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Axial Development in Mongolia: intended and unintended effects of new roads

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ABSTRACT

Mongolia’s axial development strategy provides an opportunity to consider the intended and unintended effects of introducing paved roads into regions where none exist. This article analyzes data from a 125-person survey, 128 semi-structured interviews, and participant observation in sites proximate to and distant from new paved roads in six counties within three Mongolian provinces. We consider how roads engender connectivity and distantiation simultaneously in the re-shaping of Mongolia’s socio-economic geographies and rearranging of mundane spaces of everyday life.

KEYWORDS

Roads; development; Mongolia; transportation; geography; pastoralists

Introduction

From Herodotus’s claim that the Royal Road enabled ‘nothing in the world (to) travel faster than these Persian couriers’ (Holland 2014)\textsuperscript{1} to J.B. Jackson’s observation that ‘… the road altered not only the way people traveled, but how they perceived the world’ (1980, 122) to the mobility-turn’s premise that mobility is an inherent condition of late modernity (Urry 2007), scholars have been concerned with the broad-ranging effects of transportation infrastructure. Recent scholarly attention directed toward the introduction of roads into various landscapes reveals a plethora of intended and unintended economic, political, and social transformations. This study approaches new roads’ capacity to promote ‘connectivity’ and ‘distantiation’ simultaneously. In doing so, roads alter socio-economic geographies and rearrange the mundane spaces of everyday life. This is especially so in Mongolia’s steppe environment, wherein a government-directed axial development strategy has been deployed for the last two decades. The intent of this strategy is to reduce intra-state regional disparity, catalyze economic diversification, integrate Mongolia’s national territory, and provide international transit corridors (Bazargur. et al. 2000; Bazargur et al 2001; Tsuji 2001; Diener 2011).

Linking Russia and China across Mongolia aligns with popular internationalist ideals of Eurasian connectivity whilst addressing state-specific (ii) logics inherited from socialist-era economic geographies (Diener 2015; Kenderdine 2017).\textsuperscript{2} This study therefore contributes to a growing literature approaching the local effects of road building in Mongolia (Trivdi 2003; Li et al. 2006; Diener 2011; Jackson 2015a, 2015b; Keshkamat et al. 2013; Bazargur. et al. 2000; Bazargur and Batbuyan 2001, 2007; Pedersen and Bunkenborg 2012). Rather than assessing regional (i.e. Northeast Asian) geopolitical and/or geo-economic impacts of road networks, this study focuses on how rural Mongolians experience connectivity and distantiation catalyzed by axial development.

We begin with a review of relevant theoretical literature and then analyze data deriving from a 125-person survey, 128 semi-structured interviews, and participant observation in sites proximate to and distant from new paved roads. Our research sites lie along the main east/west arterial road
(the Millennium Highway) that facilitates migration to and from the capital. Rashaant sum in Bulgan aimag, as well as, Bayankhagai sum, Lun sum, and Erdenesant sum in Tuv aimag (province) are located west of Ulaanbaatar; while Tsenhermandal sum and Jargalkhaant sum in Khentii aimag are located east of Ulaanbaatar (see Figure 1). Serval interviews were also conducted with people living at greater distance from the road. These were particularly prominent in the Jargalkhaant sum. Analysis of data from these sites offers insights into recently paved roads’ capacity to foment new constellations of power, create identities, and shape microgeographies of everyday life (Cresswell 2010, 551). We conclude with a summary of findings, as well as, recommendations for future avenues of research.

**Road research: connectivity and distantiation**

Concepts such as ‘routes’ (Clifford 1997), ‘flows’ (Appadurai 2000), ‘networks’ (Castells 1996), and ‘liquidity’ (Bauman 2000) have characterized post-modern socio-economic and cultural imaginaries since the 1990s. The ‘mobilities’ inherent to these concepts connote roads as tangible links between narratives of globalization and the materialities of local life (Dolakoglu and Harvey 2012, 459). New roads or improved paved roads therefore serve the expansion of both twentieth century national industrial-production ideologies and twenty-first century transnational circulation of commodified information, goods, and labor. Because of this combination, a form of ‘infrastructure fetishism’ has manifested around the world (Dolakoglu 2010, 132; Naveeda 2006; Goodman 2016).

Scholarship across a variety of disciplines (e.g. anthropology, geography, and science and technology studies) approaches the socio-political and economic dimensions of mobility infrastructure (e.g. Star 1999; Barry 2013; Klaeger 2009, 2012, 2013; Larkin 2013; Appel, Anand, and Gupta 2015). Ethnographic methods have been particularly useful in considering how attention to the interactions of technology, politics and ecology reveals socio-spatial patterns of economic disparity, resource distribution and socio-political tension (Haines 2018; Michail 2017; Rodgers and O’Neill 2012; Harvey and Knox 2016; Bruun-Jensen and Morita 2017). While it should be noted that varied forms of infrastructure impact human life, roads are archetypal of mobility enhancement and

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**Figure 1.** Sites of interviews and survey.
link to a broad range of thematic approaches. These include roads as conduits and technologies of economic or political power (Fairhead 1992; Thomas 2002; Wilson 2004; Harvey 2005; Shrair 2009; Harvey and Knox 2016), roads as levers of modernity facilitating time-space compression (de Pina-Cabral 1987; Hilling 1996; Roseman 1996; Harvey 2005; Virilio 2006; Weinhold and Reis 2008; Klaeger 2012), and roads’ capacity to inculcate hope and progressive aspirations (Löfgren 2004; Reeves 2017; Haines 2018).

This study takes up Klaeger’s call to consider ‘the ways in which people live, work and trade directly by the roadside, and in which “roadside contacts” between stationary and passing road-users unfold’ (Klaeger 2012, 539). Other efforts within this line of inquiry include Pandya’s (2002) and Porath’s (2002) studies of how arterial roads manifest as ‘reliable resource areas’ (Pandya 2002, 811) and offer ‘quick access to alternative financial possibilities’ (Porath 2002, 780) through interactions with travelers. But rather than strictly concentrating upon subjects interacting together, we embrace Urry’s (2007) appeal for equal consideration of infrastructures that restrict movement and circumvent relational dynamics from place to place, person to person, and event to event. Approaching new paved roads in the Mongolian steppe, we consider their capacity to facilitate movement while also attending to possible disconnection or circumvention.

This was admirably demonstrated in Pederson and Bunkenborg’s (2012) research on the simultaneity of connectivity and distantiation catalyzed by mining roads in Mongolia. Their work suggests roads are ‘sites of passionate engagement holding the promise of transformative potential in ways that create an unlikely and unpredictable convergence of interests’ (Pederson and Bunkenborg 2012, 557). Too rarely do advocates for road construction consider that ‘certain social relationships entail a disjunctive (rather than additive) mode of “inclusion”’ (Harvey and Knox 2008, 79–80). It is therefore imperative to explore how ‘roads may separate as much as they connect’ – how they can provide a means of ensuring minimal contact between peoples by facilitating circumvention of, as well as rapid transit through, certain areas (Pedersen and Bunkenborg 2012, 557; see also Willerslev and Pedersen 2010). Rather than a ‘paradoxical’ or binary process, this dynamic is better viewed as ‘simultaneous.’

Just as mobility must be studied in conjunction with immobility, so too must connectivity be studied in conjunction with ‘distantiation’ or the ‘stretching out of things from one another’ (Pedersen and Bunkenborg 2012, 565). This reveals the Janus face of roads, wherein infrastructure channels movement and thereby concentrates activity within particular places and along certain routes while circumventing or deemphasizing activities in others. Such channeling and concentration of activity alter the materiality of places and create multiple socialities that require (re)calibration as functional socio-economic geographies (Vannini 2009; Cresswell and Merriman 2011; Vergunst and Árnason 2012).

While axiomatic to suggest that deploying an axial development strategy in Mongolia will result in both ecological and social change, it is worthwhile considering how altered socio-economic geographies are negotiated into traditional practices and catalyze new spatial living patterns. As discussed below, our data indicate that this is already occurring and should gain momentum with the fruition of road networks (see Figures 2 and 3). That axial development is in progress in Mongolia presents an opportunity to influence policy and possibly eschew damaging mistakes. The following sections therefore explore how new patterns of connectivity and distantiation result from Mongolia’s axial development strategy.

**Mongolia as context for axial development**

Though nominally independent throughout the Soviet era, in 1990 Mongolia confronted for the first time in centuries the prospect of having no ‘great power’ to direct or protect its interests. After an initial period in which a policy of gradual economic reform was enacted, 1996 saw its leaders embrace international funding agencies’ prescriptions for rapid democratization and market reform. Various works have outlined the complexity of this process in Mongolia that produced conditions akin to other post-socialist states (see Enkhbayar 2002; Batbayer 2002; Kotkin and Ellerman 1999; Bille 2008; Bayartsaikhan 2002; Sabloff 2002; Rossabi 2005; Bulag 1998, 2010;
Kaplonski 2004; Bruun and Narangoa 2006; Diener 2009; Jackson 2015b; Sneath 2006, 2010; Reeves 2011; Diener and Hagen 2013; Myadar 2019). Throughout the 1990s, Mongolia faced problems with corruption, high unemployment, poverty, and declining state services. Much of this changed during the 2000s as the state became among the largest per capita recipients of foreign aid in the world and experienced a major upturn in GDP based on natural resource extraction. Coupled with a series of relatively fair and peaceful transfers of power, a generally free press, and growing foreign direct investment, prospects for Mongolia’s political and economic development seemed quite good; at least until the 2008 global economic crisis and a subsequent downturn in GDP in 2015–2016 regenerated uncertainty (see Table 1).

Among the foremost problems facing Mongolia is overt disparity in development across its aimags (provinces) and a lack of overland transport infrastructure (Jacob 2012). Ulaanbaatar is a primate city and the epicenter of development within the state. Moreover, no road or railway currently spans Mongolia east to west. Though a rail-line has linked Russia to China (north-south) across Mongolia for decades, only a single paved road connects Mongolia’s capital of Ulaanbaatar north to Russia and south to China.

During the early 1990s, the state had little to offer global markets. In 1988 manufacturing comprised a third of the economy and Mongolian agriculture was self-sufficient (even limitedly exporting various foodstuffs). Dissipation of Soviet-style subsidies, lack of replacement parts, and inadequate intra-state and inter-state transportation infrastructure hamstrung industrial maintenance, causing manufacturing to contract to 7% of the economy in 2011. The agricultural sector also suffered in the 1990s due to privatization efforts (de-collectivization) and the inability to efficiently transport commodities within and outside the state. While the country hosts 30 million animals (roughly 10 animals for every Mongolian citizen), 70% of milk consumed in urban Mongolia is reconstituted from imported milk powder (UNFAO Mongolia 2009).

Counterbalancing these economic challenges, Mongolia’s geological resources have lured large-scale international investment since 1999. Sixty percent of Foreign Direct Investment goes toward the mining industry, which is more than 30 times the percentage channeled to manufacturing and 20 times the percentage allotted to construction (Oxford Business Group 2013). The mining boom resulted in a GDP growth rate of 6% per year between 1999 and 2008. While the 2008 global economic crisis caused a sharp decline in demand for minerals and by consequence a downturn in prices, Mongolia’s economy nevertheless recovered to reach unprecedented levels between 2010 and 2013 only to decline precipitously in recent years (with an estimated up-tick for 2017, see Table 1).

Vast reserves of geological resources, including copper, gold, coal, oil, and uranium compelled Mongolia’s euphemistic relabeling as ‘Mine-golia’ (Bulag 2009) and some projections of imminent ‘Dutch Disease’ (the economic condition in which a state’s economy becomes overtly dependent on the export of natural resources – Jacob 2013). Mining currently contributes a third of Mongolia’s GDP and accounts for 89.2% of the state’s total exports, but only employs roughly 5% of the workforce. Conversely, the agricultural sector – livestock, milk products, wool, meat – employs roughly 30% of the workforce and contributes 15% of the GDP.

Most mining endeavors are undertaken by joint efforts between the Mongolian state and a variety of domestic and international companies. Success of these ventures is contingent on their respective sponsors’ abilities to transport resources to often-distant processing facilities and markets. The lack of developed transportation infrastructure within Mongolia presents a major challenge to these efforts, as well as governmental policies to diversify the economy. The $1.5

Table 1.: Mongolian GDP growth rates (%).

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<td>GDP</td>
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billion attained through Mongolia’s first bond-offering campaign, is being allocated largely ($850 million) to infrastructure improvement, with $145 million earmarked for bolstering cashmere, dairy, and wool production (Jacob 2013).

The need for expansion and improvement of transportation infrastructure has been so acute as to compel foreign companies to construct paved roads that link dispersed production units of the same conglomerate, join production units to local communities for supply, and connect production units to neighboring states possessing processing facilities or ports (Jackson 2015b; Pedersen and Bunkenborg 2012). The combination of mining roads, governmental efforts to enhance agricultural production in rural regions (see Priess et al. 2011; Endicott 2012), and a plan to establish both east/west and north/south transit corridors across the state (the Millennium Highway or Asian Highway 32 plus arterial north/south roads to border crossing points) constitute a transportation revolution in Mongolia (Tsuji 2001).

In 2002, Mongolia’s then Prime Minister and now former President Enkhbayer (2002) suggested that 90% of the Mongolian population would migrate to settlements along the planned east-west Millennium highway’s route. In doing so, he heralded the axial development strategy currently deployed. Research conducted for this project since the early-mid 1990s affirms the Millennium Highway’s tangible developmental effect (see Figure 3).

Road related population change

Mongolia’s highly dispersed population is beginning to migrate towards and settle in proximity to several arterial paved-roads (some completed and some estimated for completion 2020–2023 – see Figure 2). Akin to the growing ‘Ger Suburbs’ (peri-urban settlements) surrounding the capital city of Ulaanbaatar, one can expect considerable economic, socio-cultural, political, and environmental impacts from new settlers along the roads (Dore and Nagpal 2006; Jargalsaihkhan 2011; Sugimoto et al. 2007; Sneath 2006). Expected impacts include land-cover, air-quality, water quality, and alteration of socio-economic patterns and systems (see Timmons 1992; Timmons and Hite 2000; Neupert 1999). The potential for globalization-related social ills, heretofore only marginally present in the Mongolian countryside will also likely expand (e.g. wealth disparity, international labor competition, new disease vectors, etc.).

In contrast, a more positive effect of the roads may result in depletion of population in regions distant from roads, which could reduce overgrazing and afford those adhering to pastoralist economic pursuits more plentiful pastureland. Such an occurrence would follow precedents of other pastoralist-economic settings, where families divide, leaving some members to tend herds, while other develop business enterprises along the highway (Ahearn 2018; Liu 1999, 2000; Misak et al. 2002; Masquelier 2002; Rickard, McLachlan, and Kerley 1994).

Revisiting a stretch of road between the capital city of Ulaanbaatar and the town of Arvaikheer over the course of a decade following its paving in the mid-1990s reveals a progressive expansion of various infrastructural elements. From 1996 until 2016 the settlements of Elsen Taarkhai, Rashannt, Erdenesant, Lun, and Atar (see Figure 3) saw expanding numbers of gers (traditional Mongolian living structures), dedication of some gers to service/commercial uses, the gradual replacement of gers with single story and later two-story permanent structures (homes and service/commercial buildings), along with various support and commercial infrastructure such as vehicle repair stations, petrol stations, and connection to electrical powerlines. Starting in 2010, parallel roads in the settlement of Atar suggested its marked expansion; but by 2016 a number of abandoned structures in several of the settlements (including Atar) connoted a stall in development.

These data affirm the road’s gravitational attraction and document development correlations between infrastructure and population. The below analysis of survey and interview data offers insights into the manner in which people living proximate to and distant from paved roads experience both intended and unintended effects that include new forms of connectivity and distanitation.
Perceptions of road development in rural Mongolia

Data in this section derive from interviews and surveys conducted in six counties (sums) within three provinces (aimags). Most of the research sites are proximate to paved portions of the east and west paved road extending from the capital Ulaanbaatar known as the Millennium Highway. Sampling from each site is as follows: Bayankhagai sum (s = 16), Lun sum (s = 29), and Erdenesant sum in Tuv province (s = 29), Tsenhermandal sum of (s = 18) and Jargalkhaant sum of Khentii province (s = 17), and Rashaant sum in Bulgan province (s = 16). Each site is accessible within a one-day drive to/from the capital. Being on the east/west paved arterial road, each site is also roughly equidistant to Mongolia’s borders with Russia and China. Serval interviews were also conducted with people living at distance from the road in pastoralist camps.

A cross section of the population (i.e. gender, age, education, occupation) was sought for the 125 surveys and 128 interview respondents. General perceptual themes pertaining to the advent of paved roads can be broadly categorized positively and negatively.

**Negative perceptions of paved roads:**
- Speed of Vehicles
Domestic Animal Strikes: No claim of Responsibility
Animal Theft
Wild Animal Strikes/Poaching
Noise
Foreigners
Overgrazing Near Roads
Deteriorated Paved Road Worse than Dirt Road
Pollution/Litter
Road Cutting Off Access to Water Sources/Water Source Damage

Positives perceptions of paved roads:
Access to Feed/Water
Access to Services/Education
Access to Markets
Road Related Business Opportunities
Tourists
Preserves Vegetation
Petrol Savings
Less Dust

Certain perceptual factors are not mutually exclusive and are relative to respondents’ circumstances (e.g. time in location, pasture availability relative to road and water location, diversification of family income, etc.).

The two most prominent road-related issues emerging from both interview and survey responses were Domesticated Animal Strikes and Access to Markets (mentioned by 46.4% and 73.6%, respectively, in surveys). Both are byproducts of new mobile-technology within the Mongolian countryside. Both also manifest space/time compression attendant to infrastructural connectivity, as well as, fomenting distantiation by materially and socially altering patterns of movement within the locales of respondent residence.

Figure 3. Settlement development along the road.
Source: Center for Nomadic and Pastoral Research, Ulaanbaatar Mongolia 2019
Access to markets, for example, is captured in the statements ‘the market is closer’ or ‘the road makes the market closer’ (common to multiple interviews in all research sites). While the distances between the location of interviews and Ulaanbaatar’s market and border-markets with China (e.g. Gashun Sukhait, Bulgan – Takashiken Bichigt Zuu-Khatavch Zamin Uud – Erlian Sheveekhuren – Sekhee, Ereen – Erenhot) and Russia (e.g Altanbulag – Kyakhta, Tsagaannuur – Tashanta, Naushki – Sükhbaatar, Ereentsav-Solovyovsk, Mondy – Khankh) have not physically altered, the speed at which people may travel has. This not only reduces the time required to make the journey but also transport-costs (e.g. petrol consumption).

I have been living here since I was born. Before the paved road emerged, the patchwork of dirt roads damaged pasture and there was too much dust. But now we have easy access to the city and gasoline costs are less than before. We traveled along the road all summer. Our children can visit us and help us with our work and then return to UB. It is easier now (Author interview 5.1, Tsenhermandal sum of Khentii province).

Such time-space compression has varied add-on effects. For instance, several respondents spoke to the issues of food safety or food security. Thirty-six percent of survey respondents ranked access to better products and goods among the three most prevalent effects of paved roads. The greater speed with which animal and vegetable products can be moved to and from city-markets promotes freshness and reduces losses from rot.

There are economic opportunities emerging, such as opening restaurants and shops along the road in our region. We try to settle down close to the paved road during spring to autumn. After the road was paved, we had greater access to fresh food and food safety improved (Author interview 5.6 Tsenhermandal sum of Khentii province).

Ease of connectivity between sum (county) centers and Ulaanbaatar (UB) provides not only access to expanded food varieties but also varied services.

A number of respondents spoke to the prospects of accessing medical care and their children receiving education at greater distance due to the speed at which one may travel along paved roads.

One of our children is a student in Ulaanbaatar and one of them is studying in the center of the province between September and June. So, the paved road makes it comfortable to visit and transfer them, and our family lives separately during this time (Author Interview 3.19 Erdenesant sum of Tuv province).

Another respondent noted:

Markets became closer with the paved road. Paved roads allow us to live apart from social services such as hospitals, schools and markets (Author Interview 5.18, Tsenhermandal sum of Khentii province).

The benefits of space-time compression are, however, attended by complexities of distanciation. Reflective of the previous quotes, in the case of education availability, a number of respondents spoke of their families living in separate locations to enable children’s school attendance in sum centers or Ulaanbaatar, while other members of the household remain in the countryside with animals.

Because our school in the sum has only 9 grades, we (our family) need to live separately. There is a school of 12 grades for pupils from Tsenhermandal sum in Umnudelger sum, but our children go to Ulaanbaatar or Baganuur district to study. We have 600 animals now. Life is fine, it is enough for us. Our oldest child is in 10th grade and lives with relatives in Ulaanbaatar. My wife lives in the sum center with my youngest (child) on someone’s yard (Author Interview 5.14, Tsenhermandal sum of Khentii province).

In addition to this practical aspect of family dispersion for education, Barcus and Werner (2017) suggest that urban dwellers periodically (often seasonally) visit the countryside for maintenance of family connection and affirmation of ‘pastoralist’ traditions (see also Dore and Nagpal 2006). Paved roads will likely propagate such patterns of visitation in the future. In the absence of paved roads, such division of families might well exist but would likely be less prevalent.

63.2 percent of survey respondents strongly agreed or somewhat agreed that their families are more dispersed now than in the past. It should be noted that several respondents mentioned the
significance of cell phones in maintaining social networks, but are keen to note that their choices of settlement locales remain largely linked by traditional concerns of pasture and water access.

Our relatives moved to Ulaanbaatar after the road was paved. We are living more scattered since we the road was paved ... (But) we pastoralist move and follow good grazing pasture more than cellphone signals. In general, these days, cellphones can be used almost everywhere (Author Interview 4.1, Rashaant sum of Bulgan province).

This quote notwithstanding, 83.2% of survey respondents strongly agreed or somewhat agreed that modern technology (e.g. cell phone and internet) influences personal patterns of movement and by extension places of settlement. Only 14.4% disagreed to any degree.

As occurred in other cases of paved road introduction to rural regions (Shrair 2009; Hilling 1996; Fairhead 1992), ease of access to bigger markets has led many to avoid smaller, more proximate markets in which they had traditionally sold their products. A number of respondents noted that prices of animal goods had been falling, even to the point of requiring surplus disposal in Ulaanbaatar.

After the road was paved, we lost our traditional moving and herding area to herders migrating from distant provinces. They also bring their best meat to UB so that the prices increase in the sum center and decrease in the capital. Businessmen who deal with animal products (in UB) purchase livestock then just throw away meats after butchering (Author Interview 3.9 Erdenesant sum of Tuv province).

This is likely the result of a more consistent and higher volume of products transported directly to the Ulaanbaatar’s markets and stands as an example of economic distantiation manifesting in conjunction with market connectivity (Richardson, Bae, and Choe 2011).

Similarly, while many respondents in the varied research sites regard tourists’ use of the paved roads as having positive economic effect, several also note a growing tendency for tourists to bypass roadside shops and merchants as they venture to a target destination further down the road. These are usually the larger and noteworthy sites of interest.

We now have greater access to distant destinations like the center of the sum, other provinces, and Ulaanbaatar city. So, having a paved road is an advantage. About tourism, though, it is less here because of the road. Many people just go directly to KhuhNuur Lake (Author Interview 5.11, Tsenhermandal sum of Khentii province).

This said, the road has created a variety of economic opportunities that respondents in each research site seize upon. In doing so, the road altered traditional patterns of movement, modes of economic activity, and attitudes toward both strangers and neighbors.

One venture that existed prior to the paving of the road but became more prominent with the road’s improvement is ‘transport services.’ These include taxiing people between Ulaanbaatar and/or sum centers and their homes, as well as, consignment/freight businesses taking products to and from Ulaanbaatar and border markets. Such intermediary transport services were part of socialist-service system prior to 1990 but became more expensive when privatized through Mongolia’s shift to a market economy. With the introduction of paved roads, travel to Ulaanbaatar is easier, cheaper, and faster, and entrepreneurial, consignment-merchants have expanded their niche in the economy.

Road repair has also become an overt necessity with paving and provides a new sector of employment in the countryside. Deteriorating dirt roads were customarily avoided, giving rise to new parallel paths along the general route between specific sites. This resulted in wide swaths of steppe damage that paved roads were intended to mediate (Keshkamat et al. 2013; Li et al. 2006). However, respondents made clear that a damaged paved road was far more deleterious on their vehicles than dirt roads. Crews of workers are now regularly dispatched to maintain paved roads (though not as successfully as most would hope, see Figure 4). The paved roads, therefore, are direct sources of new employment along their respective routes.

Other such road related businesses extend from entrepreneurs selling milk and animal products at roadside stands, offering camel rides or bird of prey encounters. Moreover, Mongolia’s economic policy is increasingly emphasizing agriculture (Priess et al. 2011; Endicott 2012). In conjunction with the
government’s efforts to reduce imported food dependency and to diversify the economy’s emphasis on mineral resource extraction, a growing cadre of farmers tends to procure lands proximate to roads and water sources for ease of transport and irrigation. Agricultural ventures couple with the migration of pastoralists to road-proximate regions to create complex new land-use dynamics.

I have been living in Erdenesant sum of Tuv province since I was born. I personally like to live far away from the paved road. (But), both sides of road are now farmland. If our herds go in there, we get fined (Author interview 3.26 Erdenesant sum of Tuv province).

Various models of economic geography predict the redistribution of population toward Mongolia’s recently paved roads and the various ‘growth pole’ urban centers along their respective routes (Turganbayev and Diener 2019). As illustrated in Figures 2 and 3, these models have proven out as many sum centers and cross-road settlements have steady development since the mid-1990s. At least some of this development has included agricultural ventures that problematically couple with movement of herders to pastures proximate to paved roads.

In some ways, farming has more effect on our lives than the paved road. Farming has gone everywhere; soil has been tilled and cultivated. So, grazing pasture is getting destroyed. Also, herders from western provinces like Uvs and Zavhan are moving here and overgrazing the pastures (Author Interview 1.5, Bayankhagai sum, Tuv province).

The combination of land-use pressures (agriculturalization, overgrazing, and water access) with the apparently pervasive problem of domesticated animal strikes from vehicles moving at high speeds has resulted in a secondary population redistribution involving some longtime residents with larger herds moving away from paved roads.

Because of the paved road, herders now move here from distant provinces. Herders come for the summer and leave after their animals finish eating. We (permanently) settled people suffer from overgrazed pastures, so the paved road is, for us, both a help and disadvantage to us (Author interview 2.4, Lun sum, Tuv province).

This represents an unintended distantiation-effect of paved road construction and an example worth exploring in greater detail. It evokes the issue of both social and geographic distantiation. 

Figure 4. Road construction in rural Mongolia.
Source: Author.
From the geographic perspective, interview respondents consistently spoke of moving away from the road to avoid noise, lights, dust, smells, theft, animal strikes, and overgrazing. Such a secondary form of population redistribution (the primary being the predicted attraction of herders to road-proximate pastures and urban centers along the road’s route) links directly to the advent of paved roads but does not appear to have been predicted by planners. From a social perspective, the distinction between old and new herders in certain areas establishes a form of stratification heretofore only limitedly present. This is compounded by the negative perception of high-speed travelers who apparently fail to accept responsibility for animal strikes and compensate herders for losses. Taking this one step further, a number of respondents lamented the presence of ‘foreigners,’ while also positively acknowledging the effect of ‘tourists.’

According to expert interviews, respondents might consider Mongolian citizens and non-citizens ‘tourists,’ but the term ‘foreigners’ should be regarded as a specific reference to non-Mongolian people traveling within the state (Author interview with Gerlinium D. Senior Expert for Transport Policy Planning). Given the cultural valuation of hospitality within nomadic and specifically Mongolian society, this negative reference to ‘foreigners’ is a rather dramatic shift. 83.3 percent of survey respondents reported meeting more ‘foreign’ people because of paved roads and 89% strongly agree or somewhat agree that ‘people near paved roads need to be warier of strangers than in the past’.

As a ‘foreigner’ periodically traveling in Mongolia since 2001, one of the authors has witnessed changing attitudes toward foreign tourists. In the early 2000s, one would be readily welcomed into gers, often provided meals, and afforded ‘warm welcomes’ by almost any measure. Recent years have seen this change. Obviously, this is not a blanket assertion applicable to every Mongolian citizen in every locale within the state, but participant observation combines with interview and survey data to suggest a growing sense of ‘stranger danger.’

People living near the road would always invite foreigners into their gers, but those living along the road have seen things stolen or been cheated by foreigners. They are less likely to be as open as they were in the past. This is just part of living close to the road (Author interview, Uroos long-distance driver 2015).

Theft of animals contributes to this ‘stranger danger’ mentality but is a crime more likely to be perpetrated by indigenous thieves. In surveys, 24.80% of respondents cited ‘crime’ as one of the three most prevalent effects of the road (Author Survey 2016). While in interviews, ‘animal theft’ was repeatedly raised as a prime negative associated with the paved road.

When we release the herds to graze, it is better to be far from the paved road. We prefer to be far from the road in general. It is dangerous during the night – there are thefts and robberies, therefore people who live close to road should be more careful (Author Interview 2.27 Lun sum, Tuv province).

Also, commonly cited by interview respondents was an increase in litter and pollution. Both of which are (accurately or not) associated with non-locals (Mongolian or international tourists) traversing along the paved road.

Generally, the paved road is fine; it is easy to come and go. Tourists are common here too. They are investing money in Mongolia. But the tourists nearby the river and the road litter a lot; the countryside is getting polluted (Author interview 2.5, Lun sum, Tuv province).

Despite a long history under a socialist – authoritarian state, Mongolian’s tend to function in a rather libertarian manner in the countryside. The pastoralist tradition is based largely on self-reliance with expectations of communal assistance in instances of need. This communal assistance was traditionally clan based but also had a geographic component in sums, even within mixed tribal or ethnic populations.

We are neighbors here. We understand each other’s problems. If my Kazakh neighbor loses his horse, he comes to me and says ‘can you help me find my horse’. We are herdsmen, we both know the troubles with wolves and the long days of foaling season. You see, the smoke from the same trees rises from our gers. I went to school with this man (pointing to a local ethnic Kazakh). He speaks Mongolian to me and I understand when he speaks Kazakh. We live in this valley together, like family (quoted in Diener 2009, 100).
Historically, rule of law existed through oversight by Buddhist Lamas or under Qing authority, but in the early twentieth century was replaced by socialist ideals and a secularized form of normative control. Even within the socialist system, however, the great distances between population centers, limited communications, and sparse transportation infrastructure rendered many communities largely self-adjudicating.

Reflecting an increased perception of ‘the state’ accompanying paved roads (Harvey and Knox 2016), a number of interview respondents called for governmental restriction on intra-state migration and a formalized approach to assigning fiscal responsibility for animal strikes.

I was born in Lun sum of Tuv province … A lot of herders are migrating to our province from distant provinces. They bring many animals with them. The government should regulate the migration issues within our country (Author interview 2.16, Lun sum, Tuv province).

There is a disadvantage (to living by the road). People passing by litter along the road – this should be stopped (Author interview 1.4, Bayankhagai sum, Tuv province – parenthetical added).

Such issues reflect erosion of personal accountability traditionally regarded as inherent within Mongolian society. Put another way, the road produces a measure of social distantiﬁcation or anonymity for travelers passing more rapidly from point A to point B. The normative values of traditional Mongolian society are thereby challenged through enhanced mobilities and reﬂect yet another unintended effect of introducing paved roads in the countryside.

From an ecological perspective, survey data suggests that 38.4% of respondents strongly agree and 26.4% somewhat agree that paving roads positively affects pasture vegetation cover. In other words, paving roads is associated with preserving the steppe. Several interview respondents noted how ‘paved roads emerged and stopped the patchwork of dirt roads (so that) pasture vegetation is increasing’ (Author Interview 37, Erdenesant sum of Tuv province).

Towards Pedersen and Bunkenborg’s (2012) suggestion of simultaneity of connectivity and distantiﬁcation, it should also be noted that, while acknowledging beneﬁts of the paved road, several interview respondents also recognized that the paved roads either promote or result from mining.

So, for all the environmental good paved roads can do in limiting steppe damage, they may also facilitate ecological destruction in conjunction with economic vitality.

There was a wolfram mine (Bayantsogt’s mining) in our region owned by some Chinese men. Many of us made good wages there. They stopped using it two years ago but there is still water pollution, illness amongst the animals (internal organ damages), and pasture pollution (Author interview 5.14 Tsenhermandal sum of Khentii province).

Jackson’s (2015a, 2015b) work on dust in Mongolia suggests that in addition to dust-production and dust-mitigation, roads also serve to ‘bound the steppe.’

Road dust separates local residents from their sense of place and livelihoods that depend on pasture while also bringing them into intimate contact with mining. … dust transforms how people relate to the landscape, signaling changes in local economies and culture. Mining roads and dust continue to cut across the landscape, providing new transportation networks for mining, while delimiting healthy pasture. At the same time, newly paved roads demonstrate opportunities for the state and mining companies to improve relations with local residents by reducing road dust. Dust complicates broader disconnections and connections between people, place, and mining (Jackson 2015a, 103–104).

This theme is advanced by respondents’ association of roads with changing traditions.

One interviewee stated ‘The paved road has adverse effects, such as free grazing becoming impossible and animals get hit by cars. I’m seeing our countryside change. Roads are changing traditional herding’ (Author interview 2.13, Lun sum, Tuv province). Yet another contends ‘We herders prefer to live near drinking water, winter manure, water for animals, and pasture and grazing lands rather than a road. But in last few years, this lifestyle is changing. People pasture their herds near roads and move with the help of the car’ (Author interview 2.12, Lun sum, Tuv province). Survey data indicate that 96% of respondents strongly agree that it is important to
preserve nomadic/pastoralist traditions in Mongolia. That said, 38.4% strongly agree and 19.2% somewhat agree that they would choose to live near a paved road; with 24.5% strongly averse and 10.4% somewhat averse to living near a paved road. The desirability of proximity to paved roads is affirmed through survey data suggesting 69.6% strongly and 24% somewhat ‘want a paved road to pass nearby their place of settlement’ with only a combined 6.4% strongly and somewhat disagreeing.

The advent of paved roads is a profoundly poignant issue in Mongolia today. With 32.8% strongly agreeing and 36.8% somewhat agreeing that their household incomes have improved with the paving of the roads, it is fair to consider negotiations of traditional culture and new mobile technologies as just beginning.

Conclusion

Acting upon its desire for national, regional and global ‘connectivity,’ Mongolia is pursuing an axial development strategy based on a ‘certain belief that infrastructures will offer a technical solution to problems of economic and social integration’ (Harvey and Knox 2008, 80). Such efforts are not, however, wholly predictable. Both the Mongolian government and the state’s citizenry are keenly aware that the introduction of paved roads will catalyze novel capacities for intra-state and international connectivity. What is less understood is their capacity to foment ‘distantiation’ or ‘circumvention’ through that same facilitation of movement within and across the state.

That connectivity and distantiation are simultaneous is an important consideration for policy making as an ‘infrastructural violence’ may be inherent to axial development (Rodgers and O’Neill 2012). Segments of the population are marginalized by the absence of infrastructure that leaves them out of connective networks, while new roads concurrently enhance the presence of the state, intrusion of the external (regional and global), and prospects of exploitation and expropriation.

This article suggests that processes of urbanization and/or peri-urbanization long associated with Mongolia’s capital city of Ulaanbaatar are likely to also emerge at other sites of agglomeration catalyzed by axial development. Our data suggest that this is already occurring along certain segments of the Millennium Highway. Through both intended and unintended effects, paved roads are fomenting new constellations of power, creating identities, and reshaping microgeographies of everyday life. Researching this process foregrounds the complex interaction between transportation infrastructure, modernization, traditional culture, development, and conservation. The Mongolian countryside offers opportunities to study how globalization, regionalization, and the state are emerging through people, materials, money, and ideational resources. Policy making informed by a deeper understanding of the simultaneity of connectivity and distantiation should help mediate infrastructural violence and ‘pave the way’ for truly progressive mobilities.

Notes

1. Herodotus’ account of the Royal Road is the origin of the U.S. Postal Service creed ‘Neither snow nor rain nor heat nor gloom of night stays these couriers from the swift completion of their appointed rounds.’
2. Axial development strategies (the building of roads to catalyze development) currently deployed within Mongolia are reflective of broader transportation infrastructures advancing across Eurasia (e.g. OBOR, Silk Wind, New Silk Roads, Eurasian Union, CASA 1000, etc.).
5. 45.6% female 54.4% Male; age range 18–78, average age 45.9 and median age 44; education 47% high school, 16% university or technikum, 36% primary school; occupation 70.4% herders, other professions include drivers, miners, factory workers, construction workers, tailors, food service works, and tourist camp entrepreneurs.
6. Dirt roads were regarded as ‘self-correcting.’ Little or no maintenance was necessary as an overtly potholed or muddied road was simply circumvented. The new path for vehicles would eventually be smoothed into a new road devoid of vegetation, thus creating a widening swath of denuded steppe.

7. Spatial science offers a variety of models (e.g. Gravity Model, Central Place Theory, etc.) that predict the concertation of services as catalyzing settlement in and around specific locales. For work relating specifically to roads or axial development see Pottier (1963) and Turgenbayev and Diener (2019).

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References


