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Spatial Mobility and Health in Post-Socialist Mongolia

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Abstract

This paper examines the impact of the post-socialist economic transition on the pastoral population of Mongolia. It summarizes findings from several studies of access to health care, maternal health, and child health undertaken between 2001 and 2007. Together, these studies indicate that recent macroeconomic reforms have reshaped the patterns of movement in the rural countryside, and have led to increasing levels of socioeconomic inequality, insecurity of land tenure, and conflict over spatially desirable resources. These changes are in turn theorized to affect health in two interrelated ways: through determining the spatial and social proximity to health services, and by affecting a household’s level of social and economic well being.

Key words: pastoralism; mobility and health; post-socialist development; Mongolia; social determinants of health

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Introduction

The relationship of mobility to health in pastoral populations is complex. Pastoralists are more likely to live in dispersed settlements in remote and often economically marginal geographic areas. This poses a challenge to the distribution and accessibility of health care services. The fact of mobility itself may also interfere with access, especially if care is needed for chronic or emergent conditions, or where effective follow-up treatment is required (Hampshire, 2002). Conversely, mobility of people and animals lay at the very core of the pastoral adaptive strategy. The movement of herds to maximize access to forage in diverse habitats and to avoid drought and severe winter weather is essential to the health of the animals. The health of animals has a direct bearing on the health and well-being of the people who tend them (Fernandez-Gimenez, 1998; Fernandez-Gimenez & Batbuyan, 2004; Griffin, 2001; Humphrey & Sneath, 1999; Janes & Chuluundorj, 2004; Little, 2002; Mearns, 1993, 1996, 2004b).

This paper explores the many dimensions of this complex relationship in the context of the patterns of pastoralism currently practiced in post-socialist Mongolia. The essay has two parts. The first addresses the contemporary history of Mongolian pastoralism, tracing the ways in which state-level institutions – feudal, socialist, and capitalist – have reconfigured the social spaces through which people and their animals move in rural Mongolia. The second assesses the degree to which these reconfigured spaces and patterns of mobility affect access to health care and the implications this has for the health and economic security of pastoral households.

Data are drawn from several sources: an ethnographic survey of 106 urban and rural households in central and west-central Mongolia that focused on household economics and access to health care (Janes 2004; Janes et al. 2005); a countrywide study of pastoral households’ adaptation to climate change in the context of post-socialist development, conducted between 2005 and 2007 (Janes 2010); and an analysis of maternal mortality in Mongolia (Janes & Chuluundorj 2004).
Mongolian Pastoralism through the 20th Century

The Mongolian steppe is comprised of the largest remaining natural grasslands in the world. About 400,000 Mongolians are livestock herders, and some estimate that as much of half of the country’s population depends directly or indirectly on the pastoral production for its livelihood (Fernandez-Gimenez 1999b; Griffin, 2001; Mearns 2004a; Mearns 1996). Herders subsist on the products provided by their animals: meat and dairy products for food; wool, hair, and hides; dung for fuel; and yaks, camels and horses for transport. In addition, they sell or barter animal products, especially skin, wool, hides, and cashmere for additional foodstuffs, clothing, tools, and vehicles.
Periodic drought, extreme winter weather, and a need for access to markets demand that successful herders engage in substantial spatial mobility. For most of the past several centuries Mongolian herders have practiced a truly nomadic form of livestock husbandry. Successful pastoralists tend to migrate every season to maximize the use of natural resources available in different ecological zones. The low population density, low livestock-to-pasture ratio, and largely unrestricted access to resource commons have until recently made high mobility possible. This high mobility is considered by grassland ecologists to be crucial to productivity and the prevention of serious land degradation.

Religious or state institutions regulated the seasonal movement of herders in Mongolia, from feudal times through the collapse of socialism in 1990. Prior to 1921, Mongolia was divided into approximately 100 territories, or “banners” (khoshuun) controlled by the Mongolian aristocracy or high-ranking Buddhist lamas. Herders living within a territory were subject to the authority of the ruling entity in all economic matters. Those herding animals belonging to the elite had access to the best pasture and water resources. Poorer herders were forced into more marginal regions. In both cases the actions and decisions of the elite affected herding activities at the level of the household. By all reports, during the feudal period seasonal movements were often very long, ranging as much as 200km from north-to-south over an annual cycle (Humphrey & Sneath, 1999). Historians have observed that during the feudal period the Mongolian aristocracy was deep in debt to their Manchu overlords, and they were highly motivated to produce surplus products from their territories (Fernandez-Gimenez, 1999a; Humphrey & Sneath, 1999). There was thus substantial investment of time, effort, and labor into managing khoshuun herds to maintain maximum production, and control of the seasonal movement of herding households was in many cases heavy-handed.

Below the level of the khoshuun, day-to-day herding activities have been, and largely continue to be, managed by a group of 2-12 herding households, or khot ail. The khot ail is the basic independent social and economic unit of livestock production in Mongolia (Mearns, 1996). It consists typically of a group of related households, though kinship is not a strict prerequisite, which assist each other in day-to-day activities. Member households commonly pool both their herds and labor, thus realizing some efficiency in managing grazing and other livestock husbandry activities. The khot ail also provides important social resources – support and relief for sick members in a household, sociality, and some ritual activities (Szynkiewicz, 1982). Membership in khot ail is not fixed, and can expand and contract based on seasonal labor demands and other economic contingencies, but there is usually a core group of households who reside together for much of the year (Mearns, 1996).
There are few commonly recognized and permanent social groups that mediate between state structures and the khot ail. Many herders recognize some relationships and theoretical obligations and ties of reciprocity with others who share the same geographic place – for example, those who share a water source, valley, or stretch of grassland. These relationships may be activated in case of need – a winter disaster, searching for last animals, and forth. However, as Mearns (1996) points out, both today as in the past, Mongolian pastoral institutions, “are highly diffuse or immanent, and have no existence independent of the collective activities that constitute them, let alone any formal organizational structure” (p. 314). Formal state institutions have always played an important role in directing herding activities, assigning land tenure, shaping patterns of spatial mobility, and settling disputes among herders over access to resource commons (Fernandez-Gimenez, 1999a).

Subsequent to the socialist revolution of 1921 the state abolished feudal practices and began a series of efforts to control and manage pastoral activities. Collectivisation was attempted prior to the Second World War, but was largely unsuccessful until the mid-to-late 1950s. By 1960, most herders had been organized into herding collectives (negdel), and tended collective-owned animals in return for salary, health, education, and other benefits. The large banners, or khosbun, were divided into just under 300 soums, or what are now more commonly referred to as counties. Soums were further divided into 2-6 smaller population units called bhag. At the soum and bhag levels administrators assigned specific herding tasks and allocated pasture and winter campsites, though they largely respected pre-existing customary patterns of use (Fernandez-Gimenez, 1999b, 1999a). Although the basic seasonal patterns of movement were preserved under the collectives, the overall distances of seasonal migrations were sharply reduced; unless weather conditions demanded, herders were rarely permitted to leave the boundaries of the collective. The somewhat greater risks entailed by reduced seasonal mobility were buffered to some extent by the resources provided by the collective and provincial administrators. These administrators were oriented to the Soviet-socialist worldview that traditional pastoralism unscientific and inefficient. They sought to modernize herding as part of Mongolia’s goal of becoming a modern, agro-industrial state (Fernandez-Gimenez, 1999a). Major changes to the pastoral economy included: specialized herding of animal species by households; state-sponsored construction of winter shelters and protection of pasture for emergency use; negdel control of the rapid herd movements (traditionally known as otor), which in some cases involved forced migration and subsequent conflict between herders and collective leadership; development of vast numbers of deep bore and mechanized wells to adequate and well-distributed surface water for livestock; provision of veterinary services; provision of mechanized
transportation for seasonal moves; marking of land boundaries, control of access to land by political leaders; formalization of traditional knowledge of herding as part of a larger effort to professionalize herding and subject it to scientific research; and sedentarization of much of the rural population (Fernandez-Gimenez, 1999a). With regard to control of movement, many observers have noted that the building of town centers in each collective, provision of centralized services, and state management of herd mobility were all clearly part of a larger state strategy to erase nomadism and, befitting a “modern” socialist nation, replace it with a settled, intensive form of livestock production (Fernandez-Gimenez, 1999a; Fernandez-Gimenez & Batbuyan, 2004; Humphrey & Sneath, 1999; Mearns, 2004b, 2004a).

The processes of collectivization did not only transform social and spatial relationships in rural areas. Especially from the perspective of health and food security, collectivization transformed the nature, intensity, and human consequences of ecological risk. Strict regulation of access to emergency pasture, good quality veterinary services, maintenance of emergency hay and fodder stocks, provision of reliable water even in remote areas, and minimal livelihood guarantees all served to minimize vulnerability to environmental and ecological shocks, in particular the twin threats of drought and severe winter weather (Baas, Batjargal, & Swift, 2001; Griffin, 2001; Rossabi 2005). The collectives provided high quality medical services through small inpatient clinics and specialized maternal care facilities (maternity waiting homes) in the county centers. These centers also supported community health workers, (bhag emchis), who worked at the bhag level (Janes & Chuluundorj, 2004). All children had access to primary education in the soums. Those who succeeded academically had access to secondary and post-secondary education in provincial centers and the major universities in Ulaanbaatar (Rossabi 2005).

The Post-Socialist Transition

In 1990 the Mongolian government initiated sweeping political and economic reforms. Mongolia accepted a transition strategy based on the then current notion that macroeconomic “shock therapy” was the only effective means to transform centrally-planned economies into functioning market economies. This strategy included price liberalization; removal of restrictions on international trade and foreign investment; privatization of state-owned enterprises, initially by a free distribution of vouchers to the entire population and later through auction to domestic and foreign buyers; and a marked reduction in the size of government (Griffin et al. 2001).
The result was widespread social chaos and economic collapse (UNDP 2000; Griffin et al. 2001). Between 1989 and 1999 government expenditures declined from 50.2 per cent of GDP to 26.9 per cent, substantially outpacing the decline in GDP. This sharp decrease reflects a widespread disinvestment in public goods—social services, health care, and education, especially in rural areas (Figure 2). Today, the government’s ability to provide social services such as education and health care and to combat poverty has been seriously compromised. The retreat of the state is inscribed visibly on the landscape: soum centres are decaying into heaps of rubble, wells no longer function, and public squares and gardens, carefully tended during the socialist period, are now crumbling wastelands covered with weeds and trash.


In rural areas the collectives were dissolved, member households divided up the moveable assets (principally livestock) and households began to herd on an independent basis. Despite this new independence, declining public investments in health care, transportation, wells and protection of surface water, veterinary services, and emergency pastureland and winter shelters have made herders highly vulnerable to unpredictable weather, disease, and market conditions. One
important result has been the rapid increase in socioeconomic inequality and the creation of a rural underclass more vulnerable to climate change (Janes 2010). More marginal herders are forced to rely on wage labor opportunities provided by other, wealthier herders, or they are forced to migrate into towns and cities where they join a growing population of dependent poor (Janes et al. 2005). Economically marginal herders are more likely to dependent on, and subject to exploitation by, their more wealthy neighbours, and are also at the mercy of unscrupulous traders who, knowing poor families have few alternatives for selling their hides, wool, and cashmere, will often offer substantially lower prices for these products.

This changed risk environment, experienced in a social context of increasing inequality, has transformed spatial patterns of social affiliation in two principal ways. First, household needs for cash income to purchase essential commodities and access health care and education for children create ecologically maladaptive incentives for herders to cluster close to administrative and market centres and transportation arteries. This results in greater pasture degradation, reduces access by herders to diverse habitats where they might take advantage of seasonally available resources, and leads to greater conflict among herders over more favorably located resources, especially water. The market economy has also created incentives for urban migration. An emerging adaptive strategy is for some members of households to move to provincial centers and the capital to work for wages, and provide social access to town-based resources. Often, whole households will migrate, particularly if they have several school-aged children, leaving their animals for tending through the winter by close relatives (especially parents and siblings). This is not only a particularly important strategy for ensuring access to health care and education, but links countryside and city through ties of economic reciprocity.

Secondly, herders express deep concerns and anxieties over land tenure, especially in crowded pastures near roads and towns, but more recently, in areas characterized by mining and mineral exploration. In the past, access to Mongolia’s pastoral commons was governed by customary principles: establishment of a reserve, winter pasture, along with built winter shelters; access to surface and well-water; and assistance by herders in neighbouring areas, based on rules of long-term generalized reciprocity, for herders suffering the effects of winter disaster (dzuud) or severe drought. With increasing competition over scarce resources, herders experience a number of conflicts with neighbours over rights to pasture, water, and shelter. Most households (73%) interviewed in 2005 reported conflicts over access to pasture and 83% reported conflicts over access to water (Chuluundorj 2006). It is less likely for county governors to permit herders from neighbouring counties access to their
land, even in times of disaster. Soum governors tend to recognize traditional rights (ties by kinship to land and water), and are often involved in “running off” herders from other areas. There is even talk in some areas of Mongolia for “fencing in pasture” to protect traditional, or “customary” rights (Rossabi 2005). A rapid scale-up of mining activity has placed further stress on herders: mining licensing procedures do not recognize these customary rights.

Conflict over pasture, water, and winter shelters has placed pressure on government to consider land use legislation that would regulate land tenure on Mongolia’s rural commons. While the *khot ail* quickly reemerged after transition as the basic residential and production unit among Mongolian herders, formal institutions to govern pasture use, which have for centuries been closely associated with state authorities, have not developed. To address this problem, in 1994 the Mongolian parliament passed a land law that authorized land possession contracts. These were highly controversial, and in many localities concerns over implementation, and misunderstanding of the law, have delayed full implementation. Nevertheless, by the end of the decade, local county governors were leasing winter shelters, which are a particularly key resource, to local herders. In some counties, prompted by international intervention, social experiments have been launched to assign water and pasture resources to small cooperative herding groups. Today, leasing most typically is restricted to winter pasture. Our research has suggested that the leasing process has favored wealthy over poor households, duplicating in some ways the patterns evident during the feudal period. Wealthy herders typically have access to the best pastures; poorer families are forced into more marginal areas. Accusations of corruption and assignment of leases on the basis of political patronage are common (Fernandez-Gimenez & Batbuyan, 2004; Rossabi 2005). Depending on the region and availability of water, resource poor households may be forced either to move farther and more often, or to reduce their mobility and crowd around the few accessible water sources, especially along major roads. Contemporary leasing practices create diverse patterns of spatial mobility which tend to be based on social networks, political ties, and socioeconomic status.

Taken together, these factors – loss of diverse habitat due to shrinking migratory territories; the interrelationship of poverty, mobility, and resource use; and the need for herders to maintain ties, either by virtue of proximity or social networks to town and provincial centers in order to access market institutions and health and social services – explains the current relationship of mobility and health in current Mongolia. Throughout the 20th century the migratory range of pastoral households has been steadily reduced, though in the collective period the monitoring and protection of resources by formal institutions managed to control resource degradation. Currently, market pressures, coupled with social
inequality, poses a serious threat to grasslands. Particularly for poor households, impaired access to adequate resources may be related to the poorer health of household members. Health and social resources are less available than they were in the past, must be paid for, and create pressures for herders to remain close to town and provincial centers, and, further, establish and maintain links with households in urban centers. The following case study, collected in 2004, exemplifies the current context of spatial mobility in contemporary Mongolia.

Case Study

Degy was born and grew up in a pastoral household. Her family herded in a region about 400 kilometers west-northwest of the Mongolian capital of Ulaanbaatar. Degy has been married for ten years. Like Degy, her husband grew up in a herding family. They have one child, a son, eight years old at the time of the interview. Both her and her husband’s parents died in the past few years. Degy and her husband are now the heads of their small household.

About two years before the interview, Degy and her husband decided to move their family and its animals closer to a county center in order to have easier access to education and social services, and to be within a day’s travel of the provincial capital. Like many younger Mongolians who entered adulthood in the new market economy, they realised that their access to a sufficient and reliable cash income depended on their proximity to a market center with reasonably favorable terms of trade. In rural Mongolia, these centers are found in the provincial capitals or in settlements near the international borders with Russia and China. Degy and her husband were joined in their move by Degy’s sister and her family, an unmarried younger brother, and by her husband’s brother and his family. Altogether the three families – seven adults and four children – comprise a small khot ail that pools labor, animals, and usually moves together. At the time of the interview, Degy and her husband owned approximately 15 cows, 30 yak, 30 horses, 30 cashmere goats, and 15 sheep. Their main source of cash income was the annual sale of cashmere and the weekly sale of milk, fresh and dried curd, and clotted cream during the spring and summer months. Their annual income in 2004 was expected to be about US$500, at the upper range of per capita incomes reported by the herding households interviewed in 2002 and 2004.

The group has had trouble finding the ideal locations for their seasonal camps. Partly this is due to the increase in numbers of herders and animals near the county centers. As younger herders, far removed from the territories where they were born and raised, Degy and members of her khot ail lack customary access to winter shelters and reserve winter pastures. As a consequence, they are forced to live and herd in somewhat more marginal areas: the quality of the forage around their summer camp was considered relatively good, but surface water supplies were unreliable and of poor quality. Already by early July the small stream next to their campsite was virtually dried up, and the families were debating an earlier than anticipated move
to find more secure water supplies. Still, their proximity to schools, health care, and marketing opportunities for their animal products provided advantages that considerably outweighed the benefits of the more productive pasture lands they had left behind.

In the late spring of 2003, Degy became pregnant for the second time. Like many Mongolian women, Degy delayed increasing the size of her family until she and her husband felt more economically secure (United Nations Population Fund, 1998). With the move closer to the provincial capital and the establishment of a reasonably successful dairying venture, the family decided to have another child. Degy expected the child to be born sometime in early March, 2004. She planned to go into the county health clinic, about 10 kilometers away, two weeks prior to the anticipated birth in order to take advantage of the clinic’s “maternity waiting home”, a residential facility developed during the socialist period in order to minimize home births and maximize access to good obstetric care for nomadic women (World Health Organization, 2001). During her absence her son would be tended by other women in the khot ail. Being winter, Degy’s chores could be easily taken up by the other women in the group.

However, in February Degy began experiencing contractions and went into full labor before she could make arrangements to get to the county health clinic. Tended by other women in the khot ail, she delivered a still-born infant at home. Degy experienced heavy bleeding which did not stop. Alarmed, Degy’s husband sent his brother to the county clinic. Degy’s brother-in-law was able to get to the clinic quickly, and with luck, find a fueled ambulance, sober driver, and doctor available to return with him to the camp. Degy was unconscious by the time the ambulance arrived, but with prompt, effective care, she survived. She spent several months in the hospital, and returned home, weak but healthy, in time to help with the spring birthing and milking chores that mark the beginning of the hard summer season, especially for women.

In the literature on maternal mortality, Degy’s case would be considered a “near miss.” Analysis of these cases is useful for highlighting the constellation of factors and events that contribute to a possible case of mortality, while at the same time, particularly with a living informant, identifying the practices that were effective. In this case the delays that often contribute to maternal mortality were avoided or minimized: close proximity to the county health clinic, a responsive health care team, and appropriate intervention together saved this woman (Thaddeus & Maine, 1994). Had the family not moved closer to the county center it is likely that, all other things being equal, she would not have survived (Janes and Chuluundorj 2004). The long-term costs of this strategy, though, are of concern. Degy and her family lack good access to surface water, and they lack customary rights to winter shelter and reserve winter pasture. They have had conflict with local herders, who consider them to be trespassers, and though they have managed to resolve these conflicts, they lack secure, predictable access to winter forage. As a consequence, they have experienced several difficult winters where many of their animals, especially their valuable milk-cows, have died. Especially in this part of Mongolia, summer drought, especially when followed by severe winters, can wipe out an entire herd in a
few weeks’ time. The family and other members of the khot ail consider themselves to be vulnerable and are worried about their long-term economic security. Yet, under current political and economic circumstances they also believe they have little choice. They desire education for their children, they require access to functioning markets to sell their products and purchase necessary tools and commodities, and, as they discovered, they need access to health care.

This family is not unique. Our interviews with rural households throughout west-central Mongolia suggest that the tradeoffs managed by Degy and her family are common. The experience of these rural household illustrate two principles of mobility in modern Mongolia. First, movement is understood to have both salutary and risk-producing consequences. Secondly, recent changes to the Mongolian political economy have substantially refigured the relationship of people to their environment, to institutions of governance, to markets, and to one another. In grappling with these changes, Mongolian pastoralists are experiencing significant threats to their customary traditions of land tenure and patterns of social affiliation. As a result they have shifted their strategies of mobility and are beginning to experience the fracturing and dispersal of kin groups.

Spatial Mobility and Health

Changing patterns of mobility affect health in two interrelated ways. First, where and when people move, decisions by members of herding households to move to town and city centres, and the ability of households to develop relationships of reciprocity with town and city-dwelling kin, affect spatial and social proximity to health care services. Being close to such services, and especially having relatives who can help out when health care is needed, is an important determinant of access. Secondly, patterns of mobility which determine the success of pastoralism – effective use of natural resources, access to quality pasture and sufficient water year-round, freedom to move when conditions dictate, all the while maximizing proximity to market institutions – in turn have a marked relationship to patterns of risk for health and disease. In both cases availability of social resources, particularly social resources which are distributed across the Mongolia landscape, play a large role in effecting social and economic well-being. A household’s level of well-being is the final common pathway determining health and access to health care. Households who can maximize social relationships, especially those linking countryside to city, while at the same time minimizing ecological and economic risks, are those most likely to experience social, economic, and biological well-being (Janes 2010).

From 2002-2004 the research team undertook a study of access to health care in Mongolia. The primary goal was to evaluate market-based health reform,
focusing on the equitable access to health care by poor and middle income households in urban and rural Mongolia (Janes et al. 2005). 106 households, representing the experiences of 542 individuals, were studied. About two-thirds of these households (73) were resident in periurban Ulaanbaatar, though of these more than half (64%) had migrated to the city from rural areas in the past decade. Of the remaining 35 households, 12 were resident in soum or provincial centers, and 21 were rural households engaged primarily in livestock husbandry. Spatial mobility was considerable in all segments of the sample, reflecting the tendency in Mongolia for town and countryside to be linked by kinship and frequent migration.

Table 1 presents descriptive information on the social and economic status of our study sample. About one-half of household studied fell below the Government of Mongolia poverty line. Of these, we judged that just over one-fourth (26%) were vulnerable poor; that is, in addition to low income, they reported high levels of food insecurity. Most of the vulnerable poor were resident in towns and cities, and reflects the unstable employment situation there. A few eke out a living from a small government pension, which in 2002 averaged about $15 per month. Urban residents reported earning an average of US$ 300 per year, though among town and provincial center residents and the vulnerable poor this figure was considerably lower ($118-$150). Conversely, although rural residents reported much lower incomes than city residents ($124), the fact that they depend on their animals for food, occasionally barter for necessities, and are typically engaged in informal exchanges with town and city-based kin, few reported being food insecure.

Of the rural households we studied, 16 depended primarily on the incomes generated by their livestock, while 5 reported living on pensions. These latter households were headed by older men and women who identified themselves as being “retired”, and thus eligible for small government pension payments of US $15-$20 per month. These individuals continued to herd, supplementing a khot ail’s labor supply during the busy spring and summer months, but their herds are often mixed with those of their children. We also interviewed three female-head households. These households were also integrated into larger khot ail. The herding households reported owning about 14 “bod” units of livestock per capita (A bod, also termed a “sheep forage unit” is an indigenous measure that reflect forage needs of the various species. One bod = 1 horse or bovine, .67 camels, 7 sheep, or 10 goats). Based on other studies, these are relatively low levels of livestock holdings (though there is substantial variability), and would place our
Table 1: Socioeconomic and Demographic Characteristics of Sampled Households by Urban, Town, and Rural Residence: Study of Access to Health Care, Mongolia 2002-2004

<table>
<thead>
<tr>
<th>RESIDENCE</th>
<th>Periurban Ulaanbaatar N=73</th>
<th>Rural (herders) N=21</th>
<th>Town and Provincial Centers N=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>N in household</td>
<td>5.3 (sd=2.2)</td>
<td>4.7 (sd=1.9)</td>
<td>4.5 (sd=1.8)</td>
</tr>
<tr>
<td>Female-headed households</td>
<td>20.5% (N=15)</td>
<td>14.3% (N=3)</td>
<td>16.7% (N=2)</td>
</tr>
<tr>
<td>Employment status of household head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal sector, salaried</td>
<td>34.2% (N=25)</td>
<td>0</td>
<td>16.7% (N=2)</td>
</tr>
<tr>
<td>Informal sector</td>
<td>30.1% (N=22)</td>
<td>0</td>
<td>33.3% (N=4)</td>
</tr>
<tr>
<td>Pensioner</td>
<td>26% (N=19)</td>
<td>23.8% (N=5)</td>
<td>25% (N=3)</td>
</tr>
<tr>
<td>Livestock herding</td>
<td>0</td>
<td>76.2% (n=16)</td>
<td>0</td>
</tr>
<tr>
<td>Of working age, unemployed</td>
<td>9.6% (n=7)</td>
<td>0</td>
<td>25% (N=3)</td>
</tr>
<tr>
<td>% of household residents under 18 or over 54</td>
<td>46.8% (sd=22.1)</td>
<td>51.2% (sd=27.5)</td>
<td>47.6% (sd=14.2)</td>
</tr>
<tr>
<td>Migration status of household head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban-rural/rural-urban</td>
<td>64.4% (N=47)</td>
<td>4.8% (N=1)</td>
<td>4.8% (N=1)</td>
</tr>
<tr>
<td>Annual per capita income, 2003 USD</td>
<td>$300 (sd=279)</td>
<td>$124 (sd=84)</td>
<td>$151 (sd=119)</td>
</tr>
<tr>
<td>Food insecurity (scale of 0-5, with 5 most insecure)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worries and anxieties about having enough food</td>
<td>1.7 (sd=2)</td>
<td>.48 (sd=1.3)</td>
<td>1.2 (sd=2)</td>
</tr>
<tr>
<td>Reported food shortages</td>
<td>1.7 (sd=2.6)</td>
<td>.43 (sd=1.4)</td>
<td>1.8 (sd=3)</td>
</tr>
<tr>
<td>Livestock owned (in “sheep forage units” or “bod”)*</td>
<td>0.04 (sd=.32)</td>
<td>13.9 (sd=15.9)</td>
<td>.95 (sd=1.8)</td>
</tr>
<tr>
<td>Poverty status of household (exclusive categories)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above government poverty line</td>
<td>52.1% (N=38)</td>
<td>33.3% (N=7)</td>
<td>33.3% (N=4)</td>
</tr>
<tr>
<td>Below government poverty line</td>
<td>17.8% (N=13)</td>
<td>57.1% (N=12)</td>
<td>33.3% (N=4)</td>
</tr>
<tr>
<td>Vulnerable poor</td>
<td>30.1% (N=22)</td>
<td>9.6% (N=2)</td>
<td>33.3% (N=4)</td>
</tr>
</tbody>
</table>

* A single sheep forage unit, a traditional term reflecting forage needs = 1 horse, head of cattle, or yak; 0.67 camels; 7 sheep; or 10 goats. The mean per capita SFU for the community studied by Fernandez-Gimenez (2001), ranged from 31 to 48 in 1994.
sample at the lower end of the resource continuum (Fernandez-Gimenez, 2001; World Bank 2006). Yet, as the data in Table 2 suggests, these rural residents experienced far fewer difficulties accessing health care than urban residents. A logistic regression shows that, independent of poverty status, rural residents are much less likely to experience barriers to desired health care (Controlling for poverty status; OR=.241; 95% CI = .059, .985; p< .05).


<table>
<thead>
<tr>
<th>RESIDENCE</th>
<th>Periurban Ulaanbaatar N=73</th>
<th>Rural (herders) N=21</th>
<th>Town and Provincial Centers N=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to Medical Facilities (in km)</td>
<td>.9 (sd=.3)</td>
<td>17.7 (sd=8.9)</td>
<td>1 (sd=.1)</td>
</tr>
<tr>
<td>Percent household income spent on health care</td>
<td>4.6% (sd=10.6)</td>
<td>6.4% (sd=20.5)</td>
<td>19% (sd=25.5)</td>
</tr>
<tr>
<td>Experienced financial barriers to health care access</td>
<td>35.6% (N=26)</td>
<td>14.3% (N=3)</td>
<td>17.1% (N=6)</td>
</tr>
<tr>
<td>Experienced other barriers to health care access</td>
<td>31.5% (N=23)</td>
<td>7.8% (N=1)</td>
<td>8.3% (N=1)</td>
</tr>
<tr>
<td>Health costs threaten household security</td>
<td>9.6% (N=7)</td>
<td>4.8% (N=1)</td>
<td>41.7% (N=5)</td>
</tr>
<tr>
<td>Access problems led to delayed or incomplete care</td>
<td>27.4% (N=20)</td>
<td>4.8% (N=1)</td>
<td>25% (N=3)</td>
</tr>
</tbody>
</table>

At the time of our study (2002), full-scale neoliberal reform of the health sector – focusing on privatization of health care resources, establishment of a family doctor system of primary health care, and development of extra-government financing schemes – had yet to fully affect the rural areas. As documented elsewhere (Janes 2005; Janes et al. 2005; Janes 2008), these elements of reform have in towns and cities created an attenuated form of health care at the primary level, and tend to erect information, opportunity, and financial cost barriers that impede movement from one level of care to the next. Individuals, especially those who are economically marginal, often find that they are unable to obtain health care, or find that health care costs seriously threaten their already precarious economic security. These most problematic elements of health sector reform have not yet made it to rural areas, though current, ongoing research (described further below), suggests that access to rural health care system has continued to decline due to rapidly increasing costs and loss of human and material resources. The main difficulties facing herders in 2002 were arranging transport to health facilities. In 2002 costs of transportation represented the
single most significant potential health expense for the rural residents with whom we spoke.

Over all periods of our research (2002-2006) most of the rural residents we interviewed maintained social ties with urban and town dwellers, usually kin, who helped arrange access to essential social services. Of these services, two were noted as being important: access to health care, and local support for children attending school. It was common among our interviewees for one or two members of an extended family to move to a county or provincial center. There, they would provide housing for younger cousins, grandchildren, nieces and nephews attending school, obtain drugs for relatives, and provide assistance for family members who needed medical treatments at the county clinic or provincial hospital. Especially important for those needing care in provincial and specialty hospitals, a town-based relative could be relied on to put up a whole family or provide essential nursing services in the hospital, thus permitting other family members to remain in the countryside and attend to their herding duties. In return, rural herders commonly provide town dwellers with meat and dairy products, and will provide childcare during the summer for their town-dwelling kin when the children are out of school.

Rural households may also herd animals for residents in towns and cities. Unlike other pastoral societies though, absentee herd ownership does not appear to be exploitive, nor does it seem to have detrimental ecological impacts (Fernandez-Gimenez, 1999b). Absentee herd-owning is an informal arrangement, governed by principles of generalized reciprocity, and as a subsistence strategy has clear benefits for both urban and rural residents. The practice creates bonds of reciprocity between town and countryside, which, like the migration of family members to towns, can be used by rural residents to gain access to essential town services, including health care, transportation, and marketing opportunities. For town residents, animal ownership is an economic risk-management strategy, providing critical resources should economic opportunities in town disappear.

By virtue of eliminating much state control and state services in the countryside, the political-economic transition in Mongolia poses new risks to herders. They respond by shifting their patterns of mobility, moving less, staying close to important resources, and creating social ties with kin and friends through selective migration and economic reciprocity that buffer the effects of distance and a decaying rural infrastructure. These new socio-spatial arrangements appear to spread at least some of the immediate risks that emerged subsequent to the demise of the collectives and the emergence of independent, subsistence-based herding. Even among the relatively poor herders we interviewed in our
study, these adaptive strategies appear to have enhanced access to health resources.

While these new socio-spatial patterns appear to confer immediate benefits to herders, the long-term costs of some of these strategies, particularly in a socioeconomic context which has begun to produce inequality in a formerly egalitarian system, may be substantial. As noted above, needs for access to markets, social and health benefits, water resources, emergency pasture, and veterinary services have significantly transformed patterns of mobility and residence. Herders now move much shorter distances than in the past; they congregate near markets, cities and roads; and there is less effective management of the grazing commons. Insecurity over use-rights to winter and spring shelters and adjacent pastures has led many herders to further curtail mobility so as to exercise/maintain these rights, thereby contributing to pasture degradation. Changes to the political and economic environment, coupled with changes to the traditional adaptive strategies that Mongolia pastoralists employed to manage risk, have created new levels and patterns of vulnerability to social and natural hazards in Mongolia’s rural hinterland.

The natural hazards faced by Mongolian herders include local fluctuations in rainfall, the disastrous combination of summer drought and winter cold and snow, called dzuud, availability and quality of forage, animal diseases, and fire. These natural hazards combine with emerging social and economic stresses, including: conflicts over pasture (especially near market centers, water, and desirable winter pastures), failure of market institutions, animal theft, emerging social inequality among herders which impairs customary patterns of resource management, and shortages of labor created by rural-urban labor migration. This changing environment of risk occurs in the context of a transformed political economy that has both disrupted traditional adaptive strategies and restricted access to essential resources (Swift, 1999).

It is theorized here that increasing eco-environmental risk, social disadvantage, and restricted mobility combine to produce what may be termed “spaces of vulnerability.” It is hypothesized that it is in these spaces where high rates of ill-health will emerge. In the case of maternal mortality, a particularly important causal pathway operates through the impact of economic reform on the practice of pastoralism in the rural countryside, raising the levels of economic risk borne by individual households, reducing mobility, increasing poverty and social inequality, and exacerbating the insecurity and vulnerability of women (Janes & Chuluundorj, 2004).
Conclusions

So what is the relationship of mobility to health among Mongolians in the post-socialist era? It is clear that recent macroeconomic reform has reshaped the patterns of movement in the rural countryside. But so too did collectivization, and before collectivization the agents of the feudal state. In each historical moment political economic factors altered the relationships of herders to space and to each other. And in each instance, it is likely that shifting patterns of mobility, formal institutional control of herding activities, and state responsibility for herders’ livelihoods had an epidemiologic impact, operating primarily through the pathways of household wealth and access to social resources.

Seen from the vantage point of the 21st century, though, the present situation of Mongolian pastoralists appears to have suffered when compared with much of the previous century. It now seems clear that collectivisation, despite its perhaps misplaced orientation to modernizing pastoralism and settling herders down in an effort to create a modern, intensive form of livestock husbandry, also brought clear benefits to rural Mongolians. Environmental risk was managed. An entire rural infrastructure was built in support of herding – roads, winter shelters, schools, hospitals, and so on. Mongolians began to move less often, and less far, orienting themselves to the many services offered in town centers. Literacy improved, people became healthier, women were able to travel to maternity waiting homes to give birth in safe and hygienic conditions. With the collapse of the socialist state, Mongolians were suddenly thrust back hundreds of years. The rural infrastructure has decayed. The formal institutions that governed herding have disappeared. In the absence of secure land tenure and increasing inequality, conflict is becoming more common. Insecure in their access to traditional winter pastures and shelter, herders are restricting their mobility, and in the process risk overgrazing grasslands. We are witnessing the emergence of a rural underclass: herders with few animals, restricted access to resources, and much more vulnerable to the vagaries of a harsh continental climate.

In terms of access to health care and long-term economic and health security, Mongolian herders face countervailing pressures. On the one hand, access to town-based services demands a shift in spatial mobility to a fairly close orbit around town centers. On the other, a more effective pastoral strategy would involve more extensive moves to take advantage of seasonally available forage and water. To manage these conflicting pressures, Mongolian herders have redefined socio-spatial relationships. Novel social arrangements – deployment of kin to cities and towns and a sharp increase in absentee herding – have emerged to bring the town into the social orbit of the countryside, permitting a
minimum of mobility, while establishing ties for the flow of goods, information, and services. From the perspective of health care access, the households we have studied appear to be managing well enough. It remains a question, however, whether the long-term consequences of reduced mobility and an orientation to town centers in a context of state retreat and market forces will continue to be salutary. Increasing social inequality and vulnerability in the face of substantial natural hazards suggest that it may not be.

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SWIFT, J (1999) Pastoral institutions and approaches to risk management and poverty alleviation in Central Asian countries in transition, Sustainable Development Department, Food and Agriculture Organization of the United Nations (FAO), Rome.


