This paper studies the role of environment for migration and the sensitivity of migration drivers, identified within the theory, to environmental shocks. The theories under examination are Todaro's Migration Theory, New Economics of Labor Migration (NELM), Human Capital Migration Theory and Network Theory. Environmental shocks are perceived as co-variate shocks that reduce households' assets, income and undermine functioning of the informal insurance mechanisms at the origin. In response, households are expected to send out migrants as a part of their investment strategy, to insure or to cope with consumption shortfalls. Using representative data on households in rural India from both rounds (2004-05 and 2011-12) of the Indian Human Development Survey, cross-sectional analyses are conducted applying two logit models. The first model analyzes the relation between environment and migration. The second model employs interaction terms to examine the sensitivity of migration drivers to environmental shocks. The results provide robust evidence that environmental shocks drive migration. Supporting the Todaro's theory, the outcomes further reveal that the expected wage gain is positively correlated with migration. This mechanism only works in areas not affected by a co-variate shock. We find evidence for predictions of the NELM that informal insurance does not work in the presence of co-variate shocks and migration is adopted as an insurance strategy. Moreover, relative deprivation drives migration and its effect becomes weaker in the presence of co-variate shocks. With respect to the Human Capital Migration Theory and the Network Theory, we find evidence that mechanisms that decrease or increase costs of migration drive or reduce migration respectively. These mechanisms function also in the presence of co-variate shocks. The study also explores different future scenarios. One of the findings is that if all villages were affected by a co-variate shock, rural-urban migration would increase by up to 10.57 million migrants.