NEWSLETTER 2025|7

CALENDAR

Departmental Seminar
Martin Spindler (Universität Hamburg)
"Adventures in Demand Analysis Powered by AI"

Mon, Apr 28
14:15 - 15:30
H 26

IOS Seminar
Vladimir Otrachshenko (National Bank of Slovakia)
"Firms' performance and weather impacts. Evidence from a small open economy"

Tue, Apr 29
13:30 - 15:00
109 and Zoom

Lunch Seminar
Tobias Hartl (Maastricht University)
"Robust trend estimation for strongly persistent data with unobserved memory"

Wed, Apr 30
12:00 - 13:00
H 26

ABSTRACTS AND FURTHER INFORMATION

Departmental Seminar

Martin Spindler (Universität Hamburg)

"Adventures in Demand Analysis Powered by AI"

This paper advances empirical demand analysis by integrating multimodal product repre- sentations derived from artificial intelligence (AI). Using a detailed dataset of toy cars on Amazon.com, we combine text descriptions, images, and tabular covariates to represent each product using transformer-based embedding models. These embeddings capture nuanced attributes, such as quality, branding, and visual characteristics, that traditional methods often struggle to summarize. Moreover, we fine-tune these embeddings for causal inference tasks. We show that the resulting embeddings substantially improve the predictive accuracy of sales ranks and prices and that they lead to more credible causal estimates of price elasticity. Notably, we uncover strong heterogeneity in price elasticity driven by these product-specific features. Our findings illustrate that AI-driven representations can enrich and modernize empirical demand analysis. The insights generated may also prove valuable for applied causal inference more broadly.

Info:
in person

IOS Seminar

Vladimir Otrachshenko (National Bank of Slovakia)

"Firms' performance and weather impacts. Evidence from a small open economy"

This paper examines the impact of weather conditions on firm performance in non-heat- and heat-sensitive industries in Slovakia. Combining data on the universe of firms from 2013 to 2023 and data on temperature and precipitation in the panel framework, we find that the firm-level annual sales, revenue, and profit losses associated with a 1☐ increase are remarkable, especially in heat-sensitive industries. We go beyond a traditional impact analysis and test mechanisms behind the firms' performance and weather relationship. Our results suggest that the main mechanism is the firm's total factor productivity decline due to temperature increase. To cope with the adverse impact of temperature, firms in non-heat-sensitive industries use bank loans and accrued expense strategies. At the same time, these strategies are not utilized by firms in heat-sensitive industries, most likely due to lower access to those instruments. Given the global warming and increasing severity and frequency of extreme weather events, our findings imply significant future economic losses for the Slovak economy in the short- and mid-term periods. These results highlight the importance of accounting for weather conditions and planning the adaptation and mitigation measures for future economic and business development by both firms and financial institutions.

Info:

In person in Room 109 and via Zoom-Meeting:
https://ios-regensburg-de.zoom.us/j/61791297400?pwd=qWXxKXto1E81Sjz6RMmte3DbaoID6H.1
Meeting ID: 617 9129 7400
Passcode: 194924

Lunch Seminar

Tobias Hartl (Maastricht University)

"Robust trend estimation for strongly persistent data with unobserved memory"

Economic analysis is often based on pre-filtered, de-trended, or seasonally adjusted data. Underlying filtering methods make strong assumptions about the memory of the series to be filtered, and inference about the memory is limited particularly when persistent cyclical variation overshadows the trend. This paper introduces a data-driven method for filtering persistent series that requires no prior assumptions about the memory, thus is robust to the actual memory of the data. It makes three primary contributions: first, it generalizes unobserved components (UC) models to fractionally integrated trends, making prior assumptions about the trend memory redundant while retaining the advantages of the state space structure of UC models; second, it establishes the asymptotic estimation theory for fractional UC models under mild assumptions; and third, it presents a computationally efficient estimator for the trend by deriving the closed-form solution to the Kalman filter optimization problem.

Info:
in person

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Wednesday, April 30 | 11 am

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