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The Rise of Supermarkets and Vertical Relationships in the Indonesian Food Value Chain: Causes and Consequences

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ABSTRACT

This paper reviews the causes of the emergence of modern retailing and the vertical relationships in the Indonesian food value chain, and the consequences of these changes on market organization and value distribution. The findings of this paper suggest that there are both demand- and supply-side factors that contribute to the emergence of modern retailing. The evolution of vertical relationships between farmers and modern retailers observed in Indonesia is a direct response to risks and quality uncertainty. In the vertical relation, large-scale retailers may earn a monopsonistic rent, and there are risks of exclusion of small-scale farmers from the emerging food value chain. However, there are alternative channels through which farmers may sell their products, albeit at a lower price compared to the modern channels, and measures can be instituted to protect them against monopsonistic rents. The findings have important policy implications for developing countries.

INTRODUCTION

The food value chain[1] in Indonesia has been undergoing a process of change. Different actors —farmers, vendors, processors, distributors, and supermarkets—are forming vertical relationships where many activities carried out in upstream firms are decided by downstream firms. This paper reviews these emerging vertical relationships and identifies changes in the market organization and value distribution, with focus on the integration of small-scale farmers in the emerging food value chain. The specific products examined are fresh fruits and vegetables (FFVs).

During the last three decades, Indonesia has experienced rapid changes in per capita income, consumption patterns, and production structures. Food consumption in Indonesia, for example, has shifted from a diet dominated by the staple, rice, to one that includes a larger share of fruits and vegetables, fish, meats, dairy products, and processed foods. Alongside these changes, there have been major developments in the retailing industry, chief among which is the emergence of newer forms of retail outlets commonly known as supermarkets. The emergence of modern retailing has consequences that go beyond the interests of consumers because it requires deep integration with

[1] Porter (1990) used the term "value chain" to describe linkages within a firm and between a firm and its suppliers.

farmers and other actors in the food value chain. It also wields potential influence on the structure of marketing, production, and related institutions.

In examining vertical relationships in the food value chain and the accompanying changes in the market organization and value distribution, the paper focuses on FFVs as high-value products for two main reasons. First, the Indonesian Government has planned to diversify agriculture by increasing the production of high-value products. Since FFVs are high-value products that can be produced by small-scale farmers, these products can play an important role in a pro-poor diversification strategy (Minot 1986). Second, from a firm's perspective, the FFV section of a supermarket is a key consideration to the marketing and competitive positioning of supermarkets (Dolan and Humphrey 2000). The latter perspective, however, is arguable due to the fact that supermarkets do not rely on FFVs. In fact, the main food is processed, not fresh, food. In addition, changes in dietary habits stemming from increased health awareness will probably further increase the demand for FFVs in the future.

The data presented in this paper come, mainly, from secondary sources, such as government directorates, the different ministries, and the Central Bureau of Statistics (locally referred to as *Basan Pusat Statistik* or BPS) of the Government of Indonesia. In cases where information from secondary sources was not readily available, it was gathered from case studies, key informant interviews, opinions of local experts, and from professional associations.

The remainder of this paper is arranged as follows: Section 2 describes the emergence of supermarkets and identifies the major demand- and supply-side factors that contributed to their emergence; Section 3 describes the emerging vertical relationship in the Indonesian food value chain and analyzes this phenomenon as an optimal response of farmers and supermarkets in the presence of risks and uncertain product quality; Section 4 examines the role of small-scale farmers in the emerging food value chain; Section 5 describes the value distribution among different actors ranging from farmers to supermarkets; and Section 6 concludes with a discussion of possible policy implications.

EMERGENCE OF SUPERMARKETS IN INDONESIA

The emergence of supermarkets[2] is one of the important features that characterize the changes in the Indonesian food system. Nationally, the total number of supermarket[3] outlets grew from one in 1971 to 237 in 1989, to 487 in 1993. Before the economic crisis, Indonesia had 940 supermarket outlets, of which 313 were located in Jakarta (Canadian Embassy 2003). By 2002, the total number of supermarket outlets in Indonesia had reached 1400 (Figure 1). A similar growth is

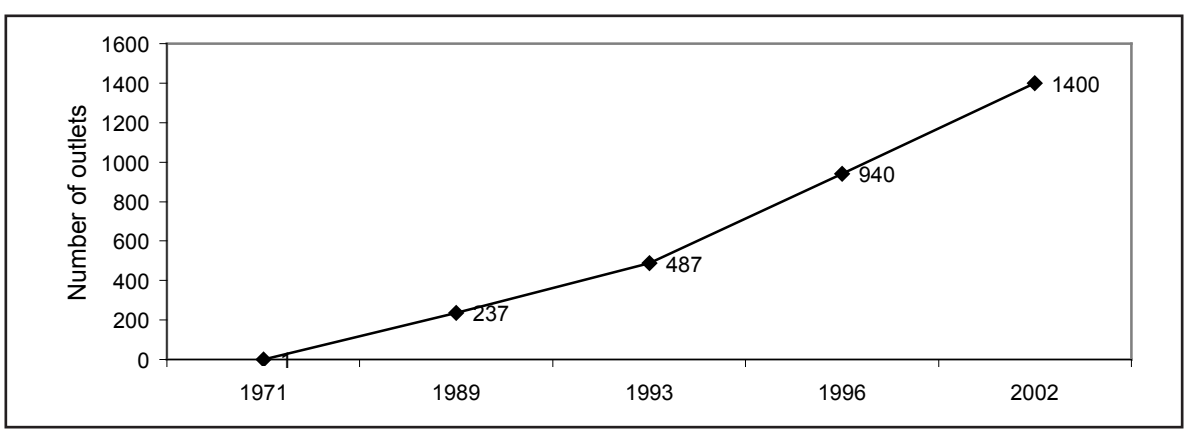

Fig. 1. Number of supermarket outlets in Indonesia, 1971–2002
Data source: Canadian Embassy (2003), and Sitathan (2003)

[2] In Indonesia, supermarkets are those retail outlets with a retail space of 4000 square feet or less while hypermarkets refer to those retail outlets that are greater than 6000 square feet in size.
[3] Figures include supermarkets, hypermarkets and other forms of modern retailing outlets.

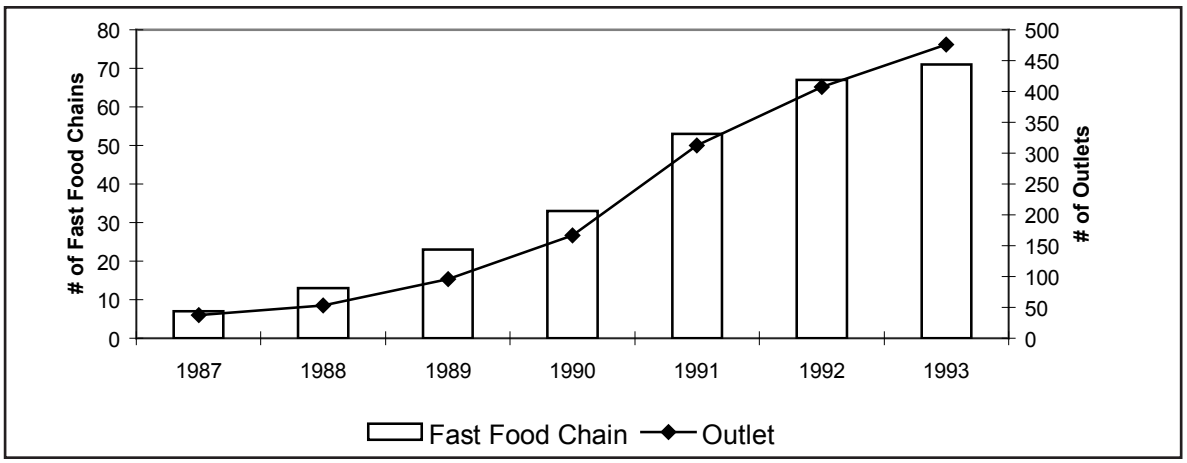

Fig. 2. Fast-food Industry, 1987–1993
Source: Data from RIRDC (1995).

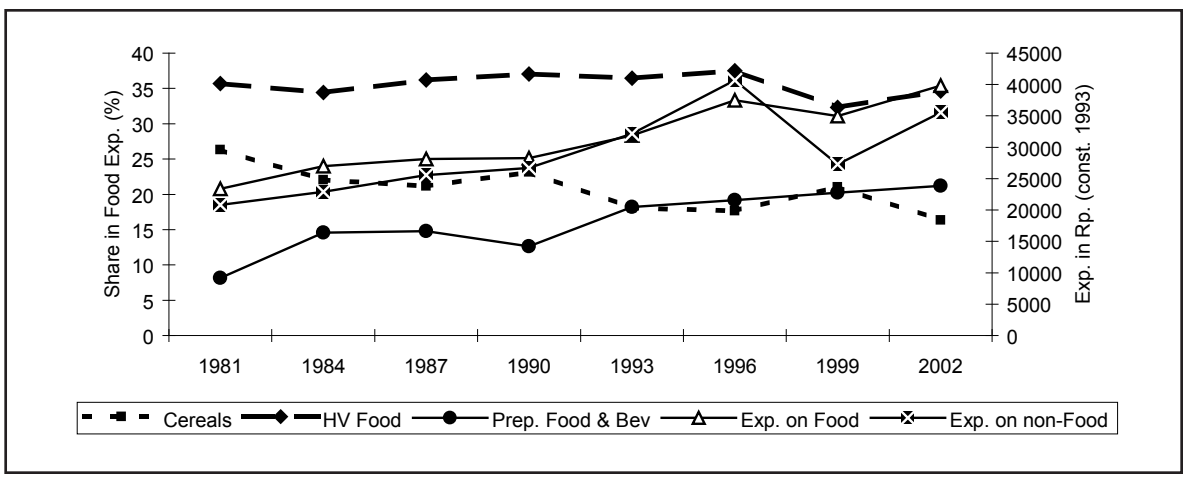

Fig. 3. Food and non-food expenditure and share of cereals, HVF, and prepared food in urban areas

observed in fast-food chains (Figure 2). In 1997, supermarkets had a share of 6.3% of the total retailing industry in terms of the value of goods transacted. By 2001, the share of supermarkets in total retailing had grown to 20.4%.

There are both demand- and supply-side factors that contributed to the diffusion of supermarkets in Indonesia. The demand-side factors are income growth, urbanization and urban consumption, women's labor force participation and changing lifestyle, and convenience. The major supply-side factor is the flow of Foreign Direct Investment (FDI) into the retail sector following market liberalization. These factors are considered to be similarly important in the emergence of supermarkets in other developing regions (Reardon et al. 2003).

GDP per capita in Indonesia has grown at an annual average rate of more than 5%, starting from US$298 in 1970 to US$1113 just before the economic crisis in 1996 (World Bank 2003). Also, urbanization in Indonesia had been spreading at a remarkably consistent rate of around 5% annually from the early 1970s up to the mid-1990s (World Bank 2003). The percent of total population living in urban areas had doubled over this period from 20% in 1976 to 40% in 1999, and this figure is projected to increase to over half the total population by 2020 (Edwards et al. 1995).

With an increase in income and urbanization, food consumption patterns in Indonesia have changed over the past two decades. Figure 3 shows the shares of high-value (HV) food (fish,

meat, eggs, milk, and FFVs), prepared food and beverages, and cereals in total food expenditures for urban consumers during the period 1981 to 2002. Before the economic crisis in 1996, the share of cereals in total food expenditure was seen to be declining while the share of HV and prepared food was increasing. Since 1981, the amount that urban consumers spent on prepared food has grown at an annual rate of 30.2% compared with an overall food expenditure growth of 9.2% (Household Expenditure Survey Data of BPS 1981, 1984, 1987, 1990, 1993, 1996, 1999, and 2002).

The high concentration of supermarket outlets and other modern retailing infrastructures in the JABOTABEK[4] area in Indonesia also supports the demand-driven hypothesis for the emergence of supermarkets in the country. While the average per capita monthly expenditure on food in urban areas in 2002 was 42% higher than in rural areas[5], in Jakarta it was 92% higher than in rural areas. Due to this high demand and because of the economics of agglomeration, most of the modern retail infrastructures are concentrated in the JABOTABEK area.

Changes in urban food demand are also closely linked to changing lifestyles that have been brought about by the increased female participation in the formal labor market, particularly in urban areas. During the last two decades, the female adult illiteracy rate in Indonesia (the share of female population aged 15 and above) has decreased from 40.6% in 1980 to 18.1% in 2000. During the same period, the female labor force as a share of total labor force has increased from 35% to 41% (World Bank 2004).

With the rise in the participation of women in the labor force, there is greater likelihood of finding more households in urban areas where both spouses hold full-time jobs. This phenomenon, along with the general increase in per capita income stirred by decades of economic growth, has led to a substantial increase in the total household income. This increase in income has an obvious impact on food demand and the value of leisure time. In cases where both spouses participate in the formal labor market, which is characterized by increasingly longer working hours, the marginal value of home time has gone up. These two effects, namely the rising income and the rise in the marginal value of home time, have influenced household food demand ('what to buy') and the choice of marketplace ('where to buy').

Regarding 'what to buy', fast-food and other similarly prepared foods have emerged as an alternative for home-cooked food. Although standard fast-food menus offer a limited choice and are not necessarily a close substitute for Indonesian home-cooked meals, their price is perhaps much lower than the marginal value of leisure time/home time of a family where both spouses work.[6] In addition, the wide range of frozen prepared food in supermarkets, and the widespread availability of consumer durables such as refrigerators and microwave ovens in urban areas, have facilitated the working households' switch to prepared food in an effort to save valuable leisure time[7].

Regarding 'where to buy', the very organization of modern retailing has been acting as a driver, too. As opposed to traditional retailing, which is usually spatially scattered, modern retailing offers scope for considerably saving shopping time. Most of the modern shopping malls in Indonesia host both fast-food outlets and modern supermarkets in the same building. As a result, consumers can combine food and other shopping needs with meals. In fact, the rapid rate at which both the modern retailing and fast-food industry have been adding outlets, and the rate at which the demand for prepared food has been increasing in Indonesia imply that both of these factors have been reinforcing each other (Figure 1 and Figure 2).

In addition, modern retailers offer additional advantages that go beyond mere convenience; many consumers avail of their services when arranging

[4] JABOTABEK stands for JAkarta, BOgor, TAngerang, and BEKasi – the four cities comprising this major urban area in Indonesia.

[5] The average per capita monthly expenditures on food in rural areas, urban areas, and in Jakarta in 2002 were IDR101692, IDR144352, and IDR195170, respectively (BPS Survey on Household Expenditure 2002).

[6] In rich countries such as the United States, fast-food chains offer a wider range of choices which are purportedly intended to become "home-meal replacements" (Jekanowski 1999).

[7] In 2002-03, 31.9% of urban households and 6.2% of rural households in Indonesia owned a refrigerator (Badan Pusat Statistik, Statistics Indonesia (BPS), and ORC Macro 2003)..

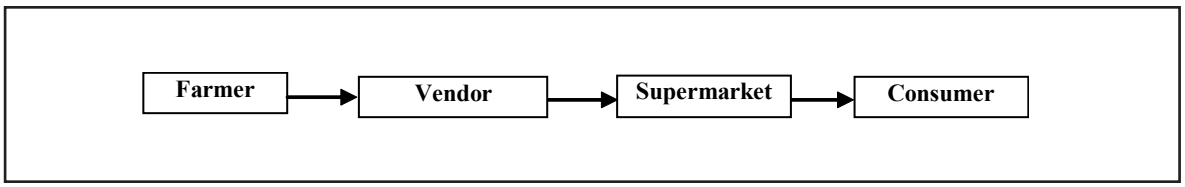

Fig. 4. Modern value chain

family and social events. Therefore, the attributes of modern retailing have been suitably accommodating the demands of a busy urban lifestyle.

The major supply-side factor that has propelled the growth of supermarkets is the opening up of the retail sector to FDI in 1998. Initially, many of the modern retailers, such as Hero and Gelael, were local ventures. However, the Indonesian government adopted a more liberalized retail trade policy in 1998[8]. Since then, foreign firms have been allowed to operate retail outlets in most major urban areas, although restrictions remain in the provinces.

The role of FDI in retail growth becomes more evident once we look at the current ownership status categorized into foreign and domestic sources. In the hypermarket category, Carrefour—a French retail chain—has the largest number of outlets (11 outlets in 2003). In the supermarket category, Hero —acquired by Dairy Farm of Hong Kong—has the largest number of supermarket outlets at 97 in 2003 (USDA 2003). Some consolidations among supermarkets have taken place, with foreign firms such as Hero and Ahold acquiring local firms.

VERTICAL RELATIONSHIPS IN THE FOOD VALUE CHAIN

The emergence of supermarkets in Indonesia has paved the way for the emergence of vertical relationships between supermarkets and farmers, and has influenced the value chain in FFVs. In contrast to the traditional value chain, the modern value chain (Figure 4) that has been emerging in the Indonesian food sector contains fewer participants, involves a high degree of coordination, and ensures a high level of integration among different activities. In the modern value chain, a farmer usually establishes a contractual relationship, mostly oral, with a vendor, who also establishes a similar contractual relationship, mostly written, with a supermarket chain.

Unlike traditional retailers, supermarkets in Indonesia maintain grades and standards in procurement. They supply the guidelines for grades and standards to vendors, who implement these guidelines, as a part of the supply agreement. To ensure the desired quality, supermarket chains usually monitor both on-farm and off-farm activities by controlling fertilizer applications, quality of seeds, harvesting, and post-harvest handling techniques.

Vendors play very important roles in the modern value chain by reducing the information gap that otherwise prevails between supermarkets and farmers. They supply seeds, technology, and other inputs necessary to attain the supermarkets' requirements, and train farmers on how to achieve the required standards. Some of the vendors also link farmers with financial institutions and assist them in obtaining credit. The vendors set harvesting schedules with the farmers and procures fruits and/or vegetables according to the grading and standards agreed upon by the vendor and the farmer. Vendors also add value to the products through better post-harvest processing and handling, starting from cleaning, trimming, sorting, grading, and packaging, to distribution.

The emergence of the vertical relationship described above seems to have occurred in response to potential risks and uncertain product quality. Whether a farmer produces FFVs depends on the relative return s/he receives and the risks associated with that return[9]. Assuming that the relative return is higher for FFVs compared to traditional alternatives such as cereals, risk becomes a critical factor in farmers' decisions regarding the choice of product and the degree of specialization.

[8] The government opened the retail sector to FDI following the Letter of Intent with the IMF signed on January 15, 1998.

[9] This argument is based on the theory of portfolio selection pioneered by Markowitz (1952).

Among the various risks, the two most important ones are the price risk and the production risk. Since the prices of FFVs may vary from year to year[10] and since there are often no government-initiated price stabilization efforts, producers of such products are subject to higher price risks compared to producers of staple crops. Aside from price risks, producers of FFVs are subject to production risks, particularly to yield risks due to variations in inputs, weather, and other idiosyncratic factors. In addition, other factors that play an important role in farmers' decision about the choice of products, particularly for small-scale farmers, are information asymmetries, resource constraints, and transaction costs.

In the absence of risk-mitigating instruments such as crop insurance and future markets, the vertical relationship between farms and firms can be a potential solution to reduce such risks as information asymmetries, resource constraints, and high transaction costs. In a vertical relation where a downstream firm shares risks with an upstream farm, provides information, credit, and other production inputs, as well as ensures output disposal at a predetermined price, the arrangement can be highly beneficial for the upstream farm. Such relationships—either through formal and informal contract or through ownership—can reduce risks, and hence ensure higher risk-adjusted returns. They also minimize information asymmetries, ease resource constraints, and reduce transaction costs.

From the firm's perspective, the option of whether it will form a vertical relationship with a farm or not depends largely on the cost of buying in the spot market versus the cost in the vertical relationship. However, the cost alone is not a sufficient condition to establish a vertical relationship. From a supermarket's perspective, there is always a demand for the constant supply of homogeneous products of consistent quality, and which meet certain prescribed grades and standards (G&S)[11].

In contrast to cereals, FFVs are less homogeneous, and their homogeneity depends largely on production practices. The spot market may not be an alternative to ensure a regular supply of homogeneous products of consistent quality. Instead, what this requires are a certain degree of control of production practices and the coordination of production activities that take place in more than one area. In the case of Indonesia, where production takes place in numerous scattered plots of small size, the firm at the retail end of the supply chain needs to take part in the production decision carried out in the upstream end. Therefore, a vertical relationship in the form of production contracts or any other form may offer a better alternative.

SMALL-SCALE FARMERS IN THE MODERN FOOD VALUE CHAIN

One of the major concerns associated with the emergence of supermarkets in developing countries is the probable exclusion of small and marginal farmers from the modern food value chain. Evidences in some other developing countries show that there is a tendency on behalf of supermarkets and fast food chain to favor medium and large farmers and to exclude small and marginal farmers (Ghezán et al. 2002; Balsevich et al. 2003).

There are obvious economic reasons why supermarkets resort to this exclusion, such as the high fixed transaction costs and the need to implement grades and standards as described earlier. Since the production of FFVs requires the supermarkets' close monitoring of production activities and implementation of chain-specific standards, then the smaller the farm size, the higher the per unit fixed cost for supermarkets. Similarly, small-scale farmers also face entry barriers when the production for supermarkets requires investment in physical capital that is indivisible in nature.

Indonesia's agriculture sector is dominated by small-scale farmers. Despite the persistence of structural heterogeneity, the production of FFVs is still dominated by small and marginal farms while the distribution and retailing are increasingly under the control of medium and large firms. According to the 1993 Agriculture Census, around 44% of the farmers had a landholding of 0.5 hectare or less, and 66% of the farmers had a landholding of one hectare or less. In the case of Java, which is the largest

[10] For instance, between 1983 and 2000, the average standard deviation of the farmgate prices of irrigated paddy and shallot in Java (East Java, Central, West and Jogyakarta) was 296.26 and 115894.96, respectively. (These figures were calculated from BPS data.)

[11] G&S consist of measurement rules (standards) and classification systems (grades) (Jones and Hill 1994). They can pertain to product quality, safety, authenticity, and goodness of a production process (Farina and Reardon

source of horticultural produce and has the highest concentration of supermarkets in Indonesia, the landholding size is even smaller than the country-average. For instance, in 1993, more than 63% of farmers had a landholding of less than 0.5 hectare and around 87% of the farmers had a landholding of less than one hectare.

Based on interviews with supermarket managers, specialized suppliers, and modern vendors of different supermarkets, and on rapid rural appraisal in West Java, it was found that, unlike in Latin America (Balsevich et al. 2003), supermarkets in Java procure part of their locally produced supply of vegetables from small-scale farmers. This is because in Java, small-scale farmers control most of the agricultural land, thus making total exclusion not feasible in any case (unless all fresh produce were imported). However, small-scale farmers face considerable difficulties in ensuring credit and attaining technical know-how on new products and cultivation methods.

Large supermarket chains, such as Hero, which rely on a centralized procurement system[12], have their preferred suppliers and private standards. Small-scale farmers, especially those with low levels of human and financial capital, supply to such chains only when they are linked to preferred suppliers who in turn ensure supermarket's standards. Otherwise, small-scale farmers supply part of their product to relatively small domestically-owned chains, albeit at a low price. With further consolidation in retailing looming on the horizon, and the implementation of more stringent private standards by supermarkets, the difficulties of small-scale farmers in supplying to supermarkets may increase further.

VALUE DISTRIBUTION IN MODERN FOOD VALUE CHAIN

To see who gets how much of the total gross value generated in the food value chain, starting from farmers to supermarkets, information on the price spread of different vegetables was collected[13]. There are at least two ways of examining the distribution of value generated in the chain among different participants, namely: a) by calculating the share of gross value that each participant receives in each of the value chains, then comparing the participants vertically within a value chain and horizontally between two value chains; and b) by comparing the absolute prices between two value chains, particularly for farmers and consumers. However, one must note two essential caveats of the aforementioned exercises, namely, that there are differences in product quality between the two value chains, and that the related data are not from representative samples.

Figure 5 shows the percentage distribution of gross value within each chain. These values are based on the average prices received for six major vegetables, namely: cabbage, carrot, chili-pepper, potato, shallot, and tomato. The price data were collected at each level of transaction starting from farmers to retailers.

Figure 5 presents both the vertical analysis within a chain as well as the horizontal analysis between two chains. For instance, in terms of vertical distribution in the traditional value chain, 35.4% of the gross value goes to farmers, 7.4% goes to vendors, 11.3% goes to wholesalers, 23.2% goes to wet markets, and the remaining 22.7% to traditional retailers. Thus, the farmers rank first in appropriating value shares in the traditional chain. The relative distribution is very different in the modern value chain, however, where farmers receive only 26% of the total gross value and supermarkets receive 53% of the total gross value.

Though it is obvious from Figure 5 that farmers in the traditional value chain, on average, receive a higher share of value compared to farmers in the modern value chain (as evident in the relatively low standard deviations in all cases), the absolute prices that they receive, however, depict a contrasting scenario. Table 1 shows the prices received by farmers in both the traditional and modern value chains for the same categories of vegetables that have been used to derive the value distribution in Figure 5. As the findings clearly show, the farmers linked to the modern value chain received higher

[12] This refers to a large-scale technology-intensive procurement system that requires farmers or vendors to deliver products, usually in large quantities, directly to the procurement place.

[13] The current sample includes three supermarket/hypermarket outlets in Jakarta and Bogor, three vendors who supply to supermarket/hypermarkets from the same areas, and from traditional markets in Bogor and Bandung.

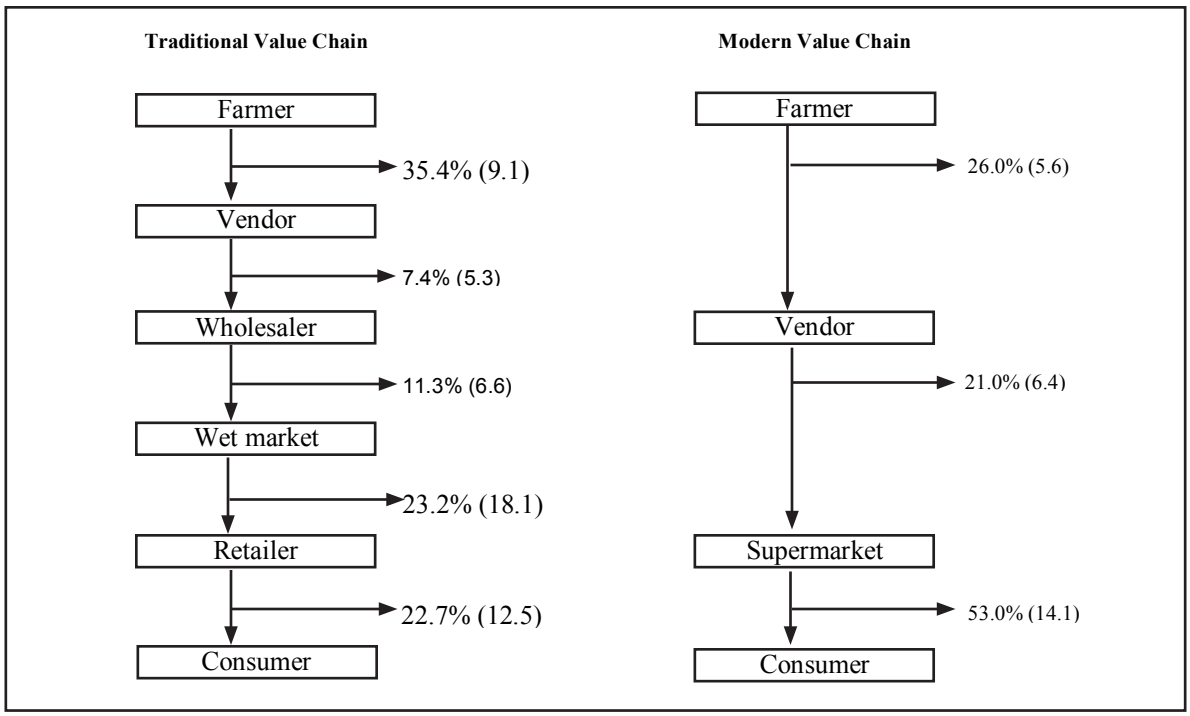

Fig. 5. Distribution of gross value in traditional and modern chains for vegetables

Table 1. Absolute prices received by farmers in traditional and modern value chains (in US$)

	Traditional	Modern	Traditional/Modern
Cabbage (kg)	0.07	0.27	25.9%
Carrots (kg)	0.13	0.27	48.1%
Chili Pepper (kg)	0.24	0.37	64.9%
Potato (kg)	0.19	0.25	76.0%
Shallots (kg)	0.31	0.37	83.8%
Tomato (kg)	0.18	0.15	120.0%
Average			**69.8%**

prices for each of the vegetables, except tomato, than the farmers linked to the traditional value chain.

It is important to remember that the quality difference in the products produced by the two groups of farmers has not been considered here, and the improved quality supplied by farmers linked to the modern food value chain may come at a cost that needs to be compared with the improved gross margin. However, there are two other important aspects that we have not taken into account.

First, since integrated farmers receive inputs and technical support, there is perhaps a reduction in production risks due to the vertical relationship. Similarly, since modern vendors buy the products from integrated farmers at a price correlated to prices in supermarkets, integrated farmers are likely to face less price fluctuations than their traditional counterparts.

Second, integrated farmers face lower transaction costs compared to their traditional counterparts. Since they know their buyers, there is no search involved in the transaction. In addition, they also incur low monitoring and enforcement costs due to repeated transactions with the same vendor(s). Therefore, reductions in price and production risks, and transaction costs due to the vertical relationship may have enhanced the overall

return to farmers linked to the modern value chain. In fact, these are the precise reasons described earlier that influence farmers' decision to produce high value products.

It seems that the vertical relationship between farms and supermarkets that has been emerging in Indonesia may have provided the possibility for supermarkets to extract excessive rent owing to their monopsonistic position and control in the modern food value chain. However, supermarkets need to commit large investment in retail infrastructures and may incur costs that are not considered here[14]. The increased share of retailers (supermarkets) in the gross value observed in the case of Indonesia is not a surprising outcome. In fact, evidence in the context of more mature markets such as those in Western Europe shows that a transition from traditional retailing to modern retailing is usually accompanied by a redistribution of value in favor of retailers (Dawson 1995).

CONCLUSIONS AND POLICY IMPLICATIONS

Changes in retailing, as chiefly exemplified by the emergence of modern supermarkets, have created new food value chains and affected market organization and value distribution, among others. For farmers linked to the emerging food value chain, there is a reduction in price and production risks, and perhaps an improvement in returns from farming.

However, with an increase in demand for quality, safety, and other chain-specific requirements, there is a risk of small-scale farmers' exclusion. For consumers, there is an improvement in product quality and convenience. For supermarkets, the vertical relationship offers a scope for implementing grades and standards, and other chain-specific requirements in production. It may also have given a scope for monopsony/monopoly rent appropriation. For farmers, however, there are alternative channels that may help them to sell their products, albeit at a lower price compared to modern channels, and protect them against the monoposonistic power of large supermarkets.

The government of Indonesia and those in other developing countries that have opened their retail sector to foreign direct investment, need to follow a two-pronged policy. First, there is a need to build institutions and mechanisms to increase small-scale farmers' participation in the modern food value chain. Modern vendors—who link farmers to supermarkets—may be used for this purpose. For instance, training and credit can be channeled through modern vendors.

Second, it is imperative to ensure fair competition so that concentration in retailing does not lead to the abuse of market power in the form of market foreclosure and other restrictions. Supermarkets and modern retail chains should be brought under the laws governing general competition and regulatory oversight. Simultaneously, farmers' organizations may be encouraged so that they can enhance their bargaining power.

Some important issues that have not been covered here but call for future research attention concern the impact of supermarkets on traditional retailers and intermediaries. The growth of modern retailing is taking place at a time when many segments of the Indonesian economy have stagnated and have not fully recovered from the recent economic and financial crisis. The replacement of traditional markets and kiosks, and intermediaries linked to them, is likely to raise the unemployment rate, at least in the short run. Any subsequent research should consider examining these important issues.

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