

Davut Emrah Ayan

Associate Director, Marketing Sciences

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Summary:

I am an experienced professional with over 5 years of expertise in data science and economic research. I excel in statistics, econometrics, and possess adept skills in utilizing machine learning techniques and causal models. Renowned for my highly organized, detail-oriented approach, I am motivated by a robust background in economics and business intelligence.

Education:

Doctor of Philosophy, Economics, University of Kansas	2012 - 2016
Masters, Economics, University of Kansas	2011 - 2013
Bachelors Degree, Industrial and Systems Engineering, National Defense University	2003 - 2007

Technical Skills:

- * Programming Languages: **R, Python, Spark, STATA, SQL**
- * Big Data Tools: **Databricks, AWS**
- * Advanced Causal Inference Methods: **Difference-in-Differences, Instrumental Variables, Synthetic Control, Regression Discontinuity, Propensity Score Matching, Inverse Probability Weighting (IPW)**
- * Agile Software Development Methodologies (Jira)
- * Machine Learning: **Logistic Regression, Naïve Bayes, Decision Trees, Random Forests, Gradient Boosting, A/B Testing, Time Series Forecasting, Factor Analysis, Principal Component Analysis, Cluster Analysis, Natural Language Processing (NLP), LLM, Marketing Mix Modeling (MMM), Generative AI**

Work Experience:

Senior Data Scientist, Marketing Sciences, Horizon Media (Mar 2022 - Present)

- * Conducted descriptive and exploratory statistical analyses to unearth valuable insights into audience demographics and target consumer behavior.
- * Applied advanced supervised and unsupervised machine learning techniques for predictive modeling and customer segmentation, effectively targeting specific audiences and driving strategic decision-making.

- * Applied causal inference models to dissect post-campaign performance, distilling actionable insights into consumer behaviors and campaign effectiveness.

- * Developed high-performance scripts to generate individual and household-level weights for consumer datasets and draw balanced random samples, ensuring accurate representation of the US population. These innovative solutions process large datasets (10-100 million observations) in seconds, significantly outperforming conventional library-dependent methods that can only handle relatively small data sets.

Postdoctoral Researcher, IPSR, University of Kansas

Feb 2021 - Mar 2022

- * Conducted data extraction, manipulation, and analysis, employing advanced statistical techniques, ETL (Extract, Transform, Load), and EDA (Exploratory Data Analysis) processes.

- * Collaborated on data analysis projects, extracting meaningful insights from extensive datasets by applying advanced causal inference models, resulting in policy-oriented publications.

- * Developed a next-word prediction algorithm using data mining and Natural Language Processing (NLP) methods, contributing to the advancement of language modeling and predictive analytics.

Publications:

Ayan, D, Haak, L, Ginther, DK. How many people in the world do research and development? Global Policy, 2023. <https://onlinelibrary.wiley.com/doi/full/10.1111/1758-5899.13182>

Ginther, DK, **Ayan, D**, Slusky, DJG. Economic Costs to Kansas Due to State's Failure to Expand Medicaid. The Reach Foundation, 2022. <https://kuscholarworks.ku.edu/handle/1808/32851>

Ginther, DK, **Ayan, D**, Slusky, DJG. The Unexpected Costs of Not Expanding Medicaid in Kansas. Institute for Policy & Social Research at University of Kansas and Reach Foundation, 2022. https://ipsr.unit.ku.edu/CSTEP/PDF/Medicaid_Brief_2022.pdf

Honor and Awards:

- * **Academic Support Grant:** Awarded to present research findings at the 91st Annual Meeting of the Southern Economic Association.

- * **Graduate Education Scholarship:** Recipient of the highly competitive Graduate Education Scholarship from the Ministry of Defense, Turkey (2011-2016)

- * **Infantry Branch School Graduation:** Ranked 11th out of 362 officers upon graduation from the Infantry Branch School.

- * **National Defense University Graduation** Ranked 13th out of 765 cadets upon graduation from the prestigious National Defense University (2007).