Thuy Nguyen

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Education

Carnegie Mellon University 2021 – 2026 (Expected)
Ph.D. in Engineering and Public Policy Pittsburgh, PA
Primary Advisor: Dr. Nick Muller
Committee Members: Dr. Peter Adams, Dr. Akshaya Jha, Dr. Erin Mansur
Dissertation Title: "Disparate Consequences of Oil and Gas Extraction"

Lawrence University 2017 – 2021
B.A. in Mathematics and Economics, summa cum laude Appleton, WI
(With Minor in Statistics & Data Science)

Research Fields

Applied Microeconomics (Environmental & Energy, Natural Resource, Labor, Public), Public Policy, Environmental Engineering

References

Dr. Nick Muller (advisor)
Professor of Economics, Engineering, and Public Policy
Carnegie Mellon University
nzm@andrew.cmu.edu
(412) 268 - 8121

Dr. Akshaya Jha
Associate Professor of Economics and Public Policy
Carnegie Mellon University
akshayaj@andrew.cmu.edu
(608) 347-2102

Dr. Erin Mansur
Professor of Business Administration
Dartmouth College
erin.mansur@dartmouth.edu
(603) 646-2398

Dr. Peter Adams
Professor of Engineering
Carnegie Mellon University
petera@andrew.cmu.edu
(412) 268 - 5624

Job Market Paper

"Drill Here, Drill Now, Pay Less: Labor Market and Air Quality Trade-offs of Oil and Gas Extraction"

(Dennis J. O'Brien U.S. Association for Energy Economics Best Student Paper Awards Finalist — Winner to be Announced)

[Most Recent Version]

Abstract: This work uses spatial econometric modeling to investigate the local and regional labor market and air quality trade-offs of oil and gas extraction in Pennsylvania, Ohio, and West Virginia. The results reveal a double disparity that is as much generational as it is geographical. While younger, mobile workers, particularly non-locals, capture most of the economic benefits from oil and gas, local seniors living near production activity bear the bulk of the environmental health costs. Specifically, I find that oil and gas do not create jobs for local residents who work in their home county. Only a subset of locals, those who commute to jobs outside their home county, experience measurable gains, averaging eight additional jobs and $525,000 in earnings per 100,000 barrels of oil equivalent (BOE) produced. In comparison, the same level of production generates about 12 jobs and $1.2 million in earnings for non-local workers, amounting to about 40% more jobs and more than double the earnings compared to commuting locals. In contrast, air quality impacts are the most severe when production occurs nearby. An additional 100,000 BOE produced within 1 to 2 km of a gridded cell increases its $PM_{2.5}$ concentration by 1.2 $\mu g/m^3$, on average. Leveraging fine-grained, age-specific population and vital statistics, I estimate that oil and gas extraction resulted in $62 billion in health damage—roughly one-quarter of total oil and gas revenue—in the tri-state region between 2001 and 2020. Local seniors suffered 80% of the health burden.

Working Paper

"Consumer Preferences for Vehicle Types Informed by Direct and Indirect Emission Estimates" (with Yujin Seo, Baruch Fischoff, and Nick Muller), *Revise & Resubmit at Transpotation Part D*

> **Abstract:** Government and automakers are pursuing a major transition to Electric Vehicles (EVs), which relies on consumers' willingness to purchase these vehicles and their satisfaction with their choices. This paper reports three studies that demonstrate and evaluate a decision science-based approach to communicate, in quantitative terms, the direct and indirect emissions of five vehicle types (ICE, HEV, PHEV, BEV, and FCEV). We found that a diverse sample of nonexperts understood both types of emissions well enough to express consistent preferences, which were similar when emissions were presented as percentages of ICE emissions or as absolute amounts (CO2-equivalent tons). Participants generally preferred vehicles with lower emissions, regardless of the source of those emissions. However, participants still supported having manufacturers maintain mixed fleets and would rate three manufacturers (Toyota, Tesla, Ford) more highly if they had that ideal fleet composition. Providing emission estimates increased the attractiveness of FCEV and reduced that of PHEV. Preference for ICE was higher for participants to self-identified as political conservatives and saw charging as less feasible. We recommend providing standardized displays of direct and indirect emissions, presented in clear quantitative terms, to aid informed decision-making by consumers, policymakers, and manufacturers.

Work in Progress

"Measuring Microloads: Econometric Estimates of Electricity Generator Response to Household Electricity Consumption" (with Nick Muller)

"Access to Primary Care and Population Health Status in United States Counties" (with Jonathan Lhost, Merton Finkler, and Madison Gardner)

Other Scholarly Work

"Enhancing Air Quality Forecasts with AP4 Model Updates" (with Tyler W. Davis, Nick Muller, Michael Whiston, Matthew Jamieson, and Robert James)

> **Abstract:** The U.S. Environmental Justice 40 Initiative is driving the need for more accurate community-level models. The Air Pollutant Emissions Experiments and Policy Version 4 (AP4) model, a key tool for Environmental Justice initiatives, was recently upgraded to better simulate particulate matter (PM) air pollutant impacts at county and census tract levels across the contiguous U.S. By expanding the AP4 model to include industrial point-source emissions, more accurate forecasts of emissions can be provided to policymakers, ultimately informing data-driven decisions that prioritize public health, environmental stewardship, and social equity.

Research Positions

Graduate Research Assistant to Dr. Nick Muller — 2021 – Present
Carnegie Mellon University — Pittsburgh, PA

Research Assistant to Dr. David Gerard — Summer 2020
Lawrence University — Appleton, WI

Research Assistant to Dr. David Gerard & Dr. Jonathan Lhost — Summer 2019
Lawrence University — Appleton, WI

Invited Presentations & Talks *(including scheduled)*

2025 42nd USAEE/IAEE North America Conference
Camp Resources XXXI
Association of Environmental and Resource Economics Summer Conference
2024 American Geophysical Union Annual Meeting*
GIS Day Symposium
Association of Environmental and Resource Economics @ Eastern Economics Association**
CMU Climate and Energy Decision Making Doctoral Student Seminar
2023 Association of Environmental and Resource Economics Summer Conference*
CMU Electricity Industry Center Annual Advisory Committee Meeting
2021 Midwest Economics Association 85th Annual Conference
2020 Missouri Valley Economic Association 55th Annual Meeting

** = poster*
*** = discussant*

Select Honors & Awards

2025 Dennis J. O'Brien U.S. Association for Energy Economic Best Student Paper Finalist *(Top 4; winner to be announced November 2025)*

Lawrence University

2021 Iden Charles Champion Award in Commerce & Industry *(Best Senior Thesis in Economics)*
William A. McConagha Prize *(Senior Prize for Economics)*
Senior Prize for Statistics & Data Science
Phi Beta Kappa
2020 Philip and Rosemary Wiley Bradley Achievement Scholarship in Economics *(Junior Prize for Economics)*
Richard A. Harrison Award for Student Research in the Humanities and Social Sciences

Grants & Fellowships

2025	Walawalkar Student Travel Fund, Carnegie Mellon University	$850
2024	Graduate Student Assembly/Provost Conference Funds, Carnegie Mellon University	$750
2023	U.C. Berkeley/Sloan Summer School in Environmental and Energy Economics Diversity Fellowship	$1,200
2020	Summer Research Fellowship, Lawrence University	$4,000
	Povolny Fund for Excellence, Lawrence University	$1,000
2019	Summer Research Fellowship, Lawrence University	$4,000
	Povolny Fund for Excellence, Lawrence University	$700

Service & Mentorship

Referee Service

AERE@EEA Conference, *Submission Abstract Reviewer* 2024

Carnegie Mellon University

Speak Up! Three-Minute Research Talk, *Evaluator* 2024
EPP Peer Mentoring Program, *Mentor* 2024 - 2025
Summer Center for Climate, Energy, & Environmental Decision Making Workshop, *Organizer* 2022; 2023
GRASP Admissions Mentoring Program, *Mentor* 2021

Lawrence University

Honor Council, *Member* 2018 - 2021

Teaching Experience

Graduate Teaching Assistant, Carnegie Mellon University

(Master) 19-684/94-855 Engineering & Technology Innovation Management in Practice Fall 2025
(Doctoral) 19-703 Applied Data Analysis 1 (5/5) Spring 2025
(Master) 19-666/39-612/45-916 Energy Policy & Economics Spring 2024, Spring 2025

Teaching Consultant Fellow, Eberly Center @ Carnegie Mellon University 2024 - Present

- Provide consultation services for graduate and postdoctoral students, including classroom/guest lecture observations, lesson plan review, course and syllabus design, teaching statement guidance, and workshops/professional development.

Future Faculty Trainee, Eberly Center @ Carnegie Mellon University 2021 - Present

- Receive training in applying evidence-based strategies for effective curriculum design and instruction in preparation for a faculty career.

Guest Lecturer, Environmental Economics (Econ 280), Lawrence University Winter 2024

- Led guest lecture: *"Up in the Air: Spatial Modeling & Valuation of Air Pollution Externalities.*"

Undergraduate Teaching Assistant, Lawrence University*

Econ 100: Introductory Economics Fall 2018, Winter 2018, Spring 2019, Winter 2020, Spring 2021
Econ 280: Environmental Economics Spring 2019, Fall 2019, Spring 2021
Econ 380: Econometrics Winter 2020, Winter 2021
Econ 400: Industrial Organization Spring 2020
Econ 481: Advanced Econometrics Fall 2020

**classes taught on the trimester system*

Trainings

2023 U.C. Berkeley/Sloan Summer School in Environmental and Energy Economics
2019 Property and Environment Research Center Student Colloquium

Professional Affiliations

Association of Environmental and Resource Economists
Professional and Organizational Development Network in Higher Education
United States / International Association for Energy Economics

Additional Information

Computer skills: R, Stata, Python, SQL, Power BI, ArcGIS, OpenLCA, Analytica, LaTeX
Languages: English (fluent), Vietnamese (native), Korean (intermediate), Hindi (basic)
Work Authorization: Eligible for F-1 OPT (up to 3 years)

– Last updated: September 2025 –