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Extreme Weather Events and Permanent Internal Migration: Evidence from Mongolia

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Abstract

Mongolia is among the most vulnerable regions in the world to climate change. Aside from temperature rises and changes in precipitation patterns, extreme weather events have increased both in their intensity and frequency in recent decades. The national livestock economy, which constitutes the main source of income for the majority of the rural population is put under increased pressure by this development. As extreme weather events are accompanied by high livestock mortality, they endanger the traditional livelihood of herding families. Through this vein, natural calamities may contribute to forced climate-induced migration decisions. The accelerating urbanisation notwithstanding, there is to-date little to no empirical evidence on the question to which extent extreme weather events matter for population mobility in the Mongolian context.

In this article we study the effect of weather shocks on internal migration figures in Mongolia. While previous studies mostly focus on migration effects of floods, droughts, and storms in tropical or dry climate areas, our focus is on extremely harsh winter events. The causal impacts of extreme winter events on internal migration dynamics are identified by exploiting exogenous variation in their intensity across time and space. We exploit an unusually long time series of migration data spanning the 1990–2018 period in a two-way fixed-effects panel estimator. Results show that extreme winter events cause significant and sizeable permanent out-migration from affected areas. These effects are also mirrored in the overall population figures on the provincial as well as the district-level of Mongolia.

In addition, the occurrence of extreme weather events is found to be a strong predictor for negative changes in the local population of pastoralist households. This suggests that the abandonment of traditional livelihoods is one channel through which climate affects permanent within-country migration in the Mongolian context.

Keywords: Extreme weather events, internal migration, Mongolia, pastoralism