

# Distributional robustness from a causal point of view

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We show some connections between distributional robust and causal inference. While standard inference techniques for high-dimensional regression can be formulated equivalently as robust optimization problems, there has also been some recent work on distributionally robust optimization, where often the class of distributions considered is a ball around the empirical distribution in a Wasserstein metric. I will consider four different possibilities of classes of distributions that are generated by an (unknown) causal structural model and different assumptions on the interventions. I will discuss some appropriate estimators for these different regimes, which adapt and/or generalize some well-known estimation techniques such as the Lasso, Dantzig estimation and instrumental variable regression.