Studying Social Inequality with Data Science

INFO 3370 / 5371
Spring 2023

Opportunity

As measured by economic mobility

Learning goals for today

By the end of class, you will be able to

- argue about economic mobility as a measure of opportunity
- frame economic mobility as a prediction question

Before class, you read the intro and discussion of:

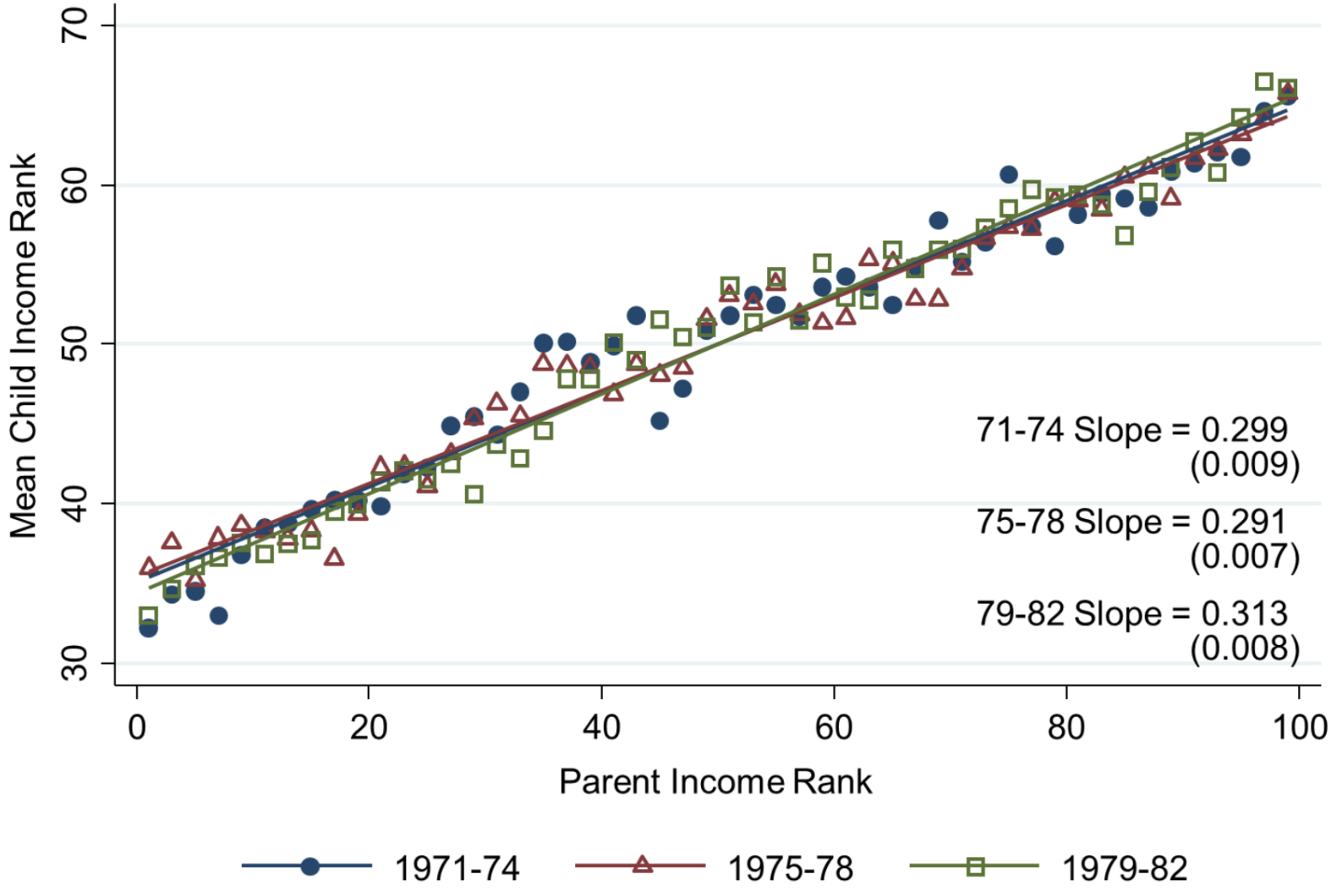
- Chetty et al. 2014. Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility. American Economic Review 104(5):141–147.

Let's discuss

- The ladder metaphor
- Changes in inequality
- Changes in rank-based mobility

Then we will look at figures

Figure 1. Child Income Rank vs. Parent Income Rank by Birth Cohort



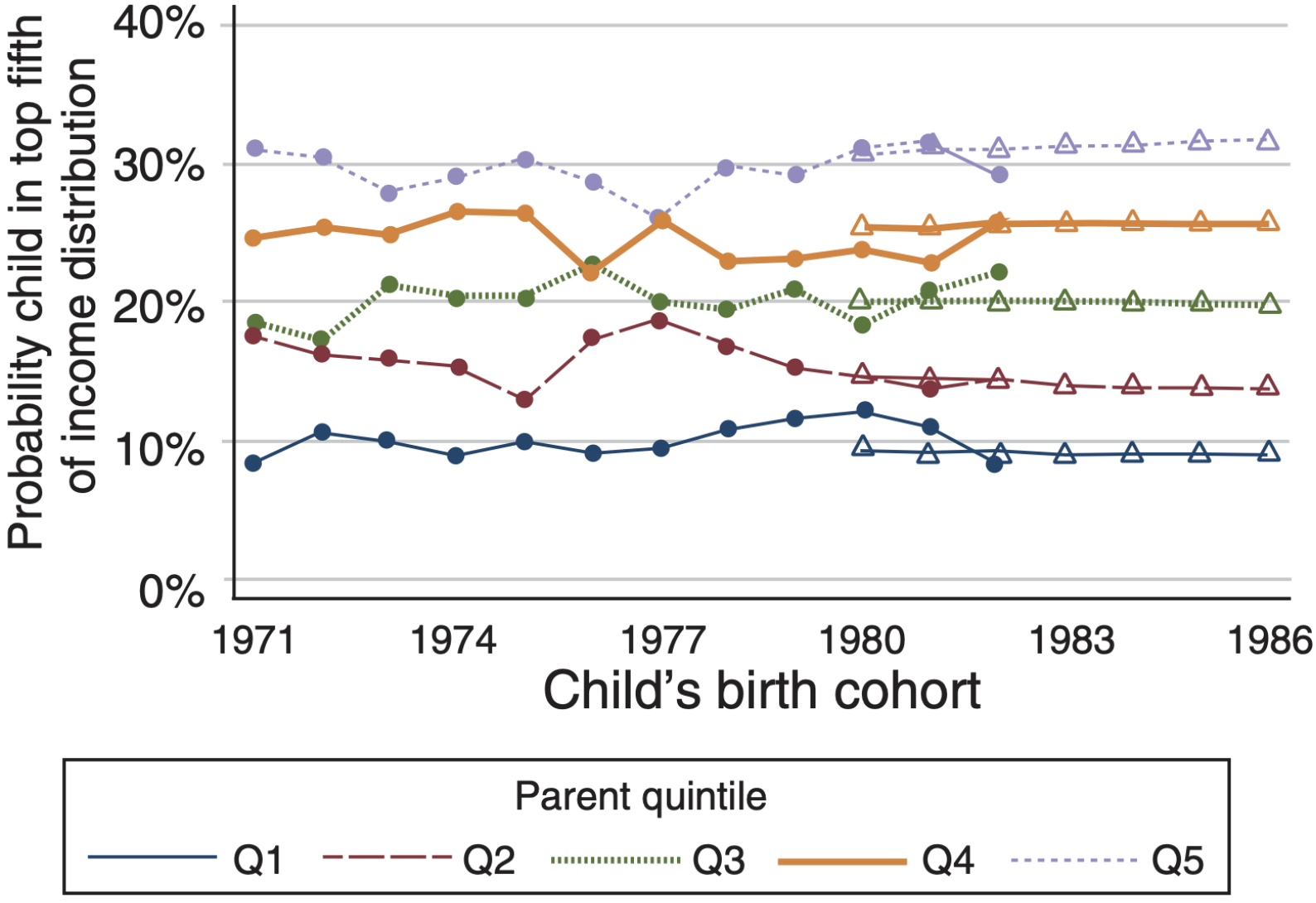


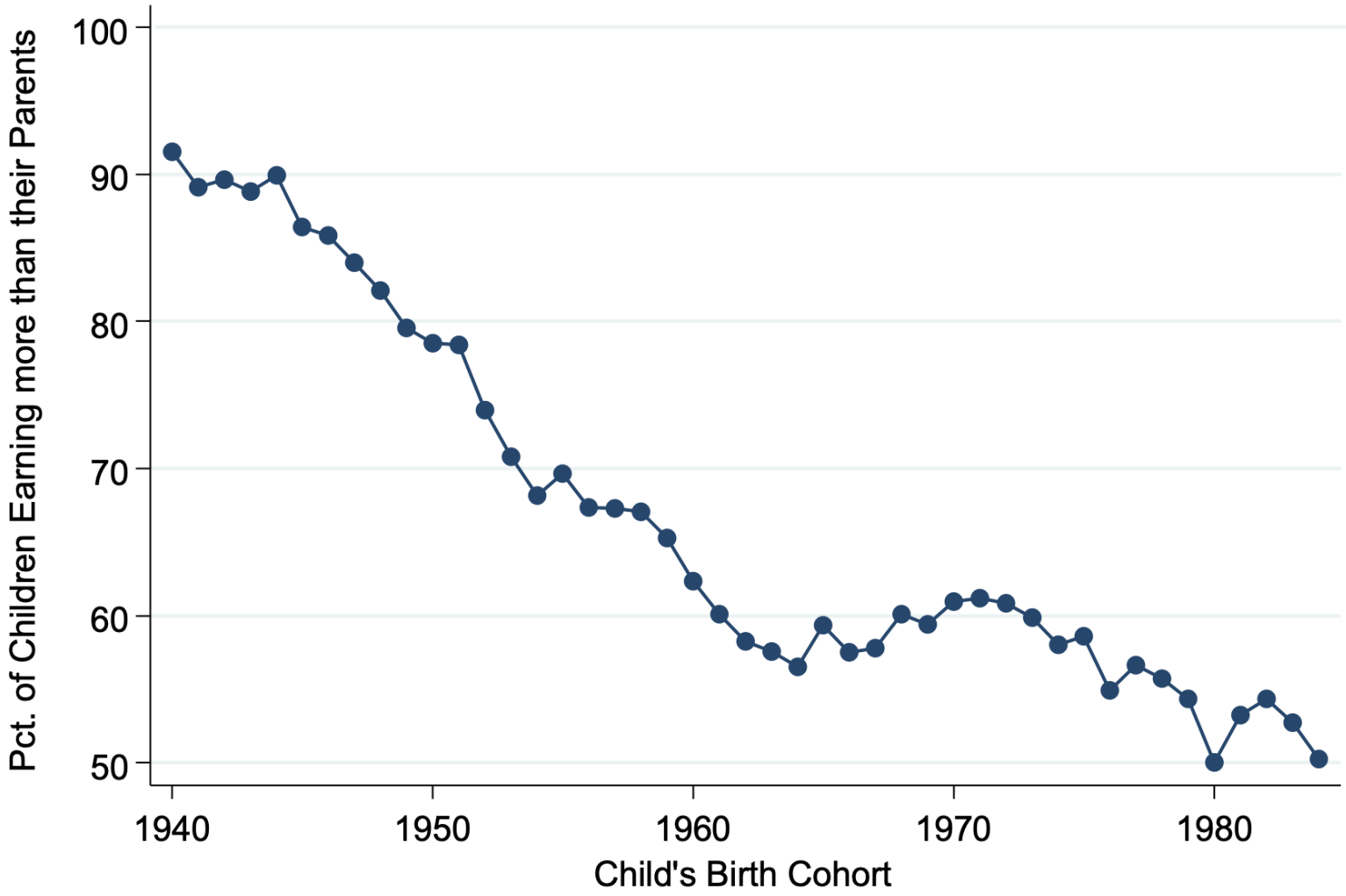
FIGURE 3. PROBABILITY OF REACHING TOP QUINTILE AT AGE 26 BY BIRTH COHORT

Additional evidence from a paper you did not read:

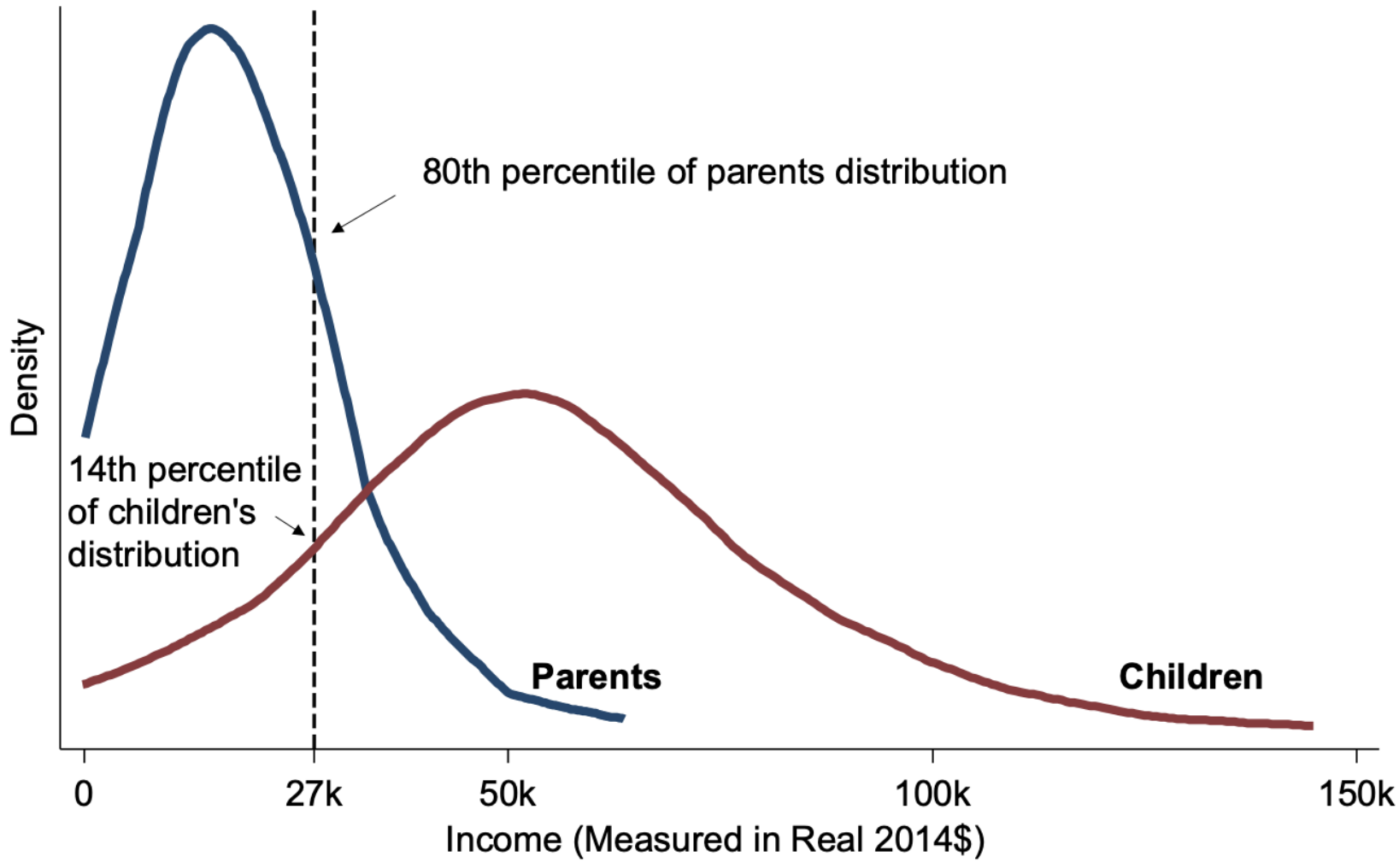
- Chetty et al. 2017. The fading American dream: Trends in absolute income mobility since 1940. Science 356.6336:398-406.

This paper

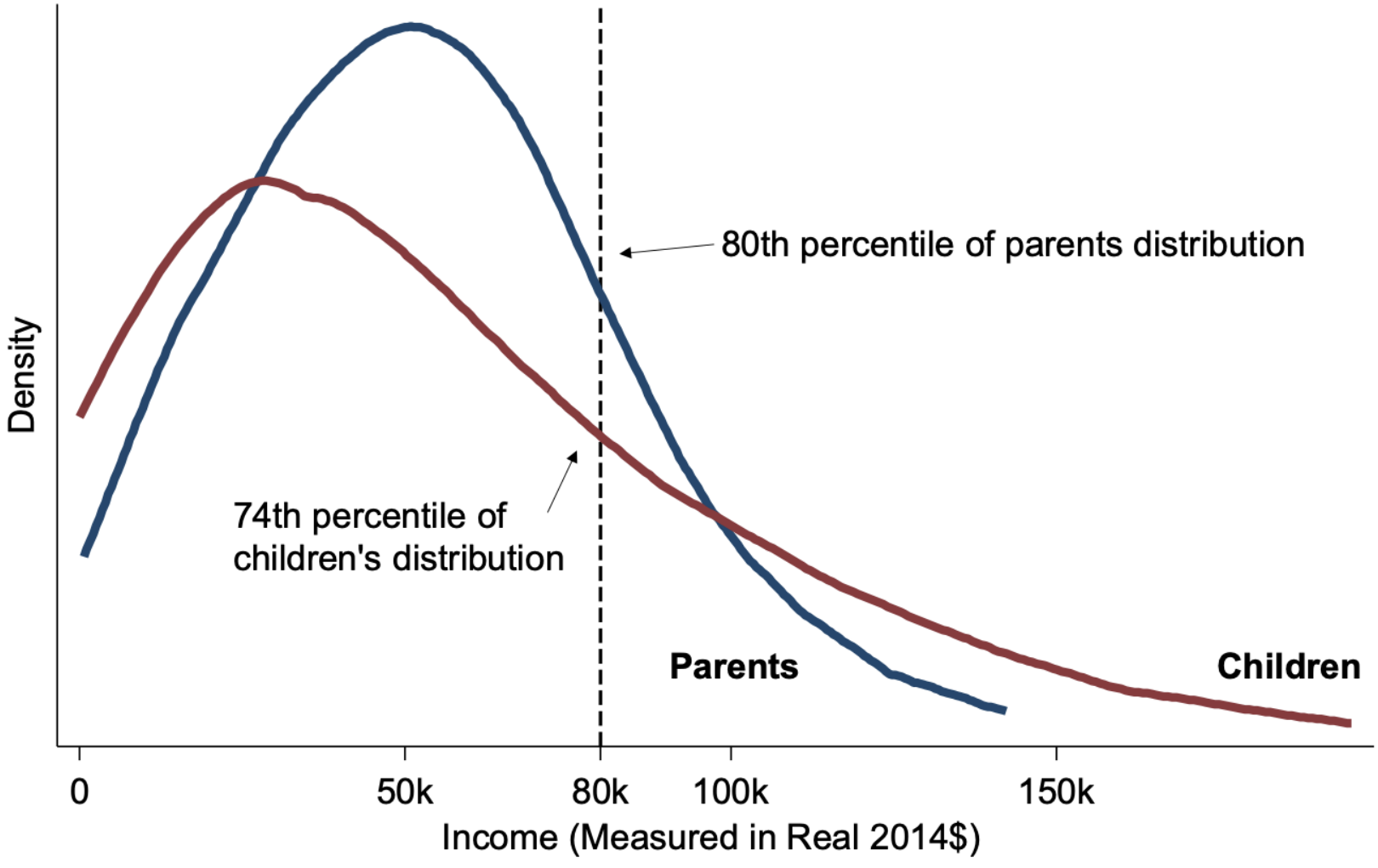
- assumes that rank-based mobility was constant
- given that assumption, focuses on **absolute** mobility


Pct. of Children Earning more than their Parents
100
90
80
70
60
50
1940
1950
1960
1970
1980
Child's Birth Cohort

B. Family Income Distributions: 1940 Birth Cohort

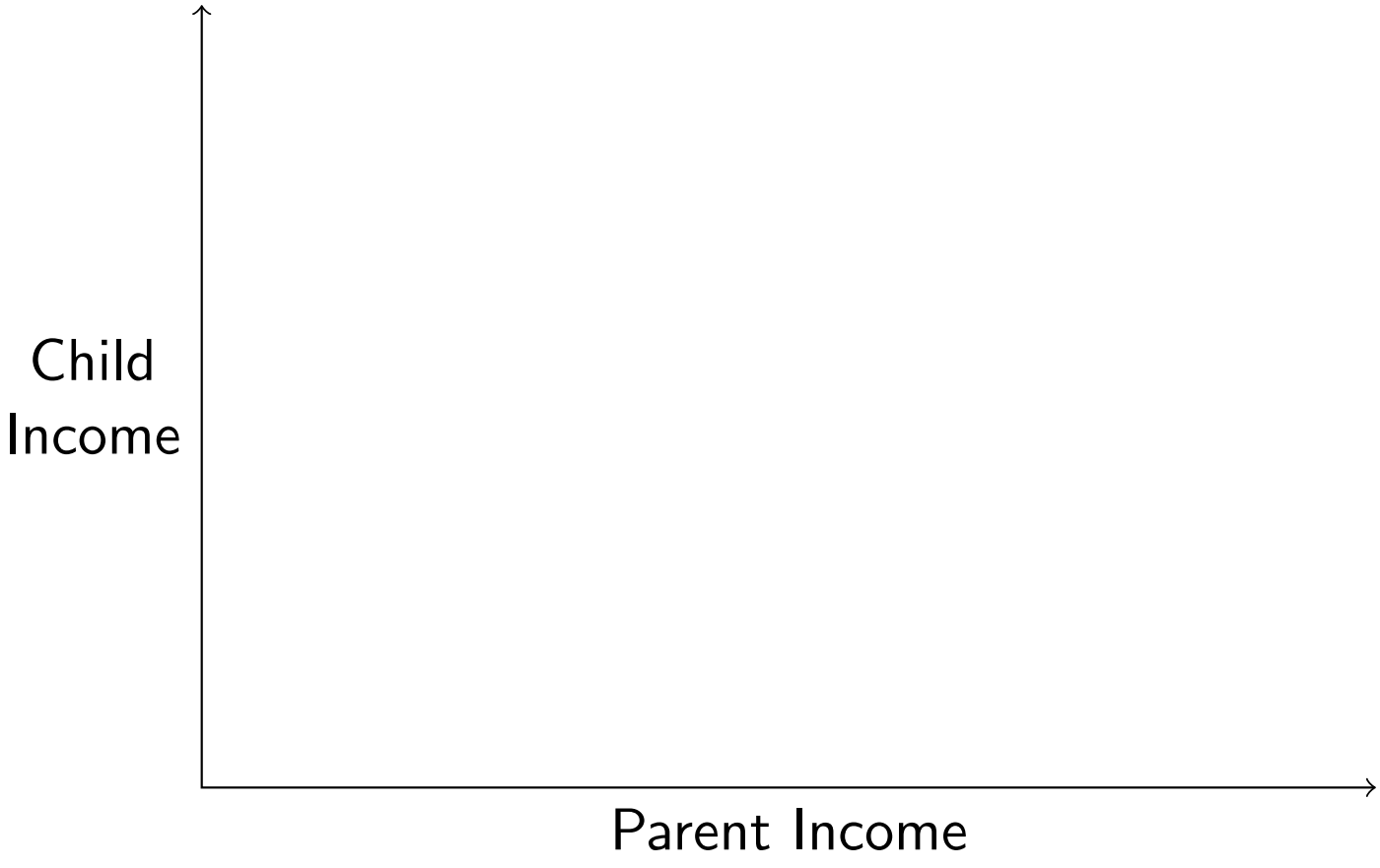


C. Family Income Distributions: 1980 Birth Cohort

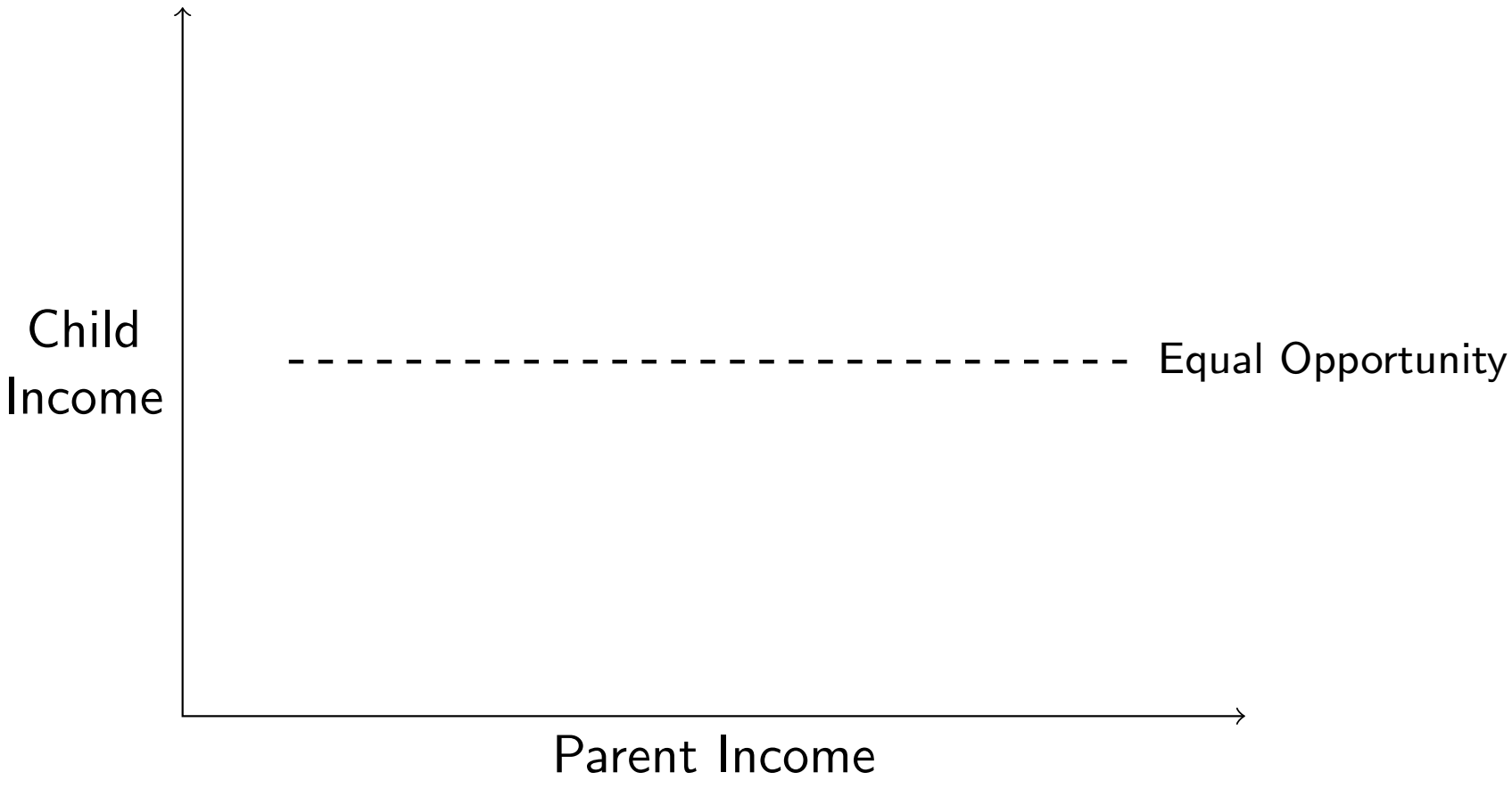


The probability that a child out-earns their parent has fallen

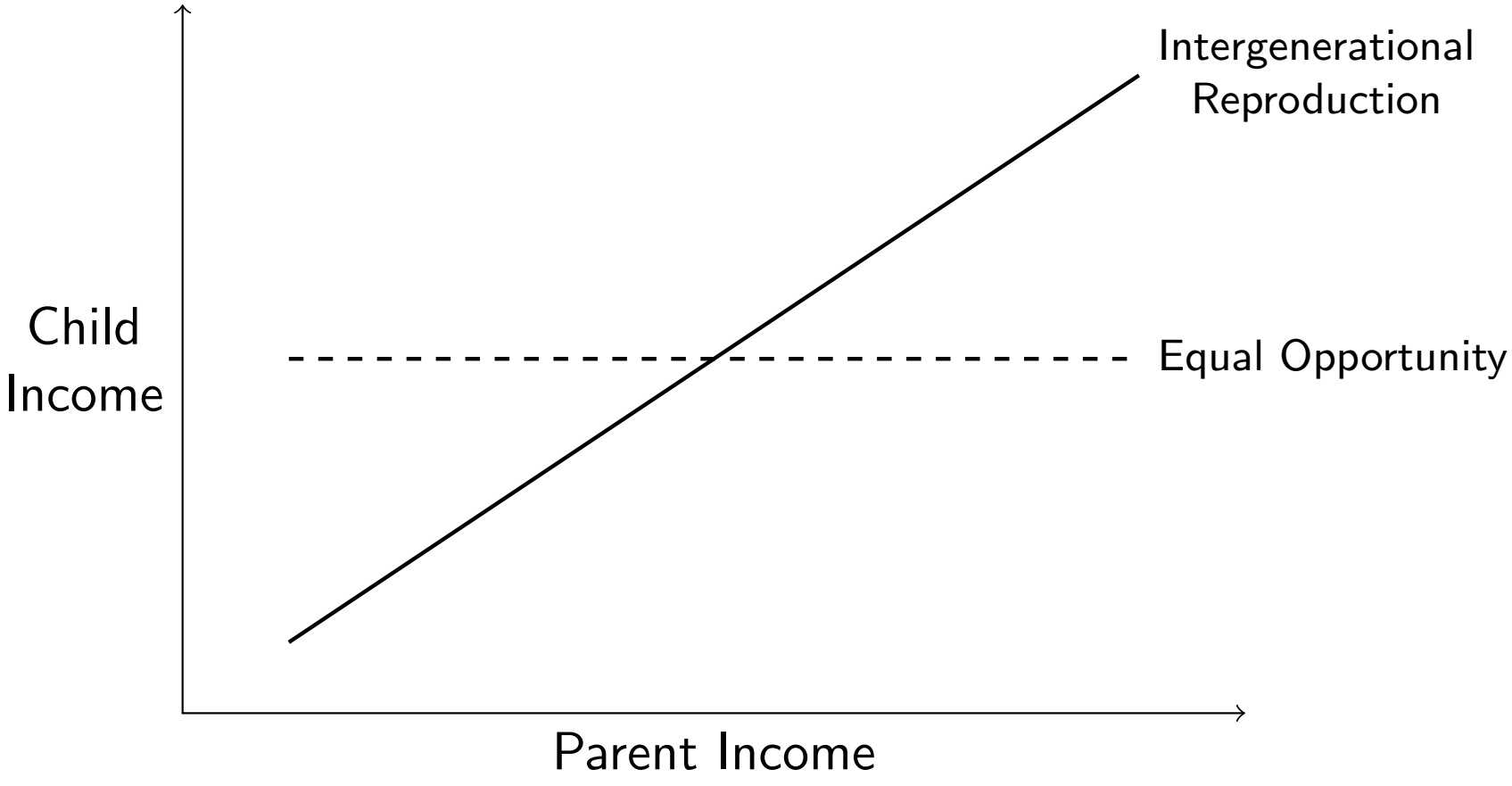
Generalizing these ideas



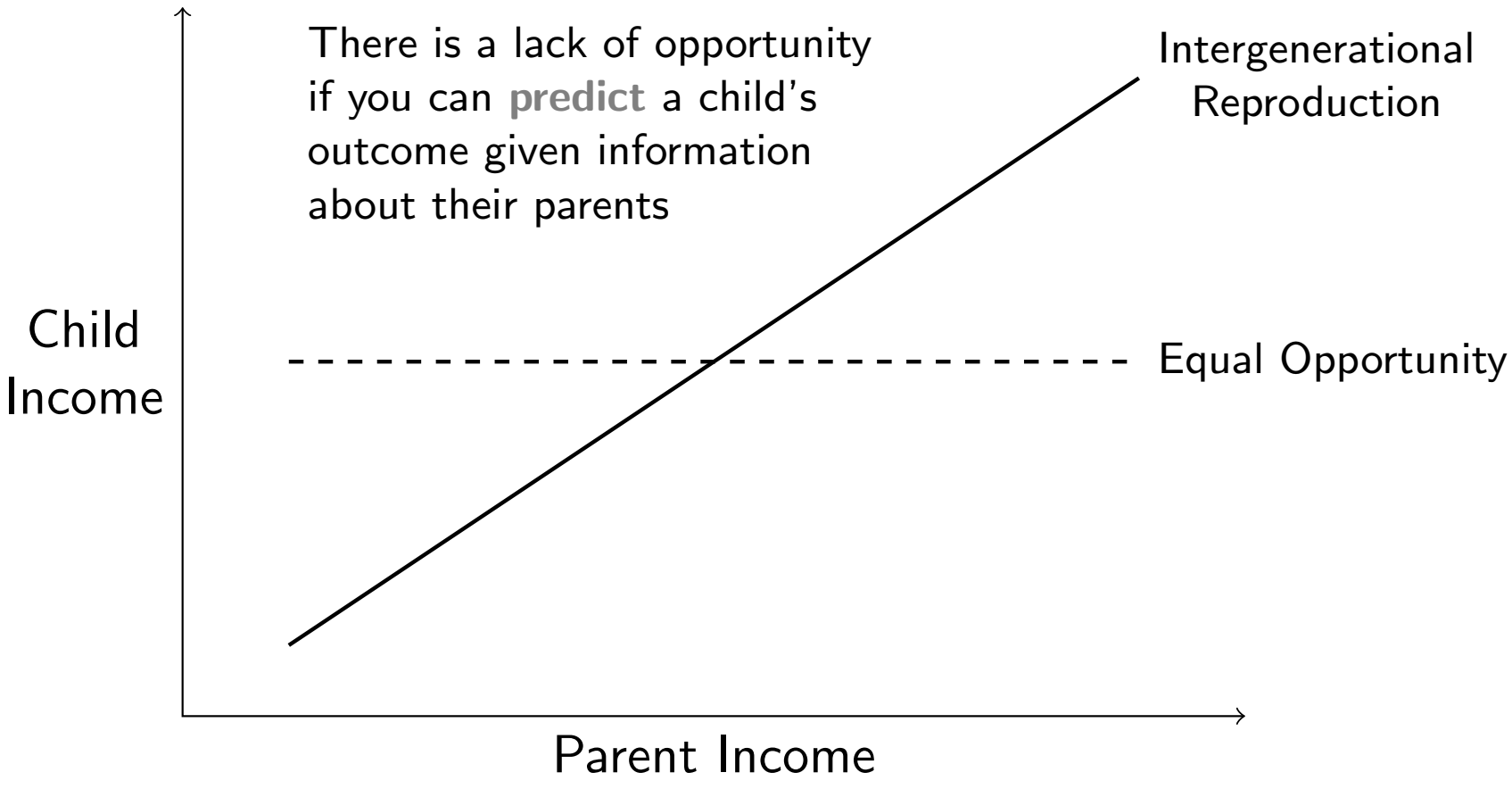
Generalizing these ideas



Generalizing these ideas



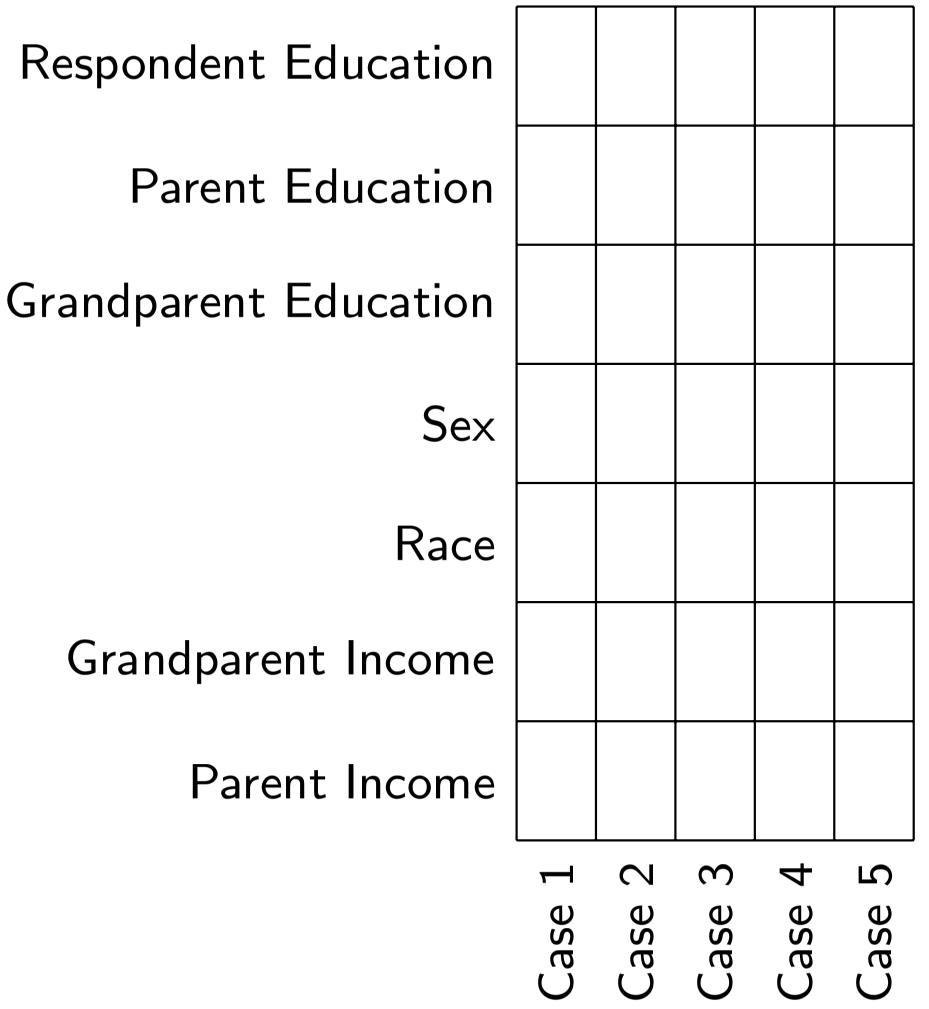
Generalizing these ideas

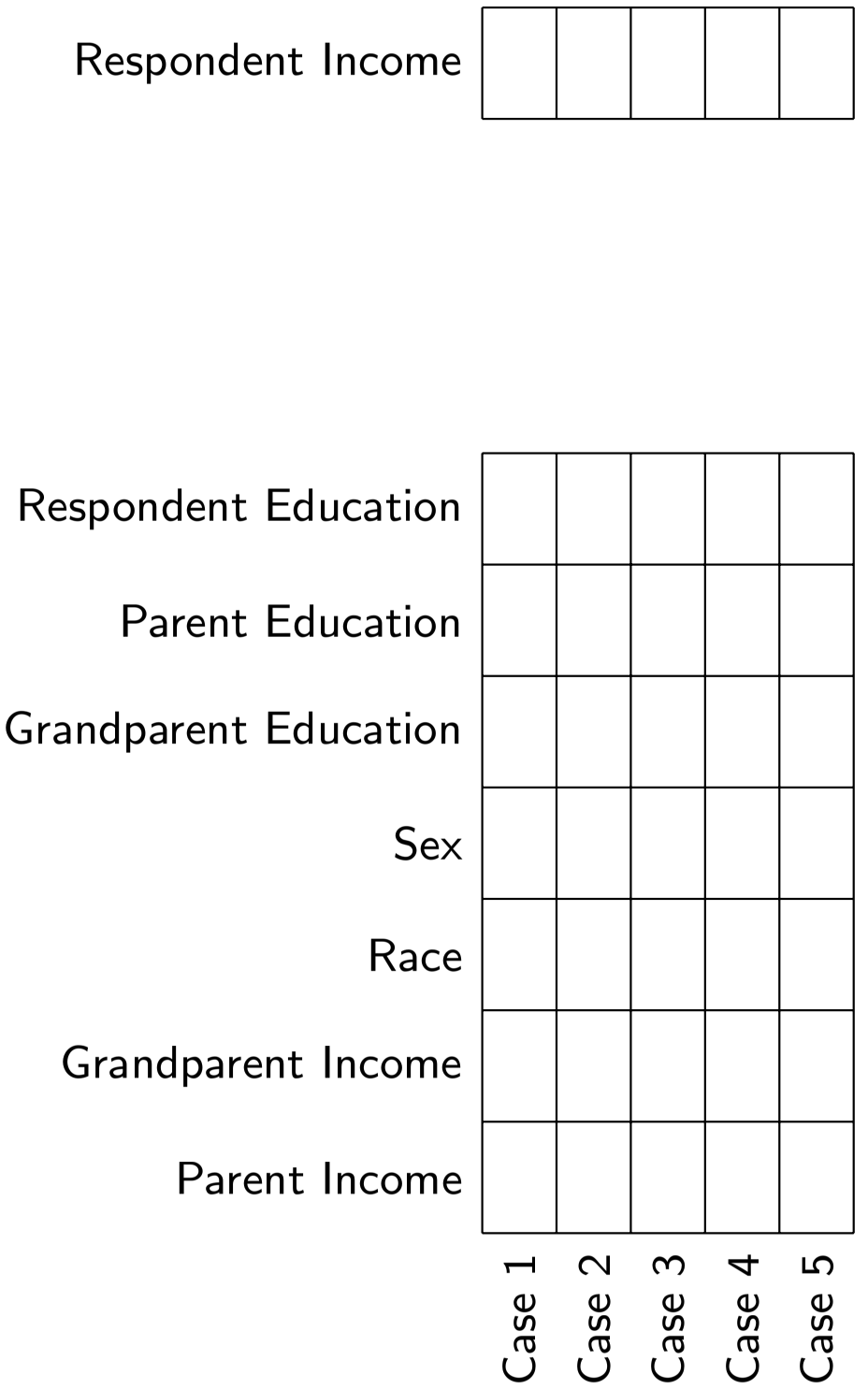


Why stop at parent income?

Why stop at parent income?

What other variables capture the luck of birth?


Respondent Education
Parent Education
Grandparent Education
Sex
Race
Grandparent Income
Parent Income
Case 1
Case 2
Case 3
Case 4
Case 5


Respondent Income
Respondent Education
Parent Education
Grandparent Education
Sex
Race
Grandparent Income
Parent Income
Case 1
Case 2
Case 3
Case 4
Case 5

Parent Income
Grandparent Income
Race
Sex
Grandparent Education
Parent Education
Respondent Education
Case 1
Case 2
Case 3
Case 4
Case 5
Learn a prediction function
Respondent Income

Parent Income
Grandparent Income
Race
Sex
Grandparent Education
Parent Education
Respondent Education
Respondent Income
Case 1
Case 2
Case 3
Case 4
Case 5
Case 6
Case 7
Case 8
Learn a prediction function
?
?
?

Parent Income
Grandparent Income
Race
Sex
Grandparent Education
Parent Education
Respondent Education
Respondent Income
Case 1
Case 2
Case 3
Case 4
Case 5
Learn a prediction function
Case 6
Case 7
Case 8
Predict for new cases
?
?
?

Learning Set
Holdout Set
Parent Income
Grandparent Income
Race
Sex
Grandparent Education
Parent Education
Respondent Education
Respondent Income
Case 1
Case 2
Case 3
Case 4
Case 5
Case 6
Case 7
Case 8
Learn a prediction function
Predict for new cases
?
?
?

The challenge

How well can you predict respondent incomes?

Get started here

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