

Imputing a Convex Objective Function

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We consider an optimizing process (or parametric optimization problem), i.e., an optimization problem that depends on some parameters. We present a method for imputing or estimating the objective function, based on observations of optimal or nearly optimal choices of the variable for several values of the parameter, and prior knowledge (or assumptions) about the objective. Applications include estimation of consumer utility functions from purchasing choices, estimation of value functions in control problems, given observations of an optimal (or just good) controller, and estimation of cost functions in a flow network.

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