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Income and Expenditure of the Herdsman in Inner Mongolia Autonomous Region: A Case Study of Xianghuang Banner in Xilin Gol League

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Abstract Based on the household survey data concerning herdsman's families in Xianghuang Banner, Xilin Gol League, Inner Mongolia, we analyze the income and consumption structure of herdsman's families in the western regions during the period 2008–2009. The results show that the herdsman's source of income is single, mainly focusing on livestock sale, with poor ability to resist risks; the share of purchase expenses of forage in the consumer spending is the greatest, growing rapidly, followed by spending on food, education and health care; there are many policy subsidies for housing. The characteristics of herdsman's income and consumption are jointly determined by natural factors, market factors, policy factors and personal factors. Based on this, corresponding recommendations are put forth in order to increase herdsman's income and improve the consumption structure: the herdsman should strengthen breeding techniques to improve scientific breeding and increase income, change consumer attitudes, save moderately, and strengthen ability to resist risks; the government should increase the policy subsidies for pastoral areas, strengthen education, training, health care for herdsman, and promote herdsman's quality.

Key words Herdsman, Source of income, Consumption structure, Inner Mongolia Autonomous Region

1 Overview of the study area

Xianghuang Banner is located in the middle of Inner Mongolia Autonomous Region, southwest of the Xilin Gol League, whose geographic coordinates are 113°22'–114°45' E, 41°56'–42°45' N. At present, 1 sumu, 2 towns, 60 gachas, 6 villagers' committees, and 480 haotes (villages), are under the jurisdiction of the banner, of which Xinbaolage Town is the seat of banner government. The total area of the banner is 4 960 km², and the area of available grassland is 4 400 km², accounting for 88.7% of the total land area of the banner. The total population is 27 300, the urban population is 12 226, and the population in the pastoral areas is 15 074, with the population density of 6 persons/km². There are more than ten nationalities in the banner, such as the Han nationality, the Mongolian, the Hui nationality, the Daur nationality, the Zhuang nationality, the Manchu^[1].

Due to the impact of natural and social changes, long-term transitional use of pasture, and many continuous natural disasters in recent years such as drought, dust storms, blowing sand, snow disaster and locusts, the ecological environment in the banner deteriorates rapidly and the natural disasters occur frequently, seriously limiting the local economic development people's lives; making some areas even undergo the loss of

livestock production conditions that people rely on for subsistence, the herdsman live a poor life.

2 The survey method and content

For 3 sumu towns (Wengongwula, Bayantala, Xinbaolage), and 20 gachas under the jurisdiction of Xianghuang Banner, we select 60 representative herdsman with different production scales and different grassland types, and design questionnaire to conduct sampling survey, using the method of field research and survey. We survey the relevant data concerning their production and life, including herdsman's family income, consumer spending, living conditions, family members' investment in education and spending on health care, *etc.* in the period 2008–2009.

3 Herdsman's income and expenditure

3.1 Herdsman's income By comparing the sources of income between two years (Table 1), the per capita income of the herdsman households surveyed basically experienced no change, maintaining at 14 000 yuan; income from plush sale declined by 12.12%, while the wage income, income from working for others, and government subsidies increased to some extent.

The income from livestock sale was the main source of income for the herdsman in the banner, accounting for 85.14% and 85.62% of total income in 2008 and 2009, respectively; the income from the plush sale accounted for 10.94% and 9.6%, respectively; the income from the livestock output accounted for 95% of the total income, in a leading position; the wage income and income from working for others accounted for

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3%–4% of the total income; the income from pasture rental and government subsidies accounted for only 1% of the total income.

Table 1 The per capita income of 60 herdsman in Xianghuang Banner during the period 2008–2009

Sources of income	Per capita income in 2008//yuan	Per capita income in 2009//yuan
Livestock sale	11 922.8	12 018.5
Plush sale	1 532.6	1 346.9
Pasture rental	72.6	25.6
Wage	308.5	408.5
Working for others	135.0	144.4
Government subsidies	18.7	23.0
Others	12.8	69.2
Total	14 003.2	14 036.3

3.2 Herdsman's consumer spending By comparing the consumer spending between two years (Table 2), the per capita spending of the herdsman households surveyed increased from 11 912.5 yuan to 14 036.3 yuan, an increase of 32.29%. Purchase expenses of forage increased greatly, while the expenses of food, education, leasing pasture, communications, health care, water and electricity fees, employing workers, and so on, tended to decline.

Purchase expenses of forage are the greatest expenditure for the herdsman households surveyed. Due to increase in the weather disasters in 2009 such as drought and sandstorms, the pasture output sharply declined, thus the herdsman households' purchase expenses of forage increased from 23.94% in 2008 to 42.74% in 2009. Because the forage prices increased, the herdsman households' consumption on other some aspects was relatively low.

Table 2 The per capita expenditure of 60 herdsman in Xianghuang Banner during the period 2008–2009

Expenditure content	Per capita expenditure in 2008//yuan	Per capita expenditure in 2009//yuan
Employing workers	74.8	40.6
Leasing pasture	1 585.2	1 171.4
Purchase expenses of forage	2 851.7	6 735.9
Gasoline, diesel	710.0	754.0
Livestock epidemic prevention	253.2	251.5
Water and electricity fees	135.4	142.1
Education	1 702.8	1 530.8
Medical care	1 013.6	1 010.4
Food	2 424.8	2 594.0
communications	432.5	443.6
Others	728.6	1 084.2
Total	11 912.5	15 758.6

In summary, the family income level of the herdsman surveyed in recent two years experiences no significant increase, and the sources of income are not expanded, still with the livestock income as the main source; the consumer spending grows year by year, and some herdsman households cannot

make both ends meet. The deterioration of the local climate and environment directly affects the income level, consumption structure and consumption level of the herdsman, resulting in shrinkage of income, fixed and single content of consumption^[2–4].

4 Analysis of structure of herdsman's income and expenditure

4.1 Analysis of structure of herdsman's income

4.1.1 The main sources of income (the sale of livestock). The family breeding scale of 60 herdsman households surveyed: a total of 9 845 sheep and goats, 577 large livestock in 2008; a total of 9 810 sheep and goats, 660 large livestock in 2009. The number of small livestock decreases to some extent, and the herdsman households focus on increasing the amount of large livestock on hand. The income from livestock sale is the most income that the herdsman households get annually, determined by the number of livestock. In order to meet the needs of production and living, increasing the number of livestock as much as possible, is the only way to promote the income level at present.

4.1.2 The sale of cashmere and wool. In recent years, the prices of cashmere continuously climb, and there is income from cashmere sale. The goats damage pasture seriously, so such kind of income can not be increased through increasing the number of goats. The number of goat bred is 2 517 in 2008 and 2 254 in 2009. Due to various considerations of protection of grassland ecological environment, the number of goats bred also continues to decline. The corresponding number of sheep increases, and the income in this regard will not change too much, due to the constant number of small livestock.

4.1.3 The wage income, job earnings and other types of income. The wage income is only obtained by the households working in the gacha (village), sumu ((township) or the banner government. The sum of this income is relatively stable, but few people get this income, and they cannot fully represent all the herdsman households. Income from working for others can be related to all the herdsman households, but due to various factors, when at leisure, they seldom work outside for extra income. Other income is small and unstable, including income from the sudden visit of the tourist in the tourism season, income from leasing motor vehicle and so on.

4.2 Analysis of structure of herdsman's expenditure

4.2.1 Expenditure on food (self-sufficient in meat). In the herdsman's consumer spending surveyed in Xianghuang Banner, per capita food expenditure in 2008 was 2424.8 yuan, a slight rise; it reached 2594 yuan in 2009. In recent two years, the transportation costs rise and the food prices increase, so there are no great changes in the herdsman's dietary structure, still mainly focusing on the meat and dairy products from livestock raised by the herdsman households, and the purchase proportion of wheaten food and vegetables is small.

4.2.2 Expenditure on clothing (stable with a slight decline). From the questionnaire, the herdsman have no higher requirements on their wearing, and they choose to buy under the premise of ensuring the means of subsistence and means of

production. At present, herdsman merely focus on the needs concerning life to be met, who temporarily do not take into account other aspects. This shows that herdsman's income level is still not satisfactory.

4.2.3 Expenditure on residence (improvement in housing conditions due to settlement policy). The residents in pastoral areas, affected by the policy and their own development needs, change from the semi-nomadic life to settled life. In recent years, the drought and sandstorms increase significantly in this banner, promoting the herdsman to change the building structure of houses, from Mongolian yurt to clay houses to brick-concrete structure, thus the proportion of spending on this aspect is large. In terms of the construction of the livestock pen, the brick-concrete structure is built as much as possible, due to high winds, dust storms and other climate factors. The survey data on 60 herdsman households show that 34 households live in the brick-concrete structure houses, with the average construction area of 71.91 m² per household; 37 households have the brick-concrete structure livestock pen, with the average construction area of 112.39 m² per household. This indicates that the herdsman's requirements on the quality of housing become gradually higher, and the proportion of brick-concrete structure houses is increasing year by year.

4.2.4 Expenditure on household equipments (general equipment of household appliances and high-degree popularity of vehicle). Household appliances and other durable goods is also an important indicator to measure the living standards of the herdsman households. In recent years, with the introduction of policy of "home appliances to the countryside", policy of "farm machinery subsidy", and other subsidy policies by the state, household appliances and farm machinery also enter herdsman families rapidly.

The survey shows that in 60 herdsman households interviewed, there are 77 motorcycles, 1.28 per capita; 19 cars (mainly second-hand cars); 112 farm machines (hay machine, strawtrusser, and tractor).

4.2.5 Expenditure on communications. With improvement in the herdsman's awareness of market economy and increasing exchanges with the surrounding banners, sumus and gachas, herdsman's awareness of communication with the outside world, and awareness of exchanging commodity information is gradually strengthened.

The survey shows that the communication of information on transaction of the livestock and the derivatives, purchase of forage and so on, has changed from the original mutual assistance in family, neighbourhood and gacha, to the current mobile communications exchange. This improves efficiency and opens the mind. Herdsman's investment in this has been increased greatly as against that of urban residents.

4.2.6 Expenditure on culture, education and medical care. For now, the herdsman households gradually attach great importance to education, and they cannot invest too much in the education, limited by their own income level.

In terms of the family spending on health care, the per capita spending of the herdsman households surveyed in recent two years is 1000 yuan, with no change in two years. The herdsman's awareness of self-care and treatment is increasing-

ly improved, and for cold, headache and other minor illnesses, the herdsman do not ignore them any more.

4.3 Existing problems It can be found from survey that in 2008 and 2009, the per capita income of the herdsman households never increased basically, but the per capita spending increased rapidly, with growth rate as high as 31.13%.

In 2009, the herdsman households surveyed overspent their income by 1 722.3 yuan per capita; part of herdsman households could not make ends meet, surviving by borrowing from banks, relatives, friends, and neighbors (Fig. 1).

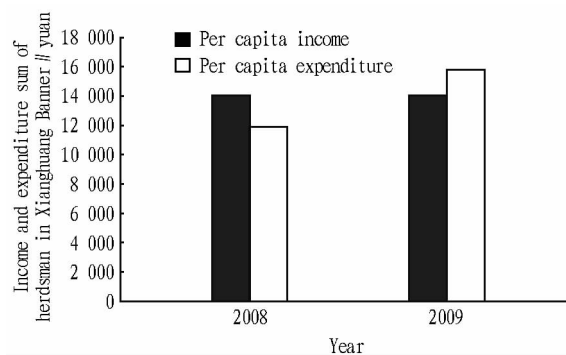


Fig. 1 The per capita income and expenditure of herdsman in Xianghuang Banner during the period 2008-2009

4.3.1 Analysis of reason for imbalance in income and expenditure of herdsman. The imbalance in the income and expenditure of the herdsman households surveyed in 2009 is caused by several factors as follows.

4.3.1.1 Natural factors. In recent years, drought, high winds, and sandstorms, happen continuously, showing a growing trend, directly causing the grassland having already severely degraded to be further deteriorated, resulting in decline in body condition of livestock, decline in ewe pregnancy rate and lamb survival rate. Continuous deterioration of the climate and environment directly reduces the number of livestock, thus the herdsman's income is stagnated.

4.3.1.2 Market factors. In order to maintain the livestock breeding for family production and life, the purchase costs of forage surge, leading to single sources of income and dramatic decline in the level of income.

4.3.1.3 Human factors. Attracting investment, using industry to make the banner strong, mining, petroleum production and many other development strategies lead to the increase in the population from the outside, severe damage to grassland and deterioration in the ecological environment. More importantly, subsidies for herdsman and punishment on the production companies are not well put in place, making the herdsman's livestock breeding worse.

4.3.1.4 Personal factors. The business vision of the herdsman is narrow. In addition to livestock income, the proportion of wage income and income from working for others is low; the ability of them to resist disasters is poor.

4.3.2 Problems in the structure of income and expenditure.

4.3.2.1 Income determines the level of consumption. The consumption level is promoted. One of the important reasons lies in income growth, change in the herdsman's consciousness

and the herdsman's caring about their own health. The herdsman's consumption level is closely related to their income level, and low level of income has seriously affected improvement in the herdsman's consumption level. In short, herdsman's income plays a decisive role in promoting their consumption level^[5].

4.3.2.2 Consumer attitudes and personal factors affect the level of consumption. At present, improvement in the herdsman's consumption level is determined by the consumer attitudes. In Mongolian traditional concept of consumption, they focus on current consumption, with no habit of saving money. If they encounter unexpected events, such as severe illness or major disasters, in general, they will solve the problem merely by selling livestock or waiting for government subsidies. This consumer attitude still exists today.

4.3.2.3 Investment in education is increasing year by year. The operation mode of animal husbandry has changed from extensive nomadic mode to barn feeding or barn feeding mode, but herders still think that learning culture and skills has little effect on the livestock production, making the investment in education insufficient.

In addition, in order to avoid the problem of traffic inconvenience brought about by the winter storm weather, the majority of herdsman send their children to schools, so that accommodation and food consumption will exert obvious expenditure pressure on the family.

Although the level of education in pastoral areas is low, fortunately, the herdsman households at present begin to emphasize children's education, and investment is also gradually increasing. They also realize that knowledge can change the fate. More and more herdsman's families send their children to banner and league primary schools with better level of education.

4.3.2.4 The average level of health care is low and the costs of medical treatment are relatively high. The herdsman's spending on health care rises steadily, indicating that the herdsman's self-care awareness is strengthened, but on the whole, the level of health care in the pastoral areas is very low.

5 Recommendations

At current stage, the phenomenon of breeding livestock relying on the weather still exists in the pastoral areas. In recent years, on the one hand, the government and relevant departments have laid down subsidy policies or relevant project funding for pasture, improved varieties, farm machinery, wells, fences, housing, electricity consumption and so on, but from the actual survey results, as against the herdsman's income and expenditure, the subsidies are insufficient; on the other hand, it also reflects the simple income structure of herdsman, who seldom work outside the home, basically with no wage income^[6].

5.1 The herdsman should strengthen breeding techniques to improve scientific breeding, decrease expenditure and increase income The share of herdsman's input into forage in the consumption is very large. If the productive capacity of the grass can be promoted, then it can save a considerable part of the funds for the herdsman. Therefore, the gov-

ernment departments should increase the input of capital and technology; support and encourage the pasture production and maintenance in the pastoral areas; maintain subsidies for water sources; encourage the planting of silage corn in the case of ensuring water; strengthen the animal husbandry's production capacity and disaster-preventing ability; reduce the income shrinkage arising from increase in the feed prices.

In addition, we should promote the quality of livestock breed, and guide the herdsman to change the mode of production, to conduce to the herdsman's breed improvement and introduction of improved livestock breed; reduce small livestock and increase large livestock, for increasing the herdsman's income.

5.2 The herdsman should change consumer attitudes

The survey shows that the frequency of dry weather, windy weather, and dust storms increases year by year in the pastoral areas. With the deterioration of the climate, the production pattern of survival depending on the weather in the pastoral areas can not be ensured. The herdsman should gradually form the concept of saving and promote self-ability to cope with risks, so that phenomenon of depending on the government assistance to maintain the life is reduced, to ensure the sustainable development of the domestic animal husbandry, and provide protection for the stable development of life.

5.3 The government should increase the policy subsidies for pastoral areas

In October 2010, the State Council decided to implement subsidy incentive mechanism for the protection of grassland ecology in China's 8 major pastoral provinces. The central budget has invested 13.4 billion yuan for five consecutive years. Since 2011, the area has implemented the subsidy incentive mechanism for the ecological protection of a total area of 1.02 billion mu of grassland; the state has invested 4.04 billion yuan per year in the subsidy incentive for the ecological protection of grassland in the area, of which the subsidies for temporary grazing banning are 2.424 billion yuan; for balance between grass and livestock are 0.924 billion yuan; for grass and improved breed are 0.452 billion yuan; for the herdsman's purchase of means of production are 0.24 billion yuan^[7]. This subsidy policy can ensure the increase in the herdsman's income.

5.4 The government should strengthen education and training for herdsman

The herdsman's labor quality has impact on the increase in the herdsman's income and promotion of science and technology. Therefore, the government should actively publicize the importance of cultural knowledge to economic development, and vigorously popularize the youth education and herdsman's training work in the pastoral areas.

On the one hand, it is necessary to offer sufficient subsidies for the schooling of herdsman's children; the government should take advantage of vocational education resources, to carry out vocational education and livestock production training for the herdsman purposefully, in order to improve the herdsman's breeding concept and breeding technologies, and open up all-around income channels for the herdsman.

5.5 The government should increase investment in health care for the herdsman

The medical conditions are backward

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(Table 4)

Personal characteristics variables	Type of occupation	Personal income	Household income	Educational level
	(0.118)	(0.123)		
Senior high school (<i>ifgzzz</i>)	0.020 3	−0.027 5		
	(0.123)	(0.123)		
Junior college (<i>ifdz</i>)	−0.038 9	−0.085 1		
	(0.126)	(0.126)		
Regular college (<i>ifdxbk</i>)	−0.039 9	−0.098 2		
	(0.124)	(0.124)		
Pseudo R ²	0.240 2	0.249 6	0.246 2	0.236 1
The number of observations	1 707	1 789	1 789	1 707

Note: What in brackets is the standard error of corresponding coefficient; confidence level is * * * p<0.01, * * p<0.05, * p<0.1.

3 Conclusions and recommendations

Gender, age, and personal income have a significant positive effect on whether to drink tea, and the impact of household income is not so significant as that of personal income. Degree of understanding of the tea, and the number of acquaintances drinking water also have a significant positive effect on whether a person drinks tea, indicating that increasing the popularity and publicity of the knowledge of tea, so that more people understand the benefits of drinking tea and learn more about tea, is the most effective means to expand the basis of tea consumption. This conclusion also provides microscopic evidence for carrying out tea marketing, relationship marketing, and exploiting the group consumer market. Individual career, unit characteristics, and educational level have no significant effect on whether to drink tea, indicating that tea drinking is not closely related to social status and class relations. It also reflects the spirit of the tea ceremony with characteristics of equality and harmony. Excessively reflecting the tea consumption level in marketing and development is perhaps worthy of discussion and reflection.

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in pastoral areas, bringing great difficulties to the herdsman's hospitalization. The government should increase investment in the basic health care facilities, and train the grass-roots health care staff regularly, to improve the professional quality of practitioners. Meanwhile, according to the herdsman's actual bearing capacity, it is necessary to promote the fund-raising level of cooperative health care, so as to benefit the herdsman and attract more herdsmen to join the cooperative medical care.

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