

# 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:

Ph.D in Economics, University of Kansas, Kansas, United States (Aug 2012 - Jul 2016)  
M.A. in Economics, University of Kansas, Kansas, United States (Aug 2011 - Jul 2013)  
B.A. in Industrial and Systems Engineering, National Defense University (Sep 2003 - Aug 2007)

## Technical Skills:

- \* Programming Languages: **R, Python, Spark, STATA, SQL, HTML, Git**
- \* 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)**

## Work Experience:

**Associate Director**, Marketing Sciences, Horizon Media (Mar 2022 - Present)

- \* Conduct descriptive and exploratory statistical analyses to gain insights into audience demographics and target consumer behavior.
- \* Apply supervised and unsupervised machine learning techniques to forecast business outcomes, enhancing strategic decision-making processes.
- \* Utilize causal inference models to perform post-campaign performance analyses, extracting actionable insights into consumer behaviors and campaign effectiveness.

- \* Spearhead Media Mix Modeling initiatives to optimize marketing investments and maximize ROI.

- \* Implement sample balancing, weighting, and weighted random sampling techniques based on selected features, refining data insights and ensuring robust analytical outcomes.

**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.

- \* 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](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).