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Banana Supply Chains in Indonesia and Australia: Effects of Culture on Supply Chains

Shinta Singgih and Elizabeth J. Woods*,1

Abstract

Research on banana supply chains (BSCs) was conducted in 2001 and 2002 through two case studies, BSC1 (Indonesia) and BSC2 (Australia). BSC1 supplied local banana varieties from small farmers in the Bayah District in Banten Province to traditional markets in Jakarta through the Jakarta central market. In BSC2, Cavendish bananas from growers in North Queensland were marketed through a wholesale agency in Sydney to supermarkets and other high-quality retailers. This paper discusses the effects of culture on the operation of both chains. Data were derived from interviews with chain members and observation of their daily activities, and transcripts were categorised using qualitative software.

In both chains, strong and long-term relationships formed the basis of all chain activities, however the nature of relationships between the chain members differed significantly between those in BSC1 and BSC2, particularly at the upstream (farmer and village) levels. Culture affected the way in which members related and communicated their ideas to each other. Relationships in BSC1 villages were dominated by traditional value systems, social stratification and indebtedness that encouraged paternalistic approaches by the buyers toward the sellers. Chain members’ relationships in BSC2 were more egalitarian and in some cases developed into strong friendships. The culture, as expressed through the nature of these relationships, affected the pricing mechanisms and farmers’ bargaining inclination. Despite the differences, each chain performed relatively effectively, adapting to its needs within its cultural environment.

Supply-chain management (SCM) concepts originated from the fields of production/operations management and logistics (Westgren 1998), particularly in the United States of America (USA) (Wilson 1996). SCM drew from the lean management approach practised by the Japanese automotive industry in the 1970s and 1980s, including non-confrontational ways of undertaking exchanges and just-in-time distribution. The concepts can generally be divided into two groups — traditional and the new concepts of SCM. The traditional SCM concept views the supply chain as a means of obtaining the lowest possible initial purchase price while assuring supply (Spekman et al. 1998). Hence, SCM is characterised by the presence of multiple partners who are evaluated based on purchase price, arms-length bargaining, formal short-term contracts, and centralised purchasing. In such situations, fierce horizontal competition among suppliers is encouraged because the prevalent assumption is that suppliers would behave opportunistically once the buyers become dependent on their products.

The new paradigm of SCM, on the other hand, emphasises the importance of good coordination of all phases within the chain to transform raw materials...
into finished products or services and distribute them to the end consumers (Spekman et al. 1998; Dunne 1999). This includes “designing, developing, optimizing and managing the internal and external components of the supply system …” (Spekman et al. 1998, p. 54). Baatz (1995) goes even further to include recycling or re-use of the product, though this inclusion is still relatively uncommon in SCM literature. Viewed as a system, the chain should also be managed as a whole (Beers et al. 1999). Hence, in SCM, the competition is no longer between business units at the same level, but between chains operating in the same or alternative industries.

The majority of SCM literature, including in the agri-food industry, focuses on the application and implementation of SCM in developed countries. The differences in the nature of agri-food industries in developed and developing countries mean that SCM concepts derived from experiences in developed countries cannot be easily applied in developing countries without understanding the differences in the nature of the industries in both types of countries, caused by factors such as culture, and the systems and regulations in place. Many SCM authors, for example, Wilson (1995) and Fearn (1998), believe that SCM is all about managing good relationships among the chain members, with the financial gains distributed according to the distribution of value added. This paper focuses on the relationship nature of the supply chain and the effects of culture, rather than the issue of value-sharing within the chain. Understanding how culture might affect supply chains in particular countries is critical because of the effects it might create in the logistic-relationships management of supply chains. Culture here refers to “the context of symbols, norms, interpretation models and values shared by a social group. Values form the core of culture and concern what is good/bad, clean/dirty, normal/abnormal, logical/illogical, rational/irrational, fair/unfair etc.” (Aquilon 1997, p. 77). Two dimensions of culture described by Hofstede (1993, 1997), power distance and individualism, will be used to describe the differences in the Indonesian and Australian culture that might affect the management of the chains and relationships between their members.

In the following sections, the similarities in the banana industries in Indonesia and Australia will be briefly explained, followed by a description of the research methods used in the study. The two case studies are then described, focusing particularly on the logistic management occurring within each chain. The following sections describe the effects of culture on banana supply chain logistic-relationships and the chain members’ bargaining inclination. Finally, a brief conclusion and implications of the study are provided.

**Banana Industries in Indonesia and Australia**

Although each chain studied is unique and has its own characteristics, both operate in the banana industries within their respective countries, and share some similar features. At the production end, the industries are made up of mainly small family farms, although large plantations also exist in each industry, particularly in Australia, where less than 5% of growers produce 70% of Australian bananas. For many small banana farmers, growing bananas formed an important part of their income. Since bananas are grown as a monoculture in Australia, they were the main source of income for the farmers, while in Indonesia bananas are grown together with annual crops and contributed to farmers’ regular income, although not necessarily as their main source of income. Bananas are produced mainly to serve domestic consumption in each country.

At the marketing end, the banana industries in both countries are part of the global fruit-marketing industry. Imported fruit has been making its way to Indonesia, and applications have been made to import bananas into Australia. In Indonesia, imported fruits can be found easily, not only in supermarkets in the cities, but also in traditional markets in urban towns. These high-quality fruits are competitors to the local bananas. As markets become more competitive, small farmers can easily become uncompetitive. To be successful in this environment, good collaboration between all members of the chain is critical to ensure competitive quality, quantity, and price of their product to the changing consumer preferences.

The banana industries in both countries are characterised by informal, non-contractual relationships, with workers being price-takers and exercising the least power compared to other members of the chain. Those at the front-line interface with end consumers normally benefit from the information to hand, and hence often exercise power over others and create dependency. The long and complex chains may also
discourage good communication and information-sharing among members of the chains. Most members communicated only with those at the previous and following level.

**Research Methods**

Two banana supply chains (BSCs) were studied, one in Indonesia and the other in Australia. The Indonesian BSC (BSC1) involved farmers from three villages in the Bayah District of Lebak Regency in the Banten Province in West Java. The main fruit commodity in Lebak Regency is banana, and it is one of the largest banana production centres in West Java, together with Sukabumi and Cianjur Regencies. The three villages were selected on the recommendation of the Bayah Agricultural office, banana production statistics, and access to study their systems. The Australian chain (BSC2) was selected based on its comparability with the Indonesian banana industry through consisting of small banana family-farms, its attempts to operate competitively and innovatively to survive in the industry, its supply to supermarkets (the most common retail outlet for Australians to buy bananas), and its willingness to provide access to the researcher.

Data were collected in a series of interviews with channel members and by observing them while working. Interviews and observation findings were transcribed and analysed with the assistance of NUD-IST (Non-numerical Unstructured Data Indexing, Searching, and Theorizing) software, which was useful in allowing theory to emerge from the data (Richards and Richards 1991). A summary of findings was verified by the chain members for accuracy.

**Description of BSC1 and BSC2**

As typically occurs in developing countries, BSC1 was characterised by the existence of multi-layers at both the upstream and downstream levels of the chain. BSC1 supplies local banana varieties from three villages, Cibareno, Cikatomas, and Cikamuning, to end consumers in Jakarta and neighbouring cities such as Depok and Bogor through the central

![Figure 1. Logistic flows of banana supply chain 1 (BSC1), Indonesia.](image-url)
market in Jakarta (PIKJ – Pasar Induk Kramat Jati or Kramat Jati Central Market). The logistic flow within BSC1 is shown in Figure 1. Bananas were commonly grown in the villages with minimal input and attention from farmers, on their rice banks or mixed with hardwood trees/annual crops.

In BSC1, farmers sold their bananas to their regular buyers — either collectors or directly to village wholesalers — and only occasionally to others. Two selling methods existed, weight-based and tree-based. In the weight-based method, banana bunches were carried on foot to the buyers’ warehouses to be weighed and priced according to one of the buyers’ standard four price groups. In the tree-based method, collectors actively searched around the villages for young or mature bunches to be bought on the tree. While a fixed-price system ruled almost all transactions in the weight-based method, bargaining governed the transactions in the tree-based method. Competition among wholesalers ensured relatively fair prices to suppliers. Banana ripening was conducted using traditional methods, such as smoking (burning dried coconut leaves) or carbide, at the village wholesaler level. Bananas’ movement within BSC1 was always accompanied by a change of banana ownership at each chain level, apart from at the central market, where the banana agents operated on a 10% commission basis. No formal grading standards existed within BSC1; bananas were graded somewhat differently at each level using subjective assessment of parameters such as bunch weight, maturity, finger length, and cosmetic appearance.

A banana wholesale agent in Sydney was the focal point that linked growers in North Queensland with buyers in Sydney (BSC2). The predominantly Cavendish bananas were sold to major supermarket chains, both high-quality and price-sensitive independent retailers, and other wholesalers. The bananas were sourced from specialised growers who produced high-quality, good- and average-quality bananas. Supply from small-scale, average-quality growers was discouraged. Growers typically consistently supplied to two or three agents to spread their risks and obtain market information from different cities. Growers were paid on each consignment, several weeks after delivery to the agent, who worked on a commission basis. Growers graded unripened bananas by removing defective fingers that fell outside the product specification, and categorised the hands or clusters based on the finger length. They trusted the agent to decide which customers their bananas should supply, based on assessment of the quality and consistency of the ripe fruit. The characteristics of each chain are summarised in Table 1.

Effects of Culture on Logistic Relationships

In both chains, most chain members had known their buyers/sellers for a relatively long time. In fact, strong and long-term relationships formed the basis of all activities in the chains. However, the nature of relationships between the chain members differed significantly between those in BSC1 and BSC2, particularly at the upstream (farmer/village) levels. Culture affected the way members related and communicated their ideas to each other. In turn, this affected the pricing mechanisms and farmers’ bargaining inclination. This paper focuses only at the effects of culture on chain members’ relationships and pricing mechanisms at the upstream end of both BSCs. The effects of culture on the logistic relationships of chain members in this paper are viewed using Hofstede’s power distance and individualism dimensions (1993, 1997).

Power distance dimension

Power distance index (PDI) is a measure of the inequality among people that is considered normal in a country, from the perspective of the least powerful partners in the relationship. Using a scale of 11 (small power distance) to 104 (large power distance), less powerful members of a group in a country with a low PDI accept that power is distributed relatively equally, which encourages interdependence. On the other hand, high PDI refers to cases where the less powerful members of a group depend emotionally on the more powerful members. The PDI of Indonesia is 78, while Australia’s is 36. If these scores are indicative of how people from both countries perceive equality among themselves, it might explain some of the attributes of chain members’ relationships within each chain.

In high-PDI societies, inequality is considered as the basis of societal order (Hofstede 2001). People with social status, prestige, wealth, or simply greater age, may be treated with a mixture of respect and fear in these societies. In BSC1, social stratification existed in the villages. Wholesaling is quite a respected occupation, which positioned the wholesalers relatively high in the village societies. Wholesalers earned villagers’ respect because of their business success, wealth, or simply their personality.
For example, the inequalities among BSC1’s farmers, collectors, and village wholesalers were apparent through the differences in materialistic possessions among them — wholesalers commonly lived in relatively large houses equipped with a television and antenna to receive TV channels from Jakarta, something that many small farmers in BSC1 could only dream of owning.

Koentjaraningrat (1967) argued that Sundanese villages, such as those in this study, tended to have social stratification based on occupations and positions within the village. Thomas (1975), who studied villagers’ perceptions of social stratification in three villages in West Java in 1965, also found occupation to be one of the most significant determinants of social prestige and power in village society. As a result, supplier-buyer relationships are often characterised by paternalistic attitudes by the buyers, which make small farmers reluctant to bargain in a straightforward manner. Similar, status-based relationships were also found among the Madaymen farmers and middlemen (Russel 1987). That these relationships have continued to exist from the 1960s to 2002 in Sundanese villages suggests they are rooted in stable social values.

Suppliers’ indebtedness toward their buyers, which stemmed from the buyers’ role in guaranteeing a market for their bananas and the credit provision given to suppliers whenever they needed extra cash, contributed to the inequality between suppliers and buyers in BSC1 villages. Buyers offered loans because they predicted that the future benefit of having the farmers’ voluntary commitment to sell only to them exceeded their current costs. However, unlike in Thomas’ 1975 study of Sundanese villages, where credit often caused conflicts because of the high interest rates charged, credit in the villages studied here was given without interest and without an enforced repayment schedule. For many, the feeling of indebtedness reduced their propensity to bargain with the wholesalers. But for some (particularly farmers who owed only a little money to their buyers), it had less impact on their propensity to bargain. They did not consider their financial ties a barrier to bargaining or even to selling their bananas to others if the buyers failed to meet the prices they demanded. Some farmers who used to be collectors and were still paid slightly higher than other farmers also felt indebted toward their wholesalers, which decreased their inclination to bargain.

As depicted by its relatively low PDI, relationships between people in Australia tended to be based on egalitarian principles. Such perception of equality among people (such as the farmers and the agent in BSC2) in a country with low PDI was also associated with more modern agricultural practices, more social mobility, and better education (Hofstede 1997). In BSC2, communication between two parties could be conducted in a relaxed atmosphere where neither of them dominated the interactions. Conversation topics between BSC2 farmers and the agent covered not only bananas but also other interests such as sport or sharing of jokes. BSC2 farmers saw themselves as equal to the agent in social status, which allowed friendships to develop from the trading relationships. The four farmers interviewed have supplied the agent for a long period of time and have turned their trading relationships into friendship, although the distance between their places of work meant face-to-face meetings could only be conducted occasionally, when the agent conducted his annual visit to production centres in North Queensland. One of the farmers was already the agent’s friend before also becoming his supplier.

Jap et al. 1999 assert that friendliness in buyer-seller relationships encourages them to share openly and collaboratively and this provides a basis for increased trust, which has to be continually worked out between them. Batt (2003) concluded that growers must have a certain minimum level of trust in an agent before considering him/her as a potential exchange partner. Compared to other horticultural industries, trust is an even more critical issue in the relationships between farmers and their agents in the banana industry in Australia (and also in the mango and avocado industries), because of the agent’s important role in ripening the fruits before selling. Quality-conscious independent retailers interviewed claimed that banana condition (ripeness) was the single most important criterion in banana selling. It was the agent’s responsibility to ensure that the bananas were handled and ripened properly to achieve the ripening stage desired by customers. This meant that the agent must be capable of selling the right fruit to the right customers at the right price, and also of transforming the unripe bananas into ripe ones. On the other hand, the agents depended on the farmers to supply them with good-quality bananas that were sought by their customers. This encouraged interdependency between both the farmers and the agent, and increased the importance of trust in their relationships, since each party had little or no control over the way the other did their job.
Table 1. Characteristics of the banana supply chains studied in Indonesia (BSC1) and Australia (BSC2).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>BSC1</th>
<th>BSC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance between production area and markets</td>
<td>Approximately 130 km</td>
<td>Approximately 2600 km</td>
</tr>
<tr>
<td>Length of chain</td>
<td>Three levels at the upstream and at least three levels at the downstream</td>
<td>One level at the upstream and three levels at the downstream</td>
</tr>
<tr>
<td>Marketing</td>
<td>Selling exclusively to a single buyer regularly in the villages (only occasional shift to other buyers)</td>
<td>Selling to multiple buyers regularly</td>
</tr>
<tr>
<td>Selling units</td>
<td>Upstream: bunch</td>
<td>Carton</td>
</tr>
<tr>
<td></td>
<td>Downstream: bunch, hand, finger</td>
<td></td>
</tr>
<tr>
<td>Key functions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>Farmers</td>
<td>Farmers</td>
</tr>
<tr>
<td>Ripening</td>
<td>Village wholesalers, retailers</td>
<td>Agent, major chain</td>
</tr>
<tr>
<td>Grading</td>
<td>Collectors, village wholesalers, agent, traders</td>
<td>Farmers, agent</td>
</tr>
<tr>
<td>Assembly</td>
<td>Collectors, village wholesalers, agent</td>
<td>Agent, major chain's distribution centre</td>
</tr>
<tr>
<td>Distribution</td>
<td>Agent, middle-size traders</td>
<td>Agent, major chain's distribution centre</td>
</tr>
<tr>
<td>Retailing</td>
<td>Retailers (small traders/vendors)</td>
<td>Retailers</td>
</tr>
<tr>
<td>Knowledge of other chain members</td>
<td>Upstream members do not know downstream members and vice versa (apart from village wholesalers and agents in the city)</td>
<td>Upstream members know the agent and some of the retailers</td>
</tr>
<tr>
<td>Communication</td>
<td>Face-to-face between members at two connecting levels</td>
<td>Mostly by phone between farmers and agent; farmers occasionally visit the wholesale markets and some retailers; face-to-face and phone between agent and buyers</td>
</tr>
<tr>
<td>Credit ties</td>
<td>Upstream: buyers lend money to suppliers</td>
<td>Credit payment from agent to farmers (consignment system)</td>
</tr>
<tr>
<td></td>
<td>Downstream: credit payment from regular customers to agent</td>
<td>Agent pays farmers based on bargaining results between him and buyers (farmers as price-takers)</td>
</tr>
<tr>
<td>Price mechanisms</td>
<td>Upstream: mostly fixed price in weight-based transactions; bargaining in tree-based transactions</td>
<td>Downstream: bargaining</td>
</tr>
</tbody>
</table>

Individualism dimension

Hofstede’s individualism dimension refers to the degree to which people in a country prefer to act as individuals rather than as members of a group (Hofstede 1997). Indonesia scored 14 here, while Australia scored 90, within a 0 to 100 range. What these numbers tell is that Indonesians tend to be loyal to their groups, while Australians tend to be more individualistic. Loyalty to the group also means sharing resources. This is well expressed through the peasant solidarity existing in BSC1 villages, which focuses on the wellbeing of everybody in the group, rather than the individual.

As most chain members in the villages had been living in the same village all their lives, they knew each other relatively well. Like many other peasant societies in Indonesia, they valued high solidarity among themselves and emphasised the sharing of resources, mutual help, and the right to subsistence for everybody (Alexander 1987). Peasant solidarity stems from the gotong royong community spirit long existing in many villages in Indonesia (Koentjaranigrat 1967). Self-sacrifice for the common benefit is highly appreciated, while individualism is highly disapproved of. Cooperation was the basis of social interactions among villagers, with implications for the way bananas were traded in the villages. The two most common features of peasant solidarity shown among BSC1 members in the villages were the right to subsistence and trust.

Many in the villages believed that everybody should be given a chance to earn money for their families. The common manifestation of this belief was farmers’ acceptance of the practice by village wholesalers of paying collectors a slightly higher price for bananas compared to the prices given to farmers who supplied directly to the same wholesalers. Wholesalers who tried to take over other wholesalers’ collectors by offering them higher prices were regarded as greedy by villagers and were considered disrespectful of the other wholesalers’ right to earn money. In the spirit of respecting his former collector’s right to earn money, a wealthy farmer refused to supply directly to a wholesaler (hence disregarding a chance to earn more money for himself); rather, the farmer preferred to share the increased prices offered to him by suggesting the wholesaler buy his bananas through the collector.

Such values in village life encouraged people to trust each other. When selecting buyers for their bananas, many farmers considered mainly the distance between their field and the buyers’ warehouses, rather than whether or not the buyer was a trustworthy person. By default, farmers believed that as fellow villagers, the buyers would respect their right to earn money and act in the best interest, price-wise, of both parties most of the time. In a system where most transactions were not recorded formally (apart from those by village wholesalers who dealt with large quantities of bananas), trust acted as an assurance that the trading relationships were intended to bring profit for both parties.

Consequently, many farmers believed the act of bargaining risked being interpreted as lacking trust in the wholesaler’s judgement. Bargaining could also be interpreted as a direct confrontation with the buyers, which was usually avoided in a society that respected harmonious relationships. Suppliers (farmers and collectors) tended to believe that most of the time they would receive fair prices according to market prices in the city and they could accept occasional delays in receiving price increases. So strong was the trust that many suppliers did not feel it necessary to search for updated market information. They also believed that forcing wholesalers to buy bananas beyond their prices might cause losses for the wholesalers, which in the long term would disadvantage the suppliers themselves. Hence, suppliers might prefer to trust the wholesalers’ judgement on appropriate prices and risk the amount of profit they could get in the short term in favour of long-term sustainable relationships. After all, bananas were seen as a means of providing security and stable income for most people in the villages.

In line with Australians’ tendency to be individualistic, a farmer in BSC2 would rate his business wellbeing as a higher priority than the whole chain’s success. Farmers’ attempts to bargain with their agents over prices were not considered as a confrontation but as an honest expression of disappointment in the agent’s failure to satisfy their expectation, and as such, did not necessarily affect the relationships negatively. Each stated openly what they expected of the other to progress their business. However, because of the nature of the industry, wherein trust developed slowly over time, costs of switching between agents were high; it was in the best interest of both parties to maintain a good relationship between them. As transactions were repeated, trust also increased, resulting in decreased need to bargain and increased need to maintain the relationship (cal-
culated trust). BSC2 farmers managed their risks by consistently supplying a certain amount or percentage of their bananas to several agents regardless of their daily price differences. Any extra bananas they produced would, however, always be sold to the agent who gave them better prices in the previous week. This practice is also common among other horticultural producers in Australia (Batt 2003). Good relationships with each agent were particularly critical to ensure a market for farmers’ bananas in times of over-supply, which usually coincide with the summer fruit season. Farmers who pursued a spot transaction approach might find difficulties marketing their bananas during those times.

In contrast to the high switching cost in BSC2, the switching cost in BSC1 was low. In BSC1 villages, trust was considered to be pre-existing in any farmer–buyer relationship due to the collectivist nature of the relationships within the village community. This trust, combined with the low production costs and the guaranteed market for bananas, resulted in farmers’ confidence in their capacity for one-off selling or if necessary, shifting permanently to another buyer. However in practice, farmers did not switch easily or supply more than one buyer consistently. The latter was due mostly to farmers’ small production scale. Even large-scale village wholesalers only supplied regularly to a single agent in the city. The loyalty ethos embedded in a collectivist society as in Indonesia meant that anybody who consistently supplied more than one buyer would be labelled as disloyal and their relationships would tend not to last. Fortunately, because of the competition for banana supply, reliance on a single buyer would not necessarily decrease a supplier’s bargaining power, but would increase the risk should the buyer’s business collapse.

Supply-chain literature suggests that high ease of switching between buyers is not consistent with attaining chain integration and interdependency. However, in practice, chain members in the villages have established supply-chain values through their socio-cultural value systems. Pre-existing trust and respect for each other’s right to earn money has integrated the chain, particularly at the village levels, as has the provision through the chain relationships of an informal system of micro-credit. In this sense, traders are established in the role of chain champions.

Implications

The creation of Western-style supply chains in Indonesia to secure supply to large supermarkets may challenge the established socio-cultural norms. A focus exclusively on superior, standardised quality would represent a shift away from the current situation where all bananas find a market. Such a shift would potentially divert income flows which currently seek to ensure that all farmers and collectors are able to earn income (effectively an informal welfare system). Losing their access to informal credit and to cash payments (through moving to delayed payments which are the norm from supermarkets) would also be difficult for many small-holders to sustain.

In the Australian case study, established cultural values and risk-management strategies were shown to favour multiple simultaneous supply-chain relationships by banana farmers. By contrast, Indonesian banana farmers already operate within supply chains with a high degree of trust and stability. Understanding how these current Indonesian supply chains operate and the culture and the deep-rooted values which underpin them, should assist both academics and practitioners to adapt Western supply-chain practices associated with the growing supermarket sector in Indonesia. The opportunity is to design supply-chain practices which better fit with the societal needs as well as meeting the needs of supermarket owners and their customers.

References


