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EDUCATION	2024 2019 2015	Ph.D., Agricultural and Applied Economics, University of Illinois Urbana-Champaign M.Sc., Agricultural and Applied Economics, University of Illinois Urbana-Champaign B.Sc., Agricultural Economics, The University of Zambia, Zambia	
RESEARCH AREAS	Development Economics Environmental Economics Choice models	Agricultural Economics Machine Learning Remote-sensing	
PUBLICATIONS	<p>Mulenga, B. P., Hadunka, P., & Richardson, R. B. (2017) .“Rural householdsâ participation in charcoal production in Zambia: Does agricultural productivity play a role?.” <i>Journal of Forest Economics</i> 26, 56-62.</p> <p>Wang, J., Konar, M., Baylis, K., Estes, L., Hadunka, P., Caylor, K., & Xiong, S. (2023).“Potential impacts of transportation infrastructure improvements to maize and cassava supply chains in Zambia” <i>Environmental Research: Infrastructure and Sustainability</i></p>		
IN REVIEW	<p>Hadunka, P., & Baylis, K. (2023) “The effects of invasive pests on food security. Evidence from Zambia”<i>American Journal of Agricultural Economics</i>.</p> <p>Lewin, G., Molitor, C., Cohen, J., Cognac, S., Proctor, J., Baylis, K., Hadunka, P., & Carleton, T. (2024).“Monitoring Maize Yield Variability over Space and Time with Unsupervised Satellite Imagery Features” <i>Remote sensing</i>.</p> <p>Sullivan, J., Baylis, K., Hadunka, P., & Konar, M., (2024).“ Urban Legend: Disparities in Household Diets and Food Security Along a Rural-Urban Continuum” <i>Global Environmental Change</i>.</p> <p>Wang, J., Konar, M., Anderson, P., Hadunka, P., & Mulenga, B.P. (2024).“Weather extremes drive crop diversification in smallholder agriculture in Zambia” <i>Climate Risk Management</i>.</p> <p>Cecil, M., Estes, L., Caylor, K., Hadunka, P., Evans, T., Chilenga, A., Gitonga, J., & Wolf, A. (2024).“ Advantages and Limitations of Multiple Sensors for Smallholder Maize Land Surface Phenology Estimation” <i>Remote Sensing of Environment</i>.</p>		
WORKING PAPERS AND RESEARCH IN PROGRESS	<p>Hadunka, P., Baylis, K., & Okada, V. (2023) .“Staple crop pest damage and natural resources exploitation: fall armyworm infestation and charcoal production in Zambia” August 2022 draft.</p> <p>Hadunka, P., Baylis, K., Cardell, L., & Michelson, H. (2024) “What causes adverse outcomes in the maize markets?” March draft 2024 - draft.</p> <p>Hadunka, P., Baylis, K., & Thornton, R. (2022) “Does the providing efficient transportation improve the price knowledge among rural households? Evidence from Malawi”. March draft 2022</p>		

- draft.

Hadunka, P., & Mulenga, B.P. (2024) “Does minimum tillage mitigate the effects of rainfall variability on maize yield? The case of smallholder maize farmers in Zambia” January 2024 - draft.

RELEVANT WORK EXPERIENCE	<p>2023 - April 2024 Principal Investigator, International Growth Center - FRA project: A think tank supervised by Oxford University and London School of Economics, Remote</p> <p>2024 - To date Consultant, International Growth Center, Remote</p> <p>2017 - To date Research and Teaching Assistant, University of Illinois Urbana-Champaign, IL</p> <p>2021 - 2021 Teaching Assistant (Part-time) - Machine Learning for Applied Economists, University of Bonn, Germany</p> <p>2017 - 2021 Research and Teaching Assistant, University of Illinois Urbana-Champaign, IL</p> <p>2019 - 2019 Data Quality Controller, Musika Development Initiative, World Food Program and Business Development Services Africa-SME, Zambia</p> <p>2016 -2017 Research Intern, Musika Development Initiative, Zambia</p> <p>2013 - 2015 Field Supervisor, International Maize and Wheat Improvement Center (CYMMIT)</p>	
TEACHING	<p>Award and Certificate</p> <p>University-wide “List of Teachers Ranked as Excellent” (Spring 2021), UIUC</p> <p>University-wide “List of Teachers Ranked as Excellent” (Spring 2023), UIUC</p> <p>University-wide “List of Teachers Ranked as Excellent” (Fall 2023), UIUC</p> <p>University-wide “List of Teachers Ranked as Excellent” (Spring 2024), UIUC</p>	
POLICY REPORTS	<p>Hadunka, P & Teschemacher, C. (2024) “The effect of Zambia’s Food Reserve Agency on agricultural market outcomes” International Growth Center, Project report.</p> <p>Hadunka, P & Janzen, J. (2023) “Weather Shocks and Seasonal Commodity Market Returns: Evidence from Zambia’s Maize Market” University of Illinois at Urbana-Champaign, farmdoc.</p> <p>Kasanda, E., Hadunka, P., Lubinga, F., Mumba, K., Sakala, M., Arneson, S., Harper, T & Sichilima, T. (2017) “A Needs Assessment of Rural Agribusinesses: The Commercial Viability of SMEs” Musika Development Initiatives, Zambia.</p> <p>Kasanda, E., Chanda, J, Hadunka, P & Sichilima, T. (2017) “The Status of Smallholder Dairy Markets and Farmers’s Perceptions of Formal Markets in Western Province” Musika Development Initiatives, Zambia.</p> <p>Chela, J & Hadunka, P. (2017) “A Qualitative Needs Assessment of Village Chicken Producers in Southern Province” Musika Development Initiatives, Zambia. .</p>	
EXTERNAL GRANTS	<p>International Growth Center</p> <p>National Science Fund</p>	<p>Evaluating the Food and Reserve Agency (Spring 2024)</p> <p>University of Illinois (Summer 2023)</p>
FELLOWSHIPS, GRANTS AND ACADEMIC AWARDS	<p>Jean and John Due Fellowship University of Illinois (Spring 2020)</p> <p>University Fellowship University of Illinois (Fall 2019)</p> <p>Morgan Endowment University of Illinois (Summer 2020)</p> <p>Dunn and Linse Fellowship University of Illinois (Fall 2017)</p> <p>Best Undergraduate Thesis (got published after graduation), The University of Zambia (2015)</p>	
PRESENTATIONS	<p>2024: Led a discussion with senior officials from the Presidential Delivery Unit, Ministry of Agriculture, International Growth Center, and Food and Reserve Agency (FRA) on reforming</p>	

the FRA (Lusaka, Zambia).

2023: Association of Environmental and Resource Economists (Portland, ME) - Section leader

2023: Agricultural and Applied Economics Association Annual Meeting (Washington, DC)

2022: Agricultural and Applied Economics Association Annual Meeting (Anaheim, CA) - Section leader

2022: Center for the Study of Africa Economies-University of Oxford (UK) (virtual)

2022: Midwest International Economic Development Conference (Minneapolis, MN) - Section leader

2022: Sustainability and Development Initiative Conference (Virtual)

2019: Agricultural and Applied Economics Association Annual Meeting (Atlanta, GA)

SERVICE AND LEADERSHIP

Member of the Diversity, Equity, and Inclusion Committee - Student Representative 2024

Member of the University of Illinois Graduate Programs Committee (2018 - Present)

Abstract reviewer - Agricultural and Applied Economics Association - 2022, 2023

Guest Editor - Frontiers in Environmental Economics (special issue)

ADDITIONAL INFORMATION

Software proficiency: Stata, R, python, LATEX, GIS, GAMS, Microsoft Office

Languages: English, Tonga (native), Bemba, Lozi, Nyanja, and Shona (Basic)

PROFESSIONAL REFERENCES

Kathy Baylis, Ph.D. (Chair)

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ABSTRACTS FOR
SELECTED PAPERS**“Rural householdsâ participation in charcoal production in Zambia: Does agricultural productivity play a role?”**

The study uses a nationally representative dataset of smallholder farmers in Zambia to determine the effect of agricultural productivity on householdsâ participation in charcoal production. An instrumental variable probit approach is applied to account for the endogeneity of agricultural productivity in household's charcoal participation decision. We find a negative and significant effect of agricultural productivity on household's likelihood of participation in charcoal production. Results also show that higher education, income, asset value, and participation in off-farm employment opportunities reduce the likelihood of participation in charcoal production. Therefore, interventions seeking to reduce charcoal production in rural Zambia could benefit from improving smallholder agricultural productivity, incomes, asset base, and off-farm employment creation. However, interventions need not lose sight of other important macro-level factors.

“Staple crop pest damage and natural resources exploitation: fall army worm infestation and charcoal production in Zambia”.

Sub-Saharan Africa (SSA) is home to the highest rates of deforestation in the world, pushing the research community to understand its drivers. One driver may be negative agricultural shocks that drive households to consume natural resources as a coping mechanism. This paper uses primary household panel data from Zambia to estimate the effect of the introduction of an agricultural pest, fall armyworm (FAW) on charcoal production. We exploit exogenous variation in the intensity of exposure to FAW across households and years to identify their effect and find a positive and significant effect of FAW on charcoal production and deforestation. We find that FAW in the village increases the probability of producing charcoal by 3.48 percentage points, from 22 percent to 25 percent. The results also indicate that when methods to mitigate FAW damage such as reducing the share of maize, migration for off-farm employment opportunities and chemical spraying are available, farmers are less likely resort to charcoal production as a coping strategy. Effects are robust to linear including region-specific time trends and instrumental variables for FAW presence. The results suggest that policy interventions to mitigate agricultural production shocks could also have the benefit of reducing charcoal production and deforestation.

“The effect of invasive pests on food security: An understudied effect of climate change”.

Global agricultural production and food security are threatened by insect pests. Pest invasions have been exacerbated by climate change, as temperatures increase both the range and the appetite of the insects. While the direct effect of climate change on agricultural production has received a lot of attention in the literature, less work estimates the indirect effect of climate change on agricultural production and food security through the insect pests which are exacerbated by climate change. In this paper, we use the example of the introduction of Fall armyworms (FAW) to Africa to study the effect of insect pests on agricultural production and food security in the face of climate change. We use a panel of primary farmer data to evaluate the effect of this pest and analyze which characteristics make farmers more vulnerable to food insecurity in the face of a FAW invasion. We find that FAW decreases maize yield by 39.8 percent and can increase food insecurity by up to 10 percent. Further, we find that increased temperatures are related to higher FAW incidence. On the other hand, we find that farmers can mitigate the effect of fall armyworms through planting early and planting drought-tolerant hybrids. The effects are robust to time-invariant household unobservable characteristics. Specifically, we find that forecasts of increased temperatures on maize yield underestimate the potential effect of climate change by about 0.8 percent if they do not include the loss in yield from increased pest pressure. This paper demonstrates the understudied threat of climate change through insect pests on food production and food security, suggesting that climate change poses greater threats to future food security than previously measured.