Pedro Tremacoldi-Rossi

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Education

University of Illinois at Urbana-Champaign
Ph.D., Agricultural and Applied Economics, 2017-2022 (Expected)

References:

Professor Scott H. Irwin
Department of Agricultural and Consumer Economics
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Professor Dan Bernhardt
Department of Economics
University of Illinois
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Professor Michel A. Robe
Department of Agricultural and Consumer Economics
University of Illinois
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M.S., Agricultural and Applied Economics, 2015-2017

University of São Paulo
B.Sc. (*Bacharel em Ciências*), Economics, 2014

Research and Teaching Fields

Primary: Financial Markets and Institutions, Market Microstructure
Secondary: Commodity Markets, Applied Microeconomics

Teaching Experience

Instructor (full teaching responsibility), "Commodity Futures and Options", Spring 2019, 2020, 2021, UIUC
Instructor (full teaching responsibility), "Commodity Price Analysis", Fall 2019, UIUC
Teaching Assistant to Prof. Scott H. Irwin, "Commodity Price Analysis", Fall 2021, UIUC

Presentations

[†]Presented by coauthor [*]Cancelled or moved online due to COVID-19

2021: AEA ASSA (poster, Chicago)*, Australasian Meeting of the Econometric Society (University of Melbourne)*, North American Summer Meeting of the Econometric Society (Université du Québec à Montréal)*, European Summer Meeting of the Econometric Society (University of Copenhagen)*, Young Economists Symposium (Princeton)*†, Inter-Finance Ph.D. Seminar Series†, B3 Exchange (São Paulo)†, Civitas Seminar (Princeton)†

2020: AFA (Ph.D. Poster Session) and AREUEA† ASSA Conference (San Diego), PhD Conference on Real Estate and Housing (OSU)*, EALE-SOLE-AASLE World Conference (Berlin)*, Junior Migration Seminar (CERDI-PSE-LISER-University of Luxembourg-Universidad Carlos III-CEPII-IC Migrations-World Bank), Young Economists Symposium (University of Pennsylvania)*, Empirics and Methods in Economics Conference (Northwestern)*, 42th Meeting of the Brazilian Econometric Society*

2019: Empirics and Methods in Economics Conference (University of Chicago)

2018: 13th Meeting of the Urban Economics Association (Columbia University)†

Research Experience

Research Assistant to Prof. Scott H. Irwin, 2015-2022
Research Assistant to Prof. Heloisa Lee Burnquist, 2013-2014

Awards

Teachers Ranked as Excellent, UIUC, 2020

Refereeing

Journal of Commodity Markets, Energy Journal, Economics Bulletin

Languages & Skills

Portuguese (native), English (fluent), Spanish (advanced)
R, Stata, Python, GAUSS

Papers

"Financial Regulation and Automation Adoption: Evidence from Stock Trading Firms" (Job Market Paper)

How did trading automation impact broker-dealer firms and workers? While electronic platforms have been available in stock markets for decades, widespread adoption of auto- mated trading occurred only after the major market redesign promoted by the US Securities and Exchange Commission. With the intent of lowering access costs to stock markets, Regulation NMS fostered speed-driven competition in the investment industry. By combining several sources of regulatory records, I construct a rich, linked panel of trading firms and workers with detailed employment records, licenses, and financial information. I show that trading automation increased aggregate profits in the investment industry and induced greater revenue concentration. Consistent with higher technology setup requirements and increased local competition, the entry of new broker-dealers decreases. Survival rates of existing firms display a U-shaped pattern in employment: large, multi-billion dollar investment firms, as well as small brokers who usually engage in proprietary trading, become more likely to stay business. Trading automation generated significant employment displacement effects, decreasing the probability of stock traders remaining employed, even when compared to investment advisors, bond traders, and other financial workers in less automated markets. Through a series of tests, I show that these results are unlikely to be driven by the Great Recession or the rise in online brokerage services. Overall, my findings offer evidence that trading firms providing services to a small portion of investors benefited from trading automation.

"The Misbehavior of Simple Bid-Ask Spread Estimators" (with Scott H. Irwin)

We study why widely used low-frequency liquidity cost estimators based on high, low, and close prices perform well in some markets and poorly in others, often yield negative or indeterminate estimates, and how to diagnose estimation bias empirically. Using the high-low spread estimator as our main setting, we show that the measure is biased due to two common bias factors. These bias sources contribute to performance loss significantly more than idiosyncratic factors, including model assumption violations and specific market microstructure characteristics, and are common to different spread estimators. Estimation bias and the frequency of negative estimates increase in liquid assets or when price volatility is high. This relationship implies that evaluation studies in US equities inflate performance by almost 25%, as a few illiquid stocks disproportionately drive cross-sectional correlations. We also propose and implement an empirical correction that informs researchers on the maximum size of the underlying effective spread and enables the direct computation of minimum estimation bias.

"In Good Times and in Bad: High-Frequency Market Making Design, Liquidity, and Asset Prices" (with Simon N. M. Schmickler)

- *The Ben Bernanke Prize in Financial and Monetary Economics*, Bendheim Center for Finance, Princeton, 2021

This paper studies how liquidity provision obligations and incentives affect the behavior of algorithmic market makers and as a consequence, asset prices and market quality. To this end, we exploit two market maker programs as natural experiments using unique message-level trade and quote data from the Brazilian stock exchange that reveal market participants' identities. We find the combination of obligations and incentives improves and stabilizes liquidity which attracts volume and lifts asset prices. In normal times, these positive effects are driven by the program incentives, while tight obligations constrain market makers and can decrease market quality. In crisis, however, the results flip: stocks with larger incentives experience worse liquidity dry-ups because voluntary liquidity providers withdraw; in contrast, tight obligations mitigate liquidity dry-ups because mandatory intermediaries step in as the liquidity providers of last resort. Finally, which market makers are assigned to which stocks is consequential: market makers' cross-asset hedging behavior causes excess co-movement of returns, liquidity, and volume, highlighting a trade-off between liquidity and excess co-movement. Overall, our results suggest that exchanges and regulators should combine incentives with countercyclical liquidity provision obligations.

"Detecting Wash Trading in Algorithmic Markets" (with Scott H. Irwin *&* Conner Naughton)

Manipulation and fraud have been part of trading since trading has existed. Self-trading is an illegal market manipulation form where a trader takes both sides of the same transaction, resulting in wash sales without ownership transfer. In this paper, we show that current design rules of electronic markets provide profitable opportunities for self-trading that do not result in wash sales, making the practice pervasive in futures markets. We develop a non-forensic methodology to identify self-trades that relies solely on market-by-order data. The approach leverages certain data patterns generated by the use of automated self-trading prevention tools. These functionalities commonly offered by exchanges and trading platforms prevent volume transfer by deleting resting orders involved in self-matches. However, market orders triggering self-matches are not penalized and remain alive in the limit order book. We then measure the market impact of self-trades by analyzing how they direct order flow by luring other traders to post orders directionally. Finally, we show how certain sophisticated trading strategies employ self-matches to exploit allocation algorithms used to match orders and gain market advantage over other traders.

"The Impact of International Students on Housing Markets" Revise and Resubmit, *Canadian Journal of Economics* (with Tatiana Mocanu)

We study the impact of the 2005-2015 international student boom in US universities on local housing markets. By constructing a sample of American college towns characterizing rarely studied local markets in small urban areas, we show that international students exogenously sustained demand for rentals and residential investment, representing countercyclical shocks during the Great Recession. Exploiting the historical distribution of foreign enrollment across college towns and country-of-origin networks, we find that international students increased rents by 1.3% and home prices by 2.5% relative to the housing boom peak, translating into home equity gains of $4,000. An analysis exploiting within-city dynamics reveals that neighborhoods near campus absorbed international inflows by replacing single-family homes with apartment rentals.

"Learning Interruption and Student Achievement: Evidence from Faculty Strikes in Brazilian Universities" (with Tatiana Mocanu *&* Oto Montagner)

Exploiting the common occurrence of union-led faculty strikes in Brazilian universities, during which teaching activities are completely suspended because of collective bargaining, we study the effects of learning interruption in student achievement. Comparing exit and entry exam scores of students from the same major and college exposed to different degrees of learning interruption, we find that each additional strike month lowers 7 positions in the learning rank and increases both dropout rates and time to graduation. Linking exam scores to longitudinal student microdata reveals that these effects concentrate on students of lower income, more likely to work, and who studied in lower-quality high schools. Leveraging post-exit exam surveys, we find that a large part of the observed decrease in performance is attributed by students to lower levels of major satisfaction and perception of value-added, as well as commitment of faculty with teaching, effort, and tutoring. Strikes of other professional groups such as non-instructional staff or of short duration have no effects on any student outcomes, ruling out alternative channels explaining our results. We estimate that strikes in public universities, where education is offered tuition-free, have

an annual tax-equivalent cost due to longer time to degree of over $300 million, amounting to almost a third of the total funding to public colleges.

"Explaining Racial Disparities During a Pandemic" (with Tatiana Mocanu)

Using individual-level administrative records from Brazil, we study the role of healthcare provision, pre-existing medical conditions, occupation, and income in determining salient racial gaps in COVID-19 deaths, infections, and testing. We show that a 7% racial death gap conditional on individual risk factors, demographics, healthcare-seeking behavior, and severity of initial symptoms, disappears once comparing patients hospitalized in the same facility. At least 70% of the gap in deaths is explained by minority patients being disproportionately hospitalized in facilities in lower socio-economic areas and through universal healthcare instead of private insurance. We also find evidence of systematic testing gaps across occupations, where less white, lower income jobs experience testing gaps as large as 40 percentage points relative to frontline healthcare workers, an often-tested group of workers. These occupation-specific testing disparities result in measures of occupational hazards based on confirmed cases that are almost uncorrelated with symptom incidence, which more precisely tracks the observed distribution of deaths across occupations.

"When Inventors Become Bureaucrats: Talent Allocation Between Private and Public Sectors" (with Pedro Tremacoldi-Rossi)