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Goat-Rearing Practices and the Limited Effects of the SHG Program in India: Evidence from a Tamil Nadu Village

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Abstract

Livestock rearing has been promoted in India by government-sponsored micro-finance schemes such as the IRDP and the "SHG-Bank Linkage Program," providing rural poor with small loans to augment their non-land assets and thereby alleviate poverty. However, even in the case of small livestock such as sheep and goats, although at a glance it seems easy for poor people to rear them by using their only asset, unskilled labor, the reality is contrary and thereby the effect of the micro-finance programs is questionable. Based on intensive field surveys in a village in Tamil Nadu, India, the author sheds light on goat rearing practices among different economic classes and finds that the poor face difficulties in rearing goats. The article tries to analyze why the rural poor cannot rear goats in the way that policy-makers expected and thereby questions the effectiveness of government-sponsored micro-finance schemes in India.

Keywords: goat rearing, economic class, SHG-Bank Linkage Program, India

I Introduction

Goat rearing has been promoted by various governmental and non-governmental organizations all over the world to mitigate rural poverty, especially in unfavorable arid/semi-arid tropical environments [Vries 2008]. Goats are a drought-tolerant animal, eating mainly wild grasses, tree buds and leaves. They require less care, and reproduce quickly as they start to bear kids from the age of one year old. They also provide small farmers and landless laborers with precious employment opportunities in agricultural lean seasons and play an important role as "livestock" since they can be sold when most needed, for instance, during a severe drought [Shankarnarayan *et al.* 1985].

According to recent data, there are more than 190 million sheep and goats being reared all over India [FAO 2009]. With India achieving rapid economic growth after economic liberalization since the

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early 1990s, demand for protein-rich food such as goat meat is rapidly increasing in the country, especially in urban areas. Therefore, goat rearing is a growing sector in India, including in Tamil Nadu.[1)]

Also, the Indian government has been promoting livestock rearing among the rural poor through micro-finance programs. Since 1978, the Integrated Rural Development Program (IRDP), a micro-credit program of the central government providing rural poor with small loans (with a subsidy), was promoted throughout India until the end of the 1990s.[2)] Through the IRDP the rural poor were provided with livestock such as cows and goats. But, mainly because of the low repayment rate, the scheme was replaced by the *Swarnjayanti Gram Swarozgar Yojana* (SGSY) in the late 1990s and since then has lost importance. On the other hand, the Self-Help Group (SHG), which started in the early 1990s, has been successful and is still being promoted today. An SHG consists of 10–20 women[3)] who gather once a month and save small amounts of money, which is lent back to some members. The activity of the SHG is supported and monitored by NGOs, indicating that an SHG is an informal organization. However, if the performance of the SHG concerned is favorable (usually during a monitoring period of the first 6 months), the responsible NGO recommends that local national commercial banks (including cooperative banks) provide them with bank loans without collateral. In this way, rural poor women can obtain access to bank loans. Such a system is called the "SHG-Bank Linkage Program."[4)]

The SHG-Bank Linkage Program is also used by the government to provide rural poor women with livestock. For example, in Madurai District, Tamil Nadu, where the present study was conducted, first-time loans from banks must be used to purchase livestock, such as goats. Veterinarians visit a beneficiary's house to check the health conditions of the purchased goats and tag the ear of each goat. It is obvious from such a practice that the Indian government intends to alleviate poverty by encouraging the rural poor to possess livestock, an important non-land asset. The basic idea of the government-sponsored micro-finance schemes for rural poverty reduction seems to have remained unchanged since the IRDP was started in the late 1970s.

However, according to the author's survey at a selected study village in Madurai District, Tamil Nadu, the percentage of households that reared goats was less than 50% among the poor, compared to more than 80% among the "middle" class (categorized by using the wealth-ranking method to be described later). Although it seems that the rural poor can easily rear goats, especially compared to large livestock, such as cows, the reality shows otherwise. Why is this so? If the major reason were to

1) Goat meat is exported from Tamil Nadu to Kerala and the Gulf countries, besides being consumed locally. See Appendix Table 1, which shows the number of sheep and goats slaughtered in Tamil Nadu after 2000.
2) See Dreze [1990], Kondo [1998a; 1998b] and Tsujita [2006], for instance, on the IRDP.
3) Eighty five percent of the participants in SHGs were women [NABARD 2000].
4) See Suda [2006] on SHGs in India and their functioning.

be found, this might have implications for government policies attempting to alleviate rural poverty.

Based on recent fieldwork in a village in Tamil Nadu, India, this paper, through close examination of actual goat-rearing practices and conditions in the study village, sheds light on this important issue, and tries to answer the question of why goat rearing is difficult for the rural poor.

The paper is organized as follows. Chapter II provides basic information on the natural environment and socio-economic conditions of the study area and the village. The basic characteristics of the economic structure in the village (in particular, differences in land holdings, occupations and incomes in five economic classes) are shown, based on data collected by the author in 2008. Then, in Chapter III, information on goat-rearing practices in the village is provided. The important finding is that goat rearing is not so popular among the poor. Chapter IV discusses the introduction and progress of the microfinance program, especially the SHG program, in the village. Particular focus is placed on the different participation rate among the economic classes. Chapter V explores why the rural poor are reluctant to rear goats, especially compared to the "middle" class households, by examining the availability of workers and their labor utilization. Cases of some poor households who engaged in goat rearing but had difficulties are also examined. Finally, a conclusion and some suggestions will be provided for government schemes for alleviating rural poverty.

II　The Study Area and the Village

A series of intensive field surveys was conducted by the author during 2007–10 at a selected village in Sowdarpatti *Gram Panchayat* (S GP), which is named after Sowdarpatti tank, Thirumangalam *Taluk*, Madurai District, Tamil Nadu (the same village as analyzed in the preceded paper, Sato [2011] in this special issue). The topography of the area is basically flat with a slight slope from the northwest to the southeast, but we can also observe some granite hills that have almost no trees.[5] About 83% of the area is covered by red soil [GOI 2001]. The climate is semi-arid, receiving only 900 mm of rainfall on average and this fluctuates greatly year by year.[6] The area mainly benefits from the northeast monsoon rainfall from October to December, since the southwest monsoon (June–September) is largely interrupted by the Western Ghats Mountains between the states of Kerala and Tamil Nadu. Many water reservoirs (tanks) were constructed centuries ago and by using them paddy cultivation has been carried

5) See also Fig. 1 in Sato [2011] in this special issue.
6) According to the rainfall data in Thirumangalam Town, the average rainfall over 27 years from 1980 to 2006 was 906 mm. For reference, the rainfall (normal year) in Madurai District, which is a mixture of the rainfall data in various meteorological stations in the district, is 840 mm [Department of Economics and Statistics (Tamil Nadu) 2007b].

out in the tank command area (*nañcai*), followed by millets, pulses and cotton. In addition, there are extensive areas of dry land (*puñcai*) where millets, pulses and cotton have also been grown. After the harvest of non-rice crops between February and March, there is basically no agricultural work in the area until August.[7)]

The major industry of the study area has been agriculture (including livestock), but with rapidly growing non-agricultural industries and service sectors in the urban centers as well as in some parts of sub-urban rural areas, more and more villagers depend on non-agricultural jobs, especially the younger generation [Sato 2011]. Because of accelerating migration from rural to urban areas, the population of S GP has decreased by 10% during 1981–2001 [GOI 1981; 1991; 2001]. Such an outflow of workforces has caused an increase in the amount of fallow land,[8)] which occupied nearly 30% of the total farmland in S GP in recent years [GOI 2001].

The study village (hereinafter, Si Village) had a total of 134 households when the author conducted a household census in 2008. The residents of the village were mostly Telgu-speaking *Reddiyar* caste people, whose ancestors had migrated from Andra Pradesh.[9)] At the time of the survey they occupied 87% of total households and 92% of farmland,[10)] while small numbers of people from other castes such as *Chettiyar* (1 household), *Asari* (8 households), *Wannar* (5 households) and *Ampattar* (1 household)[11)] owned very small amounts of land.[12)] Si Village has been characterized as a *Reddiyar*-dominant single caste village. The total population of the village was 421, with an average of 3.14 persons per household. The number of people in the labor force was 290 (the labor force participation rate was 66.7% on average), out of which 230 were living in the village. The other 60 usually stayed and worked in urban areas. The percentage of the workforce whose major occupation was in agriculture (both farmers and

7) March–July is basically an agricultural lean season, except for small areas of land with wells, an assured source for irrigation, where cotton, sugarcane, vegetables, etc. are grown.

8) The official definition in land statistics is: land left fallow for more than one year.

9) According to Mosse [2003], "The successes of the invading Muslim troops after 1565 resulted in mass migration into the southern Tamil country including Ramnad, bringing low caste (*Pallar*) agricultural laborers and peasant cultivators, *Utaiyar* farmers from the northern Tamil regions, pastoralists, shepherds, accountants, tank diggers, weavers, and other artisans, as well as non-Tamil speakers from Andra" [*ibid.*: 61]. He also mentioned that they migrated mostly in the 17th and 18th century, which brought new pressure on the land and finally caused the construction of many tanks in the area [*loc. cit.*].

10) Note, however, that after *Reddiyar* people flowed into the area they worked for a long time as attached laborers and tenants for *Brahmins*, who at that time occupied most of the land. From the 1920s or 1930s, however, the *Brahmins* gradually sold their land to *Reddiyar* and other castes and migrated to urban areas [Sato 2011].

11) *Reddiyar*: one of the dominant agricultural castes in South India, characterized by their active acquisition of farmland [Srinivas 1989]. *Chettiyar*: a merchant caste. *Asari*: there were two types found in Si Village, blacksmiths (also money lenders) and carpenters. *Wannar* and *Ampattar*: untouchable castes, but now classified as Most Backward Castes (MBC) in Tamil Nadu. Traditionally, they were engaged as washermen and barbers, respectively. See Sato [2011] for details.

12) Also, there was a *Naidu* caste household which had a large area of farmland. They were also Telgu-speaking people from Andra Pradesh with a custom of mixed marriage with *Reddiyar* caste people.

Table 1 General Characteristics of Households Divided by Economic Class in Si Village

Class	Landholding	Livelihoods	Education
Upper	Large	Stay outside the village and work as white-collar workers, but after retirement come back to the village and get pension and engage in farming by using agricultural laborers/tenants. Informal village leaders.	More than 10 years for both parents and children.
Upper middle and Middle	Small to medium	Most active farmers among all, with owned and rented land. Also work as white-collar workers and blue-collar workers.	Less than 10 years for parents, but more than 10 years for children.
Lower middle and Lower	Zero or marginal	Work as unskilled laborers or service workers. Work at factories or restaurants in town in the lean season.	About 6 years for parents and less than 10 years for children.

Source: Fieldwork by the author in 2007–09.

agricultural laborers) was 78% among the residents, whereas most of the "temporary migrant workers" (as defined in Sato [2010]) were engaged in non-agricultural jobs, except one person who worked as an agricultural laborer.

The total farmland owned by the villagers was 421 acres, of which tank-irrigated field (*nañcai*) amounted to 32 acres and dry land (*puñcai*) 389 acres. Of a total of 134 households, 29 (22%) were totally landless and the average landholding size of the remaining 105 households was 4 acres,[13] but the distribution of farmland was skewed. Although the study village was a *Reddiyar*-dominant single caste village, land distribution among the *Reddiyar* was also quite unequal.

In order to grasp the class structure of Si Village all the households were classified, by using the wealth ranking method, into five classes; "upper" (15 households), "upper middle" (17), "middle" (37), "lower middle" (39) and "lower" (26).[14] Table 1 summarizes the major characteristics of each class in terms of landholdings, livelihoods and educational background.

Many "upper" class people, after getting a higher education, stayed in urban areas to work as white-collar workers, but they came back to the village after retirement and engaged in agriculture (using laborers or tenants), because they had a large farmland. They also played a role as informal village leaders. The "upper-middle" and the "middle" class people were the most active farmers, often with rented-in/mortgaged-in land in addition to their own land. The younger generation people, however, tended to work outside the village as white-collar or blue-collar workers. The "lower middle" and

13) Only 58 households had *nañcai* while most of the land-owning households (103 households) had *puñcai*.
14) The classification was reasonable in view of both asset holdings (land and durable goods) and income level. See Sato [2011] for details.

Table 2 Livestock Holding at the Major Villages in S *Gram Panchayat*

Name of Village	No. of HH	Types of Livestock				
		Hybrid Cow	Local Cow	Sheep	Goat	Poultry
M	148	190	4	113	355	198
S	140	51	2	50	103	282
V	427	34	34	1,500	727	200
Si	229	74	12	0	622	216
P	199	22	22	0	253	90
Total	1,143	371	74	1,663	2,060	986

Source: Fieldwork by the author in 2007–10.
Notes: The number of households is obtained from the *gram panchayat* office in 2007.
But the number of households in Si Village above (229) was totally different from the number (134) that the author got from the census survey conducted in 2008. Data on livestock holding were obtained from the most recent "livestock census" data (obtained from a veterinary doctor in charge of S *Gram Panchayat*).

"lower" class people owned no or only marginal amounts of land. They worked as either service caste workers or unskilled laborers in agriculture, construction and factories. However, some of them have recently started to obtain relatively stable blue-collar jobs. It is also important to note that more than half of the "lower" class households were female-headed households (FHH). During March to July (the major agricultural lean season) many people, especially the poor, sought temporary jobs as unskilled laborers at some textile factories and construction sites near the village or at some restaurants and other shops in urban areas such as Thirumangalam Town. Also, goat rearing provided another valuable source of income for some villagers.

Table 2 shows the number of livestock reared in several major villages in S GP. The table reveals that in Si Village more goats are reared relative to the number of households. Many people in Si Village did not own *nañcai* land, and, even if they did, many of them leased it out to farmers from other villages, because their *nañcai* land was located in marginal areas with respect to the tank so that not enough water was available to them. This explains at least partly why relatively more people were engaged in goat rearing in the study village.

III Goat Rearing Practices in the Study Village

According to my survey in 2008, there were a total of 722 goats reared by 84 households (63%) in the study village, with an average of 8.6 heads per household.[15] Both the local breed (either *kanni adu* or

15) Compared to goats, the ratio of households keeping cows (16%) and bullocks (7%) was small. Most of the farm households in the study village hired a power tiller to plow farmland. Only land-leveling after plowing was conducted by bullocks.

tellicherry adu) and their cross-breeds were reared in the village.[16] Note that *kanni adu* were dominant and reared only for their meat, whereas there were fewer *tellicherry adu*, but these were reared for both their meat and their milk.

The major concern with rearing goats is what and how to feed them. In the study village, goat feed can be broadly classified into three types; green feed (leaves, grasses and fodder crops), concentrates (oil cakes and coarse grains[17]), and crop residues. Details are shown in Appendix Table 2. Crop residues include the straws and husks of various kinds of harvested crops.

Green leaves and grasses, the major feed, are primarily found by taking goats to the nearby fields for grazing, but (stems and leaves of) fodder crops, mainly maize, sorghum (*cholam*) and pearl millet (*cumbu*), can sometimes substitute for green leaves and grasses.

Grazing is undertaken either on village common land along public roads or on private harvested/fallow land. The care takers,[18] mainly self-employed young women[19] or elderly women, or sometimes hired elderly men/women or school children, take a herd of goats grazing twice a day, from 9:00 to 12:00 and 15:00 to 18:00.[20]

The seasonality and availability of feed of various types are summarized in Table 3. As already explained, the major rainy season in the study area is from October to December, when there is water in the tanks. In the tank command area (*nañcai*), rice is transplanted in October and harvested by the middle of January. After the harvest of rice, mainly millets, pulses or cotton are grown. These are harvested by March. On dry land (*puñcai*) under rain-fed conditions (without wells), millets, pulses, or cotton are also grown during the rainy season.

The richest season for feeding goats is January–March, when various kinds of crop residues as well as cheap concentrates (the grains of fodder crops) are available. In this season, some farmers, especially large farmers, are too busy to take goats out for grazing. Therefore, they feed the grains of fodder crops and other concentrates to their goats in stalls. However, the severest season (April–June) follows when rainfall is limited and the weather is very hot. Because of a shortage of green grasses and leaves in the field, some farmers, especially poor ones, cannot keep goats until the next breeding season

16) The color of *kanni adu* goats is black or black with white spots, whereas *tellicherry adu* goats are white. The latter needs more concentrate feed to produce milk. Goat rearing was first introduced to Si Village from the *Valayar* caste people in V Village, who originally migrated from Ramanathapuram District. This may explain why *kanni adu*, originally distributed in Ramanathapuram District, were reared extensively in Si Village [see also Acharya 1982].

17) Grains from fodder crops are included.

18) Usually a few care takers go to field together.

19) In most cases, women who had already finished caring for babies were engaged in grazing goats.

20) When going to pasture, a lead goat leads the entire flock. A goat care taker follows from behind. S/he controls the flock using their own way of whispering.

Table 3 Seasonality and Feed Availability for Goat

Gregorian Calendar (month)				6	7	8	9	10	11	12	1	2	3	4	5
Season						Agricultural season									
				Dry →		← (Rain) →					(Winter)		← Dry		
Goat feed		Protein content	Method to obtain feed	Availability											
Concentrate feed	Oil cake	High	Purchase	All the year round											
	Fodder crops[1)]	High	Cultivation					(Only during harvest time)							
Green feed	Green grass	High	Pasturing			Rainy season									
	Green leaves	High	Agricultural work			Agricultural season (harvest)									
	Fodder crops[2)]	Low	Cultivation/ Pasturing	All the year round											
Crop residues	Seed husks/ straw	Low	Agricultural work				Agricultural season (harvest)								

Source: Fieldwork by the author in 2007–09.
Notes: To be precise Tamil calendar should be used for agricultural season.
[1)] Use grain parts of fodder crops.
[2)] Use leaves and stalk parts of fodder crops.

Table 4 Types of Feed Applied to Goat by Stall Feeding

Class	No. of HH[1)]	Concentrate Feed		Green Feed	Crop Residues
		Groundnut Cake (GNC)	Wheat Bran or Rice Bran	Green Leaves	Straws and Husks
Upper	7 (100%)	7 (100%)	7 (100%)	5 (71%)	0 (0%)
U. Middle	11 (100%)	11 (100%)	6 (55%)	9 (82%)	7 (64%)
Middle	26 (100%)	23 (88%)	9 (35%)	10 (38%)	8 (31%)
L. Middle	18 (100%)	17 (94%)	4 (22%)	3 (17%)	3 (17%)
Lower	10 (100%)	10 (100%)	1 (10%)	3 (30%)	4 (40%)
Total	72 (100%)	68 (94%)	27 (38%)	30 (42%)	22 (28%)

Source: Fieldwork by the author in 2007–09.
Notes: [1)] The number of goat rearing households with valid answer for the type of feed.

(August), so they are obliged to sell them in the market. On the other hand, from July to August when the southwest monsoon brings a limited but some amount of rainfall, the green grasses and leaves in the fields revive to some extent.

The type and volume of concentrates is the most important factor in determining the weight and frame of goats, and therefore the unit price and net income from goat sales. Let us therefore look at the actual feeding status of concentrates in the five classes in the village (Table 4). Note here that the table also shows information on feeding green leaves and crop residues to goats in stalls.

As the table shows, groundnut cake was given by almost all the households, regardless of economic

class, but wheat/rice bran were given mainly by "wealthy" households. As already explained, concentrates are more important for goats during the dry season when green feed becomes scarce. However, poor households cannot afford them and instead rely on pasturing in barren fields or are obliged to reduce their number of goats by selling them in the market. Increasing their goats is therefore difficult for poor villagers.

Concentrates are especially important for mother goats in the latter stages of pregnancy and for several weeks after delivery. They are separated from the flock (for grazing) and are given protein-rich concentrates[21] in stalls, especially by "wealthy" farm households. This feeding practice is also extended to selected superior male goats which are reared for breeding [ICAR 2008; Uttarakrishiprabha 2010]. In practice, some wealthy farmers even buy ration rice[22] in order to give rice bran water as a concentrate to goats (as well as to cows and bullocks), instead of consuming the rice themselves.

In India, the average life expectancy for goats is reported to be 12 years [Shankarnarayan *et al*. 1985]. One-year-old female goats can start bearing 2–3 kids at a time after about a 150-day gestation period. They are very prolific and can deliver kids three times in two years. In the study village, since goats reproduce very quickly, farmers often have to sell their goats because they do not have enough space to keep them all.[23] Villagers usually sell young goats when they are 1 to 2 years old, mostly to goat merchants who regularly visit the village. Goat merchants[24] are registered at either of the two public goat markets in a small town nearby. They visit the surrounding villages every morning to buy goats. In the study village, direct sale of goats at the public goat markets by the villagers themselves was rare.[25]

Depending upon the weight, a mature goat is sold at a price of Rs.3,500–4,000 per head. As the bearing cost is Rs.30–60 per month per head (according to my interview with farmers), this cost reaches Rs.800–1,600 in two years. Therefore, if villagers sell a goat at two years old, it can provide them with a net income of Rs.2,000–3,000. If a female goat bears 4–6 kids a year, the annual income is Rs.10,000–

21) According to an agribusiness company, Uttrakrishiprabha, the most highly recommended concentrate is a combination of ground maize, groundnut cake, bran water (rice bran or wheat bran), pellets (fish meal), salt, and a mineral mixture [Uttrakrishiprabha 2010]. Also see ICAR [2008]. The ingredients of this concentrate are mixed in starch water and prepared in a plastic bucket.

22) Ration rice at fair price shops under the Public Distribution System (PDS) is also available for wealthy households in Tamil Nadu. They can purchase a maximum of 12–20 kg of rice per month at a rate of Rs.1 per kilogram. See Fujita [2011].

23) In India, approximately 36% of the total goat population is slaughtered every year [Acharya 1982].

24) According to the villagers, there used to be about 10 merchants who regularly came to the village to purchase goats, but by the time of my survey, this number had fallen to 3–5 persons.

25) By contrast, in V Village in the same S GP there is a commuting truck joinly operated by the farmers to transport goats to a goat market on a regular basis.

Table 5 Differences in Goat Rearing by Economic Class

Class	No. of HH	No. of Goat Rearing HH (ratio)	Average No. of Goats per HH	with Animal Shed (ratio)
Upper	15	7 (47%)	6.9	4 (57%)
U. Middle	17	12 (71%)	8.8	6 (50%)
Middle	37	33 (89%)	9.5	12 (36%)
L. Middle	39	21 (54%)	7.6	5 (25%)
Lower	26	11 (42%)	8.6	1 (9%)
Total	134	84 (63%)	8.6	28 (33%)

Source: Fieldwork by the author in 2007–09.

20,000, which is equivalent to 70–140 days' wages for a male unskilled laborer.

Although the price of goat meat has soared in recent years, the number of goat rearing households in the study village was on the decrease, mainly because of: 1) the decrease in green grasses due to less rainfall in recent years, and 2) the lower profitability of goat rearing compared to wage labors due to the recent rise in the wages of unskilled laborers. Given a wage rate of Rs.150 (men for wood chopping) and Rs.60 (women for cotton picking), if we assume 25 days' work per month for 8 months a year, the annual income for an unskilled laborer reaches Rs.30,000 (men) or Rs.12,000 (women) at maximum.

In addition, there is a risk in rearing goats. Goats are easily infected by some bacterial and viral diseases such as *Peste des Petits Ruminants* (PPR),[26] which causes pneumonia and clostridia, especially if goats are kept under non-roof conditions during the rainy season (September–December). At night and during the rainy season goats are usually kept either in an animal shed with a tin roof (up to 10 heads) or at the owner's house if the number is small (up to 4–5 heads), but many poor villagers are obliged to keep their goats under non-roof conditions due to shortage of space.

Table 5 shows the distribution of goats among different economic classes in the study village. It indicates that the majority of poor households had no shed for animals. A veterinary doctor visits the village to examine the goats and provide treatment, including injections (Rs.15 per head), germ killer (Rs.3 per head, a monthly application is necessary), and so on. As such, goat deaths are rare.

It should be mentioned here, however, that goat rearing is still important in the study village for the following reasons. Unlike large livestock, such as cows, if the number is small, goats can be kept more easily by women and children for whom the labor market is often underdeveloped or even lacking.

26) PPR is a virus that afflicts small ruminants. It is especially prevalent in herds reared in arid/semi-arid areas [Japan Wildlife Center 2008].

This is especially so when the main male workforce is absent due to their work in non-agricultural jobs as migrant workers. Goat rearing is also important since goats can be sold at times of financial need, such as drought or family crisis (such as the death of husband) or special events (such as a marriage).[27]

However, as Table 5 clearly indicates, goat rearing is actually not so popular among the poor in the study village. A rather sharp difference among the five economic classes is observed. The "middle" and "upper middle" households recorded the highest figures both in the ratio of households engaged in goat rearing (89% and 71% respectively) and in the average number of goats (9.5 heads and 8.8 heads). By contrast, although the average number of goats was not so small among the "upper," "lower middle" and "lower" classes (6.9, 7.6 and 8.6 heads respectively), only around 50% of these households kept goats (47%, 54% and 42% respectively).

The major question now is why poor households are relatively reluctant to rear goats. Before exploring this question, however, let us examine how the SHG program was introduced to the village and how it functioned there, because this must have had an effect on the villagers' goat rearing, since they were obliged, as SHG members, to buy goats when they obtained their first bank loan through the program.

IV　The Self-Help Group Program in the Study Village

The largest micro-finance program in India, at present, is a program through the Self-Help Group (SHG).[28] As mentioned earlier, an SHG consists of 10–20 women who gather regularly and save a small amount of money, which is lent back to some members. In this sense, the SHG program is literally "self-help" among rural women. However, if the SHG performs well, members can get bank loans without collateral through responsible NGOs (the "SHG-Bank Linkage Program"). In addition, they can enjoy a government subsidy; 50% of the principal is reimbursed when fully repaid.

At the time of the survey, there were 7 women's SHGs in the study village, organized and monitored by 2 NGOs and 1 semi-governmental organization: 5 groups (79 households) by the People's Association of Rural Development (PARD),[29] 1 group (18 households) by the Association for *Sarva Seva* Farms

27) Sacrificing goats as a special meal for functional purposes at home is also important.
28) It is called *Sangam* in Tamil.
29) PARD is a Madurai-based NGO for rural development. A micro-finance program is one of their activities, through which they support 263 SHGs with total savings of Rs.6.5 million. They also manage a training center for rural women to promote their livelihoods [Squido 2010].

(ASSEFA),[30] and 1 group (15 households) by the Tamil Nadu Corporation for Development of Women Ltd. (TNCDW).[31]

ASSEFA was the first NGO to organize SHGs in the study village. They organized 2 SHGs in July 1992.[32] In 1999 PARD started to organize SHGs and 6 groups were established by 2004. Finally, TNCDW organized an SHG in February 2006. In 2007, however, one of the two SHGs under ASSEFA and one under PARD stopped due to internal troubles. In 2009, PARD announced that it would withdraw from the SHG program. Then the members of 5 SHGs held a meeting and consulted one of the SHG federations.[33] Finally, they were able to change their NGO from PARD to the Dhan Foundation,[34] which accepted all of them. The details of the process of the introduction and development of the SHGs in the study village are described in Fujita and Sato [2011] in this issue.

Monthly savings per member amounted to Rs.50–60. The savings were lent back to some members at an interest rate of 2% per month. When they received a bank loan under the "SHG-Bank Linkage Program" from various national banks such as the State Bank of India, the Canara Bank and the Indian Bank, the interest rate was 1% per month, and they were instructed that the first loan should be used to buy goats. In fact, a veterinary doctor in charge of the region visited the village and tagged the ear of each goat to certify that the goat had been purchased through the program.[35] The SHG is instructed to terminate itself 5 years after its establishment (accumulated savings and interest are then distributed equally among the members), but if they want to continue, they can start a new SHG. It should be noted here that all the members of the 5 SHGs under PARD had already received bank loans and

30) ASSEFA was established in 1969 by a disciple of Gandhi as an executive body for a land-distribution program for outcaste people called the "*Bhoodan* Movement." Since the 1980s, it has started to focus on supporting saving group activities in rural areas [GDRC 2010]. However, it restructured its organization in 2000, and part of it became an independent institution called the *Sarvodaya* Mutual Benefit Trust (SMBT), which receives financial assistance from the Small Industries Development Bank of India (SIDBI) to promote SHG programs.

31) TNCDW had a SHG program called *Mahalir Thittam* [TNCDW 2010].

32) The IRDP was introduced to the village in the 1980s, and 167 people received bank loans with a government subsidy (the rate of the subsidy differed from one caste category to another). Most of the loans were used to purchase cows to sell milk through a milk cooperative that was established in the village at that time [Fujita and Sato 2011].

33) The SHG federations were formed in order to reduce any regional imbalance in the formation of SHGs (there were fewer SHGs in north and northeast India) and also to assist SHGs which have no support from an appropriate NGO. There is an association of powerful NGOs in the SHG program in India. It is a certified body accredited by important financial institutions such as the Reserve Bank of India, the National Bank for Agriculture and Rural Development (NABARD), and the state and federal governments [APMAS 2007].

34) Dhan Foundation, whose head office is located in Madurai City, has a program called "*Kalanjiam* Development Financial Services" to assist SHG activities in rural areas [Dhan Foundation 2010].

35) According to villagers, some SHG members showed the veterinarian goats that they had already reared. In such cases, the bank loan might have been used for other purposes.

Table 6 Households Participating in SHGs in Si Village

Class	No. of HH	No. of HH Participating in One or More SHGs	No. of HH Participating in Two or More SHGs	No. of HH Participating in Three or More SHGs
Upper	15	7 (47%)	3 (20%)	1 (7%)
U. Middle	17	13 (76%)	7 (41%)	1 (6%)
Middle	37	27 (73%)	11 (30%)	6 (16%)
L. Middle	39	21 (54%)	6 (15%)	1 (3%)
Lower	26	11 (42%)	4 (15%)	0 (0%)
Total	134	79 (59%)	31 (23%)	9 (7%)

Source: Fieldwork by the author in 2007–09.

repayments had been completed by the time of the survey in January 2010. Note here that all the members of the 7 SHGs had already received bank loan at least once, so that they must have experienced goat rearing, at least temporarily.

Table 6 shows the number and share of participating households in the 7 SHGs by the five economic classes in the village. The number and share of the participating households in two or more SHGs are also shown in the table. The average participation rate for all the households was nearly 60%, but it was low among the poor and the wealthy (47%, 54% and 42% for "upper," "lower middle" and "lower," respectively). Especially notable here is the fact that the poorest class ("lower") recorded the lowest participation rate, which is an unexpected result from the viewpoint of government policy.[36)]

V Why Is There Relatively Less Participation among the Rural Poor in Goat Rearing?

Chapter III showed that goat rearing was relatively unpopular among the poor. Although the average number of goats reared by goat rearing households was not small, only around 50% of poor households kept goats. Chapter IV revealed that participation rate in the SHGs was also low among the poor.

Table 7 shows the relationship between goat rearing and SHG participation in the five economic classes. The table indicates that the ratio of households that neither reared goats nor participated in an SHG was highest among the "lower" class (42%), followed by the "upper" (33%) and the "lower middle" classes (26%). Also notable is the fact that the number of households that participated in an SHG but

36) According to Ghatak [1999], the reason for the weak involvement of poor households in SHG activities can be attributed to the barrier arising from being monitored by one's peers when members are selected. Since SHG members have to bear joint liability, households with a low and unstable income may be denied membership. See also Suda [2006] and Dreze [1990] for the same argument.

Table 7 Matrix of Households with Goat Rearing and SHG Participation

Class	No. of HH	Goat Rearing ○ SHG ○	Goat Rearing ○ SHG ×	Goat Rearing × SHG ○	Goat Rearing × SHG ×
Upper	15	4 (27%)	3 (20%)	3 (20%)	5 (33%)
U. Middle	17	10 (59%)	2 (12%)	3 (18%)	2 (12%)
Middle	37	25 (68%)	8 (22%)	2 (5%)	2 (5%)
L. Middle	39	13 (33%)	8 (21%)	8 (21%)	10 (26%)
Lower	26	7 (27%)	4 (15%)	4 (15%)	11 (42%)
Total	134	59 (44%)	25 (19%)	20 (15%)	30 (22%)

Source: Fieldwork by the author in 2007–09.

did not rear goats (indicating that they once reared goats but later stopped for some reason) was also not small. Such households were especially common among the "lower middle" (21%) and "upper" classes (20%). This indicates that non-participation in SHGs can only partly explain why the poor do not rear goats. There must be some other strong reasons.

In order to investigate the reasons why the rural poor are reluctant to rear goats, let me compare the availability of labor and its employment status between households with and without goats (Table 8). Note that workers who usually live outside the village (migrants) are excluded from the table.

The major findings from the table can be summarized as follows:

1) With one exception, the average number of workers is largest among the "upper" class, decreasing gradually and reaching its lowest level among the "lower middle" and "lower" classes. Such a tendency is more prominent for the number of male workers. In other words, there is a shortage of male workers among the poorer households.
2) If we compare households with and without goats in each economic class, we find that, in most cases, the average number of workers (again, especially male workers) are smaller in households without goats.
3) If we compare households with and without goats in the "lower" class, we find that there is a strong tendency for households without goats to be engaged more in labor, and service jobs connected to a caste. In contrast, households with goats are more engaged in farming.
4) If we look at the "lower middle" class, there is a tendency for households without goats to be engaged more in labor, in combination with farming.
5) If we look at the "upper" class, there is a strong tendency for households with goats to be more engaged in farming, whereas those without goats are categorized as "others," suggesting that they depend more on income from pensions and land rents.

Table 8 Differences in Availability of Workers and Their Jobs among Households with/without Goat Rearing

Class	No. of HH	No. of HH with or without Goat Rearing		Average No. of Work Force per HH[1]			Pattern of Employment															
							Case of One Worker per HH							Case of Two Workers per HH								
							Farming			Off-farm Job Only	Labor Only	Service Job Linked to Caste		Farming				Off-farm Job Only	Labor			Other[2]
				Male	Female	Total	Only	with Off-farm Job	with Labor			Only	with Off-farm Job	Only	with Off-farm Job	with Labor	with Service Job Linked to Caste		Only	with Off-farm Job	with Service Job Linked to Caste	
Upper	15	with goat	7	1.0	1.0	2.0								64%	7%	14%		14%				
		without goat	8	0.8	0.9	1.6								23%		8%		15%				54%
U. Middle	17	with goat	12	0.8	0.8	1.6	5%							32%	21%	37%						
		without goat	5	0.8	0.6	1.4	14%							57%		29%						
Middle	37	with goat	33	0.8	0.9	1.7	2%		12%					25%	2%	58%				2%		
		without goat	4	0.8	1.0	1.8	14%							29%		57%						
L. Middle	39	with goat	21	0.6	0.9	1.5	3%		13%		3%			23%	10%	32%		10%	6%			15%
		without goat	18	0.4	0.7	1.1	10%		25%					5%	5%	40%		20%	10%			
Lower	26	with goat	11	0.5	1.1	1.5	6%	6%	12%	6%	6%			6%	6%	12%	12%	6%	12%	6%	6%	
		without goat	15	0.4	0.7	1.1					47%	6%	12%					18%	18%			

Source: Fieldwork by the author in 2008.

Notes: [1] Only workers staying in the village. Migrants were excluded.

[2] Includes pension-recipients, pure land rent-recipients, etc.

In sum, it can be hypothesized that the major reason why many of the poor do not rear goats is, paradoxically, a lack of labor. Apparently, goat rearing does not require a full-time workforce, but it does require several (fragmented) hours of work every day, especially for pasturing goats in the field twice a day. This characteristic of goat rearing is suited to part-time work, in combination with farming more than hired labor or non-agricultural jobs (especially hired non-agricultural jobs in factories near the village). In other words, the rural poor had to allocate their limited amount of labor to full-time hired labor/off-farm jobs in order to earn a higher income, thereby sacrificing goat rearing.[37)]

There were some households that once reared goats but had stopped by the time of the survey. This is especially true among the poor. Sixty seven percent of "lower middle" and 33% of "lower" class households who did not rear goats (a total of 52% in the two classes) were such households (Table 9). The table shows that the major reason for stopping goat rearing among poor households was the loss of their workforce for one reason or another. Especially notable is that when households became female-headed households (FHH)[38)] after losing a husband, many of them stopped goat rearing. It is also notable that two households among the "lower middle" class households changed their jobs to hired labor in order to obtain a higher income, and for this reason, stopped goat rearing.

Lastly, let me examine how some poor households actually reared goats. There were actually many poor households that reared goats: 54% of "lower middle" and 42% of "lower" class households (see Table 5). Table 8 already showed that they had a disadvantage in terms of their access to labor. However, we should also pay attention to the existence of "group pasturing" practices (Table 10). Group pasturing means that goats are jointly grazed by a group of 3–5 households. Goats are taken to the fields in turn by someone from the group. Supported by such a system, some poor households managed to reduce their disadvantage in labor availability.

VI Concluding Remarks

Based on detailed data in a study village in Madurai District, Tamil Nadu, India, obtained by the author's field surveys during 2007–10, goat rearing practices were investigated by classifying all the 134 households into five economic classes. There were in total 722 goats reared by 84 households (63%), with an average of 8.6 heads per household in 2008. Goat rearing was most popular among the "middle" and

37) Another important reason for the poor to choose hired labor instead of goat rearing is that they need cash immediately after their work.

38) The number of FHH was 35 (26% of the total 134 households) in the study village. However, the ratio of FHH was very high among the "lower" (54%) and "lower middle" (31%) classes. See Table 5 in Sato [2011].

Table 9　Households Which Had Once Practiced Goat Rearing But Stopped

Class	No. of HH without Goat Rearing	No. of HH Which Stopped Goat Rearing (ratio)			Reason for Stopping Goat Rearing		
					Aged / Loss / Breakup / Separation	Change of Jobs to Unskilled Hired Labor	Unknown
L. Middle	18	12 (67%)	MHH	5	2	1	2
			FHH	7	5	1	1
Lower	15	5 (33%)	MHH	3	3	0	0
			FHH	2	2	0	0

Source: Fieldwork by the author in 2007–09.
Notes: "MHH" stands for male-headed household. "FHH" stands for female-headed households.
Note that "Loss" refers to a family member who passed away. "Breakup" refers to a family member leaving the original family to form a new family, such as marriage. "Separation" refers to a family member leaving the original family to live outside for the sake of employment.

Table 10　Goat Rearing Households with "Group Pasturing"

Class	No. of HH		No. of Goat Rearing HH	No. of Goat Rearing HH with Group Pasturing
Upper	MHH	15	7 (47%)	0
	FHH	0	0	0
U. Middle	MHH	15	10 (67%)	1 (10%)
	FHH	2	2 (100%)	0
Middle	MHH	33	30 (91%)	7 (23%)
	FHH	4	3 (75%)	0
L. Middle	MHH	26	16 (62%)	6 (38%)
	FHH	13	5 (38%)	2 (40%)
Lower	MHH	13	6 (46%)	1 (17%)
	FHH	13	5 (38%)	2 (40%)
Total	MHH	102	69 (68%)	15 (22%)
	FHH	32	15 (47%)	4 (27%)

Source: Fieldwork by the author in 2007–09.
Notes: "MHH" stands for male-headed households. "FHH" stands for female-headed households.
Notable sets are highlighted; more than 60% of those of goat rearing HH per class, and more than around 40% of those of goat rearing HH with group pasturing per class, respectively.

"upper middle" classes, while it was most unpopular among the two lowest classes. Although the average number of goats reared by goat-rearing households in the two lowest classes was not small, only about 50% of such households reared goats. This contrasted sharply with the high figures in the "middle" (89%) and "upper middle" classes (71%).

This article tried to investigate the reasons why the poor were relatively reluctant to rear goats.

It found that, paradoxically, a lack of labor in poor households was the major reason. First, the average number of workers in the two lowest classes was less than 1.5 persons. Moreover, the ratio of female workforce was 60–70% or even more. Actually, female-headed households occupied more than 50% of the "lower" class (33% in the "lower-middle" class). Second, a comparison between households with and without goats in the "lower" class showed that 1) the average number of workers was much smaller in the latter (1.1 persons) than in the former (1.5 persons); 2) there was a sharp contrast in that the latter were more engaged in labor, and service jobs connected to caste, whereas the former were more engaged in farming. Another comparison between households with and without goats in the "lower middle" class also showed that the latter were more engaged in labor, in combination with farming. In sum, it was found that poor households who did not rear goats allocated their limited number of workers (mainly female labor) to full-time hired labor, including agriculture and non-agriculture, so that there was no time to take care of goats.

Government-sponsored micro-finance schemes have been undertaken in India since the late 1970s, when the IRDP started throughout the country. Since the 1990s, the "SHG-Bank Linkage Program" has become the major policy tool for providing small bank loans to the rural poor, especially women. The basic idea of the micro-finance schemes; i.e. providing rural poor women with livestock such as cows and goats, seems to have remained unchanged until today. In other words, the accumulation of non-land assets (livestock) in poor households has been the major strategy to alleviate rural poverty in India.

It may seem reasonable at a glance to think that the rural poor can easily rear small animals such as goats efficiently by relying on their sole resource, unskilled labor (especially female labor), but this, unexpectedly does not actually seem to have been the case. Furthermore, the major reason why the poor were reluctant to rear goats is mainly attributable to the lack of (unskilled) labor among the rural poor. In this sense, other kinds of programs should effectively target the poorest, such as pension schemes for elderly people.[39] Of course, we should pay attention to the fact that the data for this article was collected in south India, where the labor market for women is relatively developed in comparison with the rest of the country. In other words, there is a possibility that the poorest female-headed households are also engaged more in goat rearing in rural areas where availability of hired labor jobs is scarce for them.

At the same time, however, it should be remembered that nearly half the rural poor households — although they were not the poorest — could rear goats in the study area. Therefore, it can be claimed

39) Regarding the Old Age Pension scheme, see Fujita [2011] in this special issue.

that they benefit from livestock-oriented micro-finance programs such as the SHG-Bank Linkage Program.

Finally, one more important point should be mentioned. The study village of this paper was characterized by the absence of scheduled castes (SC) people, so that the problems related to goat rearing could be dealt with as a purely economic issue of poorer sectors in a village. However, in many "typical" villages with a substantial number of SC people and where goat rearing has been carried out by them, the problems may not be purely economic but also social, such as those pertaining to access to village common land for pasturing goats [Yanagisawa 2002]. In this sense, the general validity of this paper should not be taken for granted. Further research is necessary in this regard.

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Appendix　Table 1　Number of Slaughtered Livestock in Tamil Nadu
(million)

Year	Sheep	Goat
2000/01	93.5	77.9
2001/02	102.2	86.4
2002/03	115.3	101.3
2003/04	114.1	108.5
2004/05	112.9	136.7
2005/06	157.1	139.4
2006/07	158.2	209.7
2007/08	134.3	216.9

Source: Prepared by the author based on data from Department of Economics and Statistics (Tamil Nadu) [2006; 2007a; 2008a].
Notes: The figures shown above were collected from registered abattoirs. (Therefore, those from non-registered abattoirs were excluded from above figures.)

Appendix Table 2 Types of Feed Applied to Goat in Si Village

General Names		Tamil Name (Tamil Alphabet)	Tamil Name (Pronounciation)	Nomenclature	Season Available and/or Method Used to Obtain Feed	Method of Feeding	Nutritional Value	Price
Concentrate feed	Groundnut cakes (GNC)	புண்ணாக்கு	punakku	*Arachis hypogaea*	Available all the year round at market.	stall feeding	Protein rich and a source of energy. The best supplementary feed for goats.	Rs. 35/kg
	Starch water	கஞ்சி	kanji	*(general names)*				
	(ground) maize	மக்காசோளம	makkasolam	*Zea Mays*				Rs. 15/kg
	(ground) pearl millet	கம்பு	kambhu	*Pennisetum glaucum*				Rs. 10/kg
	(ground) wheat	கோதுமை	godhunai	*Triticum*				Rs. 35/kg
	Fodder Crops			*(general names)*	Fruits of each crop are used during the harvest. Less costly than the feeds listed above.		Nutritious and used as a substitute for concentrates during the harvest season.	
	Maize	மக்காசோளம	makkasolam	*Zea Mays*	February–March			
	Sorghum	சோளம	cholam	*Chola Natv*	January–March			
	Pearl millet	கம்பு	Kambhu	*Pennisetum glaucum*	November–February			
Green feed	Green grasses	கோரையபுல	koraipul	(general names)	July–September, October–December, and after rain.	pasturing	Nutritious only when flowering after rain.	
	Fodder crops			(general names)	Stems and leaves of all fodder crops are used as feed.	stall feeding	Available when each crop is being cultivated. The major feed for goats.	
	Maize	மக்காசோளம	makkasolam	*Zea Mays*	August–March			
	Sorghum	சோளம	cholam	*Chola Natv*	January–March			
	Pearl millet	கம்பு	kambhu	*Pennisetum glaucum*	August–February			
	Green leaves (e.g. neem)	வேப்பங்குளை	vepangulai	*Azadirachta indica*	Available all the year round. *Acacia* and *Prosophis*. Collected through agricultural work.	stall feeding and pasturing	Only feed in dry season, available from fields.	
Crop residues	Straws or husks	பொட்டு	pottu	(general names)	Husks of seed collected during the harvest from fields. Least expensive feed.	stall feeding	Rich in fiber but poor in protein.	
	Castor seed husks	வட்ட மணிக்குழை	vattamanikulai	*Ricinus communis*	September			
	Maize seed husks	மக்காசோளம	makkasolam	*Zea Mays*	February–March			
	Paddy straw	நேல்	nel	*Oryza Sativa*	January			
	Gram / Black gram husks	துவரை	thuvarai	*Vigna mungo and/or vigna radiate*	November–February			
	Cotton seed husks	பருத்த	paruthi	*Gossypium*	November–February and June–July			

Source: Fieldwork by the author in 2007–09, and ICAR [2008].
Notes: Information was collected by the author from farmers in the study village and confirmed by veterinary doctors at the two veterinary stations near Si Village.