

Linkages between Integrator, Grower Involvement and Business Performance: An Excerpt from Preliminary Findings

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Abstract -The aim of this study is to explain an investigation over the potential relationships between integrator and grower involvement towards business performance in broiler production. The potential role of employees' skill levels as moderating variable between the aforementioned independent and the dependant variables are discussed. Broiler supply chain practices and its corresponding performance indicators in the form of broiler farming operations are among the important measures in the dependant variable (business performance). Based on the extensive survey of relevant literature, a research framework is then proposed. The inclusion of integrator involvement (antecedent), the skill levels (moderating variable) and business performance (dependent variable) in the proposed framework is the main contribution of this study. It is expected that this study will be beneficial to broiler industry, relevant policy makers and the growing body of knowledge of supply chain investigation in the livestock businesses.

Keywords: supply chain, broiler, supplier involvement, integrator involvement, grower involvement and business performance

I. INTRODUCTION

The Malaysian livestock industry is an important and integral component of the agricultural sector providing employment and producing useful animal protein food for the population, estimated at 25 million people and also to about 4 million people in Singapore. The broiler industry in Malaysia has two types of producers. It comprises commercial farms and conventional farms. Commercial farms that run business on contract farming basis with integrator and conventional farms are belong to independent entrepreneurs. 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. In 2009 there were 3,300 farms in operation carrying a standing population of nearly 186

million broiler chickens.

Of these, 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. Only 9% of local production was used for further processing. However, processors were increasingly getting supplies from cheaper imported poultry meat for value added processing. In fact, most of poultry supplied for processing were from imports. The main challenge facing the industry is its competitiveness, where prior to WTO and AFTA, the broiler industry was highly protected through import bans and quantitative restrictions.

Among all economics activities, agribusiness is developing with great force in the world, stimulated mainly for the increase of the population and demand for food. Agribusiness studies have been the focus of academic research for quite a long time. However, those studies usually have used a theoretical background, connotations, frames of reference and methodologies slightly different of those used in the research on Supply Chain Management (SCM). Although there is extensive on the business performance of manufacturing companies in the developed countries, there is limited empirical information about it in Malaysia. The aim of this study is to propose an investigation over the potential relationships between integrator involvements and grower involvement towards business performance in broiler production. The remaining part of this paper is organized as follows: Section II reveals overview of the research problem, section III presents comprehensive survey of literature that enables conceptualization of research framework, section IV depicts proposed research framework. The following section V deals with research aims and subsequently section VI with materials and methods. Section VII describes expected contributions and finally conclusion of the research is presented in section VIII.

II. PROBLEM OVERVIEW

Broiler contracting involves the use of improved and standardized technology and production practices. This involves supply of inputs, close contact and training of the contract grower. Protecting this investment (in inputs and training) requires that default by growers and turnover in their ranks should be minimum [1]. So for the whole process of broiler production, it has crucial variables need to be addressed empirically.

A. Supply Chain in the Broiler Industry

Main players normally have a vertically integrated supply chain, operating as integrated producer, owning the majority of all breeding, feed, slaughtering and processing facilities (see Fig. 1) as well as operate with a wide variety of distribution channels, ranging from super and hyper markets to distributors restaurants, wet markets and groceries.

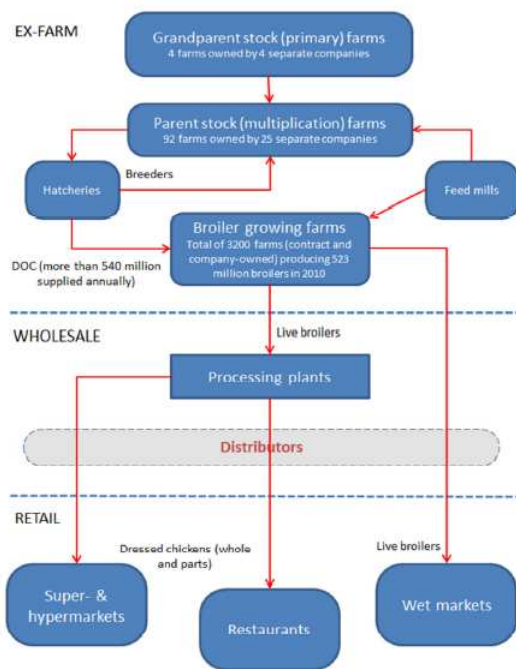


Figure 1. The vertically integrated poultry production supply chain

Vertical production chains consist of a single company controlling all aspects of each stage of production. Hatcheries, farms, feed companies processing plants, harvesting team, distribution, and markets can all be integrated into a single corresponding supply system. In response to shifting conditions in both export and domestic markets, many producers are shifting their production further into these types of vertical systems. Moreover, a select number of firms control the majority of the market. There are some dangers of a few large integrated systems controlling the broiler sector.

B. Contract Farming

The term “contract farming” generally refers to situations in which a farmer raises or grows an agricultural product for a vertically integrated corporation. There are two parties in a typical contract farming arrangement: the grower and the company (Integrator). Broiler contracts consist of contracting out the growing stage. Integrators recruit large farms (growers) to rear broiler chickens for meat according to contractual guidelines. Farming contracts can also help growers mitigate risks posed by fluctuations of input prices and provide a secure market outlet for their product. The latter is especially important because of the limited facilities that process chickens raised by independent farmers. While current trends are moving producers toward vertical integration, there remain many farms currently under contract or with unused infrastructure from past contracts. Most integrators in Malaysia participated contract farming with growers for broiler production. Consequently, the integrators are always involved in every stage of production. While there are key differences between contract farming and complete vertical integration (e.g. who supervises over important growth stages), most aspects of the supply chain are the same.

III. CONCEPTUALISATION OF RESEARCH FRAMEWORK

A. Integrator Involvement in Product Modularity (PM)

According to [2] PM as a continuum of describing separateness, specificity(3) and transferability of product components in a product system. A product is transferrable if the product components in a product system can be reused by another. It can be separated as it can be disassembled and recombined into new product configurations without loss of functionality [2], and specified as the product component has a clear, unique and definite product function with its interfaces in the product system [3]. If a product has high PM (i.e. modular product design), the product system has separate modules with well-specified interfaces across the modules, such as those found in personal computers. The product modules can be transferred to different product lines and progressive development projects. In this research, we define product modularity as the use of standardized and interchangeable parts or components that enable the configuration of a wide variety of end products.

B. Integrator Involvement in Internal Coordination (IC)

Recent literature have stated that successful product development can only be achieved if the organization can effectively integrate internal functional units, including marketing, manufacturing, R&D, and purchasing [4], [5]. Diverse internal integration mechanisms (e.g. cross-functional teams, overlapping, employee involvement, concurrent engineering, collocations, dedicated teams, empowered teams) have been recommended in different phases of NPD [6], [7], [8]. Thus, this study defines IC as the

degree of the coordination among sales and marketing, research and development, and production to inventory management throughout the product development process.

C. Integrator Involvement in Product Innovativeness (PI)

No consensus on the definition of innovativeness has been made, although it is generally regarded as a measure of discontinuity in the marketing and/or technology factors at both industry and firm levels [9],[10],[11]. A comprehensive literature review conducted by [10] shows that it is important to consider both marketing and technological perspectives, as well as the macro-level and micro-level, when identifying innovations. An important part of the research within the new product literature focuses on the effect of PI on product performance [12],[13],[14],[15],[16],[17]. Even with the widely varying conceptualizations and operationalization of the PI construct [11] there are prevailing views arguing that both higher and lower PI increases product performance while the opposite holds true for moderate PI. Based on the above, this study seeks to provide new evidence concerning PI as a phenomenon and extend the empirical literature to the relation between PI and performance. Given the above considerations, the research questions that this empirical study raises, attempt to identify differences, if any, in performance measures at both the product level.

D. Integrator Involvement (II)

According to [18],[19] II is recognized as an important way for new product success. In this study, SI is defined as the direct participation of the supplier during the product development processes [20]. Suggested by [21],[22] it involves joint product design, process engineering and production operations with key suppliers. II helps secure resources and capabilities, which the manufacturers do not have but essential for product innovation [23]. It helps the supplier learn new technology applications while the buyer can actively shape product performance [24].

E. Grower Involvement (GI)

Suggested by [25],[26] GI is defined as the direct participation of the customer in the design and development stages of New Product Development (NPD), in which the customer engages in problem solving activities and co-develop the final forms of the product with the manufacturers. It involves joint product design, process engineering, and production operations with key customer. According to [26], [5] the early involvement of customers or early customer inputs is essential to develop new products. It facilitates the project teams to recognize new ideas and opportunities while avoiding development delays due to a mismatch of the ideas and the customer needs [27].

F. Business Performance

If organizations cannot measure performance, they cannot manage their business [28]. This statement summarizes the necessity of performance to measure, and as direct

consequence, and to evaluate their performance [29]. Business performance is measured in many different ways such as innovation, profit and sales, rate of new product development, customer satisfaction, customer retention, operating costs, profitability and return on investment (ROI)[30]. Business performance is also defined as measurable result of the level of attainment of organizations goals [31] or measurable result of the organization's management of its aspects (ISO 1999). In this study, business performance is measured in relations to the supply chain perspective and is accordingly use conventional supply chain measures such as revenues, customer and supplier satisfaction, customer retention, and operating cost. The study also proposes the inclusion of green practices (poultry waste management) in the measurement of business performance.

IV. PROPOSED RESEARCH FRAMEWORK

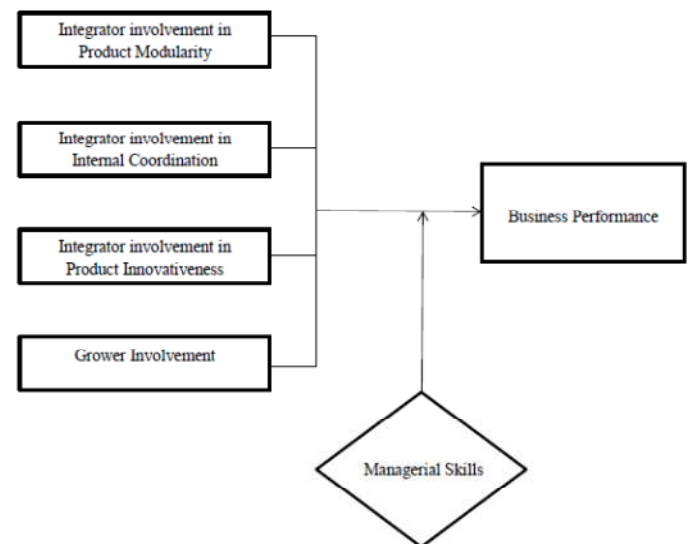


Figure 2. The research framework

HYPOTHESIS

This section addresses the research hypothesis that need to be tested to achieve the objectives of this research. There were outlined in eight hypotheses as discussed below.

H₁ Product modularity is significantly associated with business performance.

H₂ Internal coordination is significantly associated with business performance.

H₃ Product innovativeness is significantly associated with business performance.

H₄ Grower Involvement is significantly associated with business performance.

H₅ Managerial Skills will moderate the relationship between Product Modularity and Business Performance.

H₆ Managerial Skills will moderate the relationship between Internal Coordination and Business Performance.

H₇ Managerial Skills will moderate the relationship between Product Innovativeness and Business Performance.

H₈ Managerial Skills will moderate the relationship between Grower Involvement and Business Performance.

V. RESEARCH AIMS

This study attempts to answer the following research questions: (1) Are there any relationship between product innovativeness, product modularity and internal coordination variables towards business performance?, (2) What is the variable in the Integrator involvement that has the largest effect on the business performance?, (3) Is there any relationships between grower involvement and business performance?, and (4) is there any moderating effect between integrator involvement, grower involvement and business performance?. Based on these questions, follows are the objectives of this study:

- i. To identify the relationships between integrator involvement in product innovativeness, integrator involvement in product modularity and integrator involvement in internal coordination variables towards business performance.
- ii. To examine which variable in integrator involvement has the largest effect on the business performance.
- iii. To determine the relationships between grower involvement and business performance.
- iv. To investigate the moderating effect of managerial skills level on the relationships between Integrator Involvement, Grower Involvement and business performance.

VI. MATERIAL AND METHODS

General approach of this research is quantitative. With regard to the research problem which try to study the relationship between integrator involvement, grower involvement towards business performance. Furthermore if there, any moderating effect managerial skills level between independent variable and dependent variable. It performed based on survey

strategy and it is appreciating of descriptive-analytical method. Statistical of these research consisted of a whole industry broiler production businesses (growers) selected as statistical sample.

This study was conducted in Peninsular Malaysia includes; Kedah (33.3%), Pulau Pinang (14.7%), Perak (28.1%), Selangor (0.4%), Negeri Sembilan (14%), Melaka (1.4%), Kelantan (5.6%), Terengganu (0.4%) and Pahang (0.7). This chapter first presents descriptive statistics based on the data collected from the surveys. The responding companies' background information will be analyzed, followed by statistical analysis of the data and discussion of the results with regards to the hypotheses testing.

The total respondents were 285: which translates to the following percentages of the categories mentioned besides each; 64.2 percent farm owners, 1.8 percent general manager, 1.4 percent managing directors, 5.6 percent managers, 20.4 percent senior managers and others (managerial position) 6.7 percent. The number of years in that particular position includes the range of 1 to 5 years 19.5 percent, 6 to 10 years 37.9 percent, 11 to 15 years 27.7 percent, 16 to 20 years 9.8 percent and more than 20 years 5.3 percent. The percentage of businesses with permanent employees: less than 50 (89.5%); 50 to 100 (6.7%); 100 to 150 (3.2%) and more than 150 (0.7%). The two types of housing included: Closed House System (CHS) 55.4%; and Conventional System (CS) 44.6%. The average sale percentage of the businesses for last three years is; up to RM1, 000,000 (88.41%), RM1, 000,001 to RM2, 000,000 (11.2%); and over RM2, 000,000 (0.4%). The average profit percentage of the businesses for last three years is; up to RM100, 000 (96.1%); and over RM100,000 (3.9%). The businesses from states in Peninsular Malaysia

Specifically designed questionnaire was the instrument used for data collection. A set of attributes was included in the questionnaire that encompassed the grower and integrator involvement, grower managerial skills, and grower business performance question about broiler production and professional characteristics. To ensure its content and face validity, the research instrument was reviewed several times by the research group (Research Department, Department of Veterinary Services of Malaysia) and then implemented in a pilot test to measure its reliability. Questionnaire reliability was estimated by calculating Cronbach's alpha. Reliability for each variable is explained below:

Type of Variables	Cronbach's Alpha
Independent Variables	
Integrator Involvement	0.882
Grower Involvement	0.901
Dependent Variable	
Business Performance	0.858
Moderator Variable	

Managerial Skills

1.Planning and goal setting skills	0.771
2.Accountancy and financial management skill	0.900
3.Decision making skills	0.944

The above Cronbach's alpha shows that the index had high reliability. The data were collected between April and July 2013. These questionnaires were delivered to all businesses in all states and collected through mail. In order to measure the perspective of broiler production about integrator involvement, grower involvement, managerial skills and business performance, 72 questions, excluding profiles questions, were used to measure respondent perspective in each; in broiler production businesses, 5 point scale had been ranked from 1 = very low, 2 = low, 3 = moderate, 4 = high to 5 = very high. In order to analyze data; descriptive statistic (mean and standard deviation) and inferential methods (Friedman test) was used.

VII. EXPECTED CONTRIBUTIONS

The study is expected to provide a much needed latest empirical insight into the Malaysian broiler industry. In particular, it offers examination on the possible relationships between integrator involvement, grower involvement and business performance under the moderating effect managerial skills level. The novel contribution of this study is the incorporation of integrator involvement, grower involvement and supply chain practices in the proposed framework (see Fig.2). It is atypical attempt to relate all variables whilst contemplating supply chain practices in business performance.

VIII. CONCLUSION

The study proposes an empirical investigation over the relationships between supplier involvement, customer involvement and business performance in the poultry industry. The scope of the research is the Malaysian local poultry industry. A research framework and goals are advocated in relations to the above matter. Upon completion, the research is expected to be beneficial for relevant policy makers thirsts for some empirical evidence on the green supply chain practices in local poultry industry.

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