



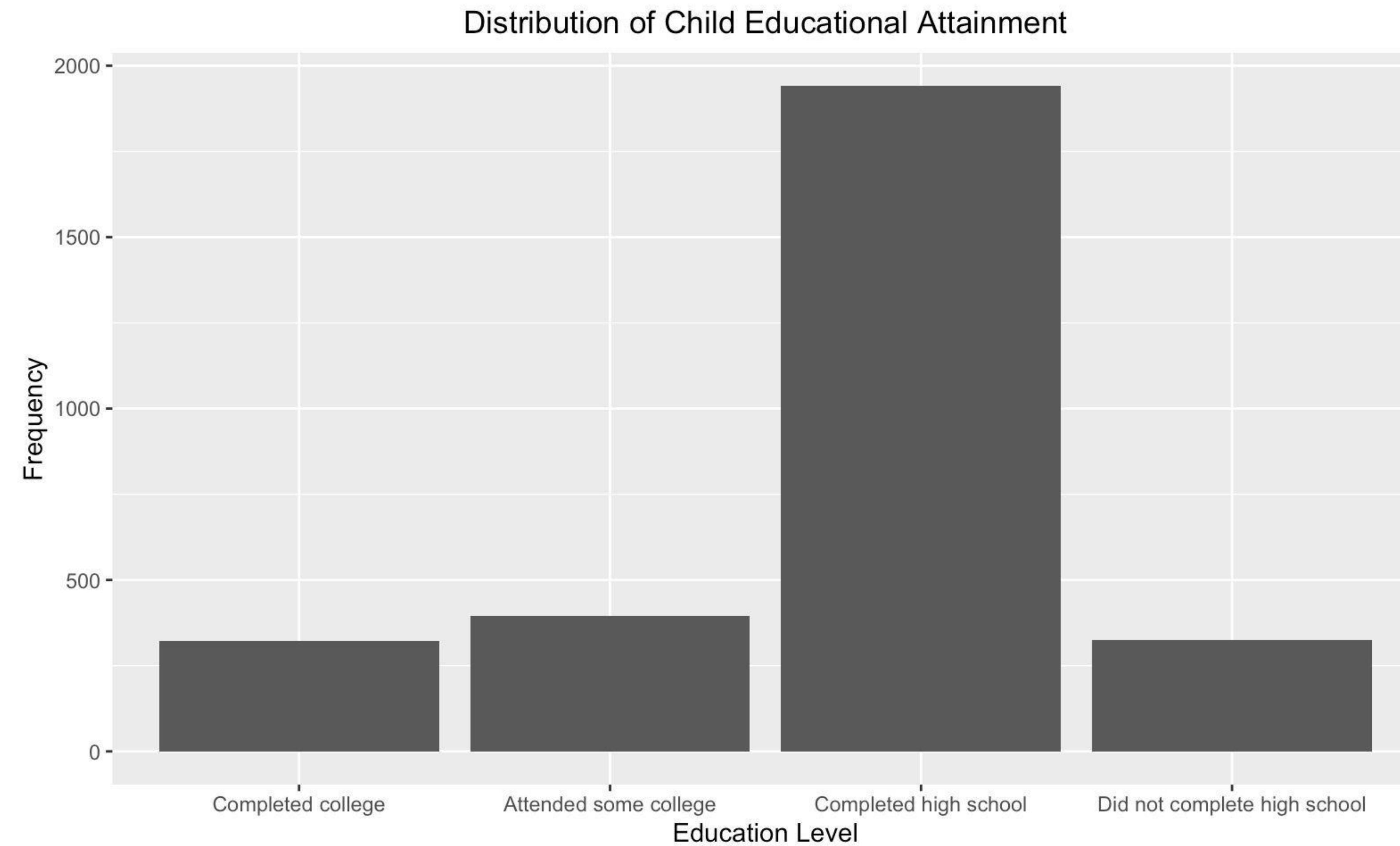
BROWN

Familial Impact on the Children's Education

Isaac Wecht, Li-Heng Pan, Sagar Raichandani, Sarah Prakriti Peters, YouJung Koo

[\(GitHub Link\)](#)

Introduction



Education is often considered to be a vehicle for social mobility, allowing the educated to achieve higher lifetime earnings for themselves and their families. However, it is less clear whether education, in and of itself, can drive the same generational benefits after controlling for lower economic status. Through this project we seek to investigate the causal impact of parents' education on the academic outcomes for children of low-income families.

We hypothesize that higher education levels among parent's positively correlate with increased early childhood education participation and enhanced academic achievement among children from poor families.

For this analysis we selected economic, social, and behavioral features that describe both the child and family. These features center around a family's ability to pursue and benefit from educational attainment, which ultimately influence a child's educational development.

Methods

Logistic Regression

Model Assumptions: the target variable is a binary class, indicating whether or not a child attended college. Our features are linearly associated with the predictive outcome.

Evaluation: Accuracy

Confidence Interval: [2.4, 3.4]

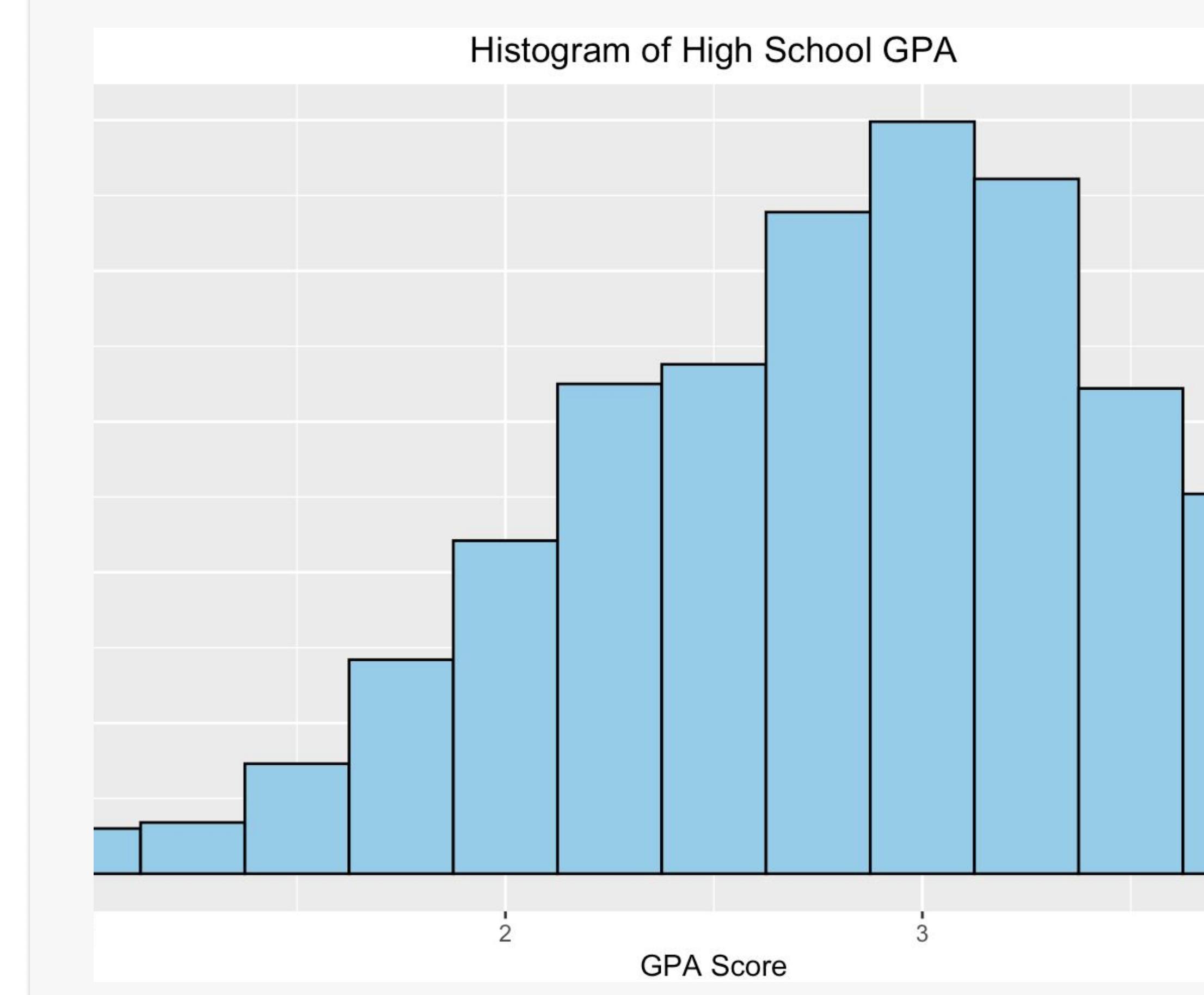
Causal Inference

Model Assumptions: the treatment occurs after the collected features are recorded.

Evaluation: Counterfactual Analysis

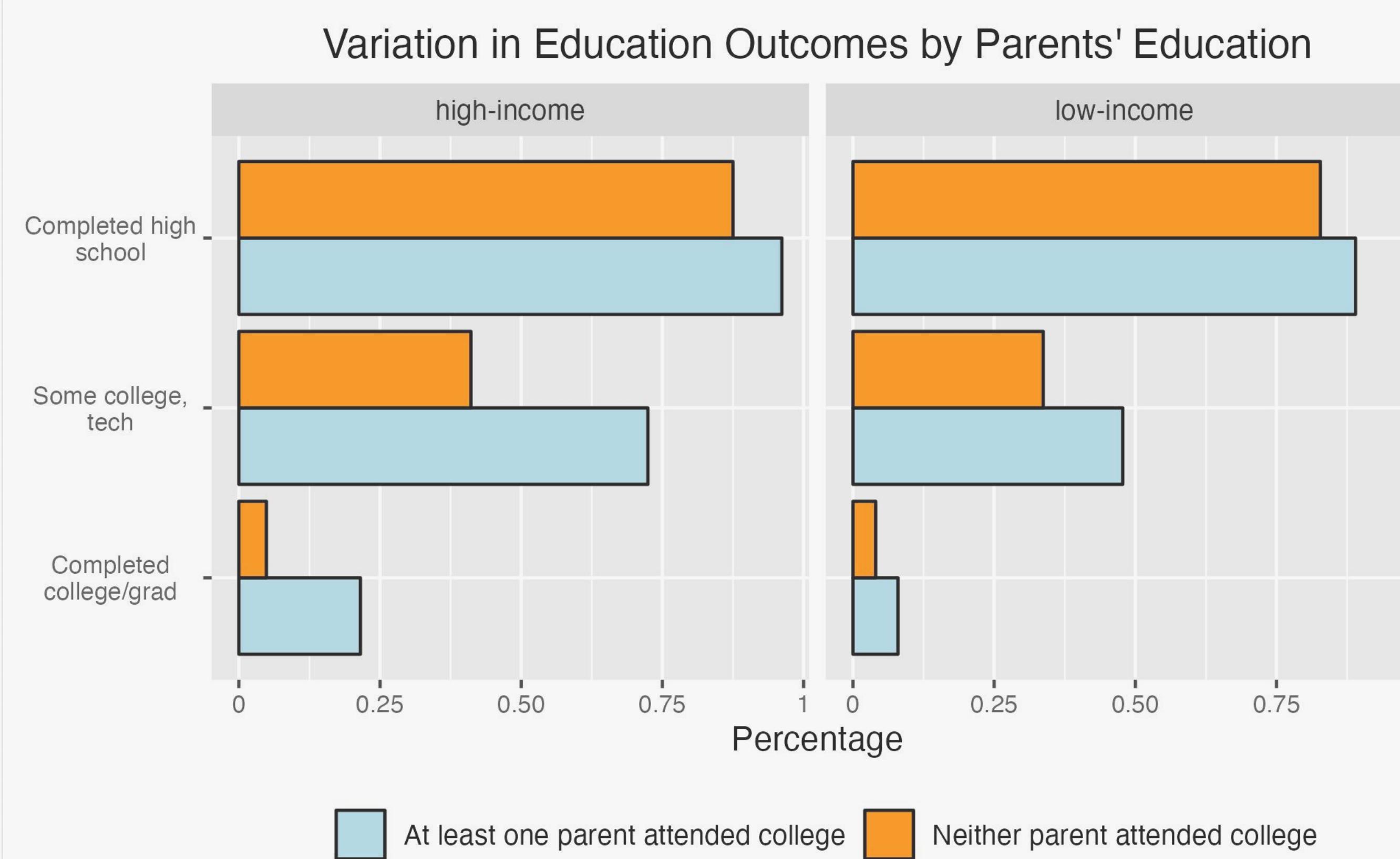
Prediction Uncertainty: High

Results

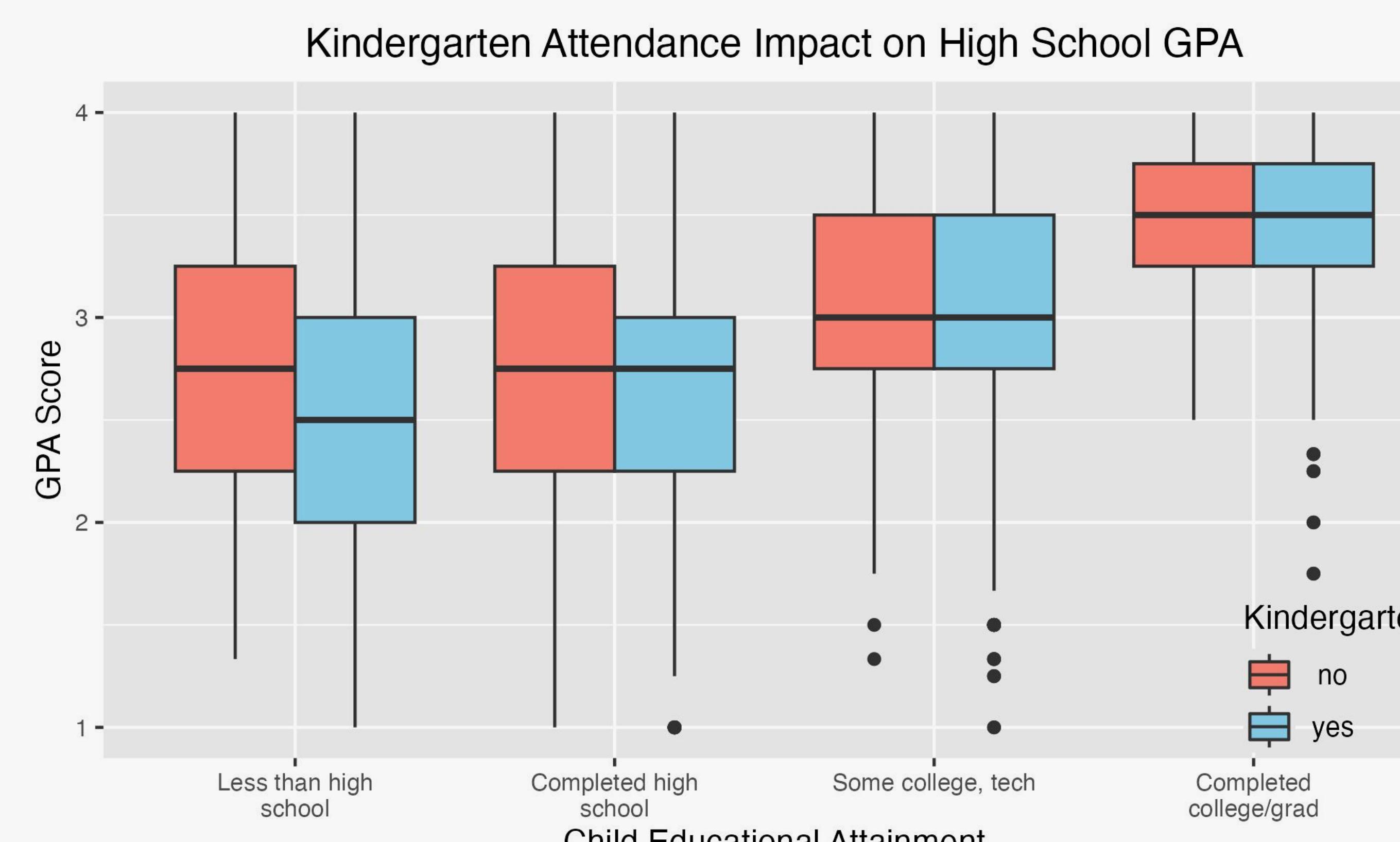


The results of the logistic regression model show that attending kindergarten, parents' educational level, family income have a positive impact on children's academic outcome. On the other hand, mother's financial security has a negative effect on children's educational attainment. Also, children who completed college tend to have better GPAs in high school.

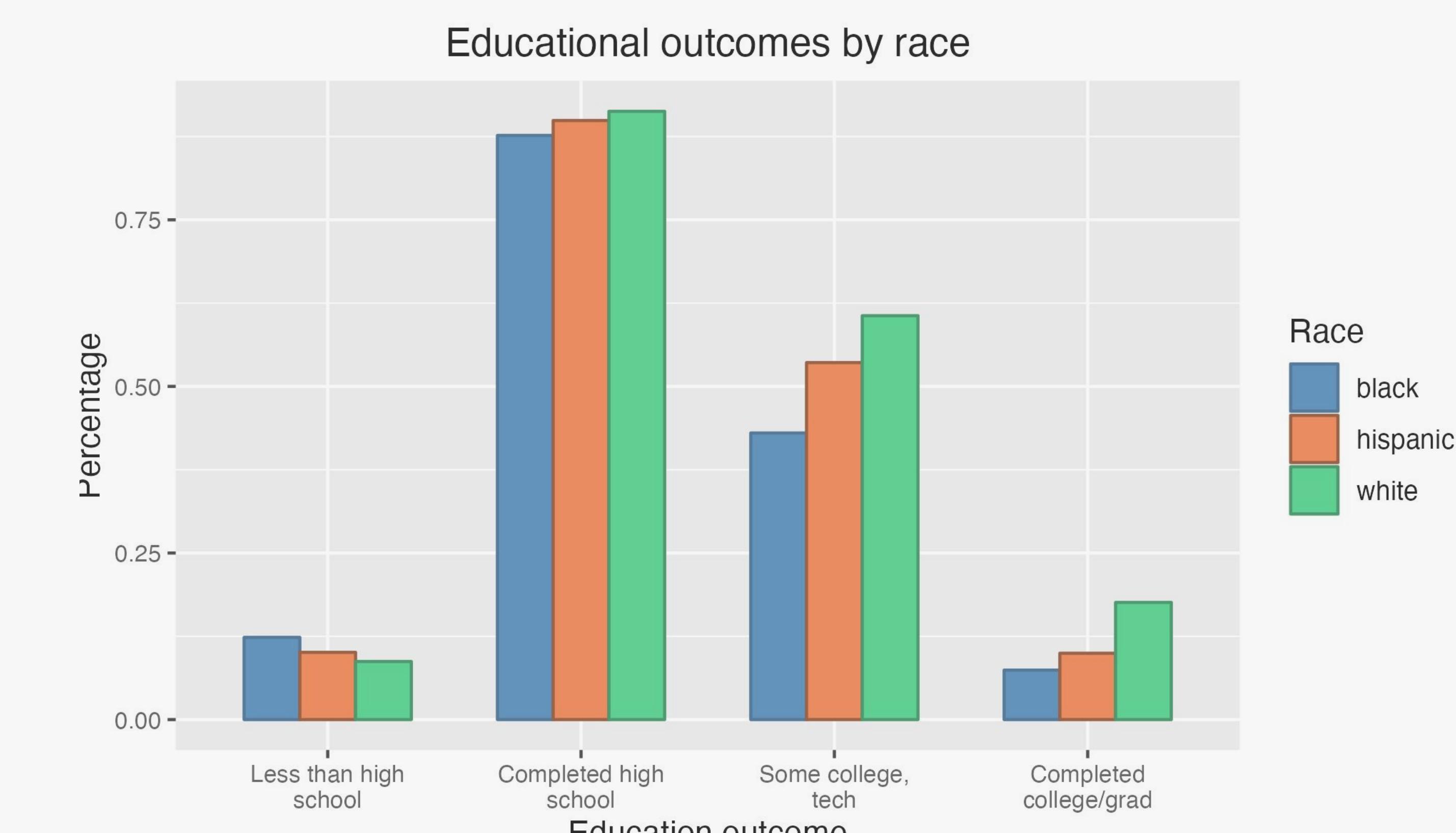
Exploratory Data Analysis



The children of highly educated parents often attain higher levels of education. This effect is compounded by income, where children from higher-income families attain higher levels of education than their lower-income counterparts.



Children who achieve higher levels of education earn higher GPAs during High School. A child's kindergarten attendance does not impact her high school performance.



Racial disparities are tied in closely with educational outcomes. Black students are more likely to drop off high school, and least likely to complete college. White students have the highest HS and college graduation rates.

Reference

- [1] Alves, M., "Causal Inference for the Brave and True"
- [2] Deng, A., "Causal Inference and Its Applications in Online Industry"

Contributions

- Data Interpretation, Data Collection, Data Cleaning, Explanatory Data Analysis, Model Training, Poster Design, Writing down section