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Is Microcredit a Form of Risk for Pastoral Households of Inner Mongolia's Semiarid Rangelands?☆

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ABSTRACT

Microcredit loans are now common for Inner Mongolian pastoralists and are encouraged by government policy on the basis of their previous success for poverty alleviation. However, the effects of the highly variable weather characteristics of many semiarid rangelands on the efficacy of microcredit have not been fully examined. Pastoralists in our study area are often trapped in a vicious cycle of borrowing more each year to pay for previous debt and the next year's production. Instead of helping to maintain herds through bad years, microcredit has often led to reduced herds and assets. To understand why, a qualitative, interview-based approach was used to determine the kinds of loans taken out and why they are taken out, as well as to assess household livestock sales, income, and costs in three villages. In poor years, 82% of households used loans to purchase winter forage. However, borrowers sold more livestock because the standard 1-yr loan term, combined with weather and market conditions, often forced sales for repayment. Weather and market variation made annual income and costs difficult to anticipate. Loans became an added household risk, another way that environment can influence the social and economic interactions of a rangeland social-ecological system. Longer-term loans could smooth the uncertainty of weather and market conditions, and supplementary measures such as government subsidies or forage insurance could buffer the inevitable but unpredictable bad years. Globally, study of the impacts of nonequilibrial ecological dynamics on economic and policy institutions would help to understand why many development initiatives have failed in such systems.

Introduction

The implications of climatic variability and unpredictability for vegetation management and stocking rates on rangelands are obvious and the topic of much research (Coppock, 2011; Cox et al., 2015; Duan et al., 2017; Hamilton et al., 2016; Joyce et al., 2013; Torell et al., 2010). Uncertainty in forage production and weather conditions on semiarid and arid rangelands also has strong implications for the social aspects of rangeland social-ecological systems, though this is not as well studied. Here we examine the effects of arid and semiarid rangeland climatic conditions on the use of microcredit as a means of poverty alleviation for herders (livestock producers or pastoralists) in Inner Mongolia, China. Microcredit has been promoted as a contributor to poverty alleviation in many parts of the developing world (Hartarska and Nadolnyak, 2008; Hossain, 1988). It has been suggested as an effective short-term way to help herders overcome climatic disasters like droughts or snow storms and has been advocated globally by governments and international organizations such as the World Bank (Addison and Brown, 2014; Barrett and Luseno, 2002; Carter et al., 2007; McPeak and Barrett, 2001; Niamir-Fuller, 1998; Ouma et al., 2011; Turner and Williams, 2002; World Bank, 1994).

A financial service supplying small amounts of funds for low-income groups, microcredit is easy to mortgage and guarantee and has been encouraged and adopted worldwide, especially in developing countries, since the second half of the 20th century. Some successful cases have been recorded, such as programs by the Bangladesh Grameen Bank, Bancosol of Bolivia, and the Bank Rakyat Indonesia (Hartarska and Nadolnyak, 2008; Hossain, 1988). These cases showed that microcredit contributed to the improvement of local people's income, education, and social status (Hartarska and Nadolnyak, 2008; Hossain, 1988). Compared with the limited availability of legal loans in other developing countries, China's official rural credit programs have developed swiftly in response to the country's rapid economic development and

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government encouragement over the past 30 yr. Especially since 2004, the annually issued No. 1 Document of the Central Government has consistently emphasized the importance of rural financial development and has promoted microcredit as the core of the evolution of rural financial systems. Consequently, the opportunities for herders to get loans through legal channels have greatly increased and the use of loans has become common in China's pastoral areas.

Although most research about pastoral areas refers to microcredit as an effective way to help herders overcome climatic disasters and commonly recommends that herders have good access to loans (Addison and Brown, 2014; Carter et al., 2007; Ouma et al., 2011), such research has seldom if ever taken note of the fact that the highly variable and uncertain annual precipitation and temperatures in semiarid areas, the integration of herders into markets, and evolving rangeland management policies might make the microcredit itself a source of risk for herders.

Studying the change in livestock production from collective management to individual management caused by the disintegration of the Soviet Union in Mongolia's pastoral areas, Sneath (2012) noted that individuation led to increased herder demand for loans because each herder household had to cope with environmental and market changes independently—they lost the inherent "insurance" of being in a larger production unit. Taking loans became more and more common in Mongolia's pastoral areas, somewhat similar to what happened in the 1920s before the collectivization of the socialist revolution. At that time accumulated debts had become a potential cause of social instability in Mongolia. Other researchers found that in the Qing dynasty, from the 18th to 19th centuries, it was common for Mongolian herders to borrow from Han Chinese businessmen. By the late 19th century, more and more herders fell into serious debt. In some places, total household debt exceeded the total value of household assets. Debts continued to accumulate, and by the early 20th century some debts could not be repaid (Bawden, 1968; Sanjdorj et al., 1981). During the 1940s, there were about 200 Han Chinese businessmen and investors from Tsarist Russia and other countries lending money in Mongolia's pastoral areas. Almost all the herders fell into debt. Taking Siziwang Banner as an example, debt accounted for 30%—40% of annual livestock income (Dalintai and Zheng, 2010; Department of Agriculture and Animal Husbandry in Inner Mongolia Autonomous Region, 2000).

However, a systematic analysis of why herders come to require loans, and why herders with loans tend to fall into such a vicious cycle of increasing debt, is not found in the current literature. As an anthropologist, Sneath (2012) placed his research within the context of Mongolia's market reforms and discussed issues caused by loans from the perspective of neoliberalism economics. He did not consider the highly variable weather conditions of semiarid rangelands and how, under these conditions, loans put livestock production at risk and lead herders down the path of "taking loans, raising animals, repaying loans, and then taking even larger loans." Therefore, this paper addresses the following questions using a case study approach and empirical analysis for three villages in Inner Mongolia's semiarid rangelands: Under climatic variation, why do herders need microcredit? What impact does microcredit have on herder livestock production? Is it hard for herders to repay their debts and why? We examine the kinds of loans taken out, borrowing purposes, livestock sales, income, and costs for households in three villages in Inner Mongolia.

Methods

Case Study Sites

We selected three gachas (villages in Mongolian) with a total of 202 herder households as case study sites, located in Hexigten Banner, Inner Mongolia, for a qualitative interview-based approach. Field work was conducted from July to August in 2013. Sixty-three structured and semistructured interviews were randomly conducted with herder households, and open interviews were conducted with local government representatives. During this process, we focused mainly on herder loans and the impacts of the loans on livestock production from 2010 to 2012, including each household's loans, repayment history, livestock marketing, income, and expenditures, and the impacts of weather variation.

Hexigten Banner is a midlatitudinal region with a semiarid continental climate. The average annual precipitation is about 350 mm, with uneven spatial distribution, high annual variation, and obvious seasonal differences (Government of Hexigten Banner 2013). Between April and October, precipitation falls mostly as rain while it falls mostly as snow between November and March. During 1981 and 2012, the coefficient of variation in precipitation from April to October was 21.44% and from November to March it was 40.98%. Snow disasters in winter and droughts in spring and summer are the most frequent "climatic disasters" in this area (Government of Hexigten Banner 2013). Also during 1981 and 2012, the average temperature between April and October was approximately 13.2°C and between November and March it was −10.8°C.

In our case study sites, after a drought in the summer of 2009, the three gachas experienced disastrous severe snow and low temperatures at the beginning of 2010 followed by severe drought in the spring of that year. Rainfall conditions got slightly got better in 2011. In 2012, rainfall was much better than in 2011 and 2010. Livestock prices and sales are typically on a per-head basis. Annual livestock prices are mainly driven by the external market, although the fatness of individual livestock, related to the timing of sales in a year, also affects prices. On the basis of the interviewed households' information collected by fieldwork in 2013, sheep prices in winter were usually about 60% of those in autumn and cattle prices in winter were only about 50% of those in autumn, so local herders normally avoid selling livestock in winter. Sheep prices in autumn steadily increased between 2009 and 2011 but fell in 2012. In 2010, cattle prices in autumn were lower than those in 2009 but increased in 2011 and 2012, exceeding 2009 price levels (Table 1).

Local herder households start cutting forage in late August or early September. In October, they start selling their livestock. The first use of the income is to purchase more forage if their own hay is not enough for feeding all the livestock through the winter. Secondarily, they pay for their food and clothing and for equipment maintenance for the coming winter. Herder households start feeding their livestock in pens in

Table 1
Median Autumn livestock price per head 2009 - 2012 (RMB) in the three Inner Mongolian case study villages

Year	Cow	Two-year-old calf	Calf	Ewe	Lamb
2009	3175	3100	3000	410	340
2010	2200	2500	1200	550	450
2011	4000	3500	3400	925	750
2012	5200	5600	5300	785	670
Mean ± S.D	3644 ± 1272	3675 ± 1348	3225 ± 1682	668 ± 231	553 ± 190
C.V	34.91%	36.67%	52.16%	34.62%	34.42%

Note: This data was collected by fieldwork in 2013. Different households sell livestock at different prices in the same year. The prices shown in this table are the median prices for the corresponding year.

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