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Education

Harvard University

Ph.D. Economics, 2020 to 2026 (expected)

University of Oxford

MPhil. Economics, 2016 to 2018

Ludwig Maximilian University Munich

BSc. Economics, 2014 to 2016

Technical University Munich

BSc. Management and Technology, 2012 to 2015

Fields

Development Economics and Macroeconomics

References

Professor Emily Breza
Harvard University
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Professor Ludwig Straub
Harvard University
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Professor Gabriel Kreindler
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Professor Xavier Gabaix
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Job Market Paper

Depreciation and Growth: Evidence from Machine Repair in Uganda

2025 NEUDC Distinguished Paper Award

Capital depreciation restricts economic growth, yet little is known about whether it is different in developing countries and why. I study the market for machine repair in Uganda using detailed field data I collected and a spatial growth model with endogenous depreciation. I first document that the cost of machinery upkeep in the sectors I study is around twice as high as in the US, throttling investment and growth. These costs are highest for small and remote firms, which I attribute to scale effects: repair is expensive if it is only infrequently demanded. To quantify the macroeconomic implications of these findings, I build a growth model in which capital breaks occasionally and the process by which it is repaired endogenizes the depreciation rate of the economy. The model proposes a microfoundation for scale effects in the repair market based on unpredictable demand and can account for 7-9% of the variation in income between Ugandan regions when calibrated using rich survey and administrative data. I simulate and discuss the effects of counterfactual development policies aimed at increasing capital investment. Finally, I discuss implications of my findings for the measurement of global capital stocks and present back-of-the-envelope estimates suggesting low-income countries might have 15% less capital than conventionally measured.

Working Papers

Optimal Public Transportation Networks: Evidence from the World's Largest Bus Rapid Transit System in Jakarta, 2025

with Gabriel Kreindler, Arya Gaduh, Rema Hanna, and Ben Olken
conditionally accepted, American Economic Review

Designing public transport networks involves tradeoffs between coverage, service frequency, and direct service. We use the expansion of the bus system in Jakarta, Indonesia, to study these tradeoffs. We analyze how new direct connections, changes in bus travel time, and wait time reductions affect bus ridership and aggregate flows, and estimate a transit network demand model by matching the route launch events. Commuters in Jakarta are 2-4 times more sensitive to wait time than bus time, and inattentive to long routes. We develop a flexible framework to characterize optimal networks. A less concentrated network would increase ridership and commuter welfare.

Slack and Economic Development, 2025

with Michael Walker, Nachiket Shah, Edward Miguel, Dennis Egger, and Felix Samy Soliman
reject and resubmit, Journal of Political Economy

Slack – the underutilization of factors of production – varies systematically with economic development. Using novel firm-level measures from Kenya, we show that utilization is increasing in firm size and market access. We present a model where indivisibility of inputs leads to endogenous steady-state slack and elastic aggregate supply. We empirically validate model predictions against the general equilibrium effects of cash transfers from a large-scale RCT. Consistent with the evidence, the calibrated model predicts a real multiplier of 1.6 and limited inflation. The findings suggest that input indivisibilities and slack are quantitatively important for macroeconomic dynamics in developing countries.

Publications

Spatial Inefficiencies in Africa’s Trade Network, 2024

Journal of Development Economics, 141

I assess the efficiency of transport networks for every country in Africa. Using spatial data from various sources, I simulate trade flows over more than 70,000 links covering the entire continent. I maximize over the space of networks and find the optimal road system for every African state. My simulations predict that Africa would gain 1.3% of total welfare from reorganizing its national road systems, and 0.8% from optimally expanding it by a tenth. I then construct a dataset of local network inefficiency and find that colonial infrastructure projects significantly skew trade networks towards a sub-optimal equilibrium today. I find suggestive evidence that regional favoritism played a role sustaining these imbalances.

Falling Living Standards During the COVID-19 Crisis: Quantitative Evidence from Nine Developing Countries, 2021

with Egger, Miguel, Warren, Shenoy, Collins, Karlan, Parkerson, Mobarak, Fink, Udry, Walker, Haushofer, Larrebourg, Athey, Lopez-Pena, Benhachmi, Humphreys, Lowe, Meriggi, Wabwire, Davis, Pape, Voors, Nekesa, Vernot.
Science Advances 7(6)

Fellowships & Awards

Certificate of Student Recognition of Teaching, 2023
Marco Fanno Scholarship, Unicredit Foundation, 2020
German National Academic Foundation Fellow, 2012-2018
German Academic Exchange Service Scholarship, 2018
Jenkins Memorial Oxford Fellowship, 2017

Teaching

Advanced Topics in International Trade (graduate), Harvard, teaching fellow for Professors Antras and Melitz, 2025
International Trade (graduate), Harvard, teaching fellow for Professor Helpman, 5.00/5.00, 2024
Macro-Finance, Rational and Behavioral (graduate), Harvard, teaching fellow for Professor Gabaix, 5.00/5.00, 2023

Macroeconomic Theory (first-year graduate class), Harvard, teaching fellow for Professor Gabaix, 4.96/5.00, 2023
Spatial Mobility and Development: Evidence and Quantitative Models (graduate), Harvard, teaching fellow for Professor Kreindler, 4.92/5.00, 2022

Academic Service *Refereeing:* Quarterly Journal of Economics, American Economic Review, Journal of Development Economics, Journal of Urban Economics, American Economic Journal: Insights

Seminars & Conferences 2025: World Bank Enterprise Group, NEUDC (Tufts), Chicago Fed Rookie Conference
2024: CSAE (Oxford), NBER Summer Institute, EGC (Yale), NEUDC (Northeastern)
2023: Y-Rise (Yale)
2019: NBER Transportation Economics, CSAE (Oxford)
2018: Oxford, LSE

Research Experience Busara Center for Behavioral Economics, Research Specialist for Professor Johannes Haushofer, Nairobi, Kenya, 2018-2020

Research Grants Ross Garon and Anna Suh Family Foundation Grant, Harvard University, 2025
Michael S. Chae Macroeconomic Policy Fund, Harvard University, 2024
Kenneth C. Griffin Economics Research Fund (2x), Harvard University, 2024, 2025
PhD Research Grant, STEG, 2023 (joint with Felix Samy Soliman)

Languages English (fluent), German (native), French (intermediate)

Software skills Julia, R, Stata