Robust Weighting and Matching Techniques for Causal Inference in Observational Studies with Continuous Treatment

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Chapter 1

Chapter One Title

hello $\mathbb{R}$

Chapter 2

Convex Analysis

We begin by defining convex sets

Definition 1 *A subset $\Omega \subseteq \mathbb{R}^n$ is called CONVEX if we have $\lambda x + (1 - \lambda)y \in \Omega$ for all $x, y \in \Omega$ and $\lambda \in (0, 1)$.*

Clearly, the line segment $[a, b] := \{\lambda a + (1 - \lambda)b \mid \lambda \in [0, 1]\}$ is contained in Ω for all $a, b \in \Omega$ if and only if Ω is a convex set.

Next we define convex functions.

The concept of convex functions is closely related to convex sets.

The line segment between two points on the graph of a convex function lies on or above and does not intersect the graph.