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Dept. of Agricultural and Resource Economics
University of California, Davis
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EDUCATION

Ph.D. in Agricultural and Resource Economics, University of California, Davis (Anticipated) 2020-2025
DISSERTATION: *Three Essays in Development Economics*

B.A. in Economics (*summa cum laude*), University of Virginia May 2014-2018

B.A. in Mathematics (*summa cum laude*), University of Virginia May 2014-2018

RESEARCH FIELDS

Primary: Development Economics
Secondary: Environmental Economics

ACADEMIC PUBLICATIONS

The Economic Potential for Area-Yield Crop Insurance: An Application to Maize in Ghana
(Journal of Agricultural Economics) with Ashish Shenoy

WORKING PAPERS

Digging for Answers: The Effects of Mining Pollution Externalities on Local Agricultural Output in Africa
Job Market Paper

The extraction of critical minerals and metals in Sub-Saharan Africa is expected to intensify in the coming years, potentially displacing existing economic activities. Mining can impact local agriculture in two key ways: through demand shocks, which reduce returns to inputs in non-agricultural sectors, and pollution shocks, which lower returns within agriculture itself. This paper examines the extent to which pollution externalities from industrial mining influence local agricultural output in Sub-Saharan Africa. Using a combination of mine geolocations, topographical data, and satellite-based measures of pollution, crop yields, and weather, I identify areas around mines that are disproportionately exposed to pollution but not the economic effects of local demand booms. Leveraging variation around the openings of over 300 mines across the region, I find that air and water pollution externalities account for 44% of the overall reduction in yields caused by industrial mining, with water pollution being over 10 times more influential than air pollution. Furthermore, using machine learning methods, I show that negative pollution impacts on local yields are 2-3 times more severe for mines in countries with weaker governance and regulatory environments.

Causal Inference with Predicted Outcomes: A satellite-based impact assessment of 'Direct Seed Marketing' in Ethiopia
(Submitted, Journal of Development Economics) with Johanne Pelletier, Solomon Alemu, Manex Bule Yonis, Travis J. Lybbert and Matthieu Stigler

The Cost and Cost-Effectiveness of Vitamin A Supplementation: An Assessment of a Vitamin A Days-Plus Event in Burkina Faso

(Submitted, Health Economics Review) with Stephen Vosti, Melissa Baker, Rolf Klemm, Romance Dissieka, David Doledec and Regina Khassanova

Time is (Not) Money: The decay of machine learning models using cellphone data to predict wealth levels over time

With Travis Lybbert and Oscar Barriga-Cabanillas

Unearthing Inequality: The Impact of Mining Operations on Politically Marginalized Communities

With Ebad Ebadi

WORK IN PROGRESS

Responsiveness to Environmental Risk in Developing Countries

AEA RCT Registry: AEARCTR-0014166

Contract Complexity and the Demand for Agricultural Insurance

With Ashish Shenoy, Anujit Chakraborty, Jon Einar Flatnes, Richard A. Gallenstein, Sabastain Awondo and Irene Egyir

Extraction and Expansion: Mining's Role in African Infrastructure Development

POLICY REPORTS

Nature's Paradox: Steppingstone or Millstone, World Bank Policy Report

RESEARCH EXPERIENCE

University of California, Davis, Department of Agricultural and Resource Economics

Research Assistant: Prof. Eric Edwards	2024 - present
Research Assistant: Prof. Ashish Shenoy	2022 - 2024
Research Assistant: Prof. Travis Lybbert	2022 - 2024
Research Assistant: Prof. Jamie Hansen-Lewis	2023

The World Bank

Short Term Consultant: Office of the Chief Economist of the Sustainable Development Practice	2024
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Helen Keller International

Consultant	2022
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TEACHING EXPERIENCE

Teaching Assistant, University of California, Davis

Undergraduate: Financial Management of the Firm	Fall 2021
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SCHOLARSHIPS, HONORS, AND AWARDS

International Growth Centre Grant, \$42,000, London School of Economics (LSE)	2023-2025
Structural Transformation and Economic Growth (STEG) Grant, \$12,000, LSE	2023-2024
<i>Henry A. Jastro</i> Graduate Research Scholarship Award, \$6,000, UC Davis	2023-2024
Agricultural and Resource Economics Summer Research Fellowship, \$4,000, UC Davis	2024
Provost's 1st Year Ph.D. Fellowship, \$25,000 Stipend, UC Davis	2020-2021

PROFESSIONAL ACTIVITIES

Conferences

North East Universities Development Consortium (NEUDC), Boston, MA	2024
NetMob World Bank, Washington D.C.	2024
Standing Panel on Impact Assessment (SPIA) Matchmaking Event, Cali, Colombia	2022

OTHER

Languages: English (native), Spanish (intermediate)

Software: R, Julia, Stata, MATLAB, Python, ArcGIS, L^AT_EX, Google Earth Engine, SurveyCTO, Qualtrics

Affiliations:

American Economic Association
 Agricultural and Applied Economics Association
 Structural Transformation and Economic Growth
 International Growth Centre

REFERENCES

Prof. Ashish Shenoy (**Co-chair**)
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 University of California, Davis
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Prof. Jamie Hansen-Lewis (**Co-chair**)
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