

# MILRD Virtual Training Projects

Undergraduates · High School Students

## VTP OVERVIEW

**Large-scale Data Economics + Social Mobility Analysis**  
(collaboration with Dr. Raj Chetty's Research Group, Harvard University)

## Who should enroll

*Undergraduates and high school students* who are interested to:

***Learn about how big data economics and social mobility analysis are being used by practitioners in academia, industry, and government.*** VTPs can help inform: undergraduate/graduate study & program selection, applications for internships and first jobs.

***Work alongside professionals and trainees from academia, industry and government.*** Each participant is assigned their own dataset and works in a small group with other participants. Our personalized platform mixes professionals, trainees, & graduate students with college & high school students to enable peer-learning and networking opportunities—without leaving beginners behind or holding back folks with more expertise.

***Develop mentorship and leadership skills.*** Participants who complete a VTP can apply to serve as an assistant mentor to future cohorts of the project.

## Domains

Data science, Economics, Large-scale Data Analysis, Statistics/Visualization in R, Regression Analysis

## Aim

Explore the childhood roots of social mobility at the community level.

## Learning Goals

| <i>Discussion Topics</i>  | <i>Tasks + Methods</i>   |
|---|--|
| <ul style="list-style-type: none"><li>● Using R for economics research</li><li>● Social Mobility Study design overview and rationale</li><li>● Sources and data structures of study input data</li><li>● Statistical analysis and visualization in R</li><li>● Regression &amp; Correlation Analysis</li><li>● Considerations for using this data to inform policy design and interventions</li></ul> | <ul style="list-style-type: none"><li>● Summary statistics for assigned locale</li><li>● Execute assigned correlations</li><li>● Execute correlations of choice</li><li>● Plot regressions</li><li>● Plot binned regressions</li><li>● Interpretation of results + iteration</li><li>● Re-execute analysis with locale of choice; compare to initial results</li></ul> |

**Suggested Preparation** R fundamentals (optional)

## Summary

The Opportunity Atlas is the first comprehensive dataset on children's outcomes across neighborhoods in the US. The dataset was built using individual-level data from the US Census Bureau, federal income tax returns and American Community Surveys. It contains data on children's outcomes and parental characteristics for the entire American population from 1989-2015, including 20.5 million children. The project has implications for social and economic policies to

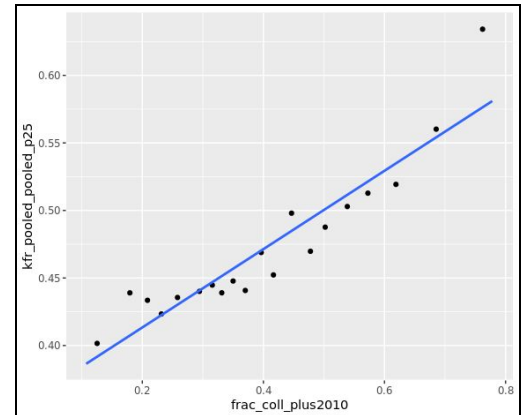
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promote income mobility.

In this VTP, you'll analyze your own assigned community in the Opportunity Atlas with help from your mentor and in collaboration with your cohort, which can include undergraduates, graduate students, research staff, and industry professionals.

Throughout the week, you'll investigate the power of several variables—such as household income and incarceration rates—to predict social mobility in your assigned city. Using the R statistical programming language and its popular library ggplot2, you'll compute regressions, correlations, and generate histograms, scatterplots and other visualizations. To conclude, you'll conduct a similar analysis on a US city/locale of your choice and compare the results to those from your assigned city.



## Source Data

Chetty et al. *The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility*. [NBER. Manuscript on Opportunity Insights](#). [New York Times coverage](#).

## Schedule

### Weeklong VTP Structure



**Total Effort:** ~15-20 hours

## MILRD Provides

- ❖ Unlimited support from expert mentors
- ❖ Access to all required high-performance cloud-compute resources (AWS), analysis tools and software
- ❖ Access to all source data required to complete your project
- ❖ Optional Pre-VTP Preparation

## Participants Provide

- ❖ A computer running Windows or MacOS
- ❖ Google Chrome, Safari, Firefox, or Edge
- ❖ A stable Internet connection

## Sign Up

Review VTP dates and enrollment instructions on our [Enrollment & Contact](#) page.