BROILER INDUSTRY WITH EMPHASIS ON SHORT SUPPLY CHAIN IN MALAYSIA

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Abstract

Poultry is one of the fastest growing an agricultural sectors. The poultry industry provides meat that is preferred by almost all cultures, is affordable and of good quality. In Malaysia, the poultry farming business has been in existence for a long time. The subsectors of this industry are major buyers, processors and suppliers of processed commodities to the retail sectors and the final consumer markets. These markets are exposed to various risks, including input-commodity price volatility, high capital requirements, the inherent business and climatic risks of the different subsectors and various other challenges. These factors have a major impact on decision makers, from large to micro role players in the agricultural supply chain, especially in the feed and livestock markets. Restrictive factors currently being faced by broiler industry players in doing business, among others, include issues relating to infrastructure for feed manufacturers (the cost and competitiveness of doing business). A good infrastructure may assist with optimising the feed industry at higher levels of operation. In recent years there has been a changed interest and a significant growth in alternatives to the conventional food supply chain which allow primary producers and consumers to connect in new and more direct ways through short supply chain. This study enhances the emerging knowledge base on this fast growing sector of the food industry and rural landscape and more specifically, examines how the sector might be encouraged and facilitated to grow further and provides findings on the current situation relating to the broiler industry.

Keywords: Short Supply Chain, broiler, vertical integration, Feed Conversion Ratio

BACKGROUND

The animal feed industry is of strategic importance and these subsectors are major buyers, processors and suppliers of processed commodities to the retail sectors and the final consumer markets. The animal feed industry is exposed to various risks, including input-commodity price volatility, high capital requirements, the inherent business and climatic risks of the different subsectors, and various other challenges. These factors have a major impact on decision-making, affecting from large to micro role players in the agricultural supply chain, especially in the feed and livestock markets. They have to cope with price-cost squeezes from buyers' and sellers' perspectives. The feed industry in general forms part of the value chains of these industries, as feed is a major component of production costs in these value chains. The purpose of this paper was to study and understand the broiler industry supply chain, focusing on feed and feed- related issues experienced within the feed and broiler supply chains.

Producers face various challenges on a daily basis within a dynamic, ever-changing environment, which encounters increasing risk to such a degree that in order to farm sustainably, a competitive advantage in the form of lower-cost and higher-quality produce must be established. Primary production is relatively concentrated, implying that farmers are price takers on the input and output sides.

Significant barriers to entry exist in the value chain. These barriers include high capital requirements, relevant experience and track records, the significance of research and biotechnology in the provision of seeds, and economies of scale in other major inputs such as fertilizer, the cost of establishing large grain silos, large-scale milling operations and sophisticated logistics, and infrastructure. Such barriers to entry make it difficult for new and smaller entrants to compete with existing market players.

In world production for last three decades there has been rapid growth in livestock production. According to Delgado et al. (1999), the consensus of economist is that the growth in livestock production was tempted by increased demand, which was driven by increasing populations and rising per capita incomes. In term of contracts, the relation between firms and farmers in the the economic boundary has risen extraordinarily over the last twenty years. According to Barret, Ilbery, Browne, & Binns (1999), Glover & Teck Ghee (1992), Little & Watts (1994), and White (1997), in Asia and Africa studies of contract farming have shown the growth of this phenomena although the level of contract relations in these regions are not as obvious as in the Latin American case. Murray (2001), the contract relations have subtle to the further most increased of the world system concerning, in one example, input suppliers in New Zealand with pumpkin producers in Tonga and purchasers and consumers of the final product in Kobe, Japan The contract form itself has globalized, as much as it reflects, supports and facilitates the process of agricultural globalization which both inter related each other.

The flexible form of contract farming is a relative design of integration to allow firms increased greater control over the yield of commodities on the farm. The vertical integration represent as such form, but without acquiring the responsibilities of possession of either the different phases or nodes of production. Reynolds (2000), in return for this assured market, the grower agrees to accept by a set of established production procedures under the oversight

of the purchaser. Usually purchasers provide some technical support and services, while growers provide the necessary land and labour.

As a form of socio-economic relations the contract has evolved due a specific set of historical factors and can be seen as part of the broader chronological process of the industrialization, and associated vertical integration of agriculture development. Whatmore (2003) argues, the growth of agribusiness has been widely documented, reminding us that over the last fifty years the nature of farming and commodity production have changed massively as large scale investment, typically sourced in the global essential, has required to extend its control of the numerous nodes of commodity chains and developments. By engaging contract farmer's agribusiness has sought cheaper labour, cheaper natural resource provision, reduced transaction costs and including the risk transfer.

As noted previously, the evolution has become particularly obvious in Latin America (Barham, Clark, Katz, & Schurman, 1992; Murray, 2002), and such sectors were obviously targeted for growth in order to mitigate the impacts of the debt crisis in the early 1980s. Contract farming has also been linked particularly with the rise in non-traditional agricultural exports from the boundary, the promotion of which has become a crucial strategy within the context of structural adjustment programs beginning in the 1980s in Latin America. Suggested by Watts & Hahn (1993), some have seen this as an essential element in the evolution of the newer international division of labour and the development of agricultural system which is global in latitude and flexible in form.

The outcomes of the nature contract farming, and in certain its distributional has provoked much argument and disagreement and some have debated that the form of the relationship between business and farm brings many potential benefits for large scale, not least small-scale ones; the contract can reduce transactions costs by providing a guaranteed market, reduce the risk for growers by reducing price fluctuations associated with the quantity adjustments within commodity markets, as well as motivating technological transfer. Possibly most importantly the contract system can offer finance facilities for the growers, who might otherwise not be able to secure access to conventional markets. Previously according to Glover (1987), many have debated beginning with and, that making credit facilities available is perhaps the overriding factor explaining the willingness of small-scale producers in the periphery to become involved parties in farm contracts. Later (Goldsmith, Salvadoe, Knipe,

& Kendall, 2002; Key & Runsten, 1999), have reiterated that contract farming can benefit both parties, both of whom are interested sharing risk and lowering transactions costs. Many however are critical of contract dealings and argue that they have discriminated against small-scale producers in particular (Glover & Teck Ghee, 1992; Little & Watts, 1994; Murray, 1997; Wilson, 1986).

Poultry industry in Malaysia has two types of producers. It comprises of commercial farms and conventional farms; commercial farms that run business on contract farming basis with integrator and conventional farms that belong to independent entrepreneurs. According to Ariffin, A.S., Lamsali, H., & Mohtar, S. (2012a) the contracting scheme is therefore more likely to be sustained by its ability to support entrepreneurs than it is by its ability to produce highly competitive product. In 2009 there were 3,300 farms in operation carrying a standing population of nearly 186 million broiler chickens. Of these farms, 22.9% are large farms with more than 50,000 broilers per cycle while 26.2% are medium scale farms carrying 20,000-50,000 broilers per cycle, and the rest are small farms with 20,000 broilers per cycle. According to Ariffin et al.,(2013) the states of Johor, Sarawak and Perak were the major producers of broiler which constituted 52% of total national production. Malaysia is 121.8% self-sufficient in the supply of poultry meat. Most were consumed fresh. It is the main meat type consumed in the country accounting for 70% of the total meat consumed. Only 9% of local production was used for further processing. However, processers were increasingly getting supplies from cheaper imported poultry meat for value added processing. In fact, most of poultry supplied for processing were from imports.

Apart of broilers, there is growing niche market for indigenous cross breed chicken. These chickens were produced by an estimated 80 commercial and semi commercial farms in practicing semi intensive system, with carrying capacities of 5,000 – 20,000 chickens per cycle. There is also the backyard farming of indigenous chicken, involving about 120,000 farmers, but most of this was subsistence farming rather than for commercial purpose. However this subsector contributed to only 1% of national production of poultry meat. As was the situation for eggs, the “excess supply” was mainly exported to Singapore, where the growing demand for fresh livestock products is advantageous to Malaysia due to its geographical proximity. According to Ariffin et al., (2013) the main challenge facing the industry is its competiveness, where prior to WTO and AFTA, the broiler industry was highly protected through import bans and quantitative restrictions. Currently some products are

under tariff rate quotas. In this respect, transforming the small scale farms to a more capital intensive medium and large scale farms is the major initiative that is needed by the industry to enhance productivity and competitiveness to sustain the industry in a more liberalized market. In moving towards a more liberalized market, since the middle of 2008 the government had abolished price controls on broiler and broiler product prices, which before this was controlled in every part of the supply chain. As suggested by Ariffin et al., (2012b) another challenge for the industry is to cope with the environmental and pollution issues associated with its production system. In this respect, the government has provided incentives for producers to upgrade their production system from the open to the more efficient and environmentally friendly closed house system of production.

According to DVS (2013), in 2012, a production of 673.87 million day-old chicks was reported by the industry and the production of broilers was 637.00 million birds. For 2013, a production of 770.22 million day-old chicks and 720.11 million broilers is projected. In the year 2012, there are 23 broiler parent stock companies with yearly day old chicks' production volumes ranging from 1.38 to 158.7 million birds operating. The standing parent stock population in 2012 was about 5.66 million birds. Cobbs and Ross are the principle breeds accounting for 96.6% of the total parent stock. Other breeds are Arbor Acres and Indian River. Locally produced parent stock accounted for 93.0% of the total parent stock population. The monthly ex-farm price of day-old chicks fluctuated between RM0.90 and RM1.95 per chick with an annual average of RM1.33 per chick. The monthly ex-farm prices for broilers fluctuated between RM3.20 and RM5.50 per kilogram live weight with an annual average of RM4.30 per kilogram. Cost of production of broilers was between RM4.72 and RM5.09 per kilogram. Export of live broilers in 2012 was 42.78 million birds showing a 7.16% decrease than the previous year. The importation of chicken cuts in 2012 increased by 4.6% from 2011.

Cost of production of broilers ranged from RM4.72 to RM5.09 per kilogram live weight. The annual average cost of production was about RM4.83 per kilogram. Throughout the year, the cost of production was higher than the ex-farm price. The cost increment was attributed to the high cost of feed and raw feed materials.

In 2012, there were many issues facing the poultry industry, such as increment in importation of chicken cuts and products, strengthening market access towards export excellence, continuous increase of chicken prices etc. The figures reported has shown that the

importation of chicken cuts and products increased by about 4.6% compared to year 2011. Such imports are likely to jeopardize the viability and sustainability of the local industry which is already suffering from prolonged high cost of production.

Since the local sources are more than adequate to supply the local requirements (about 128% of self-sufficiency level for chicken/duck meat), the poultry industry has to innovate and explore export markets especially among ASEAN members in the true spirit of ASEAN Free Trade Agreement (AFTA). The implementation of Poultry Enactment to license the farms is well accepted by the industry. Through this enactment the Veterinary Authority is able to combat issues related to environmental pollution by poultry waste, public nuisance by flies and foul odors causing numerous complaints and also issues regarding poultry welfare. The livestock industry in Malaysia is dominated by the poultry sector which supplies more than 80 percent of the total meat requirements of the country. This industry is observed as the most successful sector of the livestock industry and perhaps has the highest output value per worker in the agriculture cluster.

According to Ali (2013), Malaysia has one of the highest per capita consumption of chicken in the world. Per capita consumption of chicken/duck meat is about 38kg. Chicken meat is the most popular and cheapest source of meat protein among Malaysians, largely because there are no dietary prohibitions or religious restrictions against chicken consumption. Over the years, quick service restaurants (QSR) such as Kentucky Fried Chicken (KFC), McDonald's, A & W, Kenny Rogers, Nando's Chickenland (a South-African based chain) have propelled the growth of chicken consumption in Malaysia.

Malaysian consumers today demand safe and high quality food at a reasonable price from the industry. They are very sensitive towards issues arising out of food safety and halal matters. It is important to note that the majority of the Muslim consumers will not accept poultry products that are not certified halal by the Malaysian religious authority.

The Malaysian consumers are also price-sensitive and look for value for money products. The poultry industry is increasingly challenged to produce new innovative products at lower costs without compromising the quality.

PROBLEM STATEMENT

Malaysian poultry industry faces many risks in various subsectors. The feed industry plays a major role in determining production costs, contributing 70 percent of production costs in broilers. Previous research studies identified this problem and this study also focuses on this

issue. This was done to prove that this study will make a worthy contribution to the broiler industry; as it also illustrates that this study is not a repetition of other studies. Numerous areas within the broiler supply chain need to be identified and studied in order to explain the impact these areas can have on the supply chain. These areas, among others, comprise of the various parties involved in feed inputs, manufacturing and procurement, competitiveness and profitability within the animal feed supply chain, and their overall impact on the poultry market. Input factors further upstream in the supply chain (e.g. maize) need to be researched, as well as the producer procurement process, risk, inefficiency, lower costs and higher quality.

The literature that included detailed analysis of the entire supply chain, its stakeholders and its role players, from an economic and strategic perspective, that combined the structure, conduct and performance in the Malaysia feed industry was limited. To understand problems in the broiler industry, a value-chain analysis of feed in the broiler industry, including all the links, needed to be undertaken. Special attention was given to the different parties involved in the input and feed industries including; manufacturer and seller of feed and other independent players.

STUDY OBJECTIVES

In order to conduct a study that benefits the industry and stakeholders involved, the following need to be undertaken, and core problem areas need to be elaborated:

1. Identify the various stakeholders and role players in the broiler subsector and feed industry (including their structure, size, and market share).
2. Identify the factors that restrict and/or enhance competitiveness and profitability within the feed production supply chain.
3. Determine the impact of the feed industry on the broiler supply chain.
4. Determine the level of price volatility of inputs for the feed industry.
5. Address risks and risk mitigation strategies, such as hedging.
6. Explore possible suitable business models in the broiler industry.

DATA COLLECTION

In order to understand the impact of the feed industry on the broiler supply chain, producers, and consumers, this study focused on the agro-feed industry. Interviews, using structured questionnaires, will be conducted to obtain information from broiler producers, feed

manufacturers and the major role players and organisations within the relevant industries. Strategies to mitigate risks were explored in order to develop an updated feed supply chain structure, to assist emerging markets and the industries involved.

METHODOLOGIES

The methodologies below were used to identify the impacts faced by the broiler industry relative to the measured challenges. For the purpose of the industry, background studies were conducted to structure the current workings of the sector. To answer certain research questions, structured questionnaires were used, in order to obtain an objective view from industry role players regarding the current trends and issues in the industry. Within the studies' structure, the following methodologies were also used and followed:

Vertical integration within the animal feed industry. In Malaysia feed industry, there are a small number of role players who together control the largest market share. The main feed producers were FFM Berhad Group, Cargill Malaysia, Seng Heng Chan, Sin Mah, (DVS, 2013). Each one of these feed companies is owned by a holding company. This will explains why the feed industry is described as being a vertically integrated system. Vertical integration is the firm's approach to increasing control over its suppliers of inputs.

1. Price volatility, which is a measure of the possible variation or movement of a particular economic variable. It describes the tendency of a commodity, for example maize, to move up or down, and the extent of the anticipated move.
2. Risk analysis within the broiler industry, which, for the purposes of this study, was divided into macro and micro levels. All identified risks that have an external impact on the daily operations of the milling industry were classified as macro risks. Macro risks were further classified into political, economic, social, technological and environmental risks (Louw, 2007). Micro risks have an internal impact on the milling industry, in that these types of risks are unique to and affect the long-term sustainability of the industry. Micro risks, therefore, were divided into operational, product, market, financial, input and export risks.

SHORT SUPPLY CHAIN CONCEPT

In recent years there has been a changed interest and a significant growth in alternatives to the conventional food supply chain which allow primary producers and consumers to connect in new and more direct ways. This study enhances the emerging knowledge base on this fast-

growing sector of the food industry and rural landscape; and more specifically, examines how the sector might be encouraged and facilitated to grow and develop further.
The sector is also uniquely geographically dispersed, of particular importance in more rural and peripheral areas and increasingly seen as playing a central role in overall economic recovery and development into the future. In line with international developments, there has also been an accompanying trend towards greater consolidation and rationalisation in other sectors of the food supply chain, with an emphasis on more integrated and highly managed supply chains (Henchion & McIntyre, 2007) and de-localised and often globalised sourcing practices. To reverse this trend of long supply chain (LSC), this research proposes introduction of short supply chain (SSC) to ensure re-localisation of food, food security, and restoration of local livelihood.

However, in more recent years there has been a renewed interest and a significant growth in alternative food supply chains which 'short-circuit' the conventional supply chain and allow producers and consumers to connect in new and more direct ways. The rise of farmers' markets, farm shops, community gardens, small-scale producers groups, online speciality food sales, etc. in Malaysia and internationally are all indicative of a shift in both consumer and producer behaviour. On the one hand, there has been growing societal and consumer questioning of the methodologies of the conventional food supply chain from an environmental and animal welfare perspective and of the quality, authenticity and even safety of some of the products of that system (Tudge, 2003; Sage, 2007). These heightened concerns have led in many cases to a desire for derivation, authenticity and traceability in the food system and an increased wish to source food locally and directly from the producer (Bord Bia, 2007). Consumer research by Bord Bia (2011) suggests a strong and growing consumer support and demand for local and 'real' food. Small, but increasing numbers of food producers see opportunities to increase the viability and long-term sustainability of their farm enterprises by engaging with local or quality products in agriculture. Power imbalances within the conventional food supply chain and the ever decreasing share of the food-euro received by the primary producer (Renting et al. 2003; Slee and Kirwan, 2007) are strong 'push' factors to explore farm-level diversification and value-added projects. Other strong push factors are the sharp decline in off-farm employment in recent years. According to Mulhall (2012), an increasing number of farm households now need to examine internal farm and personal resources with a view to generating the income needed to meet future household needs.

A range of 'pull factors' have also been identified which combine to persuade some farmers to participate in short food supply chains (Guthrie et al., 2006; Smithers et al., 2008; Bord Bia, 2007). Producers can typically improve financial returns and bypass the rigours, inflexibilities and power imbalances which can characterise the conventional food supply chain through selling directly to the consumer and minimising the role of the middleman.
Farmers will also naturally have greater opportunities to interact directly with customers and so gain valuable market information and understanding. Studies of farmer participation in farmers' markets have highlighted the contribution participation in direct sales makes to the entrepreneurial development of participants (Feagan et al., 2004; Feenstra et al., 2003). Face-to-face interactions and personal relations have been found to enable, perhaps even force, farmers' markets stallholders to develop what Hinrichs et al. (2004) describe as a greater reflexivity about the form and content of economic activity. Other studies of direct sales activities have also noted the increased sense of pride and confidence in their work that can come from connecting directly with consumers (Kirwan, 2004; Griffin and Frongillo, 2003). The wider benefits of short food supply chain activity have also been increasingly recognised by statutory and local/rural development actors. There is also a growing emphasis on the contribution of local food cultures and local food networks to the tourism mix and to the successful branding (Bord Bia, 2007; Grant Thornton, 2012). Institutions such as farm shops, farmers' markets, local food shops and restaurants are also increasingly seen as having a key role to play in revitalising public space, in keeping money circulating in the local economy, and in providing local employment (Lyson, 2004; Pearson and Bailey, 2009).

Poultry is one of the largest and growing industries within the agricultural sector. Both small-scale and commercial business entities are involved in the breeding (breeders) and rearing of chickens (broiler production), and in feed supply. Furthermore, the poultry industry provides meat that is preferred by almost all cultures, is affordable, and is good quality. In Malaysia, the poultry farming business has been a growth sector for a many years. The level of integration within the poultry industry is high. About 70 percent of growers were of the opinion that the level of integration and coordination was very high in this industry, which is a source of concern for the Department of Veterinary Services (DVS, 2013). The majority of industry leaders stated that they welcomed investigations conducted by the DVS, but were merely concerned with the manner in which these were being conducted.

The high level of capital intensity and the lack of access to credit make it difficult for smaller, new entrants to establish themselves in this market. Fewer newcomers to the market could result in a shortage of skills available to the industry in future. Larger firms have the capital outlay and financial as well as intellectual support required to grow into large competitive businesses, but this only raises further concern as to the levels of competitiveness in the poultry industry. Bio-security is a constant issue for the Malaysia poultry industry. High levels of regulation exist; with contingency plans in place should an outbreak of a potentially hazardous disease, such as the recent outbreak of bird flu, occur. The lack of accessibility, control, and funds could result in potential outbreaks not being brought under control quickly enough. The procurement of feed in the poultry industry is based mainly on contractual arrangements between the contracting parties. The strengths of the industry lie in the very high feed conversation ratio (converting feed to meat without an excessive loss in energy is good) and also in the high demand for poultry meat, which is a low-cost source of protein. Malaysia, with a rural population earning a relatively modest domestic income, favours poultry above the more expensive red meats.

CONCLUSIONS

The Malaysian poultry industry is, if compared with Thailand relatively small, and thus very sensitive to the levels of imports, which could upset the demand balance in the country. The demand for poultry in Malaysia has always been relatively steady. The recent recession has resulted in a larger demand for poultry products as a substitute for the more expensive red meats. The lower disposable income of consumers has made the purchase of poultry a better option. In order to mitigate the risk related to those issues such as prices, products quality, food security; SSC is a viable alternative. So, this study enhances the emerging knowledge base of this fast growing sector of the food industry and rural landscape; and more specifically, examines how the sector might be encouraged and facilitated to grow further and provides findings on the current situation relating to the broiler industry in Malaysia.

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