

Elle Park  
4/28  
DS 4002 Prototyping

## **Predicting Child Opportunity Inequality Scores in Richmond, VA Counties with Regression**

### **Motivation:**

Every child has limitless potential, with the earlier stages of life and their various support systems being most important/influential for adolescent development. However, opportunities available to children differ all across the nation, state, and county, especially when we group by racial/ethnic groups. A strong start in life leads to better education, health, and economic outcomes, benefiting not just individuals but also entire communities. In pursuing this project, we aim to understand how different environmental factors can impact child development over time. By observing these factors, we can better understand the barriers some children face and take action to create a stronger, more prepared future generation that will go on to achieve great feats.

Focusing on the neighborhood environments, the Child Opportunity Index (COI) from diversitydatakids foundation is committed to equity to learn and grow for all children. It measures and maps the quality of educational, health, environmental, social, and economic resources accessible in the neighborhoods. The indices are expected to drive insights for longitudinal, multidimensional comparisons for children across the U.S.

### **Deliverable:**

You are a data scientist working for diversitydatakids foundation tasked with determining the COI scores of Richmond, VA counties in 2021. In order to predict the COI scores, you will use time series data to perform exploratory data analysis, interpret correlation scores with a heat map, use cross-tabulation, create a predictive model to accurately predict 2021 scores using data from 2012-2020 as training data, and interpret those results in a visualization comparing the actual with predicted scores.

Overall, finding actionable insights that can be used as additional research to understand how our future generations are inequitably given resources and opportunities, therefore, influencing their adult outcomes. The implications of your findings can be used in the broader context of Richmond to inform education leaders and policymakers of potential policy implementation necessary to facilitate equal access to resources for children.

Link to Repo: <https://github.com/ElliottRoosevelt/CS3-DS4002/tree/main>