The Bouguer gravity anomaly (BGA) over the Indian continental shield exhibits a significant asymmetry across a -50 mgal contour spanning from Mumbai to Chennai. To its north the BGA is relatively high (~ -40 mgal) while to its south a large low (of ~ -75 mgal) is evidenced. A similar and lower order asymmetry is seen in the E-W direction also. Both these observations seem to contribute to the observed northward and eastward tilts of the subcontinent. Geodynamical significance of this major N-S difference remains somewhat intriguing. In addition, the southern region consists mostly of large plateau uplifts (e.g. Deccan & Karnataka) while on the northern side uplifts are dominated by linear belts (Delhi-Aravalli melt belt, Satpura mobile belt etc.).

This may be due to facts that (a) the southern Indian shield mostly consists of (a) Archean – Early Proterozoic cratonic terrains and these cratonic regions resist tectonomagmatic disruption by say, mantle plumes etc. but the high thermal input results in plateau uplift, and (b) the northern part has relatively large number of mobile belts; which unlike cratons are vulnerable and facilitate magmatic underplating in deep crust responsible for both high gravity and linear uplifts. Results of the study are supported by heatflow and seismic velocity structures.