

Trading Process of Livestock Products : The Case of Mobile Sheep Herders in Eastern Nepal

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Trading Process of Livestock Products: The Case of Mobile Sheep Herders in Eastern Nepal

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INTRODUCTION

Pastoralists maintain their herds or flocks to use livestock products for subsistence and trading. Among studies of pastoral economies, herd demography has long been a focus of research (Dahal and Hjort 1976). Today, the advantages of small stock, sheep and goats, are well known. As some studies have shown empirically, sheep and goats reproduce more rapidly than cattle or camels; they are useful for small herders to recover from drought (McCabe 1987; Fratkin 1998; Harren 1990).

On the other hand, although small stock husbandry risks are often mentioned, few studies have explored them in detail. Especially, sheep and goat herds would be reduced by epidemic or drought (Barth 1964). Furthermore, in those regions where commoditization of livestock products is considerably advanced, debt or consignment relationships are apparent between pastoralists and merchants. Consequently, pastoralists providing their livestock products to merchants are reported in West Asia and in East Africa (Tapper 1979; Fratkin 1998). Recently, as Kavoori analyzed in the case of India, pastoralists, especially small herders, structurally incur a burden of debt from merchants (Kavoori 1999).

However, trading is not solely understood from those results. Rather, the process and social relationships of herders and others must be specifically addressed. Trading of livestock products is not determined from the total number of livestock they graze because the herders' incomes change according to their ability to negotiate with merchants (Agrawal 1998). In addition, herders are not 'rational economists', as formalists have attempted to portray them (Ferguson 1985). Therefore, over-generalization should be avoided. We should carefully analyze the situations in more detail to determine how the trading process is carried out within the relationships of herders and others.

Ethnographic studies of Nepal or Himalayan regions' pastoralism of sheep and goats have exclusively examined Trans-Himalayan trade. In this context, economic networks of salt-grain barter exchange (Pant 1935; Fürer-Haimendorf 1975) and the political economy of monopoly over trading routes were explored (Messerschmidt and Gurung 1974; Dahal *et al.* 1977; Fisher 1986; Bauer 2004). However, not all herders carry out this type of trade. As this paper will demonstrate, many more herders lack access to Tibet. Instead, they trade their livestock products along their migration routes.

Whereas the existence of such herders has been mentioned in some ethnographies, most studies address only migration (Pignède 1933; Alirol 1976; Casimir and Rao 1985) or land use (Barth 1956; Rao 1992; Stevens 1993; Saberwal 1999). Therefore, details of their trading activity have long been neglected.

This study considers the socio-economic relationships involved in the trading of livestock products. It depicts the way in which a herder trades his livestock products through four relationships to analyze the choices that herders confront: 1) relationships with people living along the migration routes, 2) relationships with contractors, 3) relationships with villagers, and 4) relationships with sheep herders.

Those four categories are introduced to elucidate the relationships of the herders and their neighbors. Especially in the case of South Asia, pastoral activities are carried out more or less at marginal niches of agrarian societies. In addition, among the pastoralists of South Asia, many more herders have their sedentary villages. Therefore, trading is expected to occur not only with merchants or contractors, but also with farmers and villagers; it occurs even among the herders themselves.

Fieldwork was carried out on short visits during 1994–1996 and intensively during 1997–1998. The author observed and interviewed those along the pastoral migration route for a total of about one year.

THE VILLAGE AND ITS SHEEP HERDERS

1) Rumjatar

The map shows the migration route of sheep herders (Figure 1). They migrate seasonally and vertically. Their migration route extends from the high alpine meadows to just before the Tarai Plain (Watanabe 2000). However, they are not “mountain nomads” because they have a sedentary village. For that reason, I regard them as mobile pastoralists since the herders engage in pastoralism apart from their sedentary village.

The village of Rumjatar is located on about 100 km south of Mt. Everest. The village is situated on the midlands where the altitude is about 1300 m above sea level. Maize and millet are cultivated in dry fields. Rice is also harvested in irrigated fields. Administratively, the village belongs to the Okhaldhunga district of the Sagarmatha zone. According to my village census, among a total of 566 households, half are Gurung people (as of August 1998)¹⁾.

As in other Nepalese midland villages, sheep are raised by specialized herders in this village. The households that engage in sheep herding are only 24 out of 566 in the entire village. The sheep herders work for most of the year away from their families. Except for one family which migrates with a herder, all the sheep herders are male.

It is certainly the case that recent socio-economic changes have affected the lives of the herders. Emigration to become Gurkha soldiers has been increasing since 1960. Other economic options, for example the migration of labor to the Middle East and students to the campus at Kathmandu, have been increasing since the end of the 1980s. According to the villagers, many more villagers had previously been engaged in

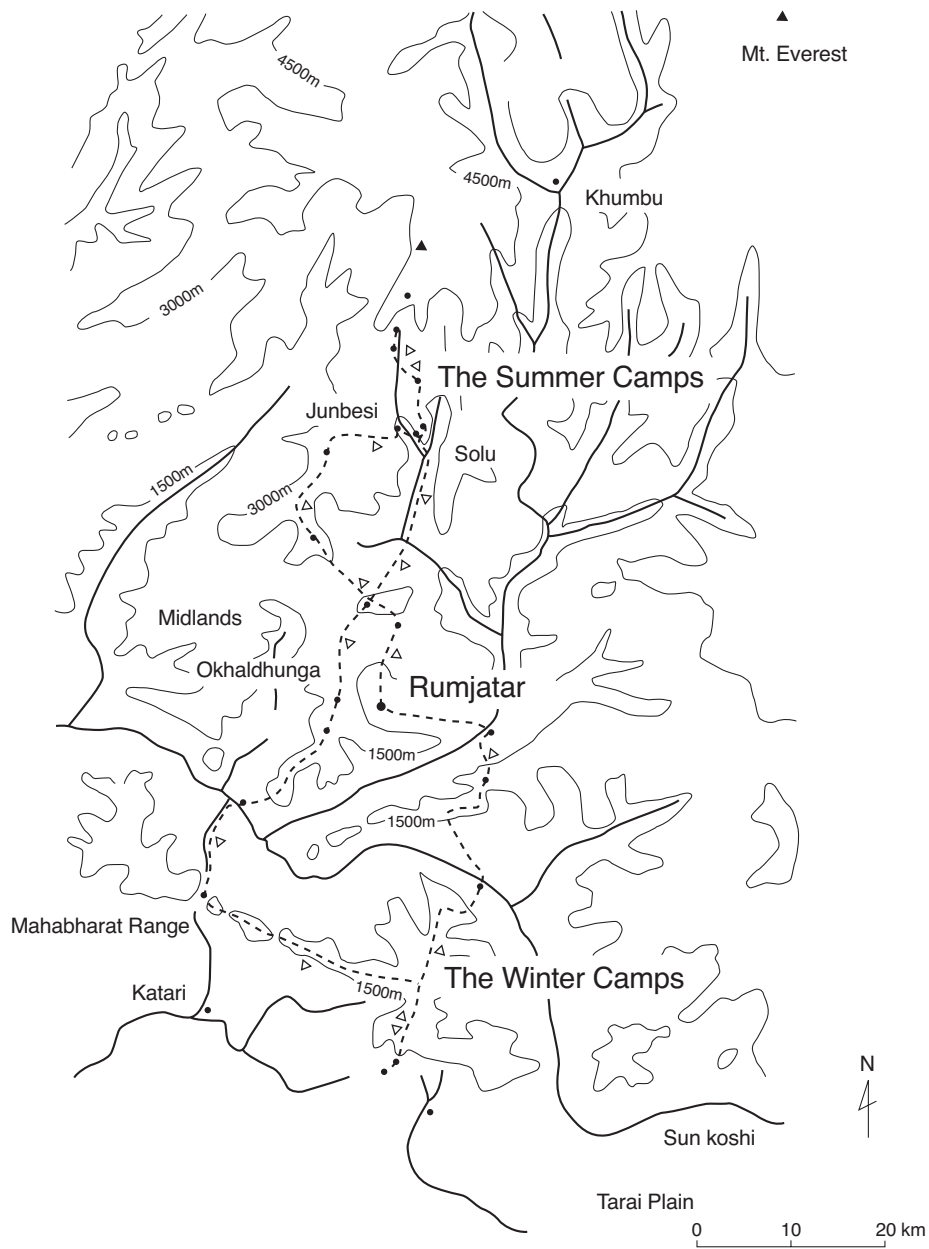


Figure 1 Migration route of the sheep herders

pastoralism. Today, however, most village youths have no desire to engage in herding because of the physical demands of the job. The same trend can be confirmed among the families of the herders. Even the children of the herders express no desire to carry on the work of their fathers. The herders themselves want their children to go to

school.

On the other hand, sheep herding is important for those who do not have access to income outside of the village. Sheep produce items such as wool, meat, lambs, and milk. The herders can get cash from trading these items. Among them, wool is important not only for the herders but also for the villagers. Rug making is carried out by village women as a side job in the agricultural slack season. More households engage in rug making than herding because wool can be purchased from herders or wool contractors.

2) Unit of migration

The unit of migration is the grazing camp (*goth*). The Nepali word *goth* generally refers to an animal shed attached to a sedentary house. It also occasionally refers to a grazing hut that is used by transhumant herders (Watanabe 1998). In addition to these uses, the sheep herders refer to it as a unit of migration in which both diet and grazing are shared (Watanabe 2003). Therefore, in this paper I use the term ‘camp’ as a unit of migration. Table 1 shows the members of a grazing camp. In June 1998, G, A, and B lived together in one camp.

The camp is composed of owners (*sau*) and hired shepherds (*gothala*). The Nepali word ‘owners’ means appropriators of the materials or employers of hired laborers. In this context, G and A are the owners. In the case of sheep herders, however, despite the fact that B has not hired a shepherd, he is the owner because he is not a hired laborer. Therefore, the term owner expresses the idea of independent managers and includes both the employer of the hired shepherds and those who are not hired by other herders.

The sheep herders hail from various villages and ethnic groups. Among the owners, G and B are from Rumjatar and their ethnic group is Gurung. A is from Chipchipe of the same Okhaldhunga district and his ethnic group is Tamang. Among the hired shepherds, S and TP are from a village in the Udaipur district where there is a winter pasture. They are the children of farmers and are hired when the owners visit their villages during seasonal migration (Photo 1).

The number of animals differs among the owners. The herders tend to make a flock of 200–500 sheep. Among a total of 339, B has only 47. Compared to the other owners, B has a small flock. As with B, small herders with less than 100 head of the sheep join other herders to graze their flocks. In such cases, some owners migrate along with kin affinal relations. However, joining with men of other relationships (such as friends or fellow herders) is also common, as shown in Table 1.

A typical flock is composed of sheep and a few goats. Specifically, among a total of 339 sheep animals, 312 are ewes, and 17 are rams. The other 10 animals are goats. Goats are raised for leading the flock. Sheep will not move until one starts to move. Sheep herders take advantage of this habit by moving the goats in order to lead the flock of sheep.

In addition to these animals, three dogs roam with the flock. The dogs are used as guards at night to protect the flock from fierce animals. The herders do not use dogs



Photo 1 Herders in their camp. In contrast to the owners, most of the hired shepherds are teenagers.

Table 1 A migration camp and the flock composition (June, 1998)

Owner / H. Shepherd	Name	Age	Home Village	Ethnic Group	Sheep (♀)	Sheep (♂)	Goats	Total
●	G	60	Rumjatar	Gurung	127	11	8	146
○	KB	50	Rumjatar	Tamang	20	0	0	20
○	S	17	Udaipur District	Tamang	7	0	0	7
●	A	50	Chipchipe	Tamang	110	5	0	115
○	TP	18	Udaipur District	Magar	4	0	0	4
●	B	57	Rumjatar	Gurung	44	1	2	47
Total					312	17	10	339

● = The owners (*sau*), ○ = Hired shepherds (*gothala*)

to help with the grazing, as shepherd dogs are used in Western countries. The herders do not use their flock as pack animals. They carry their entire load on their backs. Therefore, the herders do not engage in the salt-grain trade as do sheep herders of Western or far Western Nepal.

MIGRATION AND THE PRODUCTION OF LIVESTOCK PRODUCTS

In order to understand the livestock products trade, it is also necessary to understand the production process. Therefore, this section presents, a summary of migration (for more details, see Watanabe 2000).

1) Summer pastures

The summer pastures are located in the Jumbesi Valley of the Solu-Khumbu district. Geographically, the valley is derived from Mt. Numbur (6957 m). It corresponds with an upper stream of the Solu-Khola River. The vegetation of the valley is divided into forests and high alpine meadows at the timberline (3800 m). The sheep herders stay in the forests from late May to late June. Then, they graze in high alpine meadows from early July to mid-August. The climate is influenced by monsoon rains from mid-June to late September and the valley has more than 1800 mm of annual rainfall (Honma 2000).

The forests and meadows of the valley are community forests of the Sherpas. The Sherpas of the Solu region engage in agro-pastoral transhumance within the valley. In the case of Jumbesi, they must use clan territories when they graze yak or hybrid cattle. If they use other territories than their own, the Sherpas must pay a grazing charge to the clan representatives (Inamura and Furukawa 2000).

The sheep herders also respect this rule and pay a grazing charge to the Sherpas in order to use the Sherpa clan territories. The herders also fertilize the Sherpas' fields with sheep dung. The sheep herders spend nights in uncultivated wheat fields when they descend from the high alpine meadows. During their stay in the fields, food and local beer (*chan*) are provided by the owners of the fields. The Sherpas of the Jumbesi Valley tend to live in the villages of the dominant clan. Therefore, the sheep herders fertilize the fields of all the households that are entitled to use the summer pastures.

In October, when the monsoon rains have stopped, the sheep herders start to move to the winter pastures. The migration takes two months because they graze in the forests as they move. The autumn migration season is also the lambing season. According to the herders, newborn lambs cannot walk by themselves for two weeks after they are born. Therefore, the herders carry the lambs on their backs by pushing them into baskets with cooking kits. The herders also seclude the lambs before they start their daily grazing in order to avoid losing them in the forests.

2) Winter pastures

The winter pastures are located on the southern slopes of the Mahabharat range. The sheep herders stay there until late February, when they start their spring migration to the summer pastures. Geographically, the winter pastures are a part of a lowland area that adjoins the Tarai Plain. The altitude ranges from 2000 m to 650 m. According to the herders, the villages around the winter pastures were established only recently. Thirty years ago, in the middle of the 1960s, houses around the village were much fewer. Also in 1995, in contrast to the midland villages, forests remain around the

village. Therefore, the herders graze their sheep in the forest every day for seven to eight hours.

The forests of the winter pastures are national forests and are under the control of village development councils (VDC). In the case of the Churunpa VDC, the herders pay a grazing charge as a donation to the village primary school. As for with the summer pastures, the herders fertilize the maize fields of the farmers. The ethnic groups of the villages vary. Tamang, Rai, Magar, Chetri, and others co-exist there.

December to February, when the herders stay in the winter pastures, is the season for rearing the newborn lambs. In order to raise strong lambs, the herders never milk the ewes whose lambs are not yet weaned. In addition to daily grazing, during January and February, the herders collect evergreen leaves as supplementary fodder. Winter dryness causes browning of the forest undergrowth of the forest. The amount of fodder required for the flock is enormous. One day, the herders lopped off all the branches of three tall evergreen trees. Nevertheless, the 400 head sheep ate all of them overnight.

3) Mobility and access to pastures

The sheep herders traverse and use the mountain environment vertically and horizontally: annually, they move more than 4000 m in altitude and more than 100 km in a straight line in one direction. Indeed, the causes of their migration are various and complex. It is certain that the most conspicuous cause of that migration is access to pastures.

Physically, few forests or grasslands are situated around their villages. Like other midland villages, most lands around Rumjatar are used for cultivated fields from the top of the ledge to bottom of the river. Especially, forests of Rumjatar are too small to supply fuel wood for the villagers. In addition, forests are used for collecting fodder for cattle and water buffalo and for the grazing of goats.

Socially, the herders of Rumjatar do not own the pastures along migration routes. The pastures belong to communal lands of the people who live on the migration route. Therefore, the herders pay grazing charges and exchange dung and food to access the pastures. Consequently, sheep herders obtain livestock products from their flock.

THE TRADING OF LIVESTOCK PRODUCTS

In this section, the trading of livestock products will be explained using the case of B. The kind of sales and the amounts as well as the trading partners with whom B trades his livestock products are shown. Figure 2 shows the numbers of animal births and deaths and the number of animals that are bought and sold throughout the year. Here, the significance of the sale can be found. The numbers involved in the sale, both sold and bought, are larger than those of the “natural” factors of birth and death.

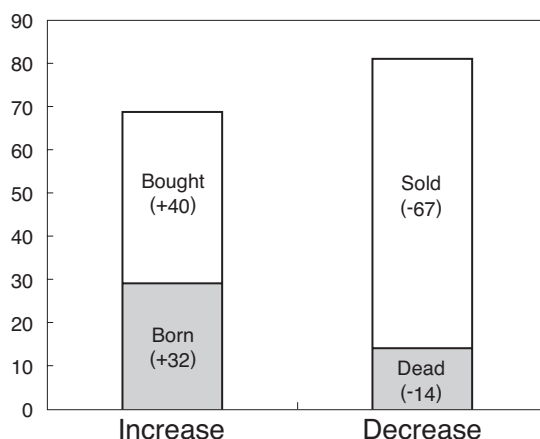


Figure 2 Annual change of the flock: a case of B (1997–1998)

1) Trading of male lambs

Table 2 shows the monthly changes in the number of B's lambs. The birthing starts in September. In contrast to the female lambs, which are used for flock reproduction, the male lambs are sold. Among 11 male lambs, 10 were sold in January. The other one was born in April and remained with the flock. Except for this lamb, B sold all the lambs to the farmers who live around the winter pastures.

The trade in male lambs is important when considering the relationship between the sheep herders and the farmers. For farmers, male lambs are a source of supplementary

Table 2 Changing numbers of lambs

Month	Female Lamb			Male Lamb		
1997. 5 / 6	0			0		
6 / 7	0			0		
7 / 8	0			0		
8 / 9	0			0		
9 / 10	12	(+12)	Born	6	(+6)	Born
10 / 11	14	(+2)	Born	8	(+2)	Born
11 / 1	16	(+2)	Born	10	(+2)	Born
1998. 1 / 2	13	(-3)	Dead	0	(-10)	Sold
2 / 3	12	(-1)	Dead	0		
3 / 4	13	(+1)	Born	0		
4 / 5	13			1	(+1)	Born
5 / 6	13			1		
6 / 7	13			1		

income. The farmers buy one or two male lambs to resell as meat. They stock the male lambs and sell them to local markets or animal contractors. For sheep herders, the sale of male lambs is a main source of income. Regarding this point, B expressed disappointment when many more female lambs were born than male lambs. The male lambs are traded for about 1200 Rs per head (1 US\$=68 Rs in August 1998). Therefore, in B's case, it was estimated that about 12,000 Rs came from this trade.

2) Trading of milk products

The sale of male lambs is also important with regard to milking. The sheep herders give 100% of the milk to the lambs. They milk the ewes whose (male) lambs have been sold. Milking starts in the middle of February and continues until late August, when the milk dries up. From the milk, butter (*ghiu*) and buttermilk (*moi*) are produced. Because the amount of milk is small, both are used almost entirely for self-consumption at the camp. Sometimes the owners bring butter back to their villages when they return home.

Butter was rarely sold in the camp. In the spring migration, many people visited the camp and asked to buy butter. They believe that sheep's butter is an effective treatment for cuts or other injuries. The amounts of the sales were usually a spoonful or occasionally a handful because sheep herders do not want to sell so much. Nevertheless, the price is high: 500 Rs for 0.5 liters of butter.

3) Trading of wool

Wool is a very important item, considering the relationship of the sheep herders to the villagers. Wool is transported to the sheep herder's village and is made into woolen rugs (*radi*). The making of rugs is women's work. It is done during the agricultural slack season, mainly from December to March.

Shearing takes place in the migration camps twice a year: in September and February. September is the last month of the monsoons and February is the end of winter. The shearing of all of 300 sheep is completed in two weeks. The sheep herders use their knives to shear the wool. They sheared only the wool of the sheep, not the hair of the goats.

The amounts of wool are shown in Table 3. In B's case, 76.8 kg of wool was sheared in one year. The average amount of wool per head was 0.6 kg in September and 0.44 kg in February. Slightly more wool was obtained in September than in February. The sheep herders said that the cold rains of the alpine meadow made the wool grow longer.

Table 3 Sales of wool: the case of B (1997–8)

Sold to kin or affinal relations	33.6 kg	(14 <i>dharni</i>)
Self-consumption to make grazing equipment	4.8 kg	(2 <i>dharni</i>)
Make rugs to sell	38.4 kg	(16 <i>dharni</i>)
Total wool sheared	76.8 kg	(32 <i>dharni</i>)

1 *dharni* = 2.4 kg

Table 3 also shows the wool distribution amounts. The distribution of wool is divisible into three categories. The first includes distribution to people with whom the sheep herder has affinal relations. B sold it to his wife's sisters who lived in his village who engaged in rug making without rearing the sheep. The amount of wool B sold to them was 43.7% of his total shearing (33.6 kg of 76.8 kg). The second category is self-consumption. Sheep herders used 4.8 kg of wool when grazing their animals: it is called *ghumradi*. It has numerous uses: in the rainy season, it is used as a flock coat which is pulled over the head to protect against heavy rains or winds. In the dry season, it is used as a blanket. The sheep herders sleep in the open air and wrap themselves up in it. The rest of the wool, 38.4 kg (50%), was used by B's household for weaving rugs, which B then sold to rug contractors. Then, the rugs were transported to urban markets in Kathmandu or northern Indian cities.

4) Trading of adult sheep

Table 4 shows the monthly changes in the numbers of adult sheep. This is important when considering B's relationship to the animal contractors. In March, he sold 14 ewes to an animal contractor (Photo 2). The contractor belonged to the Chetri and came from a village near the winter pasture. According to B, he sold to that particular contractor the sheep that "could not walk". The contractor transports the animals to Kathmandu or northern Indian cities by chartered truck or minibus. The price of sheep is decided by negotiations over the fatness of sheep. The payment is made in cash (Photo 3).

Sales of adult animals (mainly ewes) are also conducted among the sheep herders themselves. In contrast to the sales to the contractors, the price is fixed when trading is carried out among the sheep herders (1 head = 800 Rs in 1997). In June 1997, B

Table 4 Changing Numbers of Rams and Ewes: the case of B (1997–1998)

Month	Rams			Ewes		
1997. 5 / 6	5			50		
6 / 7	5			90	(+40)	Bought
7 / 8	5			85	(-5)	Dead / Lost
8 / 9	2	(-3)	Sold	54	(-31)	Sold
9 / 10	2			53	(-1)	Dead / Lost
10 / 11	2			52	(-1)	Dead / Lost
11 / 1	2			51	(-1)	Dead / Lost
1998. 1 / 2	0	(-2)	Sold	46	(-5)	Sold
2 / 3	0			32	(-14)	Sold
3 / 4	0			32		
4 / 5	0			32		
5 / 6	0			31	(-1)	Dead / Lost
6 / 7	0			31		



Photo 2 Negotiations with the animal contractors. The price is decided by the fatness of the animals.

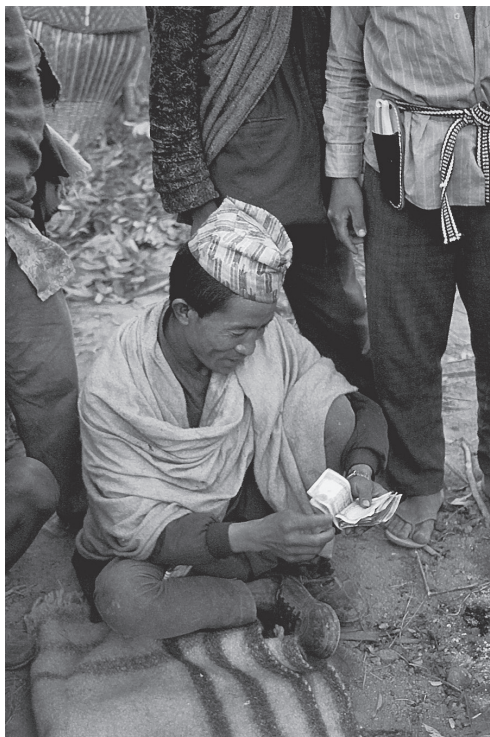


Photo 3 Trading is carried out in cash. In March 1997, herder T sold 27,000 Rs worth of ewes to the animal contractor.

bought 40 ewes from sheep herder CH, who sold all of his flock to retire. B had intended to increase the size of his flock to expand his income from livestock products. It was certain that the extra funds would be necessary to buy the sheep. In order to do so, B borrowed money from another sheep herder, UM.

Three months later, in September 1997, B sold 31 ewes and 3 rams because he had not been able to raise the money he needed. In order to pay off his debt to UM, B sent a letter to his village and asked his wife to make money. She refused. He then decided to sell back the sheep after shearing them. In order to pay the money B owed UM, he used part of the income from the wool, in addition to the money he got from the sales in September. Because the amounts earned in those sales are difficult to predict, changes in the flock numbers can cause great complications.

BALANCING TRADE AMONG THE FOUR RELATIONSHIPS

In the last section, socio-economical relationships involved in the trading of the livestock products were discussed. Figure 3 shows the flow of the trade. The kinds and amounts of livestock products that B traded are divisible into four: 1) those sold to people living along the migration routes, 2) those sold to animal contractors, 3) those sold to villagers, 4) and those sold to other sheep herders.

If we compare the sources of B's income from livestock products, we can see that

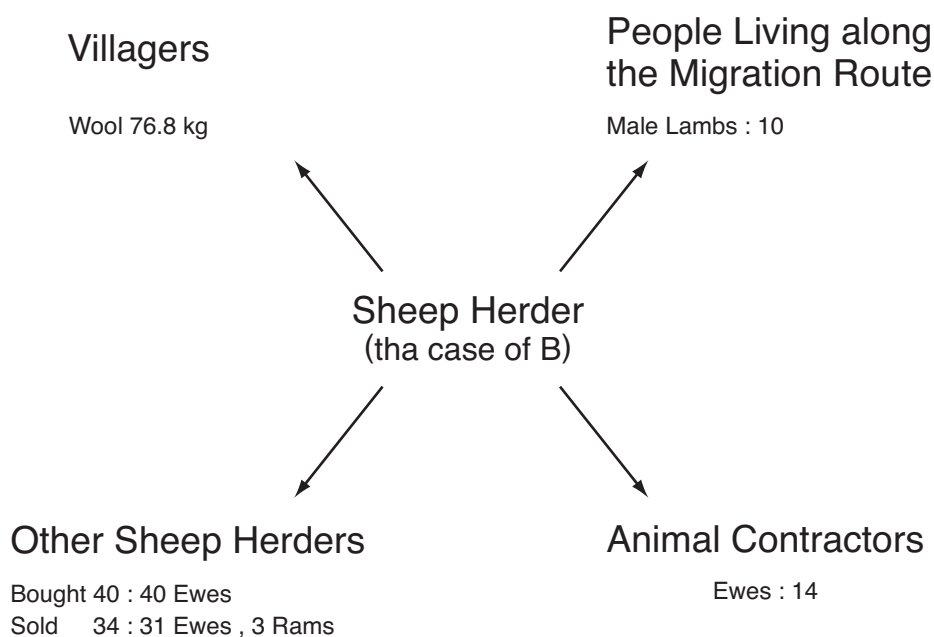


Figure 3 Sales of livestock products: the case of B

the largest amount is garnered from the sale of ewes that were sold to the animal contractors. The amount of that income is equivalent to the sum of the income from both the wool and the male lambs²⁾.

Trading is demonstrably linked to the wider markets directly or indirectly. The most obvious case is the trading of wool, which is related to the sheep herders' villagers and contractors. They mediate between the sheep herders and the markets. Upon their return, cash income is floated to the sheep herder's family or his villagers. Similar situations are apparent along the migration routes. In the winter pastures, the male lambs and other animals that cannot survive the harsh grazing conditions are sold to farmers or contractors. Here, livestock products from the flock reproduction are used for trading.

It is important to note that the sheep herders can choose the type of trading. Apparently, cash payments are the sole basis for the trading of these products. Loans or credit transactions are not carried out, even with the contractors. There are no cases of herders receiving loans from contractors, being unable to pay them back and thus having to provide their livestock products to the contractors (Tapper 1979; Kavoori 1999; Fratkin 1998). Instead, the sheep herders use contractors to accommodate their flock size. They sell to contractors those sheep that are unable to walk or keep up with the flock.

However, the trading of ewes is sometimes risky for the sheep herders. In the case of B, as a result of selling the ewes, the size of his flock decreased within one year. If that situation were to continue, his flock would decrease year after year, and the amount of income from his livestock products would shrink. Anxiety over this possibility causes him to buy more sheep even if it means going into debt. However, just as his ambitions were cut short by his wife's objection, the number of ewes he trades is influenced by his relationship to his family or villagers. The other sources of income aside from sheep herding or the size of land within the village also seem to be important factors in the trading of ewes and are also determined by the relations of the sheep herders to their villages.

The trading of ewes may change relationships with other sheep herders. In the case of B, he was in danger of causing problems by taking a loan. As reported among the Nepalese villages, loans with rather high interest rates are still made at present (Caplan 1970; Regmi 1978). The rate of interest of B's loan was 3% a month. This is equivalent to 36.5% annually. There is also a custom of some owners taking over an impoverished herders' debt. This is one way that they can get hired shepherds. As a consequence, there are cases of some owners being hired to herd the sheep of other owners.

CONCLUSION

This paper presented some socio-economical relationships of the sheep herders and their neighbors by specifically portraying the process of the trading of livestock products. Such relationships provide not only the features of their herding but also a

frameworks related to the mobile pastoralism of Himalayan region of South Asia.

First, the trading of the livestock products is complex. Indeed, trading links those markets directly or indirectly, and trading partners are not limited to the contractors. This point is related to the use of pastures. In the case of the sheep herders of Rumjatar, one difference from other Himalayan transhumant herders is apparent in the access to the pastures. The former have no communal pasture. Consequently, they must seek their pastures along migration routes by various exchanges, such as paying grazing charges, barter of dung and foods, and even to the trading of livestock products. In other words, their trading with the people of migration routes is an indispensable act that enables them to continue their pastoralism.

Second, trading requires a balance between flock reproduction and sales. The risk of trading is apparent, especially in the trading of ewes. Even during the short period of observation, that risk was reflected in the variance of the flock numbers. Such risks certainly produce economic differences and social instability among the herders. As Kavoori pointed out for the case of India, 'emergence of free labor' also occurs (Kavoori 1999). In the case of Nepal, because of debt, the owner is reduced to the status of the other owner's hired shepherd. This pattern is apparent among the herders. Such risks are expected to be more pronounced when the time span of the observation would be expanded. For example, according to the herders, every herder has experienced the considerable loss of their animals by disasters or epidemics during their life span. Other risks could occur in the case of big herders, who encounter labor shortages by their unintended dismissals of hired shepherds.

Third, trading decisions are made according to social relationships. Sometimes the decision is unpredictable and is not controlled by the individual's will. This is not to say that trading is determined entirely by material conditions, such as the flock size. For example, although B, a small herder, lost his sheep one year, it is uncertain that his flock size will continue to decrease in the subsequent year as well. Furthermore, he is not a 'rational economist' because he intends to increase his flock by carrying the risk. Rather, his act reminds us of the ethic of pastoralists who try to increase their herd as much as possible (Spencer 1990). In actuality, however, the gap between his ethic and action is derived from social relationships: his intended risk plan is rejected by his family's objection.

As a prospect for future study, historical evidence of herder-village relationships could be explored better. In this paper, evaluation of the economic profit of livestock products is not clarified. Regarding this concern, some cases in which the herders purchase houses or land in their village are seen, especially among households have engaged in sheep herding for two or three generations. In other words, 'transfer of property' is confirmed here (Barth 1964). Such facts will reveal the economic importance of mobile pastoralism because it subsists upon relationships between herders and sedentary communities.

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NOTES

- 1) Local names in this paper are all Nepali words. The Gurungs of Rumjatar could not speak Gurung (one of the Tibeto-Burman languages) and speak Nepali as their mother tongue. According to the 1991 census, 449,189 Gurung people live in Nepal and 54,927 live in eastern Nepal. Among the latter, 10,110 (one-fifth of the population) speak Gurung as their mother tongue (CBS 1993). The other four-fifths apparently is speak Nepali as their mother tongue.
- 2) An estimation of B's income is based following data. (1) Sales of male lambs were 10 = 12,000 Rs. (2) Sales of wool and woolen products 72.0 kg = 7,500 Rs. (3) Sales of adult sheep to animal contractors were 14 = 16,800 Rs. (4) Sales of adult sheep to other sheep herders were 34 = 27,200 Rs. (5) Purchase of ewes from another sheep herder were 40 = 32,000 Rs. The total annual income (1) + (2) + (3) + (4) - (5) = 41,100 Rs is derived from his trading. Income from milk products (butter) is not included in this estimate. Also, the income from woolen products is estimated using the woolen price at the village (2.4 kg=250 Rs). Therefore, his annual income should be slightly more than this estimate.

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