

The Mechanism and Consequence of DaiMu in Kazakh Community of Northern Xinjiang

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Abstract: Although Kazakh communities of Xinjiang still keep three-season transhumance pattern of production, the lower profit and higher risk (vulnerability) of individual herder household's management have gradually emerged since the Rangeland Household Contract Policy was implemented thirty years ago, which have caused some herders facing the risk of bankruptcy. Simultaneously, some farmer households in the neighboring agriculture areas are starting to purchase livestock and pay herder households to raise on the pastoral areas. This kind of "absence of livestock owner" is called DaiMu in our study. Why does DaiMu phenomenon arise? And what are the effects of DaiMu on pastoral ecosystem, livelihood of herders, and social—ecological system. Taking T village of Nileke county of Yili prefecture as case study area, based on the field works we find that that: 1). DaiMu emerged in Northern Xinjiang is a response to solving the the issues occurred in transhumance system caused by Rangeland Household Contract Policy.2). The influx of massive outsider's livestock has led to overgrazing.3) DaiMu, in a certain extent, though could solve the livelihood issues of those herder households without livestock, but in the end may result in unsustainability and more risky of the livelihood. 4) DaiMu may cause broken of the social- ecological system in local community.

Key words: Three-season Transhumance DaiMu Kazakh

1. Introduction

Transhumance is a sustainable production system that can offer ecosystem service , biodiversity and culture heritage in local landscape. (Pedro Olea et al.2009; Oteros-Rozas et.al,2013; Karoline Daugstad ,2014;López-Santiago.et al,2014),

meanwhile, inefficient and high-cost such short comings have been appeared (Konstantinos Galanopoulosa.et.al,2011;Christine Jurt.et.al,2014) .

Kazakh still keep their three-season transhumance in Northern Xinjiang, which is their main source of income. The lower profit and higher risk (vulnerability) of individual herder household's management have gradually emerged since the Rangeland Household Contract Policy was implemented thirty years ago, which have caused some herders facing the risk of bankruptcy. Simultaneously, some farmer households in the neighboring agriculture areas are starting to purchase livestock and pay herder households to raise on the pastoral areas.This kind of "absence of livestock owner" is called DaiMu in our study.

2. Case site

The case site is in T village, located in Nilke County in Ili Kazakh autonomous prefecture. Average annual precipitation in Nilke in 2015 at 516.4mm, and the average temperatures of around 7.48°C. T village total area of 8442 hectares, the total area of grassland area of 94%. The total population of 1905 people (all of whom are Kazak), the per capita land of 4.43 hectares of land. Number of livestock at year-end is 22500 unite,the average population head number is 50, the per capita net income of 12177 yuan in 2016.

T village keeps three-season transhumance pattern of production: June to September on the summer pasture, September to November on Spring-Autumn pasture, from November to February on the winter pasture, from March to June on the spring and autumn pasture. The summer pasture, spring-autumn pasture, settlements, farmland, along the decrease of the altitude, distributed on the north slope of KIRGUQIN mountain. Winter pasture is an enclave, located in the southern slope of KIRGUQIN mountain, with 2 days' riding transit.

Because of the remote of the winter pasture and the limited areas of the spring and autumn pasture, the lands cannot be divided by households, therefore is distributed by groups. In the collective period, the whole winter pasture was divided into 30 groups, and about 8 households per group. The person who in charge of livestock in collective

time severed as a group leader, other herdsmen would attend voluntarily, and they often went for their close relatives or neighbors. In spring, summer and autumn, they take care of their livestock by themselves; In the winter, the group leader is responsible for the movement of the whole group's livestock to the winter pasturer, and other members pay the raise cost.

This study is mainly based on the two-years survey in this area, and the data were collected from second field surveys in the area during December 14 in 2016 to January 14 in 2017. The author used semi-structure interviews. Interview households sample of 35 households, 33 households valid interview samples, covering 21 groups (the whole number of groups in natural village is 23), involving 165 group members.

3. Mechanism of DaiMu

The development of DaiMuhas gone through several stages. In pastoral areas, from 1984 to early 90s, individual households sold livestock, based on the lack of labor force or independent transhumance management experience and other reasons, result in the emergence of the "herder households without livestock" phenomenon. Such phenomenon provides initial opportunity for agriculture area' livestock get into pastoral areas. In 1990s, Poor households lost their access to pasture after lost their livestock, and the DaiMu system can be regarded as a way for them to regain the use right. Besides, they do not need to bear the burden of winter forage as well, so that became a relative economic production mode for the poor households, and a way to be equal benefit from the pasture with the wealthy households. After 2000, with the deepening of the "herders settlement project", the cost of movement production and living cost is gradually increased, and DaiMu became a way to response to the high cost of the nomadic production.

In agriculture area, at the end of 1980s, due to the lack of winter forage in pastoral areas, herdsmen turned to farmers in rural areas for helps. Herders got straw for free from famers and, in return, they give sheep to them as gifts, and assist them to feeding them in their summer pasture, famers gradually accumulated their herds. From 2001, the state canceled the agricultural tax. Released from burdens, famers

have more money to invest in animal husbandry. During the period of 2001-2010, the price of sheep continued to rise, which stimulated the further increase of the number of livestock in rural areas, and became the most flourishing era for DaiMu phenomenon. As a result, DaiMu has changed from initial reciprocal relationship between farming and pastoral areas into commercial relations

4. The present status of the DaiMu in T village

The DaiMu phenomenon is quite common in T village, and there are 18 groups admitted that DaiMu happens in their groups, accounting for 86%. There are 11 households admitted they participated in DaiMu last year, accounting for 33%. The DaiMu families raise 151 livestock from the farmlands in average, and the whole livestock number themselves owned is 176 per families (sheep unit). And the average income gained from DaiMu is 13183 Yuan, accounting for 24% of their whole income. There are 16 DaiMu families raise for farmers in summer, and there are 2 households DaiMu in both summer and winter. The livestock of farmer mainly came from the adjacent Uyghur farm areas (Subutai Uyghur village of 8 households, 5 households in Yining County), and 1 households of Han family (Table 1).

Table 1.Information of DaiMu Household

DaiMu Household	DaiMu No.	Own Livestock No.	Pasture of DaiMu	DaiMu Income (yuan)	Total Income (yuan)	PCT	Source of DaiMu
KZBK	100	210	summer	10000	62600	16%	Subtai
NKBK	100	75	summer	6000	18200	33%	Subtai
WEMBK	400	110	summer	30000	92800	32%	Yining Subtai
HLL	*	190	summer	*	53720	*	Yining Subtai
WRSH	100	120	summer	5000	43905	11%	*
BEDBK	100	120	summer	6000	41005	15%	Subtai
HBX	50	250	summer	25000	85000	29%	Subtai

HPE	100	90	summer &winter	10000	46125	22%	Subtai
BHTBK	250	80	summer	16250	63650	26%	*
TKZ	160	136	summer	10400	31400	33%	Han
ZNX	*	550	summer	*	*	*	*
Average	151	176		13183	53841	24%	

Data sources:field work in 2016-2017

According to the mobility and the DaiMu phenomenon, the households of the village are divided into 3 groups: Non-DAIMU nomad families, Nomad DAIMU families and Non-nomad families, to further make the comparison with the households who participated in DaiMu and those who are not(Table 2). Non-DaiMu families are usually the wealth household in the village (234), the DaiMu families take the second place (176), and the least ones are the non-nomad families who staying in the village. The demographic features of the DaiMu family is that they have least number of the elders, and the most members are educated teenagers, so they have the most available labor. That is to say these DaiMu families are mainly middle-aged nuclear families. Children are in the stage of education (children began to enter the boarding school from junior high school in that area). They have less burden in supporting the elders and siblings, in favor of involving more labour in transhumance production. So that, we can say that a necessarily condition for DaiMu is sufficient labour.

Table.2 Demography Comparison among Three Type of Household

Type	Elders	Pre-school Children	Educated Children	Labours	Employed Labors	Sheep	Livestock
Non-DaiMu	1.08	0.62	0.92	0.77	0.77	149	234
Nomad							
Families							

Nomad	0.91	0.64	1.55	1.27	0.18	102	176
DaiMu							
Families							
Non-nomad	1.22	0.67	0.67	0.56	0.00	30	59
Families							

Data sources:field work in 2016-2017

5. Consequence of the DaiMu phenomenon

5.1 ecological impact

We take "which years do you think the grasslands is beginning to degenerate? What is the cause of degradation? Which is the most serious degenerated grassland " as our three open questions to verify whether DaiMu has impact on the ecologic, and, meanwhile, we paid attention to distinct the answers from the DaiMu families and the other ones.

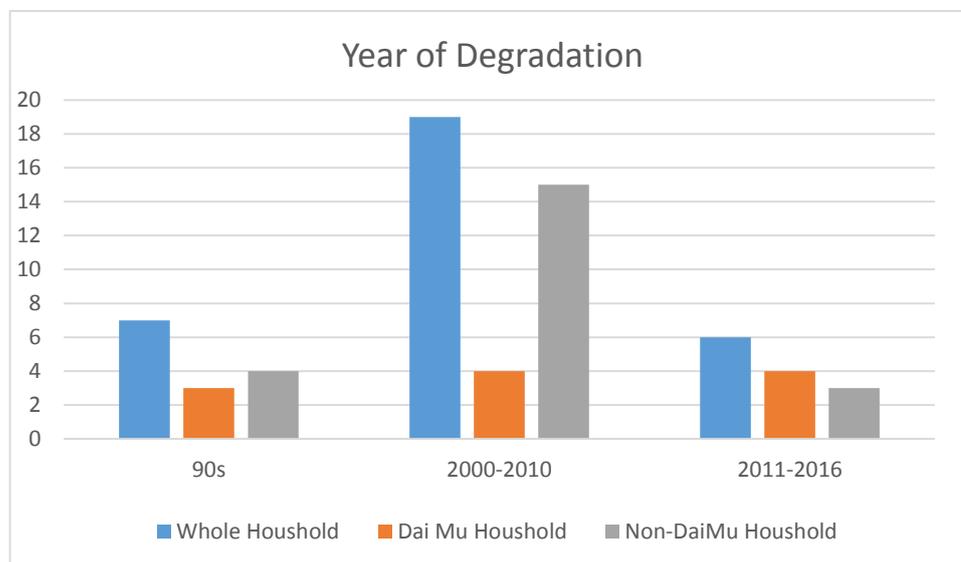


Fig.1 Year of Degradation

For the question of "which years do you think the grasslands is beginning to degenerate?" , 2000-2010 option is the highest score, followed by 1990s, and 2010-2016 in the end. This is consistent with the development stage of the DaiMu phenomenon, namely, the grasslands began to degenerated at the most prosperous

period of the DaiMu phenomenon.

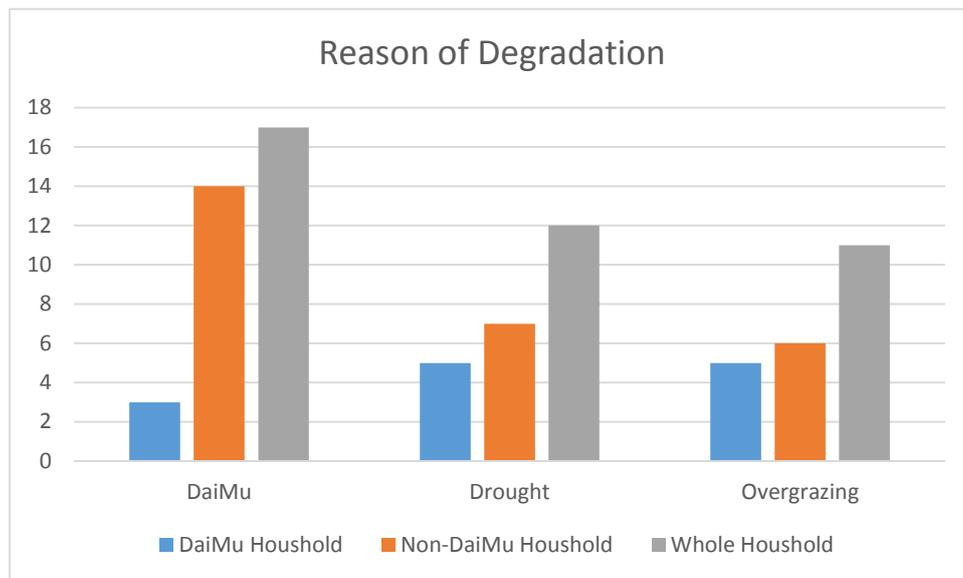


Fig.2 Reason of Degradation

We further asked "the reasons for the degradation of the pasture" and got DAIMU, drought, too many livestock these three answers by ranking (Figure 2).

When further questioning which is the most degenerated grassland, we got summer, spring-Autumn, all the three season, Winter, these four answers in order (Figure 3).

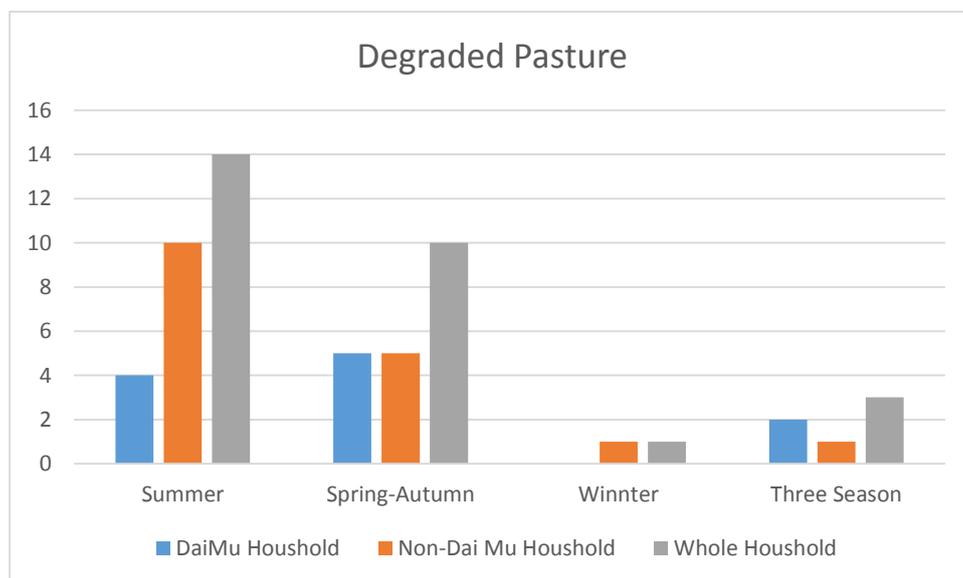


Fig.3 Degraded Pasture

In general, the grassland began to degradation in 2000-2010, and the main cause is the DAIMU. The most serious degradation of the grassland followed by summer, spring, autumn, all three seasons and winter. These answers supported, in

time and space, that the main reason for the degradation of the local grassland is the DaiMu phenomenon.

5.2 Impact on households' livelihood

We further compared the features of these three types of households in the village. For the point view of income, raking in turn for the Non-DAIMU nomad families, Non-DAIMU families and DAIMU families. The main resource of the Non-DAIMU nomadic families came from their livestock income, accounted for 68 % of their total revenue. The income of those DAIMU families mainly come from their livestock as well, accounted for 50% of their total revenue. And DAIMU income is second and occupied 24%. The largest income resources of the Non-nomadic families come from their wages from other sectors, accounting for 55% of the total revenue income. Their secondary income is from their livestock, which accounted for 37%.

Table 3 Livelihood Comparison among Three Types of Household

TYPE	SHEEP	LIVESTOCK	ANNUAL IMCOME (YUAN)	MAIN IMCOME (YUAN)	PCT OF PROD	COST
NONDAIM NOMAD FAMILIES	149	234	70289	Livestock(47446)	68%	14369
NONDAIM NOMAD DAIMU FAMILIES	102	176	53841	Livestock(26960)	50%	3640
NON-NOMAD FAMILIES	30	59	59327	Salary(32800)	55%	3836

Data sources:field work in 2016-2017

We find from the comparison of these three types of households, that the

DAIMU families have the lowest incomes, while the DAIMU revenue is not accounted for the highest proportion of their incomes. The charging standard of the village is 8-15 Yuan/month/sheep in summer, and the average price is 13 Yuan; The general price is 12-15 Yuan/month/sheep in winter, and for horses and cattle, the price is 50 Yuan per month in summer, 100 Yuan per month in winter. If we take the average scale and common DaiMu scale as an example: 100 Sheep for 5 months in summer, then the total income is 6500 Yuan. The average income from DaiMu is 13183, and that is to say that DaiMu families have to raise as many as 202 sheep to achieve this price. While if raising 100 sheep, the income is around 50,000 Yuan (according to the price in 2016, 500 Yuan per sheep), which is 7.7 times than the revenue from DaiMu. By contrast, we can see that the DaiMu, by no means, is the most profitable way to earn living. Every increase of 10,000 Yuan, the DaiMu families needs to raise 202 extra sheep to achieve the number, which indicates that DaiMu is not a sustainable production mode. Meanwhile, the risk of DaiMu is mentioned by the herdsmen as well, they think it is not worthy: Assuming you can earn 10,000 Yuan from DaiMu per year, but if one cattle dead during the time, you have to indemnify the owner 6000 Yuan.

5.3 The social-ecosystem impact

80% of the households in T village belongs to the "Karmbai" tribe, and the whole village is Kazakhs, keeping a closely related social network. The poor households hand over their livestock to the wealthy families in solving the access problem to the winter's pasturelands. Based on local rules, the price is 8 Yuan per sheep per month in summer, and 8-10 Yuan per sheep per month in winter.

While the price of DaiMu is 12-15 Yuan per sheep per month in summer, and 15 Yuan per sheep per month in winter. Such gap on price, make the wealth households are reluctant to raise the livestock in their group “.Herders prefer to take care of outsider’s livestock, and that is most unfair issues in the village”, said by one interviewee .The original network, which are based on the kinship and friendship, now is destroyed by the entry of the outsider’s livestock.

6. Conclusion

DaiMu emerged in Northern Xinjiang is a response to solving the issues occurred in transhumance system caused by Rangeland Household Contract. Due to the vulnerability of the individual herder households , there are massive livestock from agriculture areas shown in pastoral areas, and eventually lead to the deterioration of the ecological system, unsustainability, more risky of the livelihood, and damage of the local social-ecosystem.

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