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Education

Ph.D. Candidate in Economics, KU Leuven, Belgium, 2019-2025 (expected)
Advisors: Johannes Van Biesebroeck (**chair**), Jan De Loecker, Frank Verboven

Visiting Scholar, Duke University, U.S., 2024 Spring
Advisor: Allan Collard-Wexler

M.A. Economics, Zhejiang University of Finance & Economics, China, 2016-2019.

B.S. Economics, Zhejiang University of Finance & Economics, China, 2012-2016.

Research Fields

Industrial Organization, Environmental Economics, Development Economics

References

Johannes Van Biesebroeck
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Allan Collard-Wexler
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Working Papers

Death by Market Power and the Production-Safety Tradeoff in the Coal Mining Industry
(Job Market Paper)

I examine the effects of buyer power on the organization of production in the Chinese coal mining industry. I show how buyer power emanating from downstream coal-fired power plants ultimately affects the production-safety tradeoff of upstream coal mines. I estimate a structural model of coal mines in imperfect output markets featuring (i) joint production of coal and worker safety as outputs, and (ii) choosing where to locate on the production-safety frontier via endogenous safety choices and factor-augmenting productivity. To identify causal effects, I employ a shift-share instrumental

variable, leveraging exogenous variations in buyer power exposure stemming from an electricity sector restructuring and other demand-side shocks. I find an unintended but life-and-death consequence associated with market power—buyer power exposure leads to higher provincial death rates, which are corroborated by lower composite coal outputs and safety at the mine level. Further evidence indicates exposure of coal mines to buyer power prompts a shift toward less capital-intensive, more traditional, and less safe mining technologies. Back-of-the-envelope calculations suggest that the decline in buyer power explains 53% of the improvement in coal mining death rates.

Imperfect (Re)allocation in Imperfect Markets: Evidence from China's Pilot Carbon ETS

with Johannes Van Biesebroeck

We study how economies with distinct development phases can preferably curtail emissions by exploiting unique variations of heterogeneous regulations—absolute- and intensity-type emission regulations in the context of carbon emission trading schemes (ETS) in China. Using an extensive array of rich data, we employ a difference-in-differences empirical strategy to examine the behaviors of all primary margins of adjustment to ETS from the demand to the supply side of energy. We find that, under imperfect markets and incomplete regulation, both types of ETS can induce carbon mitigation but with distinct tradeoffs. Aggregate impacts suggest overall annual reductions in energy consumption by 23% and 9% of yearly energy consumption in ETS with absolute- and intensity-type emission regulations, respectively.

Work in Progress

Demand (Un)certainty and Productivity: Evidence from German Coal Mining Industry

with Kai Fischer

Local Knowledge or Misallocation: Efficiency Costs of Discretion in Regulatory Enforcement

with Yunyu Shu, Ruozi Song, and Bing Zhang

Concrete Collusion

with Julian Hidalgo and Ruozi Song

Financial Frictions, Skill Complementarity, and Labor Market Power

with Jin Cao and Tong Zhao

Trade Dynamics in the Ownership Network

with Jiewei Fang and Philipp Ludwig

Pre-Doctoral Publications

Estimation of Lorenz Curves Based on Dummy Variable Regression, 2019, *Economics Letters*.

with Zhengxin Wang and Hailun Zhang

Measurement and Comparison of Export Sophistication of the New Energy Industry in 30 Countries During 2000-2015, 2019, *Renewable and Sustainable Energy Reviews*.

with Zhengxin Wang

Forecasting the Residential Solar Energy Consumption of the United States, 2019, *Energy*.

with Lingyang He and Zhengxin Wang

Predicting the Capital Intensity of the New Energy Industry in China Using a New Hybrid Grey Model, 2018, *Computers & Industrial Engineering*.
with Qin Li and Zhengxin Wang

Decomposition of the Factors Influencing Export Fluctuation in China's New Energy Industry Based on a Constant Market Share Model, 2017, *Energy Policy*.
with Tong Jin, Lingling Pei, and Zhengxin Wang

Seminars and Conferences (*scheduled)

2024: NUS Applied Economics Student Workshop* (Singapore), Public/IO Lunch Seminar (Duke), IO Group Seminar (Leuven)

2023: APIOC (Hong Kong), EARIE (Rome), IIOC (Washington D.C., Rising Star Session), IO Group Seminar (Leuven)

2017: 40th International Association for Energy Economics (IAEE) Conference (Singapore)

Teaching Experience

T.A. for *Global Value Chain*, KU Leuven, 2021-2024
for Johannes Van Biesebroeck and Liza Archanskaia

T.A. for *Economic Development of China*, KU Leuven, 2023
for Johannes Van Biesebroeck

Master Thesis Supervision, KU Leuven, 2020-2024
for Johannes Van Biesebroeck and Jan De Loecker

Personal Skills

Programming: R, Stata, Mata, Matlab, LaTeX

Languages: Chinese (native), Wenzhounese (native), English (fluent)

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