

# MIRA KORB

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Dept. of Agriculture and Resource Economics  
University of California, Davis  
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## EDUCATION

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Ph.D. in Agriculture and Resource Economics, University of California, Davis	(Anticipated) 2020-2025
DISSERTATION: <i>Three Essays in Development Economics</i>	
B.A. in Economics ( <i>summa cum laude</i> ), University of Virginia	May 2014-2018
B.A. in Mathematics ( <i>summa cum laude</i> ), University of Virginia	May 2014-2018

## REFERENCES

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Prof. Ashish Shenoy (**Co-chair**)  
Department of Agriculture and Resource Economics  
University of California, Davis  
(530) 752-0824  
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Prof. Jamie Hansen-Lewis (**Co-chair**)  
Department of Agriculture and Resource Economics  
University of California, Davis  
(530) 752-1534  
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Prof. Travis Lybbert  
Department of Agriculture and Resource Economics  
University of California, Davis  
(530) 554-1393  
tlybbert@ucdavis.edu

## RESEARCH FIELDS

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Primary: Development Economics  
Secondary: Environmental Economics

## WORKING PAPERS

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*Isolating the Effects of Pollution Externalities from Natural Resource Extraction on Local Agricultural Output in Africa* **Job Market Paper**

This paper explores the extent to which pollution externalities and market-based effects from industrial mining affect local agricultural output in Sub-Saharan Africa. I combine mine geolocations, topographical data and satellite-based measures of pollution, yields and weather, to identify areas around mines that are disproportionately exposed to pollution but not market-specific effects. Leveraging the staggered openings of mines across Sub-Saharan Africa, I find that air and water pollution externalities from mines account for almost 50% of the overall reduction in yields caused by industrial mining. Finally, I use both standard heterogeneity analysis as well as machine learning methods to document that pollution externalities are larger for mines in countries with poor governance and regulatory environments, as well as for mines located in areas with low initial levels of pollution. Download

*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, Matthieu Stigler

Recent advances in earth observation and machine learning have opened new frontiers in impact evaluation that appear well-suited for agricultural settings. We apply these promising methods in the context of Ethiopia’s Direct Seed Marketing (DSM) program, which rolled out after 2011 and aims to enhance farmer access to improved seed varieties. Our satellite-based impact assessment focuses on maize productivity as a summary outcome. Satellite-based yield predictions enable a high-resolution, landscape-level analysis of DSM impacts using a difference-in-difference identification strategy, but yield prediction errors introduce new sources of potential bias in subsequent causal inference. We test for this prediction error bias and compare our DSM impact estimates to those that use farmer-reported and crop cut yield measures. We find evidence of small positive but insignificant effects of the DSM on maize yield, explore how errors in predicted yields introduce bias in causal estimation, and discuss implications for the selection of prediction models.. Available on SSRN

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*The Economic Potential for Area-Yield Crop Insurance: An Application to Maize in Ghana*

(Submitted, Journal of Agricultural Economics) with Ashish Shenoy

Rainfall insurance can enable farm households to manage production risk, but demand remains low at market prices. Area–yield crop insurance, which links payouts to average yield in a geographic zone, attempts to increase demand by more accurately targeting production shortfalls. However, shifting from an exogenous weather-based to an endogenous yield-based insurance index introduces concerns of asymmetric information, which can constrain supply from providers. These features are inversely related: larger insurance zones prohibit index manipulation, but average yield is less informative about any individual plot. We quantify this tradeoff for maize in Ghana using a spatial yield model calibrated to match observed production. Insurers must be willing to demarcate zones of no more than 5,000 farmers for area–yield insurance to outperform weather insurance. The framework presented in this paper allows assessment of market viability for new crop insurance products. Available on SSRN

## WORK IN PROGRESS

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*Responsiveness to Environmental Risk in Developing Countries*

RCT Pre-analysis plan registration

*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

## RESEARCH EXPERIENCE EXPERIENCE

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### University of California, Davis, // Department of Agriculture 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	2023
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### Helen Keller International

Short Term Consultant	2022
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## TEACHING EXPERIENCE

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### Teaching Assistant, University of California Davis

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

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International Growth Center Grant, \$35,000, London School of Economics	2023-2025
Structural Transformation and Economic Growth (STEG) Grant, \$12,000, London School of Economics	2023-2024
Henry A. Jastro Graduate Research Scholarship Award, \$6,000, UC-Davis	2023-2024
Agriculture 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

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### 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

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Languages: English (native), Spanish (intermediate)

Software: R, Julia, Stata, MATLAB, Python, ArcGIS, L<sup>A</sup>T<sub>E</sub>X, Google Earth Engine

Affiliations:

American Economic Association

Agricultural and Applied Economics Association

Structural Transformation and Economic Growth (STEG)

International Growth Centre