

# Distributional Instrumental Variables through Optimal Transport

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## Abstract

LOREM IPSUM

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Supplementary material is available at: [https://github.com/JakobJuergens/Distributional\\_IV](https://github.com/JakobJuergens/Distributional_IV)

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## 1 Introduction

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## 2 Literature Review

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### Related Ideas

#### Mean-Regression

- Hansen 2022

#### Quantile-Regression

- Carlier, Chernozhukov, and Galichon 2016
- Carlier, Chernozhukov, De Bie, et al. 2022

#### Distribution-on-Distribution Regression

- Ghodrati and Panaretos 2021
- Ghodrati and Panaretos 2022
- Ghodrati and Panaretos 2023

## 3 Optimal Transport and Distribution-on-Distribution Regression

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### Optimal Transport

### Distribution-on-Distribution Regression

## 4 Distributional Instrumental Variables

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### Construction

### Asymptotic Results

## 5 Simulations

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## 6 Application

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## 7 Bibliography

### References

- Carlier, Guillaume, Victor Chernozhukov, Gwendoline De Bie, et al. (2022). “Vector quantile regression and optimal transport, from theory to numerics”. In: *Empirical Economics* 62.1, pp. 35–62. DOI: 10.1007/s00181-020-01919-y.
- Carlier, Guillaume, Victor Chernozhukov, and Alfred Galichon (2016). “Vector quantile regression: An optimal transport approach”. In: *The Annals of Statistics* 44.3, pp. 1165–1192. DOI: 10.1214/15-AOS1401.
- Ghodrati, Laya and Victor M. Panaretos (Dec. 2021). *Distribution-on-Distribution Regression via Optimal Transport Maps*. DOI: 10.48550/arXiv.2104.09418.
- (June 2022). *Minimax Rate for Optimal Transport Regression Between Distributions*. DOI: 10.48550/arXiv.2206.01447.
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- Hansen, Bruce (June 2022). *Econometrics*. en. Princeton University Press. ISBN: 978-0-691-23615-5.