MILK MARKETING IN INDIA:

A REVIEW PAPER ON THE ROLE AND PERFORMANCE OF INFORMAL SECTOR

Indian Society of Agribusiness Professionals

Pro-Poor Livestock Policy Facility (South Asia Hub)

Capitalization of Livestock Program Experiences in India (CALPI)

Executive Summary

Market oriented smallholder dairying offers significant scope for diversification and augmenting income and employment generation for small and marginal farmers. Like any other enterprise, the profitability and sustainability of dairy production depends upon its cost structure and a remunerative price, for which a good marketing outlet is crucial.

Indian dairy sector has made remarkable progress over the last few decades. The co-operative movement, specially Operation Flood, has been an important driver of this progress and has played an important role in facilitating the participation of smallholders in this expanding sector. Despite three decades of cooperative movement in India, however, a large proportion of milk and milk products in India continues to be marketed through the 'informal or unorganized sector'. Although the share of organized market has steadily increased over the last three decades, the informal sector comprising middlemen, private milk traders and direct sale from producer to consumer, still accounts for nearly 80 percent of marketed milk and milk products in the country. Trends indicate that, the informal sector will continue to play its dominant role in milk marketing in the foreseeable future.

Further, nearly 85 percent of all the milk that enters the national exchange economy finds its way into the urban areas. It is therefore the urban demand that is the main source of cash for rural milk producers. It is estimated that of the 3700 cities and towns in India, only 778 are served by an organized milk distribution network. Only 15% of the milk marketed is packed, of which 94% is in pouches.

The informal market thrives on poor willingness of consumers to pay the extra costs of formal processing and packaging. The informal market usually does not incur those costs and hence the market margins between farmer and consumer could remain smaller . This also implies that the informal market agents can afford to offer higher prices to farmers and lower retail prices to consumers.

Consumer preferences reveal that the market for value added milk products is small and most buyers and unwilling to pay for processing of any kind. Formal processes not only spend on quality control and packaging but also on trade taxes and are thus able to market to a niche segmant only. Further, most consumers perceive fresh milk to be of superior quality and hence prefer to buy loose milk. Quality concerns such as bacteria levels in primary processed items like sweets and curd are often not attributed high priority and it is suggested that consumers are themselves not particularly worried about it.

Given the importance of an assured and steady market for milk and milk products and given that both organized and unorganized market agents are likely to continue to play critical roles in the marketing of milk, it is important to understand the micro-dynamics of market behavior of various market agents so as to capitalize on their strengths for the benefit of poor rural producer. In the light of that background, CALPI commissioned a desk study to compile and review available *published* literature on marketing of milk in India with a focus on informal market intermediaries. Somewhat surprisingly, the exercise threw up very few *published* studies with generalizable implications. Most studies either had too narrow geographical and conceptual focus or simply lacked methodological rigor. Available studies suggested following strengths and weaknesses of various marketing channels

Advantages and Disadvantages of Various Marketing Channels

	Strengths	Weaknesses
Co-operatives	• Offer an assured permanent market • Offer inputs, AI, feed, and extension advice • No limit to quantity farmer can supply • Farmers know their cash is safe • Exert quality control over milk • Farmers have sense of ownership • Allow farmers to invest in coop assets • Collection centers are usually not too far from the producers • Bonus payment	• Relatively lower prices where competition exists • Sometimes there are delays in payment • Farmers end up bearing the cost of any mismanagement in the cooperative societies
Vendors/ Hawkers/ Middlemen	• Pay somewhat higher prices where competition exists • Prompt payment in cash • Payment can be negotiated as daily or • monthly • Advances loans (but very short-term) • Collects milk from farmers' doorstep • Provides only market outlet in regions not well serviced by the formal procurement systems	• Chances exist that they may disappear with farmers' money • Not a reliable market • No supply of inputs and services, or credit on inputs and services • Arbitrary changes of prices without prior knowledge. • No quality control of milk
Hotels and restaurants	• Slightly higher prices than cooperatives • Payment can be negotiated as daily or weekly • A reliable market • Cannot disappear	• No security – the business can close • No input or service support • Cannot take all the milk

Neighbors	• Collects from farm • Flexible times for collection due to easy accessibility • Price is usually higher and negotiable	• Not a reliable market • Can delay payments or refuse to pay
Private Dairies	• Prompt payments • Give true weight • Bears cost of spoilage once milk is received • Relatively better prices where competition exists	• Not always reliable • Arbitrary changes in the amounts they buy and the prices are fixed without prior warning to farmer • May place limits on the amounts farmers can supply thereby excluding certain sections of milk producers

In a nutshell, the reviewed studies suggested that while the informal sector scores over the formal sector by virtue of the fact that in many areas it is the only marketing channel open to the rural producer and other factors related to, paying slightly higher prices, offering short term instant cash credit and providing milk collection service at farmer doorstep, the formal sector provides an assured and permanent market as well as a number of other livestock support services. Some of the studies also suggested that in areas where no formal channels exist, informal traders resort to exploitative practices including under-weighing, charging high interests on cash loans advanced by them, low prices and so on. Ray (2000) for example, demonstrated cartelization by private traders leading to monopolistic price setting both for milk procured by them and the interest charged by them on the cash advances. However, most other studies failed to offer convincing evidence to support their claims.

The key contribution of desk study was a reconfirmation of the lack of rigorous research on the structure, conduct and performance of different market intermediaries in comparable production, marketing and consumption contexts.[1] Given the role both formal and informal sectors are likely to continue to play it is recommended that CALPI should, in partnership with other stakeholders, sponsor a series of primary data based studies to examine the functioning of formal and informal marketing chains including the marketing and distribution costs of milk and milk products, impact of trade taxes and other regulatory measures on the economics of formal and informal intermediaries, economic and social efficiency of different marketing channels, and the impact of policy changes on the small farmers, consumers, middlemen and processors.

[1] This inference is based on the review of published literature only. It is quite possible that the entire stock of knowledge on this topic is not in the published domain. The conclusions and recommendations in this paper are subject to that caveat.

MILK MARKETING IN INDIA:

A REVIEW PAPER ON THE ROLE AND PERFORMANCE OF INFORMAL SECTOR

Dairy farming is a source of supplementary income for millions of small/marginal farmers and landless labourers in India. Market oriented smallholder dairying offers significant scope for diversification and thus helps in augmenting income and employment generation for the farmers. The profitability of dairy enterprise depends upon cost structure and a remunerative price for which a good marketing outlet is crucial.

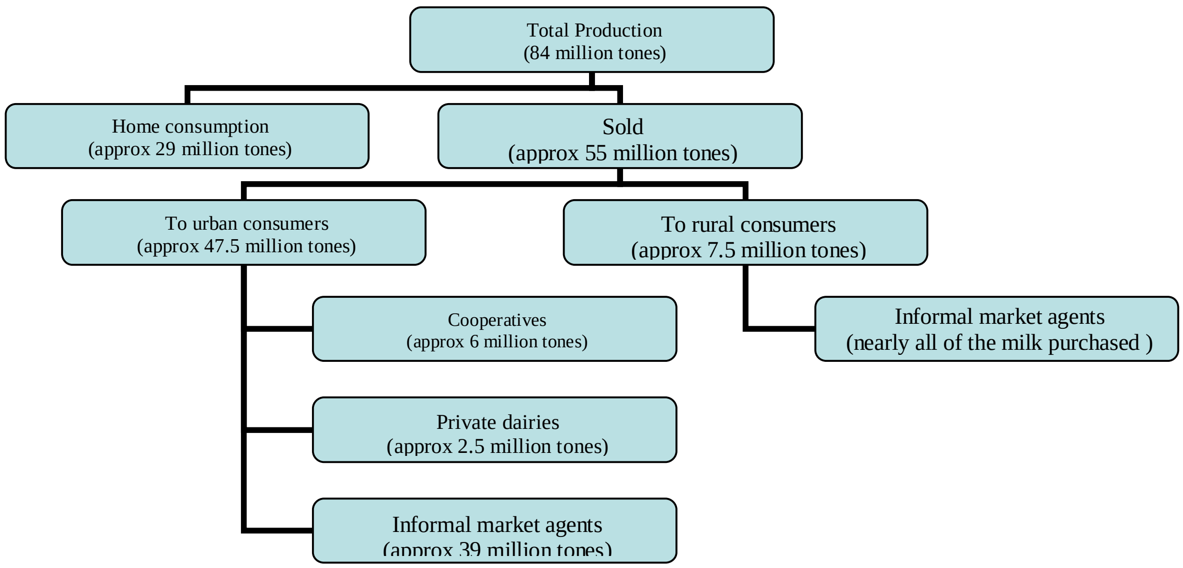
Milk is procured, processed and sold by various agents involved in the dairy business from the point of production to consumption either as fresh liquid milk or processed milk products. Conventionally, these agents engaged in milk marketing have been classified into 'Organized or Formal' and 'Unorganized or Informal' although a clear definition of organized and unorganized does not exist. In this paper, an 'informal' pathway is defined as where some or all the actors involved in milk production, collection, processing and distribution operate outside the sector that is regulated and where in practice, taxes and subsidies apply and are not evaded. Broadly, the dairy cooperatives, Government run milk producing units and large private dairies such as Nestle, Smith Kline, and Heritage are classified as 'Formal' sector where as village vendors, local *halwais*, *bhattawalas*, curd and tea shops, contractors and small-scale private dairies are classified as 'Informal' segment. Although the share of organized market has steadily increased over the last four decades, the informal sector still accounts for a very large proportion of marketed milk in the country. An approximate milk utilization and marketing pattern of milk for the year 2002-03 is given in Figure 1.

As can be seen from the figure, approximately 65 percent of the milk produced entered the national exchange economy while the remaining 35 percent was retained within the producer household. Nearly 85 percent of the marketed milk was handled by the informal segment comprising middlemen, private milk traders and direct sale from producer to consumer[2]. Moreover, nearly 85 percent of all the milk that entered the exchange economy found its way into the urban areas. Thus, it is the urban demand that is the main source of

[2] There is significant variation in the share of informal segment in total marketed surplus. For example, in 1998, the share of unorganized trade in Orissa was estimated as about 95 percent. Some observers attribute the low share of organised sector to unimaginative and staid procurement policies and the inflexible practices of the milk cooperatives (Kurup & Mittal, 1999).

cash for rural milk producers. It is further estimated that out of 3700 cities and towns in India, only 778 are served by organized milk distribution network. Only 15 percent of the milk marketed is packed, of which 94 percent is in pouches. It is evident that not only is the informal sector very large, it is the only channel available to about 80 percent of the towns in India (Indian Dairyman, 2002).

Figure 1: Approximate milk utilization and marketing pattern in India: 2002-2003



Considering the fact that traditional sector still has a major share of milk market, CALPI commissioned a desk study to review and compile the available published literature on milk marketing in India with special focus on informal sector. The specific objectives of the study were to (a) understand the strengths and weaknesses of various marketing channels (b) examine consumers' perceptions/experiences about the different marketing channels and (c) identify information and research gaps. Though available empirical evidence which could be directly associated with the functioning of informal milk market is scanty, an effort was made to collect as much information as possible, and extract and synthesize available information in following categories:

1. Price spread and marketing margins of different channels
2. Consumer's attitude and preference towards various marketing channels
3. Quality aspects/concerns from consumers' perspective
4. Middlemen network/exploitation

1. `Price spreads and marketing margins of different channels

Milk marketing system in India is fairly complex. Figure 1 attempts to provide a somewhat simplified and stylized view of the overall milk marketing system in India. As can be seen a number of different marketing agents interact at various levels in carrying the milk and milk products from producer to consumer.

A comparative analysis of the producer's share in consumer's rupee across different marketing channels is presented in Table 1. It can be seen that the producer gets maximum share (82-100%) when they directly sell to the consumer. However, direct sales are not always feasible for small farmers as some of them are are locked by the middlemen who offer them credit for the purchase of inputs and animals. Even in high production areas such as Haryana, sales to a marketing agent/middleman are one of the common disposal mechanisms. At an aggregate, the producers get lowest remuneration when they sell the milk to the cooperatives (50-75%). For example, in the earley 1990s, OMFED offered lowest price compared to any other channel in Orissa (Table 1). The price realized by farmers from informal sector was Rs 9.5 to Rs 10 per litre, whereas cooperatives paid between Rs 8.00 and 8.50. Further, the middlemen who bought from them made instant cash payments whereas it took 12-15 days to realize payments from the cooperative system (Kurup, 2003).

The key factor that sustains informal market in India is poor willingness of customers to pay the extra costs of formal processing and packaging. The informal sector agents usually do not incur those costs and hence the market margins between farmer and consumer could logically be smaller. This also implies that the informal market can offer higher prices to farmers and lower retail prices to consumers. Small-scale processors (halwais, etc.) also prefer to buy from the informal channel. This category of buyers does all the processing into value added products (sweets, curd, etc.) and is usually not willing to pay for primary processing. Formal processors on the other hand incur expenditures not only on quality control and packaging but also on trade taxes. Thus they are able to cater to the potential urban segment. The share in total marketable surplus of different agencies, from various parts of the country is presented in Table 2.

Surprisingly, very few studies have looked into the structure, conduct and performance of the informal milk market despite their overwhelming presence in the market. With growing demand for milk and milk products in the urban areas, and given that the informal

Figure 1: Major Milk Marketing Channels in India

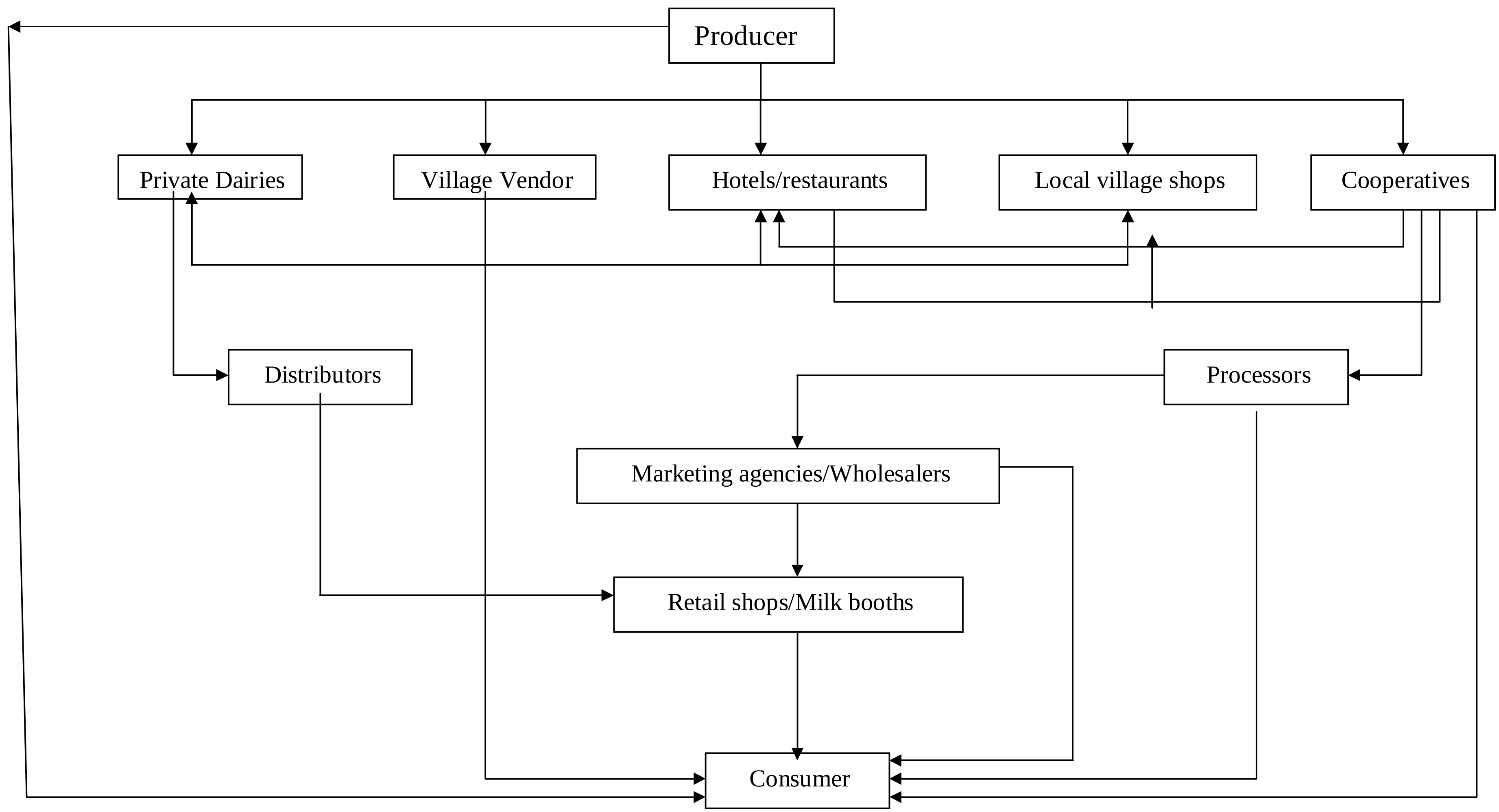


Table 1: Producer's Share in Consumer's rupee in dfferent parts of India through different marketing channels

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
1. Chittor dist. Of AP (1996)	100	65	__	__	__	__	__	__	51.7	__	__	57.7
2. Amritsar district of Punjab (1994)	98.8	70.8	75.7	__	__	69.1	__	__	__	__	__	__
3. Nomadic Gujjars in Punjab(1995)	95.6	67	93.9	__	__	__	__	__	__	__	__	__
4.Banglore & Kolar districts of Karnataka (1995)	__	81.6	__	__	__	__	__	__	__	__	__	__
5.Khurda dist Of Orissa (1994)	92.8	77.5	__	68.8	60.0	__	58.8	55.1	__	__	50.0	__
6.Meerut dist of Western UP (1997)	90.3	78.9	81.0	__	__	71.5	__	__	72.1	70.8	__	__
7. Dharwad district of Karnataka (1992)	__	54.0	__	__	__	__	__	__	73.2	__	__	__
8. Milk marketing in Punjab (1990)	__	73.4	71.2	__	__	64.2	__	__	58.3	__	__	__
9. Karnal dist of Haryana (1989)	100	72.9	72.3	__	__	66.5	__	__	__	__	__	__
10. Ludhiana district of Punjab(1992)	82.3	77.7	63.7	__	74	60.1	__	__	__	__	__	__

S1: Producer—Consumer
S2: Producer—Village trader/vendor—Consumer
S3: Producer—*Halwai*—Consumer
S4: Producer—Hotels and Restaurants—Consumer
S5: Producer—Cooperatives—Consumer
S6: Producer—Village trader/vendor—*Halwais*—Consumers
S7: Producer—Village trader/vendor—Cooperatives—Consumers
S8: Producer—Cooperatives—Hotels and Restaurants—Consumers
S9: Producer—Village trader//vendors—Contractor—Processor—Consumers
S10: Producer—Village trader/milk vendor—Private Milk Booth—Consumers
S11: Producer—Mini trader—Cooperatives—Hotels and Restaurants—Consumers
S12: Producer—Private dairies—distributors—private milk booth--Consumers

Sources: Chahal and Gill (1993a); Chhina and Singh (1999); Khattra and Kaur (1995) Mattigatti and Suligavi (1992) Naik and Dalwai (1995); Naik and Rout (1995); Rout and Tripathy (1995); Shah and Jain (19xx); Tomar and Thakur (2002)

Table 2: Percentage Share of Marketed Surplus of Milk by Different Marketing Channels

Area of Study	Direct sale to consumer	Vendo r	Co-operative	Private Dairy
Rohtak Dist of Haryana (1993)	9.5	75.4	15.1	--
Karnal district of Haryana (2002)	--	77.5	10.0	5.0
Punjab (1990)	7.5	58.5	34.0	--
Rural areas of Kangra district, Himachal Pradesh (1993)	74.2	--	--	25.9
West Maharashtra (1998)	7.2	--	92.8	--
Jalgaon & Kohlapur districts of Maharastra (1998)	15.8	24.2	45.8	14.2
Konkan region of Maharastra (1998)	55.7	17.3	26.9	
Kohlapur district of Maharashtra (1994)	14.3	--	85.7	--
Dugdha Utpadak Sahakari Sangh area in Bulandshahar dist of UP (1990)	7.0	14.0	65.0	14.0
Non Dugdha Utpadak Sahakari Sangh area in Bulandshahar dist of UP (1990)	12.0	56.0	--	32.0

Sources: Chahal and Gill (1993), Chahal and Gill (1993) Chauhan and Gupta (1993); Chhina and Singh (1999); Dorge Tileker, and Nawale (1998); Pawar and Sawant (19xx); Shah (1998); Shah and Jain (19xx).

sector is likely to continue to play an important role, it is necessary to examine the functioning of this segment more closely. In our literature review, we came across Ray (2000) which can be considered as one of the relatively in-depth studies available on this topic. Although this study is restricted to 3 villages in the Jaipur district, it does provide useful insights into the dynamics of the informal sector. Some of the key observations from that study are:

1. In several places, middlemen cartels develop that is detrimental to the farmers' interests. The cartels are so strong that even in scarcity season (summer) the farmers are not able to raise their prices significantly. This happens because middlemen extend necessary credit to the farmers for purchase of animals and lock in procurement volumes in the repayment period. They dictate prices as being the only marketing outlet for the farmers.
2. Prices offered by the informal sector are higher in areas where cooperatives are present, as an alternative channel. Thus, cooperatives often help determine a floor price for milk.
3. The absence/low presence of facilities like credit, procurement, services in formal sector creates a situation where it pushes/compels the small farmer into arrangements with middlemen that are not necessarily beneficial. However, larger farmers who do not depend on middlemen for finance, find the middlemen rates better than what the cooperatives offer.

At the same time, in high demand markets, such as Punjab and Haryana, the middlemen are not quite as strong as in less developed areas. In these areas cooperatives and private dairies are preferred since they are regular buyers. The ideal arrangement for most farmers is to sell a certain volume to cooperatives for consistent sales and to sell the balance to informal players. In flush season this arrangement helps them sell their entire surplus at a remunerative price to the co-operatives and also ensures that in lean season a minimum off-take is guaranteed. An area where the middleman is virtually indispensable is the milk based sweets segment. Almost everywhere in India, except very few exceptions, sweets are prepared by local halwais. They invariably buy from middlemen at lower rates than what the formal sector offers. Some middlemen also make intermediate products for the sweet shop owners. The lack of awareness of consumers and the lack of regulation allows middlemen (and sweet shop owners) to make substantial gains

A study in Jaipur city reported that local milkmen supply fresh raw milk at the doorsteps or to the vendor who in turn supplies it to households. The prices varied from Rs 13-20 per litre for cow's milk depending on adulteration of milk with water and the category of customer. The price generally realized by small farmers from the local vendor was about Rs 10-12 per litre, whereas they got only about Rs 9-10 from the cooperatives. Some middlemen also deployed daily wage workers to collect milk by using bicycles, jeep or camel cart to collect milk from the doorstep and take it to different selling points in nearby major cities (Ray, 2000).

Pawar and Sawant (1995) examined the marketing efficiency of three channels—private, cooperative and government—in Western Maharashtra. Their results suggest that private dairies paid somewhat higher prices to the producers and still managed to supply milk to the consumer at competing prices. This was due to higher efficiency in procurement, processing, transportation and distribution.

2. Consumer's and producer's attitude and preference towards various marketing channels

The key determinants of buying behavior at the consumer level are—price, home delivery, regular and timely supply of good quality fresh milk (Grover *et.al.* 1990 and NDDB-ORG, 2001). For instance, in Bombay, Greater Bombay Milk Scheme (GBMS) dominated the liquid milk market in the organized sector till about a decade ago. A comparative study by Raju (1992) on consumer perceptions and the marketing practices of both organized and unorganized farms in Hyderabad also revealed that the milk vendors have 44.3 percent share of the city market, followed by Buffalo farm (32.17%) and Vijaya Dairy (23.6%). A significant number of respondents found Buffalo farm milk and Vijaya milk to be costlier than the Vendor milk. Some of the reasons for dissatisfaction with Vijaya Dairy milk were occasionally delayed supply of milk as well as most of the complaints lodged by consumers were not attended. One of the prominent reasons of the producers shifting to milk vendors was uniform pricing system by them throughout the year irrespective of fat percent and continued delay in payment to the producers by the respective milk unions.

The unorganized sector usually scores over the organized sector on account of the consumers' confidence, the richness of milk as indicated by "Malai" on milk, the freshness of their products, their ability to give credit and the low overheads (Kalsi, 1992). An opinion survey conducted by Sharma (2000) in Andhra Pradesh regarding the consumer perception and attitude towards the different sources of milk purchase revealed that a majority of the families purchase milk from private vendors due to non-availability of Dairy milk within the reasonable distance from the consumer' residence. Several households reported that the housewives are unable to collect the milk in person from the milk booths as it involves time and energy and they are forced to employ servants for collection of milk from the booths, which involves additional cost and delay. Further, they also expressed dissatisfaction with the present arrangement of milk supply from the booths and suggested home delivery. Nearly, 60 percent of the families felt that the home delivery of milk in polythene sachets is advantageous and indicated willingness to pay additional costs/service charges for the same. So, the co-operatives may have to seriously think about the system of home delivery of milk in order to bring more consumer families under its fold. Other reason for household preference to private vendor was non-availability of milk in small packing of less than half liter with the Dairy as several small families and those belonging to lower income groups strongly felt that such facility is essential to enable them to purchase the Dairy milk. It is also true with small size families irrespective of their economic status. Similarly, it was also noticed that in Orissa, a majority of higher income group (85.6%) were not purchasing OMFED milk due to absence of home delivery, poor taste, less cream, bad smell and non-availability of credit structure in co-ops. There was also strong correlation between income and proportion of home delivered milk. For example, in Orissa, the percent of milk that was home delivered increased from 40 percent for those with income less than Rs.4000 to 63 percent for those with income greater than Rs.10000.

3. Quality aspects/concerns from consumers' perspective

An opinion survey conducted by Sharma (2000) in Andhra Pradesh to ascertain the consumer's perception on quality of milk from different marketing agencies indicated that the quality of milk is primarily judged on the basis of level of fat content in the milk. Majority of households expressed that the milk supplied by the cooperative dairy is of medium quality. Generally, the Godavari Cooperative Dairy (GCD) milk is standardized at 3 percent fat. Since the preference of the families is for high fat milk the consumers preferred to buy the milk from local vendors. Several consumers from the higher income groups expressed that the dairy milk contains less fat as compared to milk from private vendors.

Rajasthan market is a little different. 48% of the marketable surplus moves through the unorganized channel within Rajasthan and a further 39% moves to other states through both organized and unorganized channels (Department of AHV&S, Integrated Sample Survey Report, 2002-03). It is estimated that about 80% of the marketable surplus moves through the unorganized channel. In some large cities like Jaipur, the milk prices vary from Rs 13-20 per litre for cow's milk depending on adulteration of pure milk with water and the category of customer. The table below shows the rate at which middlemen sell the milk to different customers on the basis of adulteration:

Source	Quantity of water adulterated	Rate in Rs/ Kg
Household at Jaipur city	3 kg water in 40 kg pure milk	15
	5 kg water in 40 kg pure milk	12
Sweet shop	Nil	18-20
Milk Mandi	3 kg water in 40 kg pure milk	15

(Source: Ray, 2000)

In another study conducted in Karnal town of Haryana to ascertain deterioration in milk quality during marketing and to estimate real margins in milk trade, it was reported that in the lean seasons milk supplied to consumers by producers directly was of better quality at an average price of Rs.5.68/- per litre than that was sold to Halwai and vendor at Rs.4.75/- and Rs.4.04/- per litre respectively (Verma *et al,* 1989). Another study by Raju (1992) on consumer's perceptions about milk marketed by Vijaya cooperative Dairy in Hyderabad revealed that Vijaya dairy milk had powdery smell as well as used to easily get curdled as compared to vendor milk and buffalo farm milk. Consumers judged the quality of milk fat content, color and taste, thickness, freshness, hygiene, curd formation and flavor of the raw milk. A majority of consumers, irrespective of all income groups, considered thickness, taste and curd formation to be most important factors in judging the quality of milk. In Orissa, Omfed milk was perceived better than unbranded milk on thickness criterion whereas it lagged behind on taste and freshness.

A sample survey conducted by Jain & Sharma (1995) in two different regions of the country, to examine the consumer opinion for purchase of milk and milk products in rural and urban areas of Northern and Southern India offered some interesting observations:

- In urban areas of northern region nearly 65 percent of sample households purchased milk and milk products from informal sector
- In rural areas, a significant number of consumers (nearly 70 percent) did not purchase milk products from formal sector and prepared at home. Remaining 30 percent households bought milk products from informal sector.
- In urban areas of southern region, nearly 50 percent of sample households bought milk and milk products from unorganized sector followed by organized sector (33.98%) and home-made (16.59%).
- In the rural areas of southern region, more than 50 percent of households consumed milk and milk products from their own sources by preparing them at home. Approximately, 45 percent consumers purchased milk and milk products from unorganized sector and the remaining 5 percent purchased from organized sector.
- In the northern region, consumers bought milk and milk products from different sources mainly due to freshness, cheapness and good flavour, while in the southern region, regular availability, liking by family and available in required quantity were the main reasons for buying milk and milk products from specific sources. The price of the product was considered to be an important reason influencing purchase of milk and milk products in the southern region, while it was not that important in northern region. However, taste, flavour and freshness were considered to be the most important factors, influencing purchasing of milk and milk products in both the regions.
- It was also observed that majority of consumers in both the region didn't purchase milk products like Ghee, Butter and Cheese, due to their high cost.

4. Middleman Network/Exploitation

It is often claimed that private milk vendors resort to exploitative practices in milk procurement due to poor organization and low risk bearing ability of poor farmers. A number of studies reviewed for this paper claimed that middlemen advance cash credit to poor farmers and collect milk at low prices round the year. For example, a study in Meerut district of Western UP by Sangh (1993) reported that except co-operative societies all the milk purchasing agencies extended cash advance to influence the producer and collect milk at low prices. Katha & Kaur (1995) in their study observed that in the absence of any organized sector, the nomadic *gujjars* of the urban area in Punjab sold the largest proportion of their produce to the creameries despite very low price paid by this agency. Similarly, in Karnataka, small farmers were reported to sell more milk to vendors than to Milk Producers' Co-operative Society (MPCS) since they took loans from the vendors, with an agreement to sell milk to them (Patil *et. al.*, 1998). In similar way, the general practice of milk vendors in Hyderabad was that they finance the producers for purchasing milch animals and other personal needs and thereby bind the producer to sell milk to them round the year (Raju, 1992). A survey conducted by Samajhdar (2003) to study the livestock husbandry of the Vangujjars of Uttaranchal also observed that even though they possess sound experience about various aspects of animal husbandry, they are vulnerable to and open for exploitation by the middlemen to whom they sell milk despite the existence of cooperatives in that area. They are often riddled with debt and stand marginalized. The study recommended that the cooperatives should come forward to find out the reasons for Vangujjars apathy towards cooperatives and involve them in as society members. Another study on the marketing of milk in organised and unorganized sectors of Bulandshahar district of UP (Shah *et.al*, 1990) indicated that middlemen offer lowest price. The share of marketed surplus for this category was highest in the area not covered under DUSS (Dugdh Utpadak Sahkari Sangh), particularly for small farmers. The predominance of middlemen in this area was mainly due to the non-existence of co-operative infrastructure. Generally, the middlemen advanced money to needy milk producers and procured milk at a low price round the year. It was reported that 75 percent of marketed surplus of small producer's production was cornered by them. Similar observations were reported in a study conducted in Jalgaon and Kolhapur districts of Maharashtra by Shah (1995). The study revealed that middlemen exploited the vulnerable farmers in the absence of formal systems such as credit and input/output linkages. The extent of exploitation is controlled in areas where other marketing channels, primarily dairy cooperatives are available. In relatively remote and poor areas, where milk collection by co-ops and other organized channels is economically not viable, exploitation by middlemen is likely to be high (Ray, 2000).

Thus, nearly all studies report the same *modus operandi* of milk procurement by private traders and vendors. That is, they extend cash advance and then bind farmers in supplying milk to them at a low price. This is often interpreted as 'exploitation' although no data is usually provided to support their claims. For example, in situations where no credit facilities exist or where the procedures for obtaining loans are too cumbersome and time consuming, the middlemen could be seen as providing an important service to these farmers. The value addition from this service is rarely acknowledged. A number of studies and workshop recommendations have pointed out that lack of instant cash credit is the key production constraint for poor farmers. Thus, the middlemen services could be viewed serving an important need of livestock farmers. Similarly, the fact that the middlemen are binding themselves to certain volumes throughout the year could be seen as a risk sharing mechanism between private vendors and poor farmers.

It should be clarified that the intention here is not to argue that there is no exploitation by private vendors (or certain cooperatives, for that matter). Instead the purpose of the preceding discussion is to point out that the prices paid by different market agents are only one component of the (implicit) contract between the producers and market agents. While judging the efficiency and fairness aspects of the contract, however, it is necessary to examine the relationship in its entirety. A number of studies reviewed for this paper although mentioned other aspects of the relationship, but interpreted them as a means of exploitation instead of a means to fulfill unmet needs without offering convincing evidence. Thus, there is a strong case to examine the structure, conduct and performance (in fulfilling both efficiency and equity objectives) of various marketing channels. Bases on the available published literature, following advantages and disadvantages could be identified for different market agents.

Advantages and Disadvantages of Various Marketing Channels

	Strengths	Weaknesses
Co-operatives	• Offer an assured permanent market • Offer inputs, AI, feed, and extension advice • No limit to amount farmer can supply • Farmers know their cash is safe • Exert quality control over milk • Farmers have sense of ownership • Allow farmers to invest in coop assets • Collection centers are usually not too far from the producers • Do not place any limits on the amount farmers can supply • Bonus payment	• Relatively lower prices • Sometimes there are delays in payment • Farmers end up bearing the cost of any mismanagement in the cooperative societies
Vendors/ Hawkers/ Middlemen	• Pay somewhat higher prices where competition exists • Prompt payment in cash • Payment can be negotiated as daily or • monthly • Advances loans (but very short-term) • Collect milk from farmers' doorstep	• May disappear with farmers' money • Not a reliable market • No supply of inputs and services, or credit on inputs and services • Arbitrary changes of prices without prior knowledge.

	• Provide only market outlet in regions not well serviced by the formal procurement systems	• No quality control of milk
Hotels and restaurants	• Slightly higher prices than cooperatives • Payment can be negotiated as daily or weekly • A reliable market • Cannot disappear	• No security – the business can close • No input or service support • Cannot take all the milk
Neighbors	• Collect from farm • Flexible times for collection • Price is usually higher and negotiable	• Not a reliable market • Can delay payments or refuse to pay
Private Dairies	• Prompt monthly payments • Give true weight • Bears cost of spoilage once milk is received • Relatively better prices where competition exists	• Not always reliable • Arbitrary changes in the amounts they buy and the prices fixed without prior warning to farmer • May place limits on the amounts farmers can supply thereby excluding certain sections of milk producers

To recapitulate, the reviewed studies suggested that producers prefer to sell to the informal sector agents for various reasons. Some of these are location specific and may not hold true for all regions in the country. The key reasons are:

- In many areas this is the only marketing channel open to the rural producers
- In areas where both formal and informal procurement systems exist, the informal sector offers better prices and cash payments and also collects produce from the farmers' doorsteps.
- By and large, it was found that formal sector have not penetrated credit systems where as the middlemen offer credit facility to the farmers for buying milch animals as and when they need. This locks the farmer into a selling arrangement for specified periods

The formal sector, specially cooperatives, on the other hand, are preferred due to following main reasons:

- It ensures regular collection in all seasons.
- It provides a number of support services including extension advice, which the informal sector does not.
- The cooperative sector in their procurement areas tends to ensure that the collection centers are not too far from the producers so that they can sell the milk twice a day.

Summary and conclusions

India has emerged as the largest dairy nation of the world. The cooperative movement, specially Operation Flood has played a critical role in the development of this sector. As a result, the share of organized sector in milk market has steadily increased. However, the informal sector comprising middlemen, private milk traders and direct sale from producer to consumer still continues to handle a very large proportion of marketed milk in the country. Although detailed recent data on the size of marketed surplus and the shares of various channels are not available, estimates suggest that the informal sector accounts for an overwhelming 84-85% of the marketed surplus of milk. Of the 3700 cities and towns in India, only 778 are served by organized milk distribution network. It is evident that not only is the informal sector very large, it is the only channel available to about 80 percent of the towns in India.

The dominance of informal market agents in marketing of milk and milk products in India is likely to continue in the foreseeable future. It is therefore important to understand the dynamics of various marketing channels, including buying and selling behaviour of buyers and sellers, marketing efficiency and the ability of different market agents in reaching out to the poor producers and consumers. Surprisingly little systematic work is available on these aspects and whatever little work has been done either lacks methodological rigor or has very narrow conceptual and geographical coverage.

Published literature reviewed for this paper indicated that the unorganized sector usually scores over the organized sector on account of the consumers' confidence, the richness of milk as indicated by "Malai" on milk, the freshness of their products, their ability to give instant cash credit to farmers and escape the regulatory and tax regime, and low overheads. Poor willingness of consumers to pay the extra costs of formal processing and packaging and their ability to escape the tax net further strengthens their competitiveness in the market. Formal sector agents, specially cooperatives, on the other hand, offer assured market to poor producers at pre-specified prices and sometime provide livestock support services. This is important since systematic long term development of the sector depends on eliminating price fluctuations in the market and provide an assured market access throughout the year.

Studies examining the marketing efficiency of different channels are rare. One of the studies reviewed for this paper suggested that private dairies perform somewhat better on efficiency in procurement, processing, transportation and distribution. However, what category of rural producers and rural and urban consumers they serve and what kind of quality do they deliver to the consumers are not clear. Most studies, while making comparisons across market channels do not control for product quality.

On the issue of exploitation, it is not clear from the available literature whether private vendors and traders exploit the vulnerability of poor farmers and how this can be eliminated. There is some evidence in the literature that in areas where no alternative market channels exist, private vendors and traders pay low prices and collude among themselves to thwart any efforts to raise prices by the farmers. But, the available literature has too narrow a geographical focus to allow generalizable policy implications.

In order to facilitate efficient market access for small producers and to ensure adequate supply of milk and milk products for consumers at reasonable prices, There is a need to examine the impact of important milk marketing channels serving smallholders in terms of economic efficiency and outreach so as to be able to work out strategies and policy measures to improve the overall performance of markets serving smallholders.

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