

## Connor R. Forsythe, Ph.D.

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### **SUBJECT MATTER EXPERTISE**

Discrete Choice Modeling with Machine Learning, Heterogeneous Preference Estimation, Emerging Technology Demand Estimation, Consumer Decision-Making, Transportation Policy Analysis, Optimization, Causal Inference

### **EDUCATION**

**Carnegie Mellon University, Pittsburgh, PA**

August 2018-August 2023

**College of Engineering**

Ph.D. in Mechanical Engineering

Thesis: [\*Econometric Estimation of Consumer Responses to Personal Transportation Policies and Technologies\*](#)

Advisors:

Jeremy J. Michalek (Engineering and Public Policy and Mechanical Engineering),

Kate S. Whitefoot (Engineering and Public Policy and Mechanical Engineering)

Committee Members:

Kenneth Gillingham (Yale University, Economics),

Akshaya Jha (Carnegie Mellon University, Economics and Public Policy)

QPA: 3.80/4

**The George Washington University, Washington, DC**

August 2014-May 2018

**School of Engineering and Applied Science**

B.S. in Systems Engineering

GPA: 3.97/4

**Honors:** Graduated summa Cum laude, Top of Class

### **RESEARCH EXPERIENCE**

**Vehicle Electrification Group – Jeremy Michalek,**

August 2023-Present

**Whitefoot Research Group – Kate Whitefoot**

**Department of Engineering and Public Policy**

*Post-Doctoral Researcher*

- Working with research teams to better understand the policy-related impacts of extended vehicle life on vehicle usage behaviors, US consumer electric preferences over time, autonomous grocery delivery, and Transportation Network Company (TNC)-related policy impacts leveraging econometric identification techniques. Additional work done expanding discrete choice modeling techniques with machine learning.

**Carnegie Mellon University:**

**Vehicle Electrification Group – Jeremy Michalek,**

August 2018-August 2023

**Whitefoot Research Group – Kate Whitefoot**

**Department of Mechanical Engineering**

*Graduate Research Assistant*

- Working with research teams to better understand the policy-related impacts of extended vehicle life on vehicle usage behaviors, US consumer electric preferences over time, autonomous grocery delivery, and Transportation Network Company (TNC)-related policy impacts leveraging econometric identification techniques.

**The George Washington University:**

**SzajnLab - Zoe Szajnfarder, Gralla Lab – Erica Gralla**

January 2017-May 2018

*Undergraduate Research Assistant*

- Worked with a research team to further understand the relationship between product architecture and design team architecture.
- Created data collection and analysis tools as well as collected and analyzed data to find communication patterns present in concurrent design teams.

## **TEACHING EXPERIENCE**

### **Carnegie Mellon University:**

*Graduate Teaching Assistant for Engineering Optimization* Spring 2020-Fall 2020

- Lectured on nonlinear programming topics and relevant implementation methodologies
- Held office hours, helped in construction as well as preparation of assignments and teaching materials.

### **The George Washington University:**

*Undergraduate Teaching Assistant for Systems Thinking and Policy Making* Fall 2017

- Participated in a teaching team that taught students the fundamentals of systems thinking as well as methods and software necessary to implement systems dynamics models.

## **PUBLICATIONS**

### **Journal Publications**

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. (2023). Technology advancement is driving electric vehicle adoption. *Proceedings of the National Academy of Sciences of the United States of America*, 120(23), 1–7. <https://doi.org/10.1073/pnas.2219396120>

**Forsythe, C. R.**, Harper, C. D., & Michalek, J. J., (2023). *Bringing Home the Bacon: Estimating Willingness to Pay for Autonomous Grocery Delivery Across US Households*. Accepted at *Transportation Research Interdisciplinary Perspectives*.

### **Under Review**

**Forsythe, C. R.**, Jha, A., Michalek, J. J., & Whitefoot, K. S. (2022). *Externalities of Policy-Induced Scrappage: The Case of Automotive Regulations*. NBER Working Paper. <https://doi.org/10.3386/w30546>. Requested revise and resubmit at *Journal of the Association of Environmental and Resource Economists*.

### **Working Papers**

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. (2023). *Will Pickup Truck Buyers Go Electric?* To be submitted to *Nature Sustainability* by 5/31/2024.

**Forsythe, C. R.**, Arteaga, C., & Helveston, J. P. (2024). *The Heterogeneous Aggregate Valence Analysis (HAVAN) Model: A Flexible Approach to Modeling Unobserved Heterogeneity in Discrete Choice Analysis*. 1–10. <https://arxiv.org/abs/2402.00184>

Bruchon, M. B., **Forsythe, C. R.**, & Michalek, J. J. (2023). *Should Ridesourcing Services Pool More Rides?*

Koling, A., Armanios, D., Michalek, J. J., **Forsythe, C. R.**, & Jha, A. (2023). *Ride-Sharing the Wealth – Effects of Uber and Lyft on Jobs, Wages and Economic Growth*. To be submitted to *Transportation Research Part A: Practice and Policy* by 6/30/2024.

Bruchon, M. B., **Forsythe, C. R.**, Andreasan, C., Whitefoot, K. S., & Michalek, J. J. (2023). *Does Congestion Pricing for Uber and Lyft Work? Effects of Chicago's Downtown Zone Surcharge*. To be submitted to *Transportation Research Part A: Practice and Policy* by 6/30/2024.

Burns, A., **Forsythe, C. R.**, Michalek, J. J., & Whitefoot, K. S. (2023). *Estimating the Potential to Reduce Double Parking and Cruising with a Dynamic Curb Space Reservation System for Diverse Users*.

Vicente, J.P., **Forsythe, C. R.**, Gillingham, K.T., Michalek, J. J., & Whitefoot, K. S. (2023). *Automotive Choice Models: A Systematic Review of the State of the Literature*.

## CONFERENCES

(Individuals underlined served as main presenter if not me)

**Forsythe, C. R.**, Harper, C. D., & Michalek, J. J., (2023). *Bringing Home the Bacon: Estimating Willingness to Pay for Autonomous Grocery Delivery Across US Households*. TRB Annual Meeting 2024

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. *Will Pickup-Truck Owners Go Electric?* United States Association for Energy Economics/ International Association for Energy Economics North American Conference 2023

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. *Driving Electric Vehicle Adoption: The Role of Technology and Consumer Preferences*. National Bureau of Economic Research - Economics of Energy Use in Transportation 2023.

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. *Driving Electric Vehicle Adoption: The Role of Technology and Consumer Preferences*. United States Association for Energy Economics/ International Association for Energy Economics North American Conference 2022

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. *Driving Electric Vehicle Adoption: The Role of Technology and Consumer Preferences*. Bridging Transport Research #4 2022.

**Forsythe, C. R.**, Jha, A., Michalek, J. J., & Whitefoot, K. S. *Externalities of Policy-Induced Scrappage: The Case of Automotive Regulations*. Bridging Transport Research #4 2022.

**Forsythe, C. R.**, Gillingham, K., Michalek, J. J., & Whitefoot, K. S. *Technology advancement is driving electric vehicle adoption*. TRB Annual Meeting 2022

**Forsythe, C. R.**, Michalek, J. J., & Whitefoot, K. S. *Fleet Use Implications of Policies that Affect Light-Duty Vehicle Scrappage*. National Bureau of Economic Research - Economics of Energy Use in Transportation 2021.

## OTHER PUBLICATIONS

Michalek, J. J., Armanios, D., Harper, C., Nock, D., Whitefoot, K. S., Bruchon, M. B., Gebresselassie, M., **Forsythe, C. R.**, Hanig, L., & Koling, A. (n.d.). *Policy Brief Series on Uber and Lyft in U.S. Cities*.

Michalek, J. J., **Forsythe, C. R.**, Gillingham, K., Vicente J. P., & Whitefoot K. S. (2023). *Comment about Automotive Demand Models in the proposed rule "Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles" Docket EPA-HQ-OAR-2022-0829* (Issue October).

## **FUNDING PROPOSALS**

**Forsythe, C. R.,** Michalek, J., & Whitefoot, K. *Do Weaker Vehicle Efficiency Standards Really Improve Social Welfare?* Steinbrenner Institute Doctoral Fellowship Program 2019/2020

**Forsythe, C. R.** & Michalek, J. *Study of Vehicle Use Implications for the Gruenspecht Effect due to Fleet-Wide Vehicle Technology Application and Associated Uncertainty.* Dowd Graduate Student Fellowship 2020

**Forsythe, C. R.,** Gillingham, K., Linn, J., Michalek, J. J., & Whitefoot, K. S. *Evolution of Consumer Preferences for Electric Vehicles in the US.*

## **MEDIA**

Gearino, D. (2023). *EV sales are growing because the features keep getting better. That bodes well for the future.* <https://www.fastcompany.com/90907429/ev-sales-are-growing-because-the-features-keep-getting-better-that-bodes-well-for-the-future>

*Technology advancement is driving electric vehicle adoption.* (2023). Green Car Congress. <https://www.greencarcongress.com/2023/06/20230609-cmu.html>

## **SERVICE**

### **Review Service**

- Reviewed and contributed to reviews of articles for the USAEE North American Conference, Transportation Research Board Annual Meeting, Transportation Research Part A and D, and Environmental Research Letters

### **Lab Mentoring**

- Engaged in lab mentorship helping students understand fundamentals of statistical inference, discrete choice analysis, and nonlinear programming

### **Graduate Student Service**

- Regularly served to provide feedback and support to first-year Ph.D. students in preparation for their research and subject-matter qualifying exams

## **REFERENCES**

- Jeremy J. Michalek
  - Relationship: Ph.D. and postdoctoral advisor
  - Email: [jmichalek@cmu.edu](mailto:jmichalek@cmu.edu)
  - Phone: +1 (412) 268-3765
- Kate S. Whitefoot
  - Relationship: Ph.D. and postdoctoral advisor
  - Email: [kwhitefoot@cmu.edu](mailto:kwhitefoot@cmu.edu)
  - Phone: +1 (412) 268-6771
- Akshaya Jha
  - Relationship: Ph.D. committee member and co-author
  - Email: [akshayaj@andrew.cmu.edu](mailto:akshayaj@andrew.cmu.edu)
  - Phone: +1 (608) 347-2102
- Kenneth Gillingham
  - Relationship: Ph.D. committee member and co-author
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  - Phone: +1 (203) 436-5465