

Causal inference with observational data

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Economic research aims to unveil causal relationships among economic variables, often achieved through observational data due to the non-experimental nature of economic systems. In natural and experimental sciences, causal relationships between variables can be identified using experimental methods. However, economic studies typically use observational data, which is not generated through controlled experiments. The non-experimental nature of economic systems presents the primary challenge in identifying causal effects in economic studies. This dissertation highlights different issues in addressing causal inference challenges in economics using observational data. Chapter 2, “The Effect of Fridge Adoption on Children’s Education: Evidence from China’s Home Appliances Going to the Countryside Policy”, examined the impact of fridge adoption on children’s educational outcomes. This chapter shows how to solve non-random treatment in causal inference with the Difference-in-Difference model. In Chapter 3, “Identifying Complier Average Treatment Effect: Evidence from Anti-Money Laundering Regulation in Brazil,” This Chapter introduced a latent class model applied to banking data, demonstrating its ability to uncover treatment effects in contexts where non-compliance treatment is present. Lastly, Chapter 4, “Heterogeneity of Climate Risks Sensitivity - Evidence from China’s Real Estate Market”, focused on identifying a heterogeneous treatment effect by the latent class model, which helps to capture the varied responses of housing prices to flood risk in China.