

学位論文要旨 Dissertation Abstract

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学位論文題目 : Transformation of Modern Retail Market in Indonesia: Consumers Choices,
Title of Dissertation Supply Chain Management
(インドネシアにおける現代小売市場の変革：消費者の選択行動、小規模生産者の市場参加と持続可能な青果物サプライチェーン・マネジメント)

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The retail landscape in Indonesia is transforming from a traditional to a modern retail format in response to supply factors (liberalized foreign investment and improved supply chain) and demand factors (income growth, urbanization, urban consumption, women in the labor force, changing lifestyle, and convenience). Given this, policy makers are concerned about the impact of this transformation on consumers' choices and small-scale farmers' livelihood. The first objective of this study is to analyze the determinant factors that affect consumer choices for retail formats when purchasing fresh fruit and vegetables. A structured questionnaire was constructed to gather shopping preferences from 887 households in the Jabodetabek region in West Java. Descriptive analysis, factor analysis, and a multinomial logit model were used to analyze the data. The findings indicate that the traditional food retail markets remain as essential elements in the fruit and vegetable supply chain in Indonesia. We found that several consumers' motive factors such as quality, safety, price, easiness & availability, brand & traceability, and store attributes have become important determinants for consumers in deciding fruit & vegetable retail choices. Modern retail shoppers are identified as consumers who prefer to shop in convenient places (store environment) and purchase products with certain brand and traceability attributes. Meanwhile, we also verified that the main barrier to developing modern market outlets is continued dominance of the traditional markets in terms of price, ease and availability, and product quality and safety. Therefore, our results convey a message for food retail stakeholders regarding developing future strategies for modern and traditional retail formats. To attract additional buyers, modern food retailers may need to maintain and enhance their advantage in popularity by offering clean, convenient, secure, practical, product origin identified, branded, and certified products, as well as other main attributes such as quality, variety, ease, and service. To retain a dominant market share, traditional outlets may need to enhance their product quality by adopting the necessary storage technologies and improve the outlet environment.

Alongside with the growing of modern food retail, the global market of organic vegetables has grown over the last few years. This is due to increased public concerns about modern agricultural practices and their effect on human health as well as on the environment. The excessive use of synthetic chemical inputs to protect crops against weeds, pests and diseases in order to improve agricultural productivity has caused consumers anxiety about their potential hazards such as residues in food that perceived to be associated with long-term and unknown effects on health. This has encouraging the increasing demand of sustainable foods such as organically food produced including in Indonesia. The second objective of this study is to explore the factors that drive Indonesian consumer preferences in the purchasing of organic vegetables, and determines the factors that help explain consumer preferences in the purchasing of organic vegetables. Through on consumer survey, our results show that consumers with fewer family members and have a higher income, and are price tolerant, are more likely to purchase organic vegetables. Meanwhile, female consumers are less likely to buy organic vegetables. Another important finding is that positive attitude towards organic products, safety and health, environmental

concerns, as well as degree of trust in organic attributes, are the determinants of organic vegetable purchasing among consumers. Therefore, based on the study results, the following recommendations are needed for organic vegetable development in Indonesia: (a) implementing an appropriate pricing strategy; (b) encouraging organic labeling and certification for vegetables; and (c) intensively promoting organic food with respect to consumers' motives and concerns on health, safety, as well as environmental sustainability.

The rise of supermarkets in Indonesia have been providing further market opportunities for small-scale farmers, in which most of Indonesia's farmer falls into this category. The third objective of this study is to examine the supermarket participation and its effect on the well-being of small-scale farmers. Data were collected through a household survey with 137 vegetable farmers in Cipanas-Cianjur Regency and Leuwiliang-Bogor Regency, West Java Province, Indonesia. By applying a treatment effects model that allows capturing the possibility of selection bias, we examine the factors that determine farmers' participation as well as the effect on their income. The results show that there were several constraints faced by small-scale farmers who participated in the supermarket channel that were related to their level of education, irrigated land, packaging equipment, and storage space ownership, rather than farm size, or other household and farm assets. These findings indicated that Indonesia's modern market growth could also include small-scale farmer's participation. In addition, we also found that access to asphalt roads is also an important factor for participating in modern channels since it will affect transaction costs. Therefore, our result conveys a message for the government to provide the training programs needed (in production methods, quality improvement, system traceability, and marketing access) and to improve rural infrastructure (irrigation, roads, packing houses). Furthermore, the impact analysis has shown that participation in the supermarket channels generates a higher per capita household income than traditional channels. It implies that linking small-scale farmers to the supermarket channels could be a useful strategy for improving small-scale farmers' income.

Implementing sustainable supply chain management (SSCM) practices can be considered an essential strategy for fruit and vegetable supply chain actors in response to the significant rise in consumer concerns about health, food security, and social and environmental issues. By implementing SSCM practices, profits can be achieved by reducing risks and environmental impacts and at the same time improving economic performance and providing social benefits. Thereafter, it should lead to increased competitive advantages and ensure the sustainability of the inclusion process for small-scale fruit and vegetable farmers in modern retail channels. Hence, the fourth objective of this study is to provide a framework and systematic review by analyzing enablers for implementing sustainable fruit and vegetable supply chain management based on small-scale farmer participation in modern retail channels. We have identified 15 influential enablers for implementing sustainable fruit and vegetable supply chain management, based on a review of the literature and opinions from experts and industry practitioners. Next, an interpretive structural modelling (ISM) methodology was used to establish a structural model of the enablers, which not only helps in understanding the contextual relationship among the enablers but also in determining their interdependence to be able to implement sustainability practices. A Matrix Cross-Reference Multiplication Applied to a Classification (MICMAC) analysis was then conducted to determine the importance of the enablers based on their driving and dependence power. Several enablers, such as physical and institutional infrastructure and collaboration among supply chain members and stakeholders, were found to have strong driving power and were fundamental to implementing SSCM practices. We also found enablers that depend strongly on other enablers, such as product safety and quality improvement and supply chain flexibility, responsiveness, and efficiency. These findings offer valuable insight for supply chain actors by helping them to evaluate the potential for successfully implementing SSCM practices.