CHUNGMANN KIM

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EDUCATION

University of Illinois at Urbana-Champaign, United States *Summer 2025 (expected)*
Ph.D. Candidate in Agricultural and Consumer Economics

Seoul National University, Republic of Korea *June 2019*
M.Sc. in Agriculture Technology

Handong Global University, Republic of Korea *Feb 2015*
B.Sc. in Environmental Engineering
Cum Laude Graduate

PUBLICATIONS

Y. Zhou, E. Lentz, H. Michelson, **C. Kim**, K. Baylis, **Machine Learning for Food Security: Principles for Transparency and Usability**, *Applied Economic Perspectives and Policy*, 2022. https://doi.org/10.1002/aepp.13214

A. Bandyopadhyay, C. Azzarri, B. Haile, **C. Kim**, C. Alvarez, A. Moltedo, A. Sattar, W. Bell, B. Rogers, **Exploring the Association between Agricultural Production Systems and Household Diets in Viet Nam**, *Food Security*, 2022. https://doi.org/10.1007/s12571-022-01276-x

C. Kim, P. Goldsmith, **The Economics of the Soy Kit as an Appropriate Household Technology for Food Entrepreneurs**, *Food and Nutrition Bulletin*, 2021. https://doi.org/10.1177/0379572120981183

Y. Joo, T. Kim, D.K. Nguyen, **C. Kim**, **Vietnamese Preferences for Fresh Korean Ginseng with Labels of Certification, Nationality, Private Brands, and Shopping Places**, *Korean Agricultural Economics Association*, 2021. https://doi.org/10.24997/KJAE.2021.62.3.177

WORKING PAPERS

"From Food Crisis to Resource Allocation: Tracking Humanitarian Aid in Afghanistan", *Job Market Paper*, *2025* [Link to draft]
(Selected presentation at the United Nations University World Institute for Development Economics Research (UNU-WIDER) Development Conference | European Association of Agricultural Economists (EAAE) 2025 Congress | Agricultural and Applied Economics Association (AAEA) 2025 Annual Meeting)

Abstract: This study examines the responsiveness of humanitarian aid to the Integrated Food Security Phase Classification (IPC) system in Afghanistan, focusing on the critical IPC Phase 4 designation, which indicates an acute food emergency requiring immediate action. A significant challenge in evaluating aid responses is the lack of systematically geo-coded data on aid flows. To address this, I apply a text-finding algorithm and natural language processing (NLP) to create a geo-referenced and purpose-labeled aid flow dataset derived from the UN OCHA Financial Tracking Service (FTS). The results show that while aid distributions increase after food emergency alerts, per capita aid remains substantially insufficient for affected populations, highlighting critical gaps in targeting and adequacy of response.

"Hidden Hunger: Global Population of Acutely Hungry is Underestimated by $\frac{1}{4}$", with E. Lentz, H. Michelson, and K. Baylis, *Revise and Resubmit at Nature Food, 2025* [Link to draft] [Replication Code]

Abstract: Acute hunger affects hundreds of millions of people worldwide with long-term consequences for health, development, and security. The Integrated Food Security Phase Classification (IPC) system is the global method for classifying food insecurity severity and is used to allocate more than six billion dollars of humanitarian food assistance annually. Despite concerns that IPC estimates overstate global food insecurity, our analysis of data from 2.8 billion people between 2017–2023 shows the opposite. We find that IPC assessments underestimate the number of acutely hungry people in the world, missing one in four. Using a non-parametric statistical approach, we detect evidence of bunching or under-classification around the threshold differentiating 'stressed' from 'crisis' phases—an important boundary intended to trigger humanitarian funding. Our findings suggest that the prevalence and severity of acute hunger are significantly higher than current global estimates.

"Early-Year Milk Price and Child Stunting in Zambia"
(Selected Presentation at the American Agricultural Economics Association 2022, European Association of Agricultural Economists 2023, Tata-Cornell Institute for Agriculture and Nutrition 2023)

Abstract: Zambia experienced a sharp rise in food prices in late 2015. In this study, we construct a novel dataset by integrating historical food price data with the Zambia Demographic and Health Survey (DHS) from 2018. We examine the relationship between early-life food prices (e.g., fresh milk and mealie meal) and under-five child stunting, controlling for child characteristics and household fixed effects. Elevated milk prices during the early years of life (12 to 24 months) are associated with a higher risk of stunting among children aged 24 to 59 months. The effect is especially pronounced in urban areas and among poor and middle-income households. This research identifies critical timing and groups for intervention during price shocks.

"Acute Food Insecurity Data and Modelling", with M. Ronco, M. Machefer, A. Matano, D. Piovani, M. Meroni, J. M. Veiga Lopez-Pena, C. Corbane, and F. Rembold

Abstract: This study presents a comprehensive review of modeling approaches for Acute Food Insecurity (AFI), bridging the gap between food security experts and the machine learning community. We evaluate several machine learning approaches for forecasting food crises up to three months in advance and for identifying historical drivers behind AFI conditions used in IPC/CH and FEWS NET systems. We introduce a benchmark dataset that is global, frequently updated, and disaggregated to monthly and admin-2 levels. This dataset enables institutional collaboration, supports reproducible research, and facilitates model development focused on both accuracy and explainability.

"Assessing the Consistency of the Integrated Food Security Phase Classification System", with E. Lentz, H. Michelson, and K. Baylis (Under Review)

"Multidimensional Food Security Indicators: Evidence from Multiple Countries in Sub-Saharan Africa", with K. Baylis, E. Lentz, and H. Michelson
(Track Session - Innovations in Food Security Targeting and Assessment at the AAEA 2022)

POLICY WORK

E. Lentz, K. Baylis, H. Michelson, **C. Kim**, "IPC Accuracy Study: Analyzing the Internal Consistency of IPC AFI and AMN Analyses", *IPC Departmental Report, 2024* [Link to report]

C. Kim, C. Alvarez, A. Sattar, A. Bandyopadhyay, C. Azzarri, A. Moltedo, B. Haile, "Production, Consumption, and Food Security in Viet Nam: Diagnostic Overview", *IFPRI, 2021* [Link to report]

J. Koo, **C. Kim**, "Mapping of Poultry Hotspots in Tanzania", *IFPRI Technical Note, 2018*[Link to report]

WORK EXPERIENCE

Food and Agricultural Organization of the United Nations *Feb 2024 – present*
Data Scientist & IPC Modelling Specialist

- Develop a *Data-Driven Risk Monitoring System* for early detection of food insecurity, identifying optimal thresholds for real-time indicators (conflict, agricultural productivity, food prices) to predict critical food security phase transitions and enable timely interventions.
- Contribute to assessing, calibrating, and integrating AI & machine learning-based food security and nutrition models into the IPC framework (e.g. Risk Monitoring System)
- Member of the *Advanced Technology and Artificial Intelligence (ATARI)* Initiative

University of Illinois at Urbana-Champaign *Aug 2019 – present*
Teaching Assistant

- Teaching Assistant for ***ACE 251: The World Food Economy*** - Led discussion sessions and supported instruction in this introductory course on global food demand and supply. Topics included population growth, food security, agricultural markets, resource use, trade, and policy.
- Teaching Assistant for ***ACE 435: Global Agribusiness Management*** - Assisted with course coordination and grading for a class focused on strategic and economic management within the global agribusiness sector. Covered topics included the international business environment, organizational strategy, and operations.

International Fund for Agricultural Development *Sep 2023 – Jan 2024*
Impact Assessment Specialist

- Provide technical support to the impact assessment
- Retrieve and harmonize remote sensing and socio-economic data, including travel time, rainfall, EVI, income, assets, dietary diversity, and food security for impact assessment studies

Food and Agricultural Organization of the United Nations *Oct 2022 – Aug 2023*
Food Security Analyst

- Assess the accuracy of Acute Food Insecurity (AFI) and Acute Malnutrition (AMN) classifications by compiling and cleaning diverse data sources and conducting detailed descriptive and statistical analyses.

Seoul National University, Republic of Korea *Mar 2019 – Jun 2019*
Research Assistant

International Food Policy Research Institute (IFPRI), US *Oct 2018 – Jan 2019*
Research Intern, Environment and Production Technology Division

Canaan Farmer School, Korea & Tanzania *Jan 2015 – Dec 2017*
Project & Training Officer

SKILLS

Programming Languages	Python, Stata, QGIS, Tableau
Languages	English (Fluent), Korean (Native), Chinese (Intermediate)

REFERENCES

Kathy Baylis
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Erin Lentz
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