

Mangoes in Indonesia: A Value Chain Approach

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Abstract

In dealing with the volatile nature of supply (quantity and quality), with the resultant variation in price, small-scale operations and the thin value added, with trust, market intermediaries are able to profit from the protracted Manalagi mango supply chain. From the relationship, market intermediaries gain a certain level of risk sharing, improved access to market and information. However, improvements in the operational efficiency of the value chain are needed. Better post-harvest handling practices such as washing, handling and packing and improvements in infrastructure and logistics are required to reduce product losses and to increase value in the chains.

INTRODUCTION

Jakarta is the main destination for Manalagi mango cultivated in Probolinggo, East Java, Indonesia. While there is no formal information available from the local Bureau of Statistics, information collected from traders reveals that no less than 50% of the total production is sent to Jakarta. The partners in the supply chain include farmers, collector agents, brokers and traders who operate in the rural production areas, truck operators, and wholesalers and retailers who operate in the urban consumption areas. As the most significant period of activity for these actors is from July to December, most market intermediaries operate on a seasonal basis. For the other six months, this supply chain lies dormant, but is readily activated every year as the market presents an opportunity for market intermediaries to profit from the Manalagi mango.

Manalagi mango production in Probolinggo is spread out over a wide area. Mango cultivation is almost entirely based on small-scale agriculture where the average farm family cultivates 2-5 mango trees. Regrettably, such farmers employ limited agricultural technology and yields are low. In the rural production areas, collector agents, brokers and traders assemble and aggregate the fruit collected from the many small farmers. These are also relatively small-scale businesses who sell fruit through wholesalers in Malang or Surabaya for subsequent delivery to Jakarta.

A few studies have addressed the question of market integration in the mango supply chain in Indonesia (Munthe 1998; Sulistyowati 1998). These studies rely primarily on the analysis of price co-movements at the market level. While this type of analysis is highly informative in providing snapshot evidence of market segmentation or the lack of price transmission at a given point in time, it fails to provide sufficient insights on why markets are poorly integrated or what constraints are faced by chain participants.

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Along the chains, small-scale traders are generally considered to be dependent and vulnerable in their relationships with larger traders because of significant resource inequalities, opportunism and the abuse of asymmetric market power. In a developing country where few actors have sufficient resources to utilise the legal system to enforce an agreed trading arrangement, exchange is made possible because actors trust each other. Traders in the chains rely on the morality of their exchange partner and the good trading relationships they have built up over time with their exchange partner.

Despite the growing recognition of the importance of collaborative relationships in facilitating exchange in the fresh produce industry, very few studies have empirically sought to explore the nature of the trading relationships between market intermediaries. With the exception of Batt and Parining (2000), Batt (2003ab) and Lyon (2000), very few studies have sought to address the behaviour of buyers and sellers at an individual level, especially in the developing countries.

This paper seeks to fill this gap by exploring the prevailing trading practices and activities, and the key dimensions of long-term buyer-seller relationships (trust, power-dependence and satisfaction). This paper presents original empirical work in the area, which is important for understanding how people cope with situations of high risk and no formal assurance.

THE CONSTRUCTS

Trust

Trust is an important lubricant of relationships. Research shows that trust is a basic requirement in good buyer-seller relationships (Anderson and Narus 1990; Geyskens et al. 1998; Morgan and Hunt 1994; Rousseau et al. 1998). It binds parties and has an important future orientation (Ganesan 1994). It is efficient and enables a party to place a fair degree of reliance on their counterpart (Bradach and Eccles 1989).

Previous studies have found that trust guides behaviour in many business settings (Doney and Cannon 1997; Morgan and Hunt 1994). Smith and Barclay (1997) found that trust significantly affected the attitudes and behaviour of buyers and sellers. Trust enables partners to manage risk and opportunism in exchange transactions (Nootboom et al. 1997). Moreover trust helps to reduce complex realities more quickly and economically (Powell 1990).

A buyer's trust in their supplier increases the buyer's confidence that short-term inequities will be resolved over time and it reduces the transaction costs in an exchange relationship (Ganesan 1994). When parties to an exchange trust each other and when each expects the other to perform an agreed-upon action, they no longer need to rely on costly contracting, monitoring and enforcement to guide their behaviour. Trust plays a major role in reducing transaction costs, especially in situations of complex long-distance trade through reducing the need for regular monitoring.

For buyer-seller relationships, a high degree of trust and a long-term orientation are necessary pre-conditions for success (Ganesan 1994). A high degree of trust between partners in a buyer-seller relationship is conducive to coordinating behavior, whereas low trust may lead to competitive behavior (Anderson and Narus 1990; Gulati 1995). Trust encourages effective communication, information sharing and joint pay-offs (Dwyer et al. 1987; Ring and Van de Ven 1992) and may create strong social bonds (Barney and Hansen 1994).

Trust in the supply chain can be defined in terms of the perceived credibility and benevolence of the partner (Ganesan 1994). Credibility is based on the extent to which the buyer believes that the supplier has the necessary expertise to perform an activity effectively and reliably, while benevolence is based on the extent to which the focal firm believes that its partner has intentions and motives that are beneficial to it. A benevolent partner will subordinate immediate self-interest for the long-term benefit of both parties and will not take actions that may have a negative impact on the firm.

Trust also refers to the psychological state of an individual's view of a particular target. Several targets have been examined in the literature on trust, such as institutions, other individuals and exchange partners in the market. In the fresh fruit supply chain in developing countries, traders are usually the owner, the manager and provide most of the labor for the business. In this context, the target of trust is the individual exchange partner.

Trust can come from both the generalized norms of morality and more personalized sources embedded in social networks. Actors do not always aim to maximize profit, but it may consider minimizing risks and maximizing access through developing personal relationships with other agents. This is especially important in a situation characterized by imperfect information and the lack of effective legal mechanisms (Davis 1973). The employment of trust therefore depends on the probability that other actors will behave in a manner that is expected (Gambetta 1988; Granovetter 1985).

From an embeddedness perspective, actions based on trust can therefore be described as the extent to which actions are embedded in social relationships (Granovetter 1985). Embeddedness recognizes that the relationships between chain participants do not exist in a vacuum, but in a wider social context where norms and culture regulate these relationships and the way in which both parties may wish to act or be seen to act. An organization may also depend on social and cultural approval or at least acceptance of their activities for their continued legitimacy, and ultimately their existence.

Cooperative and trusting relationships can be conceptualized as contracts that rely to differing extents on reputations, sanctions and moral norms. The costs of getting information on individuals are a major transaction cost in deciding whether to cooperate. This information can be collected through links to networks and through previous interactions which can allow the parties to know what to expect. Available sanctions include the threat of stopping a contract and losing future benefits; the threat of damage that can be done to an agent's reputation through bad reports, and social pressure (Lyon 2000).

On a personal level, Rotter (1971) states that trust is a general expectancy held by individuals that the work, promise or statement of another individual can be relied on. In line with this, Granovetter (1985) describes trust as confidence in the general morality of individuals.

Nevertheless, trust between the parties requires a certain timeframe to develop. While generalized norms of morality provide the bases for trustful relationships, Crosby et al. (1990) contend that mutual disclosure, a cooperative rather than a competitive intention and the style and intensity of the communication between individuals is critical in establishing and maintaining interpersonal relationships. Moorman et al. (1993) argue that the interpersonal factors that most affect trust include perceived expertise, sincerity, integrity, tactfulness, timeliness and confidentiality.

Power

It is widely accepted that a high level of trust is necessary for the success of buyer-seller relationships (Ganesan 1994). As power struggles between partners exist, and the very existence of power conditions buyer-seller behavior, the subsequent use of power will impact on the exchange partner's perception of relational behaviour (Brown et al. 1995).

Dahl (1957), defines power in terms of the capacity of an actor to get another actor to do something that the latter would not have otherwise done. Most characterizations of power appear to be reasonably consistent with this definition (see Gaski 1984; Lucas and Gresham 1985).

A number of approaches have emerged to explain the sources of power an actor or an organization may utilise. Drawing on the work of exchange theorists (Blau 1964; Emerson 1962), Pfeffer and Salancik (1978) provide a 'resource dependence' view of power. The fundamental premise is that the more one party is dependent on a particular resource (as either an input or an output), the more that party is potentially subject to the other party's power and influence. If the resources of one party are essential to the other party, then this dependence puts the firm that possesses the resource in a more powerful position.

According to French and Raven (1959), power is derived from the more dependent firm's perception of the dominant firm's ability to mediate rewards, mediate punishment, its legitimate right to prescribe behaviour, some specific knowledge or expertise, and the extent to which the more dependent firm identifies with the dominant firm. French and Raven suggest that an actor's referent power finds its roots in the identification of one actor with another. Referent power is present when an actor avoids dissatisfaction or gains satisfaction through conformity based on identification, regardless of the other actor's responses.

Expert power arises not only from the perception that an actor knows something, but the extent to which the knowledge being communicated is trusted by other actors and deemed to be relevant. Knowledge must be perceived as being valuable if it is to be a source of power. This is partly a function of time, and of the actor's ability to develop a track record of achievements (French and Raven 1959).

French and Raven consider power to reside in several different areas. In a supply chain, one actor rarely controls all facets of power over its exchange partner, because power is issue specific (Lusch and Ross 1985). Consequently, attempts to gain power for a number of power dimensions will require a multidimensional power strategy.

It appears logical in a supply chain, that the dominant firm will be the chain leader, because of its resources and position, and have unlimited power over other chain members and other chain member activities. Supply chain "captains" often use reward and coercive power to cajole and coerce cooperation among chain members. However, the frequent use of mediated power is likely to damage relational norms, cooperation and accommodation between channel partners (Brown et al. 1995). Overt attempts to directly influence weaker parties through the use of mediated power are generally viewed with considerable disfavor. Not only will this lead to conflict, but the relative attractiveness of alternative exchange partners will increase (Frazier and Summers 1984). Conversely, it is the use of non-mediated power that inevitably builds social bonds and close relationships.

Dependence

Resource dependence theory suggests that firms engage in exchange transactions because they require resources from other firms (Emerson 1962; Pfeffer and Salancik 1978). Dependence refers to a firm's need to maintain a channel relationship in order to achieve desired goals (Frazier et al. 1989).

When the outcomes obtained from a relationship are highly valued, the focal firm is more dependent (Heide and John 1988). The same is true when the magnitude of the exchange itself is higher (Heide and John 1988; Lohtia and Krapfel 1994). The larger the proportion of business that is contributed by dealing with a certain supplier and/or customer, the greater the focal firm's dependence. Furthermore, the greater the expectations of future sales and profits from such business, the greater the focal firm's dependence (Frazier et al. 1989).

Dependence is also increased when the outcomes from the relationship are comparatively higher than or better than the outcomes available from alternative relationships. Firms dealing with the best supplier are more dependent because the outcomes associated from dealing with that supplier are better than those available from poor performing suppliers (Heide and John 1988).

When fewer alternative sources of exchange are available to the focal firm, or when replacing or substituting a current exchange partner is difficult because there are fewer potential alternatives, dependence increases (Frazier et al. 1989; Heide and John 1988). Furthermore, the investment the firm needs to put into the relationship in terms of time, effort and money, as well as the perceived costs of switching to and commencing an alternative exchange relationship may also contribute to a firm's dependence on another (Frazier 1983b).

However, it is the firm's perception of its dependence relative to its partner that is of most interest in channel relationships (Anderson and Narus 1990). Relative dependence

determines the extent to which a firm will have influence over or be influenced by its partner, for with increasing dependence comes greater vulnerability. Dependence in an exchange relationship may make one firm more susceptible to the power and influence of another. The more powerful partner may be in a position to create more favourable terms of trade for itself (Frazier et al. 1989; Heide and John 1988).

In general, firms will seek to reduce their dependence on other firms (Heide and John 1988) and to increase the dependence of other firms upon itself (Lohtia and Krapfel 1994). However, firms may seek to reduce and manage dependence by purposely structuring their exchange relationships with other firms (Heide 1994), or to deal with multiple entities (Ganesan 1994).

Resource dependence may also be linked to the transaction cost argument. Coase (1937) and Williamson (1979) argue that transaction-specific investments may be required to obtain operational efficiency. As dependence is a function of the magnitude of the transaction-specific investments made (Heide 1994; Lohtia and Krapfel 1994), parties may become dependent upon each other. However, Anderson and Weitz (1989) indicate that asymmetric dependent relationships are less stable and are more likely to break up over time. Locking-in channel partners through making transaction-specific investments will not prove sufficient to either develop or maintain a long-term relationship, as both parties will constantly search for ways to reduce their dependence (Ganesan 1994). However, where balanced or symmetric investments are made, both firms limit the alternatives open to them by virtue of making the exchange partner irreplaceable or replaceable, subject to switching costs.

Satisfaction

Satisfaction is described as a positive affective state resulting from an appraisal of all aspects of a firm's working relationship with another (Frazier et al. 1989).

Geyskens et al. (1999) propose that satisfaction should capture both the economic and non-economic (psychosocial) aspects of the exchange. Economic satisfaction is defined as the "channel member's positive affective response to the economic rewards that flow from the relationship with its partner". An economically satisfied channel member considers the relationship a success when it is satisfied with the effectiveness and productivity of the relationship with its partner and the resulting positive financial outcomes. Since satisfaction has been described as the buyer's cognitive state of being adequately or inadequately rewarded for the sacrifices they have undergone in facilitating the exchange (Frazier 1983a), performance can be viewed as the key reward and price as the key sacrifice associated with the exchange (Voss et al. 1998). Collectively, these introduce the concept of equity in the exchange.

Equity generally refers to the fairness or rightness of something in comparison to other entities (Halstead 1999). Both Frazier (1983a) and Anderson and Narus (1990) suggest that satisfaction with past outcomes indicates equity in the exchange. Equitable outcomes provide confidence that neither party has been taken advantage of in the relationship and that both parties are concerned about their mutual welfare.

Conversely, conflict in channel relationships most often occurs over economic issues (Geyskens et al. 1999). Conflict most often arises from perceptions of inequity relating to the value of the benefits received and the sacrifices made in the relationship. Conflict is typically seen as decreasing the level of satisfaction in customer organizations (Frazier et al. 1989). Thus firms that lower the overall level of conflict in their relationship experience greater satisfaction (Anderson and Narus 1990). Channel members that are satisfied with the economic rewards that flow from their relationships perceive their partner to be advancing their goal attainment as opposed to impeding it. However, conflict is not always negative in the development of a relationship. Occasional conflict can reduce the inertia in a relationship, possibly reshaping existing routines into new, potentially more effective solutions (Tikkanen et al. 2000).

Social satisfaction is derived from the channel member's positive affective response to the non-economic aspects of the relationship in that interactions with the exchange partner are fulfilling, gratifying and easy (Geyskens et al. 1999). A channel member who is satisfied with the social aspects of the exchange appreciates the contact with its exchange partner and, on a personal level, likes working with the partner because it believes the partner is concerned, respectful and willing to exchange ideas

In the context of long-term buyer-seller relationships, satisfaction is cumulative. Satisfaction is not a static evaluation derived from a single transaction, but it is best viewed as a process extending across the entire consumption period within which an analysis of customer-product interactions is fundamental (Fournier and Mick 1999). Satisfaction is an active, dynamic process from which satisfaction emerges as the result of continual interactive negotiation between the customer and the product.

Cumulative satisfaction is an overall evaluation based on the total purchase and consumption experience over time (Fornell 1992). Cumulative satisfaction is a more fundamental indicator of the firm's past, current and future performance. It is cumulative satisfaction that motivates firms to invest in customer satisfaction, for satisfaction is derived not only from the current experience, but also all past experiences as well as all future or anticipated experiences (Anderson et al. 1994). Consequently, satisfaction depends not only upon whether the current products and services meet customer's needs, but the anticipated quality of future products and services.

METHODOLOGY

In this paper, a supply chain is conceptualized as a series of connected activities concerned with planning, coordinating and controlling the supply of Manalagi mango, starting with the harvesting of mango fruit by collector agents, through assembly by brokers, traders and wholesalers and its distribution to retailers for final consumption. Each step can be broken down into dyads, beginning with the collector agent-brokers dyad, collector agent-wholesaler dyad and broker-wholesaler dyad.

In the absence of any reliable list of potential respondents, face-to-face personal interviews provided the only means of contacting potential respondents. The sample was generated using a snowballing technique (Kumar et al. 1999; Sudman 1976), in

which initial contacts provided potential respondents with whom they do business. Initial respondents also provided names of competitors who were then contacted to evaluate their appropriateness and willingness to complete the survey. The first author followed this chain of contacts until a supply chain was complete or further assistance was declined due to issues of confidentiality or lack of an appropriate respondent.

Detailed interviews were conducted with 53 collector agents, 12 brokers/traders in Probolinggo, and 10 wholesalers in Malang and Jakarta (Indonesia). The data was collected from June 2004 to March 2005.

Respondents were asked to indicate the extent to which they agreed or disagreed with 22 prepared statements describing the nature of their relationship with their preferred up-stream supplier and their preferred down-stream buyer. These items which cover constructs on trust, power/dependence, and satisfaction were evaluated using a six point scale where 1 was "I disagree a lot" and 6 was "I agree a lot"

RESULTS

There is an important seasonal pattern to the production and marketing of Manalagi mango in Probolinggo. Although harvest can occur from June to December, the major harvest season occurs from September through October. During this period, prices are at their lowest, given the large supply of fruit available.

Table 1 summarises the activities, costs and constraints faced by each market intermediary in the Manalagi mango supply chain. Collectors and brokers/traders usually buy mangoes using the *tebasan* system from farmers. Tebasan is a harvesting practice in which fruit is sold just before harvest. Farmers generally receive 50% of the total sale price when the tebasan contract is agreed. In the following days, the traders visit farmers to harvest the mangoes and to pay the rest of the money. The contract is just a verbal agreement.

The mangoes are harvested by traders manually using a long bamboo stick with a net at the top end. The proportion of fruit they drop (and damage) depends on the harvester's skills and the canopy of the mango trees. While farmers seldom prune the trees, the height and the canopies of mango trees can vary, making harvesting more difficult and causing a significant portion of losses at the very first stage in the chain.

Collector agents usually use a bicycle to transport the fruit from the farmers place to the brokers/traders' property. Collector agents typically operate independently, also acting as agents for brokers. In some cases, a broker may engage a group of collectors in the morning to buy mangoes and return mid afternoon, to collect the harvested fruit. Sorting, washing and packing are done on the brokers' property. Some collector agents sort and pack directly at the time of harvest. While a wooden box is often supplied by brokers, there is no standard for grading and sorting. Fruit grading and standardization is limited to visual inspection, to the colour of the mangoes, as well as the amount of foreign matter, pest damage and skin damage.

Table 1. Simplified Manalagi mango supply chain in Probolinggo-Indonesia

<p>Collector agents Activities: harvesting, transporting from farmers to brokers' property, sorting, packing Costs: No cash out for harvesting, transporting from farmers to brokers' property, sorting and packing for collector agent as they do them by themselves, except packing material were bought from brokers, transportation from brokers' property to wholesale market in Jakarta, and disposing of unsold produce. Constraint: premature harvesting to capture an early-season premium price, inadequate harvesting and handling, pest and diseases, no grading standard, produce losses, expensive transportation cost to wholesale market, price fluctuation.</p>
<p>Brokers Activities: sorting, packing, transporting from their property to wholesale market in Jakarta Costs: transportation, packing material, sorting and packing labor, disposing unsold produce Constraint: premature harvesting to capture an early-season premium price, inadequate harvesting and handling, pest and diseases, no grading standard, produce losses expensive transportation cost to wholesale market, price fluctuation.</p>
<p>Wholesalers Activities: collecting mangoes from brokers, and selling it to retailers Costs: rent of the premise in wholesale market Constraint: premature harvesting by collectors and brokers, inadequate handling and sorting, pest and diseases result in a low sale price.</p>

Brokers store the fruit in warehouses for up to 5 days on average. However, the lack of appropriate storage infrastructure leads to potentially high storage losses, with fruit vulnerable to damage from moisture and high temperature. As the quantity of produce collected reaches the capacity of the truck (20 tonnes), brokers contact truck operators to deliver the fruit to Jakarta. The transportation costs are divided among collectors and a broker depending on the quantity of fruit each partner has. Delivery to Jakarta can take as long as 24 hours depending on road and traffic condition along the northern coastal road which will also influence the amount of fruit lost. Losses during transportation may exceed 10 percent.

Each broker/trader has their preferred partner in the wholesale market in Jakarta. When the fruit arrives in Jakarta, collector agents and brokers do not know what price they will realise until 7-10 days later, for the fruit is sold on a commission basis with prices determined by supply and demand. The collector agents and brokers are advised how much money they are to receive the following week when the truck brings the next consignment of fruit to the wholesaler.

In explaining the nature of the downstream relationships with buyers, it is apparent that most collector agents had a very positive relationship with their preferred trader/broker (Table 2).

Table 2. Examining downstream relationships between market intermediaries

	Ca > Br	Ca > Ws	Br > Ws
Trust			
I trust this trader	4.94 ^a	4.23 ^f	4.00 ^e
I can rely on this trader promises	4.89 ^a	4.26 ^f	4.00 ^e
Overall, this trader is basically honest and can be trusted	4.85 ^a	4.36 ^f	3.83 ^f
I have confidence in this trader	4.79 ^a	4.17 ^f	3.67 ^e
This trader always considers my best interests	4.70 ^a	4.26 ^f	4.00 ^e
This trader is only interested in their own welfare	2.17 ^d	2.77 ^f	3.25 ^e
This trader cheated frequently	2.13 ^a	2.77 ^b	3.08 ^e
I have to be alert or this trader will take advantage of me	2.09 ^a	3.94 ^b	3.33 ^e
Dependence			
If my relationship was suddenly terminated I would have great difficulty finding an alternative trader	4.66 ^a	2.47 ^b	3.67 ^e
Any other trader could provide what I get from this trader	2.36 ^a	4.30 ^b	3.50 ^e
It would be easy for me to find another trader at any time	2.30 ^a	4.43 ^b	3.17 ^e
I cooperate with a number of traders	2.23 ^a	4.45 ^b	3.58 ^e
Power			
This trader controls all the information in my relationship	4.55 ^a	4.51 ^a	4.42 ^a
This trader has all the power in our relationship	4.51 ^a	4.55 ^a	4.17 ^a
Satisfaction			
It is more cost effective for me to transact with this trader than another	4.81 ^a	3.17 ^f	3.75 ^e
There is good cooperation between this trader and myself	4.53 ^a	3.85 ^f	4.33 ^a
Overall, I am satisfied with the result of my cooperation with this trader	4.51 ^a	3.77 ^b	3.92 ^a
I like to transact with this trader	4.43 ^a	3.85 ^b	4.17 ^a
I am happy with the result of my cooperation with this trader	4.32 ^a	3.70 ^b	4.58 ^a
I am satisfied with the activities performed by this trader	4.32 ^a	3.79 ^b	4.00 ^a
This trader often exceeds my expectations	4.25 ^a	3.64 ^b	4.25 ^a
I feel that this trader treats me fairly and equitably	4.08 ^a	3.83 ^a	4.33 ^a

Where 1 is "I disagree a lot" and 6 is "I agree a lot"

Numbers with the same superscript show there are no significant differences

Ca > Br demonstrates the collector agents' relationship with their preferred broker

Ca > Ws demonstrates the collector agents' relationship with their preferred wholesaler

Br > Ws demonstrates the brokers' relationship with their preferred wholesaler

The majority of collector agents were satisfied in their transactions with their preferred broker and most collector agents trusted their preferred broker. Collector agents reported that their preferred trading partner was always honest and kept their promises. Since their preferred trading partner seldom acted opportunistically, collector agents had confidence in their preferred trading partner and generally believed the information provided. Most collector agents indicated brokers acted in good faith and did not take advantage of them.

With most collector agents perceiving that there was good cooperation between themselves and the broker/traders, they were happy to transact with brokers and happy with the results. Most collector agents maintained that their preferred broker had brought benefit to them both and the rewards had been shared equitably. Yet most collector agents indicated that the brokers with whom they transacted controlled the majority of power in the relationships and with fewer alternatives, most collector agents were highly dependent on their downstream customers.

For those collector agents who sold direct to wholesalers, it was immediately apparent that the collector agents relationship with wholesalers was quite different to those with brokers/traders. The level of trust as well as the perceived level of satisfaction in the relationship with wholesaler was much lower. Even although wholesalers controlled most of the information and possessed most of the power in the relationship, collector agents had more choice in finding alternative exchange partners.

While the level of trust in the broker-wholesaler dyad was lower than that in the collector agent-broker dyad and the collector agent-wholesaler dyad, most brokers indicated high levels of satisfaction in the exchange. The level of satisfaction achieved did not differ significantly from that which the collector agents received from brokers. However, it was apparent that the brokers were more dependent upon their preferred wholesale trading partner than collector agents were upon the wholesalers. Brokers had fewer alternative exchange partners and perceived that their wholesale trading partners had more power and controlled more of the information. Yet most brokers reported that they were happy with the result of their transaction and of the sacrifices they had made to facilitate the exchange.

In explaining the nature of the upstream relationships between market intermediaries, brokers generally reported that their relationship with upstream collector agents was satisfactory. Nevertheless, brokers indicated that they were much less satisfied in their upstream relationship with collector agents. Brokers reported that collector agents could not be trusted and on most occasions, put their own interests before that of the relationship and could seldom be relied upon. Despite the longevity of the relationship (an average of 5 years), a high degree of risk remained in the exchange.

In Indonesia, the brokers/traders finance the collector agents. After receiving money from the brokers, without interest or collateral, the collector agents are obligated to deliver the fruit to brokers within 1-2 days. This scheme frequently creates conflict in the relationship between collector agents and brokers. Brokers extend credit to collector agents so that collector agents can purchase and supply fruit to them. However, it was reported that some collector agents failed to do so, and indeed, many even supplied fruit to other brokers. Thus the opportunistic practices that the collector agents often exchanged in made the exchange both more difficult and more uncertain.

Wholesalers generally reported that their relationship with suppliers was satisfactory yet the level of trust evident in the exchange was often lower than that expressed between the collector agents and the brokers.

Table 3. Examining up-stream relationships between market intermediaries

	Br>Ca	Ws>Sup
Trust		
I have to be alert or this trader will take advantage of me	3.92 ^a	3.10 ^b
I trust this trader	3.83 ^a	3.80 ^a
Overall, this trader is basically honest and can be trusted	3.75 ^a	4.10 ^a
This trader cheated frequently	3.67 ^a	2.90 ^a
I have confidence in this trader	3.58 ^d	4.10 ^d
This trader is only interested in their own welfare	3.50 ^d	3.00 ^d
I can rely on this trader promises	3.33 ^d	4.10 ^h
This trader always considers my best interests	3.17 ^d	3.90 ^h
Dependence		
It would be easy for me to find another trader at any time	3.58 ^d	3.50 ^d
If my relationship was suddenly terminated I would have great difficulty finding an alternative trader	3.50 ^d	3.50 ^d
I cooperate with a number of traders	2.75 ^a	2.90 ^a
Any other trader could provide what I get from this trader	2.75 ^a	3.10 ^a
Power		
This trader controls all the information in my relationship	2.33 ^d	2.30 ^d
This trader has all the power in our relationship	2.25 ^a	2.50 ^a
Satisfaction		
There is good cooperation between this trader and myself	3.83 ^a	4.30 ^a
I like to transact with this trader	3.83 ^a	4.30 ^a
I feel that this trader treats me fairly and equitably	3.75 ^a	4.00 ^a
I am happy with the result of my cooperation with this trader	3.67 ^a	4.20 ^a
Overall, I am satisfied with the result of my cooperation with this trader	3.67 ^a	4.10 ^d
It is more cost effective for me to transact with this trader than another	3.58 ^d	3.80 ^h
I am satisfied with the activities performed by this trader	3.42 ^d	4.20 ^b
This trader often exceeds my expectations	3.25 ^d	4.00 ^h

Where: 1 is "I disagree a lot" and 6 is "I agree a lot"

Numbers with the same superscript show there are no significant differences

Br > Ca demonstrates the brokers' relationship with their preferred collector agent

Ws > Sup demonstrates the wholesalers' relationship with their preferred supplier
(Ca or Br)

Upstream suppliers had little power in their relationship and were generally unable to provide much information. It was apparent that buyers tended to transact with fewer suppliers. Such would indicate major differences in the product offer between alternative suppliers in terms of product quality and presumably post-harvest longevity. Poor quality and a short shelf life will have a direct impact on the amount of wastage, costs and thus directly impact on the wholesalers profitability.

DISCUSSION

In Indonesia, wholesalers operate on a commission basis to link buyers to sellers in the wholesale market. Some brokers and collector agents considered such an arrangement as opportunistic since suppliers face high price uncertainty while wholesalers were risk free and able to retain a 10% commission fee irrespective of the price at which the fruit was ultimately sold.

Collector agents and brokers rely on wholesalers and transporters for information on the prices in the wholesale market in Jakarta. Generally, collector agents and brokers have very little information on the quantity of mangoes supplied and to whom the fruit was sold by wholesalers. While this results in considerable uncertainty in marketing mangoes, the lack of any tangible standards results in prices that are difficult to compare. Furthermore, collector agents and brokers do not know what price they will receive for the produce they have consigned to the market until 7-10 days later. Potentially, this leaves the collector agents and brokers exposed to the possibility of paying higher prices for the fruit they harvest and collect than what the market is willing to pay.

From the standpoint of the wholesaler, the current arrangement has a number of advantages. It provides guaranteed supplies because traders must visit the wholesaler to collect their money and invariably, traders will send produce to the same wholesaler. For the wholesalers, this is a way of gaining credit with no explicit interest charge from suppliers.

Advantages for suppliers are less clear-cut. While there is certainty in having an outlet for the fruit that has been harvested, offsetting this is the fact that suppliers need cash to pay for the next delivery; transport costs, activity costs and buying costs. This is one reason why the exchange between collector agents and brokers is more inclined toward brokerage rather than market price. Negotiating sales between collector agents and brokers on the basis of the prevailing market price could theoretically squeeze the margin as each market intermediary tried to appropriate as big a margin as possible. This cost may exceed the total revenue the supplier received from the wholesale market. Therefore, it may be fair to conclude that in this situation, the brokerage institution is more efficient for traders than market transactions.

However, the brokerage system forced collector agents and brokers to wait for a long time to know what price they realized at the wholesale market. Collector agents and brokers rely on the abilities of their wholesaler partner to sell their fruit, but the wholesaler cannot guarantee a price for the produce, as prices are to a large extent, determined by supply and demand. As a consequence, the level of uncertainty for collector agents and brokers is high. In the collector agent-wholesaler dyad particularly, collector agents reported that the brokerage procedures and practices of the wholesaler are difficult, for the risk is not shared equitably. Hence most wholesalers are accused of exploiting collector agents by switching most of the costs and risks to them while at the same time retaining a guaranteed profit margin for themselves.

Collector agents are usually seasonal traders. The increasing demand for mangoes in the urban areas has resulted in an increase in the number of local collector agents in the mango producing areas. As the mango price starts to decrease, they can quickly switch to other sectors or simply exit the industry. There are no major investments required other than a bicycle. The seasonal nature of mango production is one more reason why brokers have only limited financing requirements. However, compared with the collector agents, brokers have made a significant investment in fixed assets such as a storage room. Brokers often prefer to use hired vehicles from specialist transport operators rather than to invest in their own. Nevertheless, some traders do purchase vehicles.

Wholesalers are seldom big enough to consider investing in cold storage, thus many problems arise during the peak season. When the peak season comes, unsold produce quickly decays. Where produce is unsold, the wholesalers either pass the cost of disposal onto the collector agents and brokers or ask them to dispose of the product. On the other hand, capital can be a constraint for most wholesalers as they must rent their stalls from the state government annually and pay additional monthly costs for cleaning in the Pasar Induk Kramat Jati (Jakarta) and Pool Mangga Soekarno-Hatta (Malang).

In the Manalagi mango supply chain, there is no doubt that wholesalers are the chain leaders. It is the wholesaler who controls the information and coordinates the distribution of fresh fruit from the producing areas to the city.

This snapshot of the relationships among traders in the Manalagi mango case shows that relationships matter in realizing beneficial exchange in agro-commodity supply chains. While this paper does not attempt to model the relationships among and between the relationship constructs, the existence of trust, power and dependence impact on the levels of satisfaction each participant gains from the relationship. Especially in agro-commodity markets, the sum of the value created (value added) tends to be fixed and thin, and thus the issues of dividing it equitably among channel participants causes major friction. This characteristic in the agro-commodity supply chain has historically impeded the process of trust building as one of the important bonds for sustainable collaboration (O'Keffe 1996). Furthermore, in the fresh fruit industry, adopting a more relational exchange paradigm does not reduce the volatile nature of prices and supply (quantity and quality) which put pressure on relationships.

A number of other barriers that frequently create friction in agro-commodity supply chains in the developing countries are inherent high risk and uncertainty of agricultural businesses, limited access to information, lack of an acceptable governance system with equitable sharing of power and control and the lack of equitable sharing of the risk and rewards in a value chain.

Any efforts aimed at improving the operational effectiveness are very important. This will involve efforts to increase the attributes of the goods exchanged and to explore different ways of changing processes, integrating activities and resources, and improving communication among parties.

However, the effectiveness and efficiency of the supply chain can seldom be achieved by a single firm; rather, it is a sum of the contributions of all participants along the supply chain. This requires interacting firms in supply chains to maintain strong bonds that allow for any value chain component to be reorganized within the existing bounds while causing minimal friction in relationships and disruption to the current economic activity.

CONCLUSION

Along the chains, options for improvements in operational effectiveness to reduce cost and increase value are very important. These might include better post-harvest handling practices such as washing, handling, packing and improving infrastructure and logistics to reduce product losses.

The case study shows that in a trusting relationship, intermediaries are able to profit from the Manalagi mango supply chain where otherwise it would be impossible for them to do so individually. From the relationship, intermediaries gain a certain level of risk sharing, improved access to market and information. All parties display some trust and satisfaction in their relationships with their preferred exchange partner and in most cases, all market intermediaries benefit from their relationship.

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