# Arcwise connectedness of efficient points set of a weakly compact set*

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Abstract

We prove that the efficient points set $\mathrm{Min}(A, C)$ is arcwise connected for a weakly compact convex subset $A$ of a Hausdorff locally convex space $X$ under the conditions that each efficient point is a point of continuity and that there exists a lower semicontinuous, convex and strongly $C$-increasing real-valued function defined on $X$; When $X$ is a normed space which has the Kadets-Klee property, the above conditions can be replaced by that $C$ has a bounded base. We also show that the assumptions of the weak compactness and the convexity on $A$ can be weakened to be $C$-bounded, $C$-closed and $C$-convex if the Banach space $X$ is reflexive and the cone $C$ is normal.

Key Words Vector optimization, Efficient point, Arcwise connectedness.

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