Directional Monotone Comparative Statics in Riesz Space

Often optimization problems are represented in parametric forms where the objective function and the feasible set depend on the value of a parameter in some parameter space. A particular phenomenon of interest in economics is monotone comparative statics (MCS) or parametric monotonicity, which has its application in Consumer behavior theory, Principal-Agent theory, Auction theory, Game Theory (GSC and GSS) etc. There exists a substantial literature in this regard, each has its own pros and cons. Barthel-Sabarwal (2018) provided a set of sufficient conditions that that characterizes MCS in Euclidean space. However there are many instances in economics where we work in infinite dimensional spaces. A commonly used infinite dimensional space in economics is Riesz space. In this paper we have looked for a set of sufficient conditions that characterize MCS in Riesz space.