In this joint work with Segev and other collaborators we try to look at (discrete) group maps from a homotopy point of view, by e.g. taking homotopy quotient spaces rather than usual quotients as sets. This puts seemingly distinct concepts on a common ground and yields results such as the finiteness of higher $H_i(G)$ for certain infinite groups $G$, as well as a relative version of Schur extensions for general, non-perfect groups. A relative version of the stability of the repeated automorphism group $\text{aut}(\text{aut}(\cdots \text{aut}(G))\cdots)$ will be presented, somewhat related to finiteness of $H_i(G)$ as above.