integrators. Contract broiler farmers are required to raise the chicks inclusive of food and medication supplies by the terms and regulations/clause given by the integrators (DVS, 2016). The main enterprise has a vertically integrated supply chain; it works as an integrated farmer, holding most of the breeding, feed, slaughtering and processing amenities (Figure 1.5). In general, the grower offers the land, buildings, equipment, and labour. The company, on the other hand, offers the broiler, feed, medicine, and management directions and services. Integrators (i.e. the firm that regulates or contracts out each stage of production) employee large farms (growers) that rear broilers as stated by contractual rules. Producers believe that contracts with integrators offer them admission to many facets of production that perhaps may otherwise be inaccessible, such as credit, production technology, and the world

market. Contracts farming can furthermore aid farmers to alleviate risks that arise from instabilities in the input prices and provide a secure market channel for their product. These advantages are important because of the limited facilities that process broilers that are raised by an independent farmer. The contracting system is more possibly to be enhanced by its capability to support entrepreneurs than by its capability to produce hugely competitive broiler products. The primary challenge facing the industry is its competitiveness; before WTO and AFTA (Asian Free Trade Area), the industry was greatly protected via import prohibitions and quantitative restrictions.

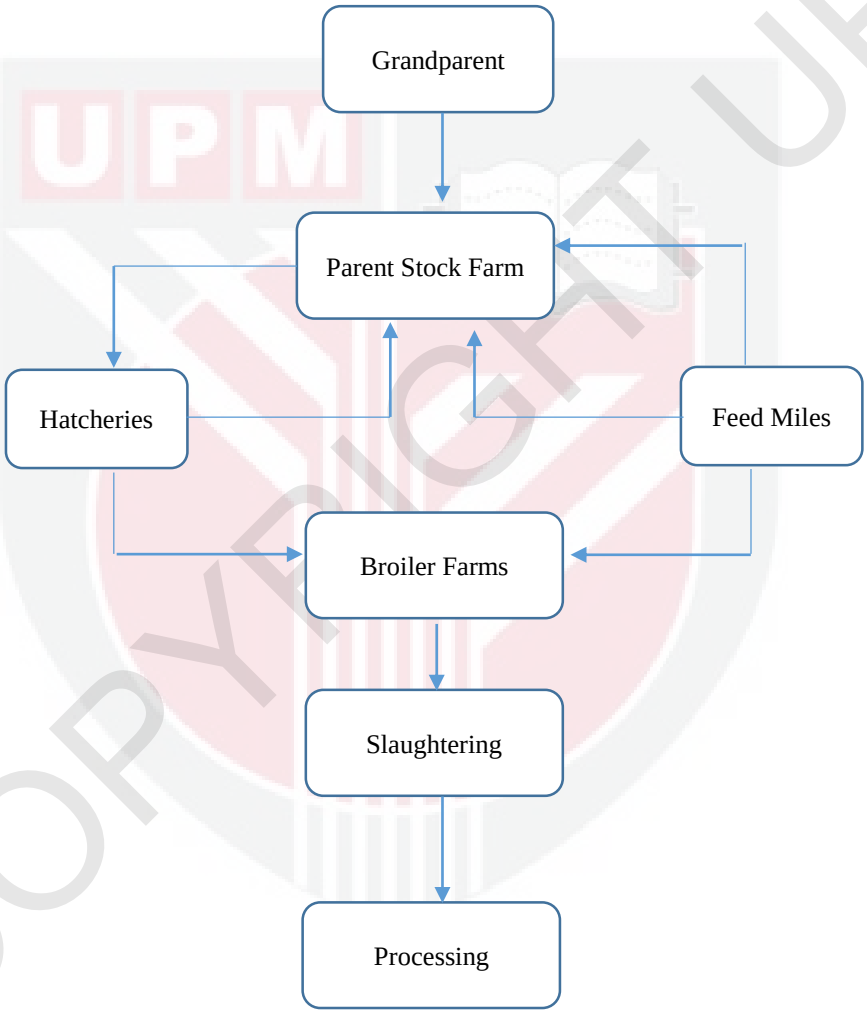

Figure 1.5 : The Vertically Integrated Broiler Production Supply Chain

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1.3.2 Broiler Production in Malaysia

The Malaysian broiler industry's development has been emphasised in Malaysian agricultural policies. Development of the sector is vital to withstand sustainable food security for the country. The plans take account of production of broilers as one of its plans to guarantee their adequate supply.

Figure 1.6 shows that production of broiler has increased every year because of more massive demand by domestic consumers as well as export markets. For instance, the output increased from 414.35 million birds in 2004 to over 799.62 million birds in 2017 (DVS, 2017b).

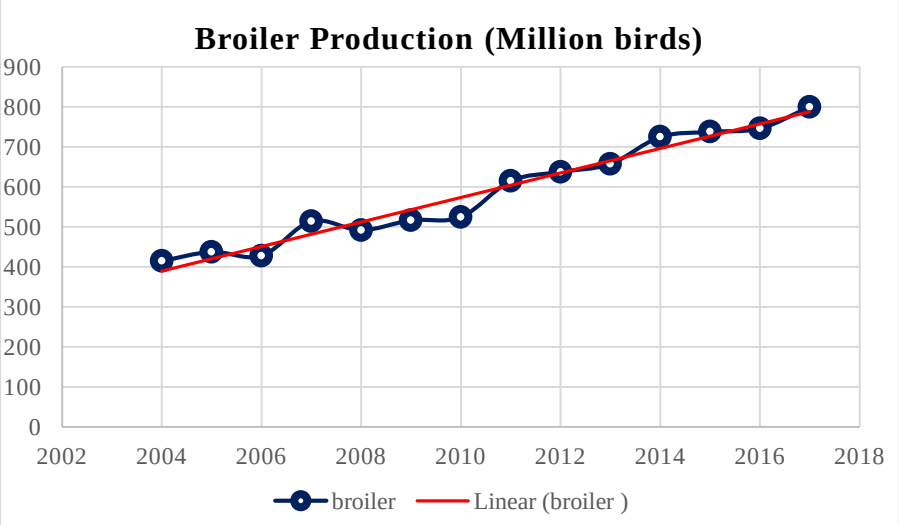

Figure 1.6 : Broiler Production (2004-2017)/ Million Birds
(Source: Department of Veterinary Services, Malaysia 2018)

To meet the demand for broiler products, Malaysia became self-sufficient in producing poultry in 2002. The overall domestic chicken production continues to record a growth at the average annual rate of 5.2 per cent from 2001 to 2011 (DVS, 2016). The increase in the whole domestic production of broiler meat from 2001 to 2011 increased from 682,000 to 1,214,000 tonnes, which surpassed the overall consumption by domestic consumers and generated surplus opportunity for the export.

Malaysian broiler meat production in 2015 was more than 1,671,000 tonnes, mainly from contract farming (MoA, 2015). Of all livestock production traded in Malaysia, chicken is the primary product that is consumed due to traditional and religious reasons. According to the newest obtainable data (up to end-of-year 2017), yearly consumption of broiler meat grew gradually from an estimated 43 kilograms (kg) per capita per year in 2012 to 50kg in 2017 (DVS, 2017b)

Figure 1.7. Around 70 per cent of all birds are sold as live or dressed meat in wet markets, and the remaining are provided to processing plants that in turn supply broiler products to hyper- and supermarkets, restaurants and food takeaway outlets.

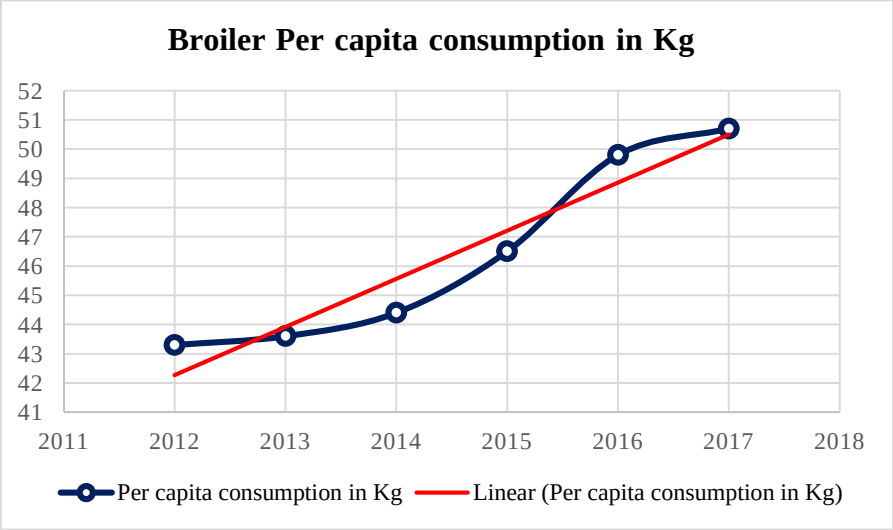

Figure 1.7 : Broiler Per- Capita Consumption/ kg
(Source: Department of Veterinary Services, Malaysia 2018)

1.3.3 Broiler Industry Issues

Various factors affect the production of the broiler industry, including feed cost, which contributes more than 72 per cent of production cost (DVS, 2016), as shown in Figure 1.8.

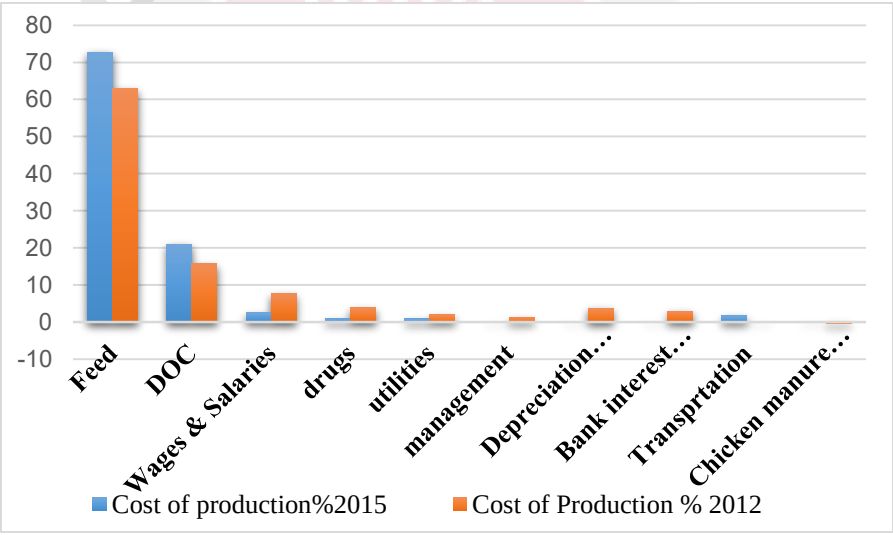

Figure 1.8 : Breakdown of the Broiler Cost of Production in 2012&2015
(Source: Department of Veterinary Services, Malaysia 2016)

Malaysia depends on imported feed. Instability characterises cereal prices (in particular corn and soya beans), and explains rising costs of production and reduced profitability. As can be seen from the charts in Figure 1.9 and Figure 1.10, corn & soybean prices fell almost 50 per cent from their peak in 2012, mostly due to high production in the US. From 2010, corn prices increased sharply to almost 100 per cent in not more than a year, the soybean prices as well increased to about 50 per cent in the same period. Both remained at a high level during 2011-2012. This might explain why most broiler farming companies suffered loss (except QL, Teo Seng & PW) or enjoyed only minor profit (Teoseng & PW) in 2012 (DVS, 2016). From historical data, the prices can rise as fast as it falls, which put the broiler farmers under risk. Hence, it will affect domestic prices of broilers.

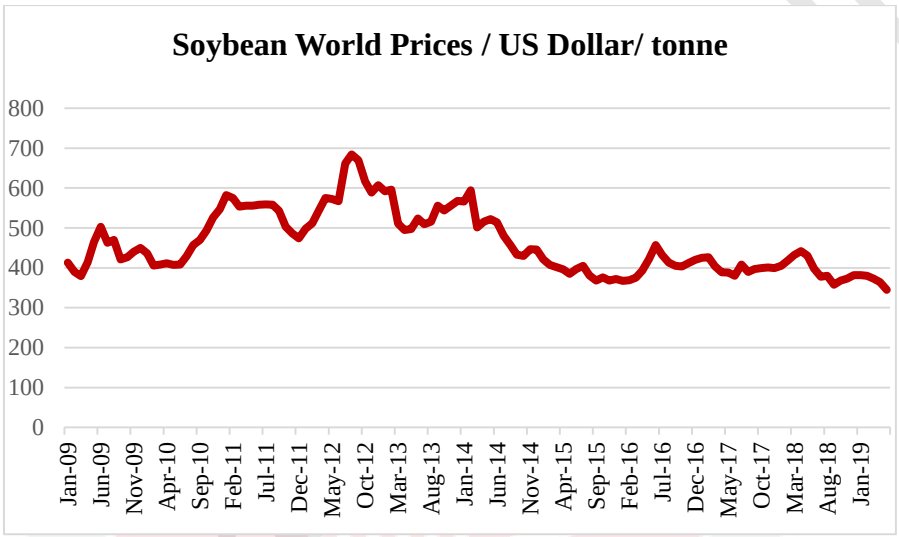

Figure 1.9 : Soybean World Prices 2009-2019
(Source:(FAO, 2019))

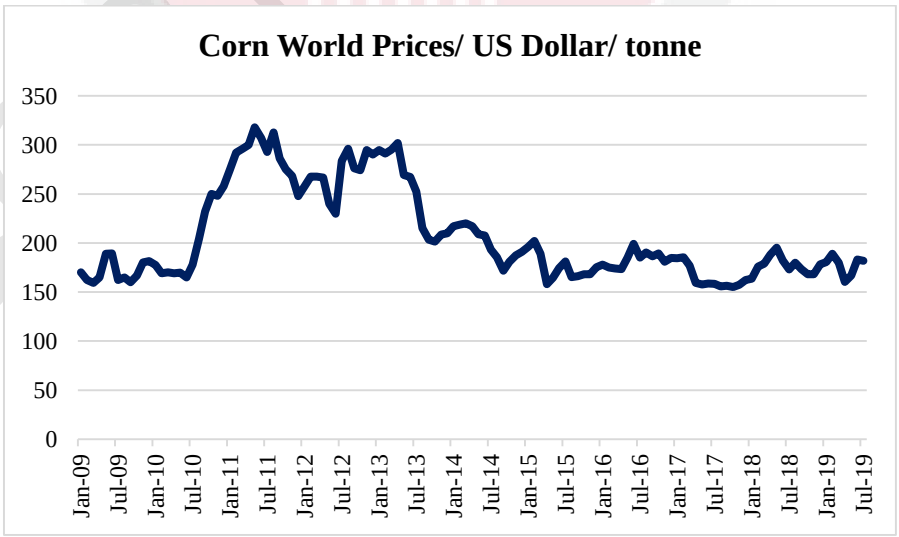

Figure 1.10 : Corn World Prices 2019-2019
(Source:(FAO, 2019))

Another issue is the chicken risk industry. The broiler industry provides risks to global public health from emerging and re-emerging animal diseases. This is specifically seen in the transmission of avian diseases to a human beings with epidemic potential. Recently, the emergence of transboundary diseases, such as the Highly Pathogenic Avian Influenza (HPAI), chicken anaemia virus and the Newcastle Disease Virus (NDV), has caused demand and supply issues in some nations. The demand shock results in the decrease in demand as a result of consumer fright and is linked to a drop in the price and value of broiler meat. At the same time, the supply shock causes a decline in the supply of broiler because of fowl mortality from disease. In trade, this helps in planning protocols to control trade along with the implementation of hygienic and phytosanitary (SPS) measures to protect public health Birol et al. (2010). The presence of transboundary diseases helps in developing trade policies to decrease the exposure of the broiler industry to outside supply and demand shocks.

Another problem associated with macroeconomic policy is affecting the performance of the industry, namely fluctuations in the exchange rate. The changes affect competitiveness in the industry. If the Malaysian Ringgit is depreciating against the US dollar, then different outcomes on the viability of each product could arise. Since more than 70 per cent of the feed components used are imported, the sensitivity of the exchange rate changeability on the level of comparative advantage should be studied carefully.

Figure 1.11 reflects the history of the Malaysian exchange rate; the rates also fluctuate the positive coefficient of the equation indicated that the trend might increase further.

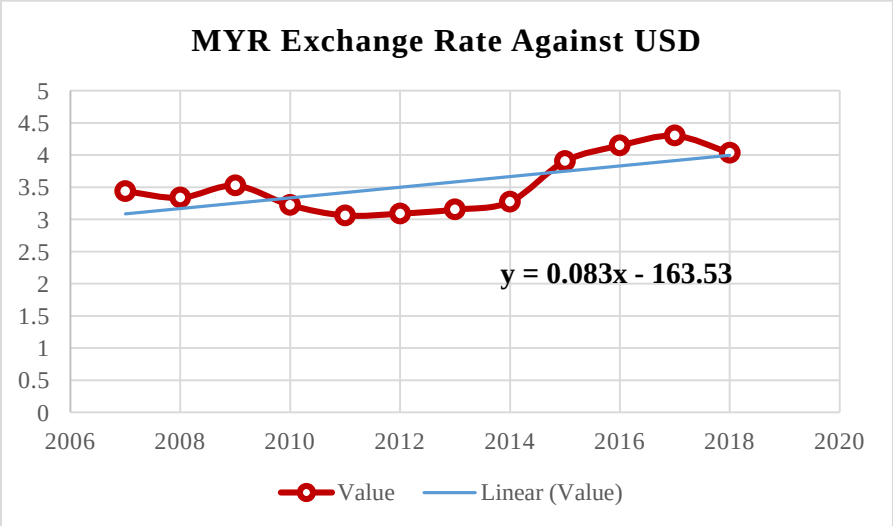

Figure 1.11 : Malaysian Exchange Rate Against USD Dollar, 2007-2018
(Source: (FAO, 2018))

1.3.4 Broiler Industry in Agricultural Policies of Malaysia

Since the 1980s, the Malaysian policies implemented after independence were partially successful yet failed to stimulate the expansion of food production (MoA, 2015).

Malaysia has different policy aims and has emphasised many different policy tools from those relevant to developed countries over the last several decades. Interventions by the government in agriculture have taken various forms like "subsidies, taxation, regulatory restrictions on the production and trade of produces"(DVS, 2016).

After independence, the government saw the necessity to improve the agricultural farm sector. They applied interventions for the whole agriculture sector. Agricultural development programmes aimed to develop the social well-being and the economics of the rural population in general, as well as the farming communities in particular. Following that, the agricultural policy intended to enhance output and productivity. Land development involved clearing forests for plantation export crops; the primary objective was to increase the export of agricultural commodities. The reform was expected to enhance the productivity of agriculture, smallholder's employment and earnings.

There have been seven five-year development strategies since Malaysia's independence, which were carefully formulated to lead to the social stability and economic development of the country and achieve the objectives stated in public policies. The government in each plan was executing monetary and fiscal policies in addition to providing government support to stimulate investment, augment competitiveness, increase activities of export, encourage research and development and develop the labour force. The 1956-60 and 1961-65 plans were principally concentrated on animal husbandry and disease control. In the "first Malaysia Plan" (1MP, 1966-70) the goal of livestock improvement was to assist on a continuing basis the investigation into all livestock production aspects, and aspects of veterinary public health, animal health and animal production were under the Department of Veterinary Services responsibility.

The livestock policy's objective is reinforcement of superior meat protein national production to decrease import dependency and ensure stable meat supplies for customers at reasonable prices. The interventions as an import substitution policy have contributed substantially to the enhancement of the sector of livestock. Incentives for the livestock sector have been providing an effective service of animal health, research and development and authorising and regulation of slaughtering. Malaysia is highly dependent on imports for feedstuffs and feed-grains, breeding stock and animal vaccines.

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The broiler industry development has been underlined in the National Agriculture Policy (1998-2010) and National Agro-food Policy (2011-2020). Developing the industry is imperative to enhance food security for individuals. The National Agricultural Policy (1998-2010) embraces the production of chicken as one of its plans to guarantee an adequate supply of chicken. Along the lines of this schema, an effort to stimulate efficiency and to integrate the industry amongst the small smallholders was singled-out as a policy requirement. The National Agro-food Policy (2011-2020) published a number of policies to guarantee the broiler industry continues to be a competitive business. The plans include reinforcing broiler production practices by utilising new technology alongside good farming practices like automation and the use of closed house technology. The industry promotes the use of microorganisms as natural control agents.

To ensure sustainable chicken meat production, the Malaysian government has implemented a number of initiatives. Broiler meat production was expected to grow at an adequate rate of 2% yearly with predicted net annual production of 1.44 million tons (DVS, 2017b). The contract system in broiler farming is one of the alternative ways in guaranteeing the broiler meat supply availability now and in the future. The contract system also offers jobs opportunity for new businesspersons. In addition, under the Ministry of Agriculture, there are some departments and agencies who support entrepreneurs in broiler production. These agencies are the Department of Veterinary Services (DVS), Farmer's Organization Authority (LPP), and Malaysian Agricultural Development Authority (MADA). They publish information, offer training, and support the development of broiler production financially in Malaysia. Therefore, government agencies with such strong practices are given the mission of ensuring that the broiler supply chain development is capable of increasing the propensity for broiler production sustainability in terms of availability and affordability to meet Malaysian supply and demand towards food security achievement.

In summary, the Malaysian government has a crucial impact on competitiveness since it led the country's overall business via fiscal and monetarist policy, a research and development policy, market structure, education training, labour policy and many industries has been improved through the New Economic Policy (NEP) and New Agriculture Policy NAP. It can be said that to promote the agricultural industry, the government of Malaysia has outlined effective policies, plans and strategies.

1.3.5 Broiler Industry Trade

The meat industry is one of the leading sectors that contributes to the total output of the food industry. However, its contribution is quite small compared to other sectors. The chicken industry has grown as the local demand increased, but Malaysia is still unable to meet the rising requirements for all meat preparation products, and the country still needs to import certain products. Recently the production of chicken meat has increased positively, as shown by the production trend line coefficient, which indicates that manufacturing is increasing by 53.88 per cent Figure 1.12.

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However, the nation still needs to import chicken meat to meet domestic demand and import has demonstrated an increasing trend of 2.45 per cent, as presented in

Figure 1.14. In contrast, the export of chicken has fluctuated since 1996 to the present day, and although the trend is increasing, the coefficient value is not significant, with only 0.35% Figure 1.13.

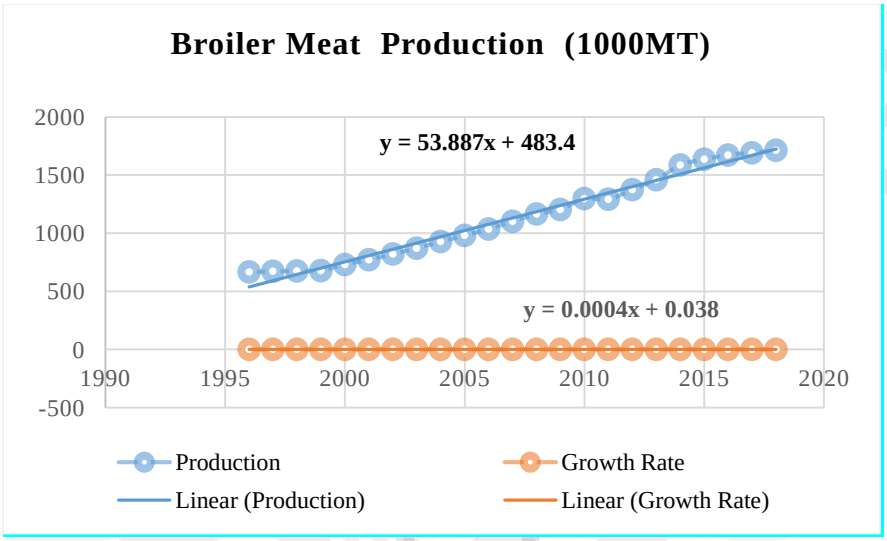

Figure 1.12 : Broiler Meat Production (1000MT) 1996-2018

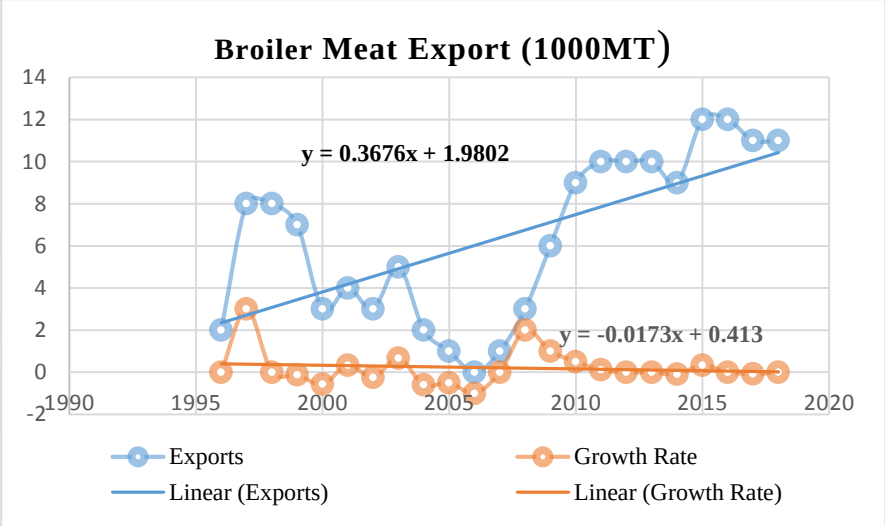

Figure 1.13 : Broiler Meat Export (1000MT) 1996-2018

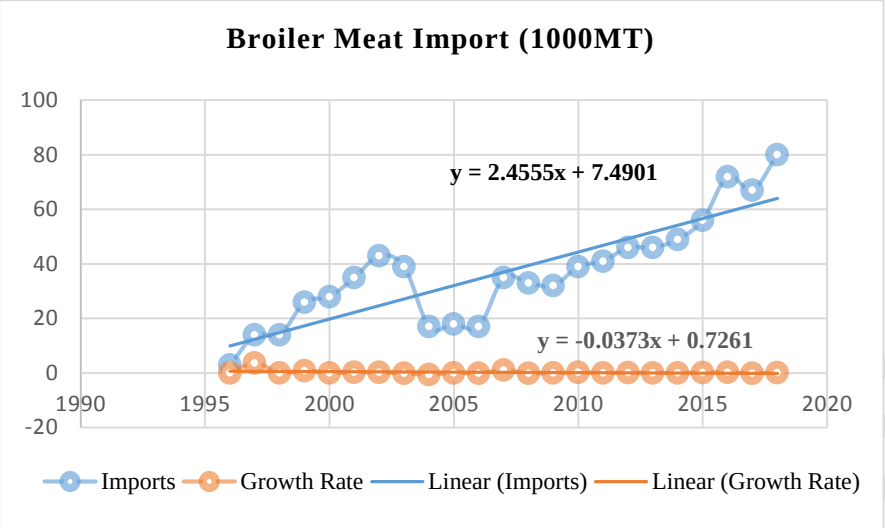

Figure 1.14 : Broiler Meat Import (1000MT) 1996-2018

Compared to the main broiler world exporters, Malaysian export is smaller than Thailand, for example. Malaysian broiler export was only 11,000 MT and Thailand's was 810,000 MT, as shown in Figure 1.16. The importation of chicken parts by Malaysia was recorded at 80,000 MT in 2017 (see Figure 1.15).

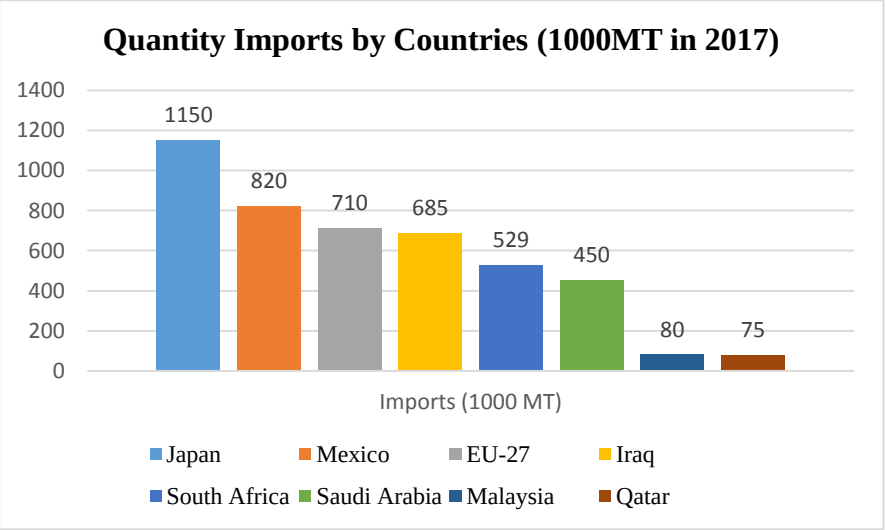

Figure 1.15 : Quantity Imports by Selected Importers Countries in 2017
(Source: International Trade Centre ITC (2018)

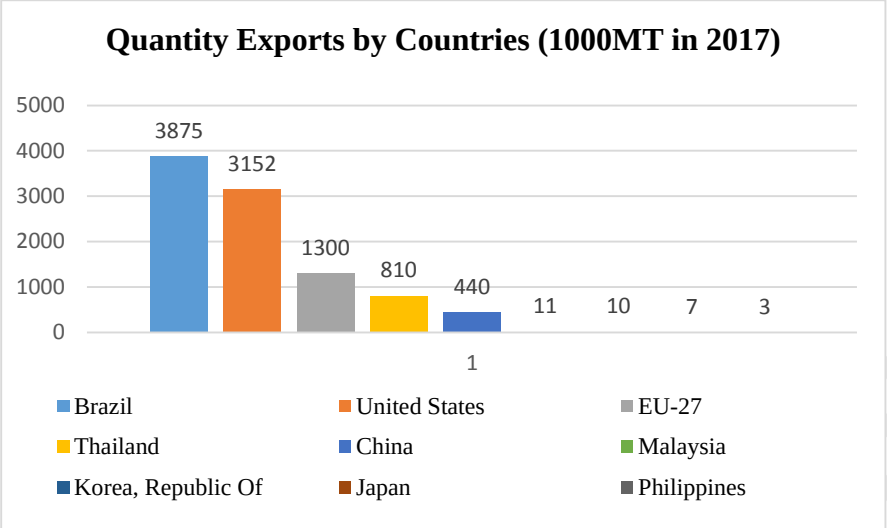

Figure 1.16 : Quantity Exports by Selected Exporters Countries in 2017
(Source: International Trade Centre ITC (2018)

Figure 1.17 reflects the comparison between import and export of broiler meat cuts. The figure indicates that there is a considerable increase in the importation of the chicken, whereas the export has declined. That decline is due to the rise of domestic demand. As the import increases, it affects the competitiveness of the industry and hence affects sustainability.

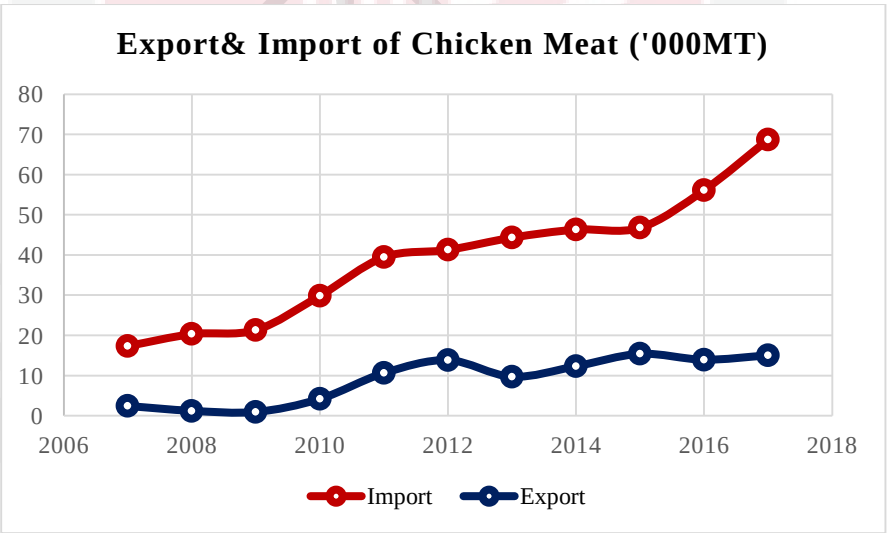

Figure 1.17 : Chicken Meat Export & Import 2007- 2017 (000, MT)
(Source: International Trade Centre ITC (2018)

There has been an increase in exports, but the import of meat preparation has increased simultaneously to meet the rapidly growing demand by local consumers. This significant increase in imports might be the result of population growth and changing eating habits. The increasing trade in chicken meat was stimulated by rising

incomes in the nation and growing consumer demand for convenient meat products. Table 1.2 represents the export, import and the balance of trade of four chicken sub-groups known as HS020711 (whole chickens and capons, chilled), HS020712 (whole chickens and capons, frozen), HS020713 (chickens and capons, cuts and edible offal, fresh or chilled) and HS020714 (chickens and capons, cuts and edible offal, frozen). The value exported for the HS020711 and HS020714 types suggests that Malaysia is mainly relying on imports of these. HS020713, in contrast, indicates the amount of exports is exceeding imports in the first seven years. However, it started to face deficits in 2015, which can be a result of the 2014 crisis in the broiler industry due to the security measures implemented following the Newcastle Diseases Virus (NDV) outbreak. This affected many countries, and Malaysia was not an exception. For security reasons, exports have dropped significantly since then. The whole chickens and capons, frozen (HS020712) started to record a surplus in 2012. Despite the exports decreasing in 2014, it rose dramatically in 2015 followed by another drop in 2016 and 2017.

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Table 1.2 : Export, Import and Balance of Trade of Four Broiler Meat Sub-groups

	HS020711			HS020712			HS020713			HS020714		
US$	**EXPORT**	**IMPORT**	**BOT**	**EXPORT**	**IMPORT**	**BOT**	**EXPORT**	**IMPORT**	**BOT**	**EXPORT**	**IMPORT**	**BOT**
2008	0	3	-3	908	1,656	-748	766	0	766	1,432	63,767	-62,335
2009	1	0	1	568	272	296	1,791	0	1,791	2,910	48,737	-45,827
2010	1	0	1	291	820	-529	3,468	0	3,468	3,341	68,046	-64,705
2011	56	11	45	744	906	-162	3,074	75	2,999	5,389	102,805	-97,416
2012	61	58	3	2,345	1,756	589	1,513	2	1,511	5,513	104,313	-98,800
2013	5	10	-5	2,049	816	1,233	926	0	926	5,439	107,883	-102,444
2014	0	2,201	-2,20	656	410	246	1,666	234	1,432	5,137	109,723	-104,586
2015	0	5,007	-5,00	4,043	2,425	1,618	2,268	13,956	-11,688	6,141	89,207	-83,066
2016	0	0	0	2,793	1,988	805	1,124	10,840	-9,716	8,365	108,318	-99,953
2017	0	0	0	1,214	1	1,213	1,044	14,624	-13,580	7,646	128,480	-120,834

(Source: International Trade Centre ITC (2018)

Note: HS CODE Description

HS020711 Chickens and Capons whole or chilled

HS020712 Chickens and Capons whole, Frozen

HS020713 Chickens and Capons cuts and Edible offal fresh or chilled

HS020714 Chickens and Capons cuts and Edible offal, frozen

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1.3.6 Top Export and Import Destinations for Malaysian Broiler

Figure 1.18 shows Malaysia's main export destinations as being Singapore, Brunei, Thailand, and Indonesia. Brunei and Singapore are the biggest export destinations with a share of 31 per cent and a value of USD 4,3 million and 4,3 million, respectively (International Trade Centre, 2018b). These destinations are followed by Thailand and Indonesia and a small share from exports to Japan. It is apparent that broiler export is limited primarily to neighbouring countries. In order to be competitive, the country needs to expand its export and open new markets for its exports.

Figure 1.19 shows the top five import destinations for Malaysia. Malaysia's main suppliers are Thailand, with a share of 58 per cent or USD 89 million. This is followed by Brazil and China with a share of 23 and 15 per cent, respectively. Netherland is also one of the suppliers for the Malaysian market with a value of USD 3.3 million (International Trade Centre, 2018b).

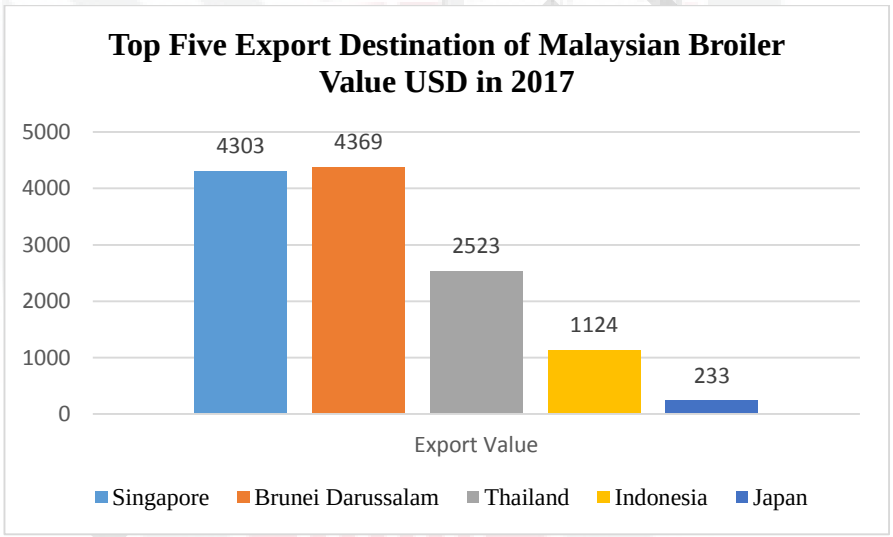

Figure 1.18 : Top Five Export Destination of Malaysian Broiler Meat in 2017
(Source: International Trade Centre 2018)

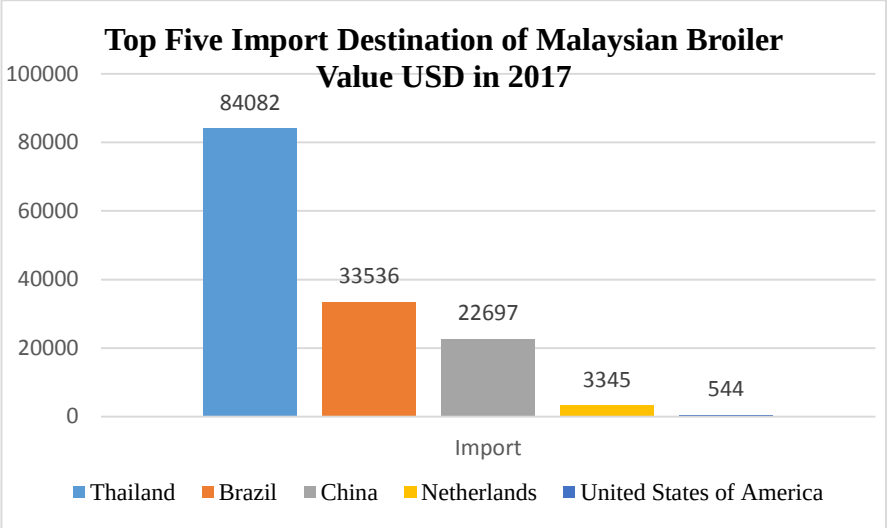

Figure 1.19 : Top Five Import Destination of Malaysian Broiler Meat in 2017
(Source: International Trade Centre 2018)

1.4 Problem Statement

The development of Malaysia's economy depends significantly on the agricultural sector performance of which livestock plays a vital role. The livestock contribution to the GDP and its export share in the world was not as high as the leading exporter. Malaysia exports only 10,000 MT of broiler compared to Thailand with 810,000 MT in 2017 (International Trade Centre, 2018b). Although the Malaysian broiler industry is growing, Malaysia still relies on imports to meet high domestic demand. The trade balance of broiler has been a deficit in recent years, indicating the domestic demand is too high, but the domestic resource is limited.

Similarly, the SSL shows a declining trend from 2011 to 2018, reflecting a problem facing the industry in terms of competitiveness and export because the SSL is one of the important indicators of the export. Malaysian broiler meat is well accepted in many countries, especially in its main export destination Singapore. It faces trade challenges and competition from countries that produce the same products. Its export strategies are not as competitive as those of the leading exporters. It is apparent the Malaysian broiler industry has some structural problems that affect export performance.

Various factors affect the production of the broiler industry, including feed cost, which contributes more than 72 per cent of the production costs (DVS, 2017b). The raw materials are the key aspect that contribute to the high cost of broiler feed, which is imported from overseas. The core ingredient of broiler feed is corn and soybean which are imported from Thailand, Argentina and Brazil. There is instability in the trend of cereal prices (in particular corn and soybeans) with rising costs of production and reduced profitability. Diseases that adversely affect poultry production will lead to higher costs of production because of the need to get the chickens vaccinated. Another

issue is that the coop technology producers used have an impact on the profitability because producers using closed systems receive higher profits than those using open systems (Benalywa, Ismail, Shamsudin, & Yusop, 2017). The accessibility to technology and vertical integration is also an important factor affecting the industry. Market competition is an important issue, and it has an impact on the export of broiler meat. Malaysian broiler meat shares in world export are still low with only 0.6 per cent compared to the Netherlands and Brazil who represent of 17 and 5.6 per cent, respectively (International Trade Centre, 2018a).

Despite its growth in production, Malaysia still needs to import chicken to meet the increasing demand by local consumers, especially on some occasions and events like Ramadan and Hari Raya. A total of 68,71 metric tonnes of raw and marinated importation of numerous chicken meat cuts in 2017 was recorded. The imports increased by 32 per cent compared to 2015. Certain imports are expected to jeopardise the feasibility and sustainability of the domestic industry, which is by this time facing an extended high production cost.

Although, the broiler trade does not take a large international share of the trade of Malaysia, to be a part of it is a nonetheless vital and essential requirement for the development of efficiency and global competitiveness. By elaborating the existing problem, a study on the competitiveness and the economic aspects of the broiler industry is urgently needed to complement knowledge of the existing production problems found in the industry.

1.5 Research Questions

This study attempts to determine the impacts of all those factors on the competitiveness of the broiler industry via the following research questions:

1. Does the broiler production system have a comparative advantage?
2. Do existing government policies protect broiler production?
3. Does the Malaysian broiler industry have a comparative advantage at the trade level?

1.6 Objectives of the Study

This study aims to evaluate the competitiveness of the broiler industry in Peninsular Malaysia.

The specific objectives of the study are:

1. To determine the comparative advantage of broiler production.

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2. To evaluate the impact of policies on broiler production.
3. To examine the comparative advantage of broiler trade.

1.7 Scope of The Study

The study focuses on the competitiveness of broiler production and trade in Peninsular Malaysia. However, the study was limited to the broiler production and trade level. The study focuses on the competitiveness of broiler production given imports from the region. The data collected was limited to the period between late 2015 and early 2016. And data for trade analysis was from 2009 to 2017

1.8 The Significance of The Study

Malaysia has the potential to improve broiler farming to meet increased domestic and international demand. Malaysia has sufficient infrastructure, there is a high demand for broiler meat, and the prices are affordable compared to other types of meat. Since the domestic demand increased due to the growing population and its eating habits, the government implemented policies to increase broiler meat production.

Chicken is the basic source of protein for the majority of Malaysian consumers (MoA, 2015). It is essential to ensure sustainable chicken production in the context of achieving food security in broiler production. With the existing issue of increasing feed costs contributing to the feedstock price increase, a study on the value of production is vital. The study outcomes is beneficial to policy-makers and moreover to help understand the impacts of the existing policies undertaken by the Malaysian government. It requires significant efforts towards developing the industry management and production system and to support producers, especially smallholders.

The study described the benefits of global trade. On the issue of broiler production, it is vital for policymakers to evaluate the comparative advantages of broiler production in Malaysia to develop suitable policies and implement these advantages effectively. The advantages have further benefits to broiler producers by allocating promising activities and avoiding unsustainable innovations.

It is essential to increase the production of broiler meat and its quality to compete with the leading exporters. To achieve this, it is vital to reduce the cost of production, which increased from the high prices of feed imports. As a result, effective policies and recommendations are essential to reduce the cost of production.

There is a considerable amount of literature that looks at competitiveness by applying the Policy Analysis Matrix (PAM). In the current study, indicators like Domestic Resource Cost (DRC), Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) Social Profitability, Private Profitability, Revealed Comparative

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Advantage (RCA) and Relative Trade Advantage (RTA) were used to evaluate the competitiveness and trade performance of the broiler industry and to measure the policy protection. There was little evidence in the literature on using these indicators in the Malaysian broiler industry, especially for the contract farming. The broiler industry is vital to Malaysia, and current research aims to evaluate the comparative advantage of broiler production and to assess the relative trade advantage of the country. This is done to provide the government with policy options to enhance broiler production sustainability and improvements.

The main contribution of this study is based on utilising different tools and techniques to measure the comparative advantage of using PAM, DRC, Social Cost Benefit (SCB), NPC, EPC, RCA and RTA.

1.9 Thesis Organisation

This study is divided into five chapters. Chapter One gives a brief background on the broiler industry in Malaysia, its production and trade position. The chapter includes the problem statement, objectives, scope and the significance of the study. Chapter Two reviews the literature on the competitiveness and concepts of competitiveness and comparative advantage and related studies. Chapter Three describes the methodology of the research and the instruments used for analysis. Chapter Four presents the results and discussion of the research. Lastly, Chapter Five summarises the research and provides policy implications and recommendations for future research.

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