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# Discussion of “The Effect of Maternal Labor Supply on Children: Evidence from Bunching”

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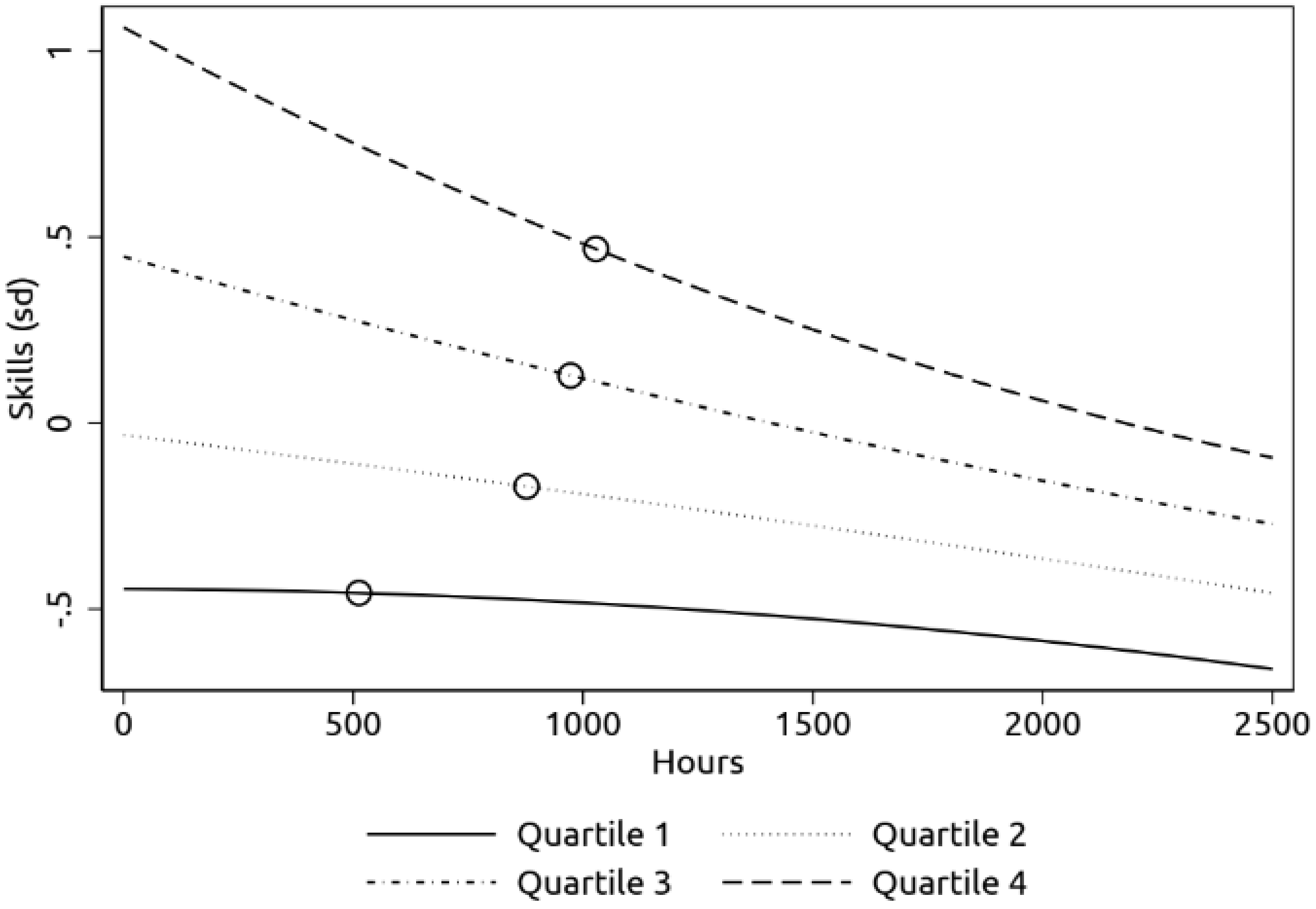
November 17, 2022

# When moms work more, their children learn less

Figure 1: Children's Cognitive Skills – Quartiles of Maternal AFQT

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# A COVID-19 labor force legacy: The drop in dual-worker families

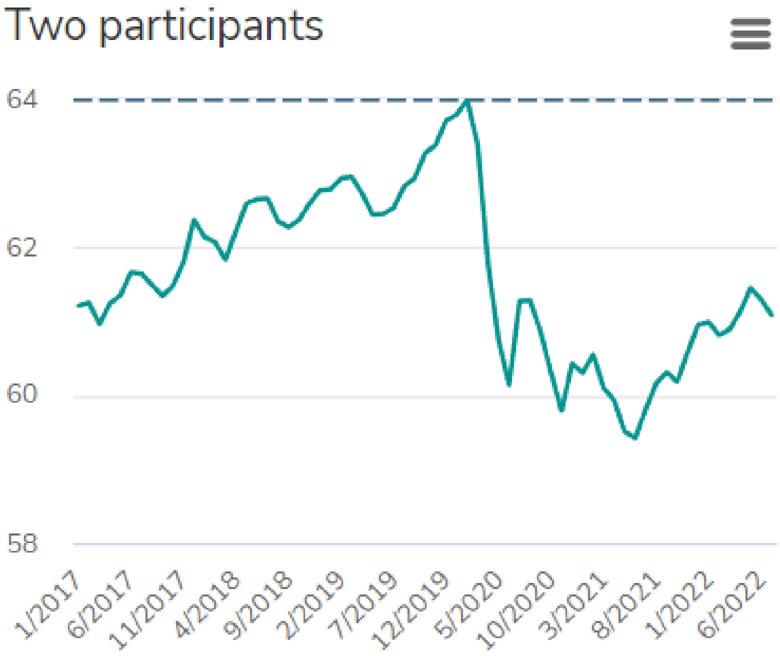

Katherine Lim

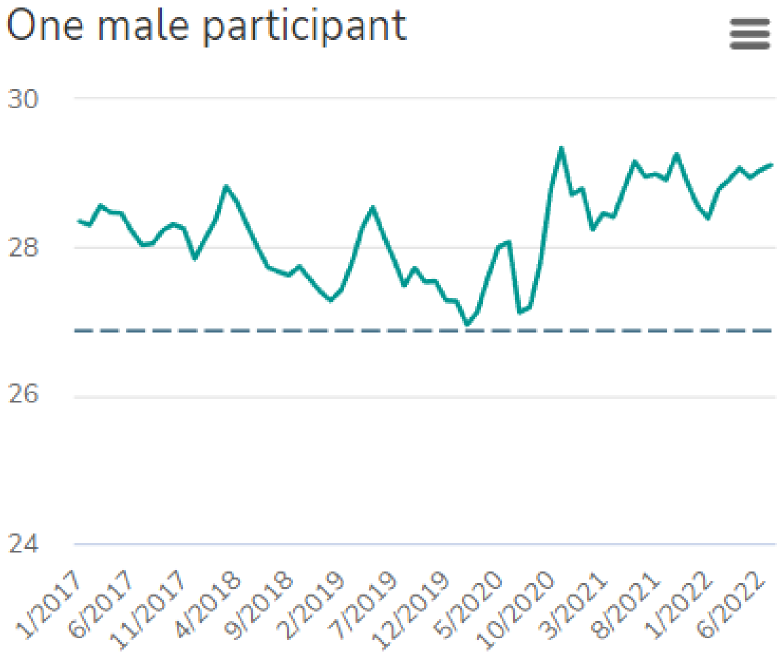
Economist, Community Development and Engagement

Ryan Nunn

Assistant Vice President, Community Development and Engagement


Shift from dual-participant to solo-participant couples without four-year degrees is persistent

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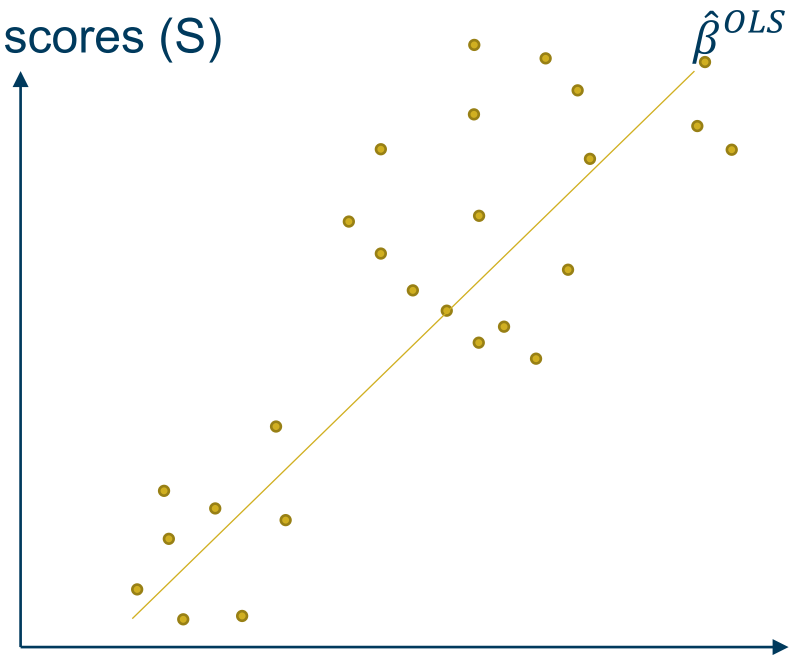
# How does this approach work?

$$S_i = \alpha X_i + \hat{\beta}^{OLS} L_i + \epsilon_i$$

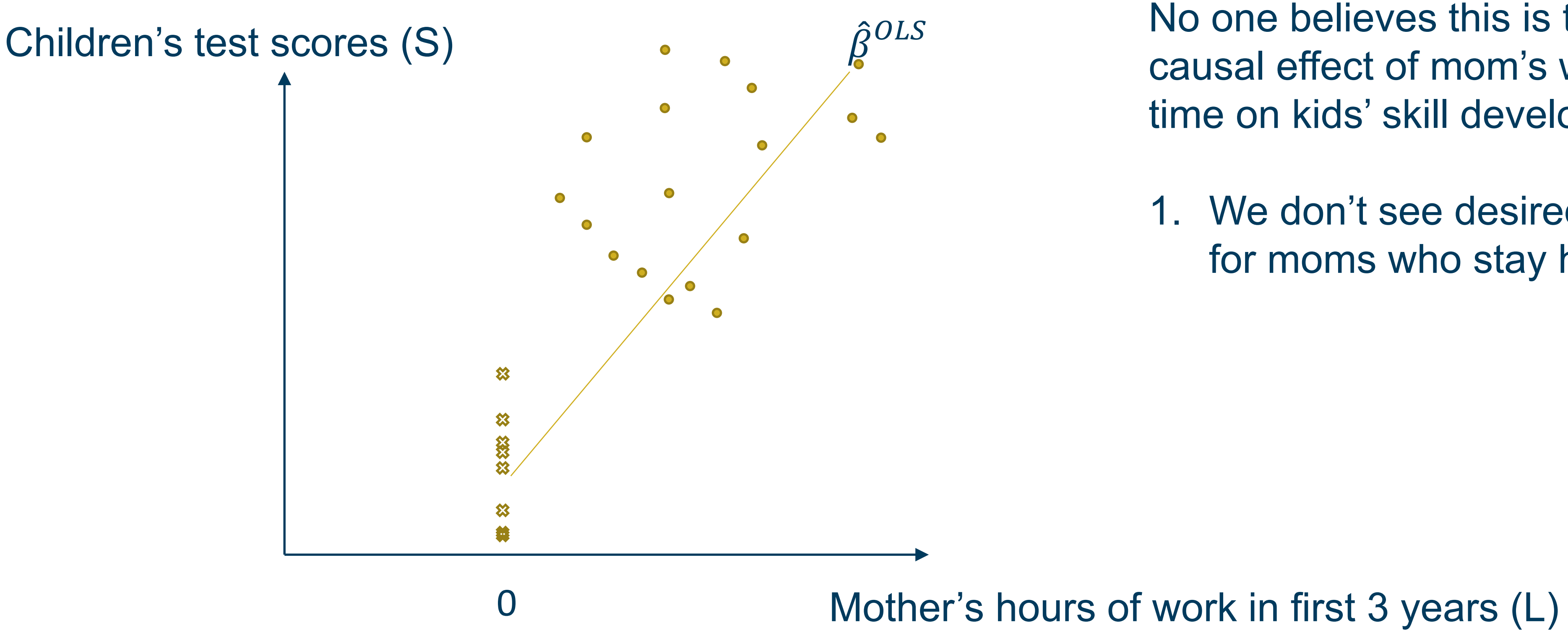
Children's test scores (S)




Mother's hours of work in first 3 years (L)

No one believes this is the causal effect of mom's work time on kids' skill development

# How does this approach work?




No one believes this is the causal effect of mom's work time on kids' skill development:

1. We don't see desired work for moms who stay home

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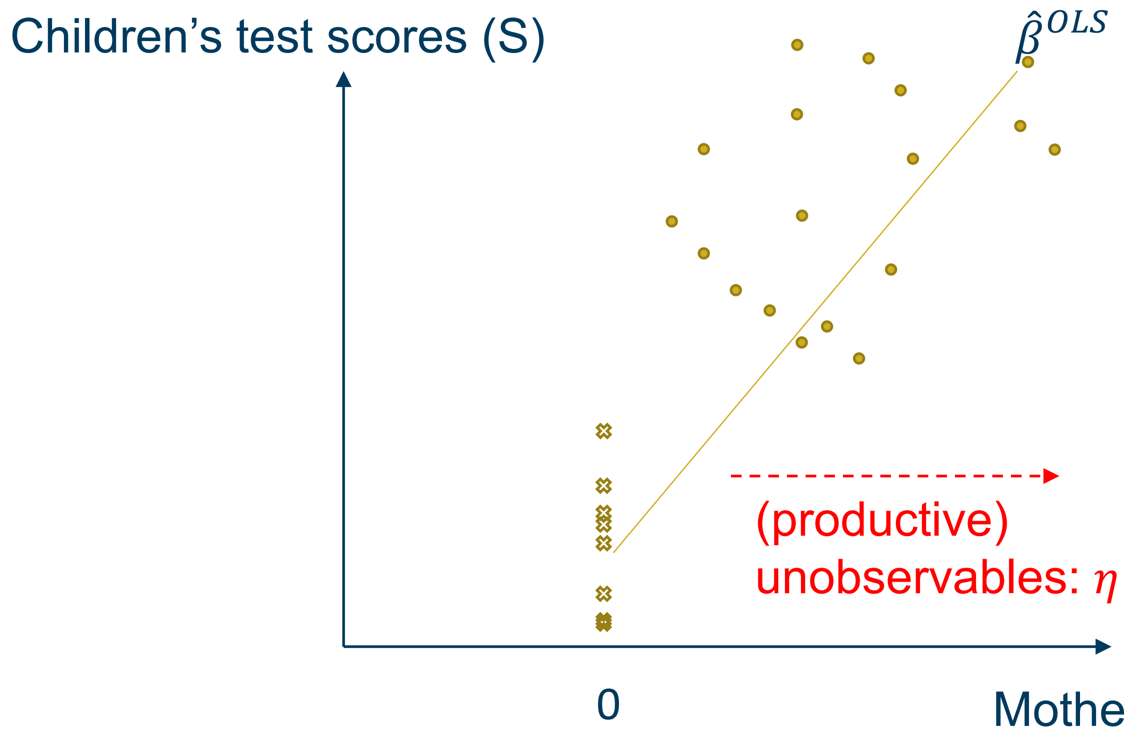


No one believes this is the causal effect of mom's work time on kids' skill development:

1. We don't see desired work for moms who stay home
2. MANY unobserved things determine L <u>and</u> S (ability, tastes, home productivity)

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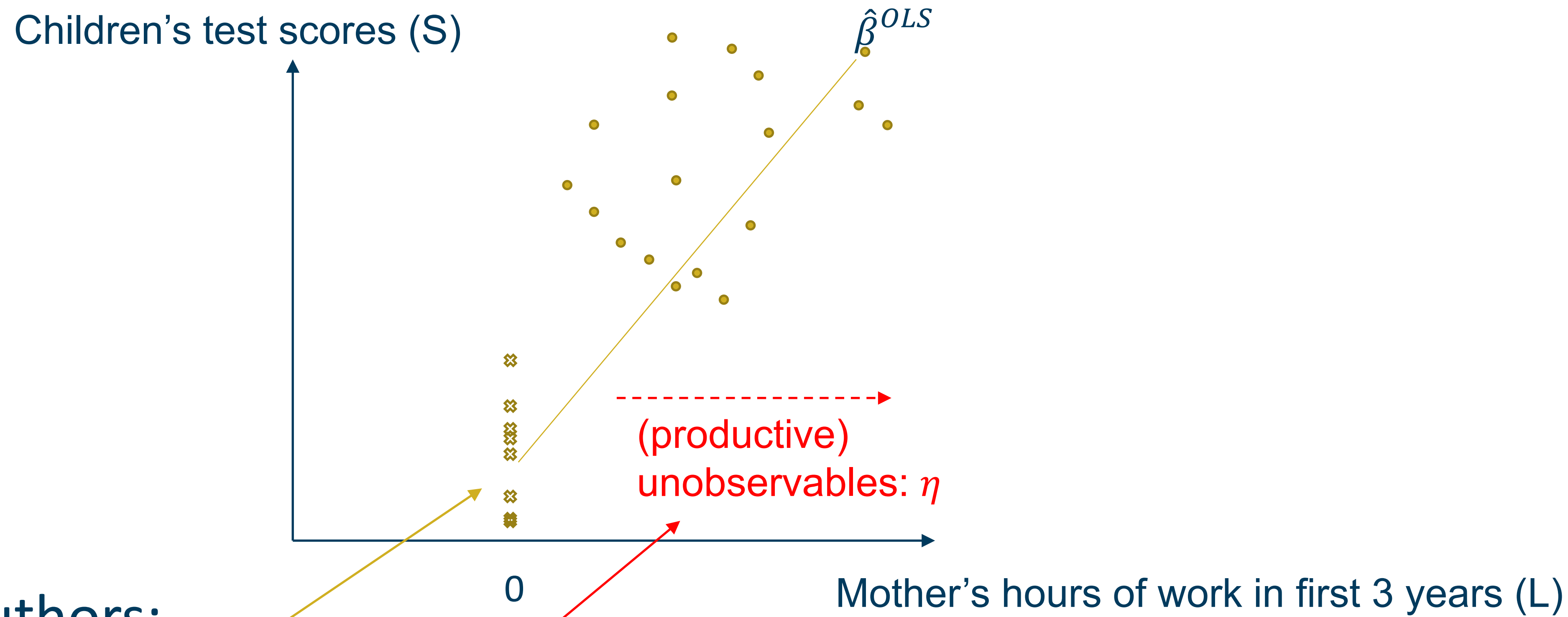
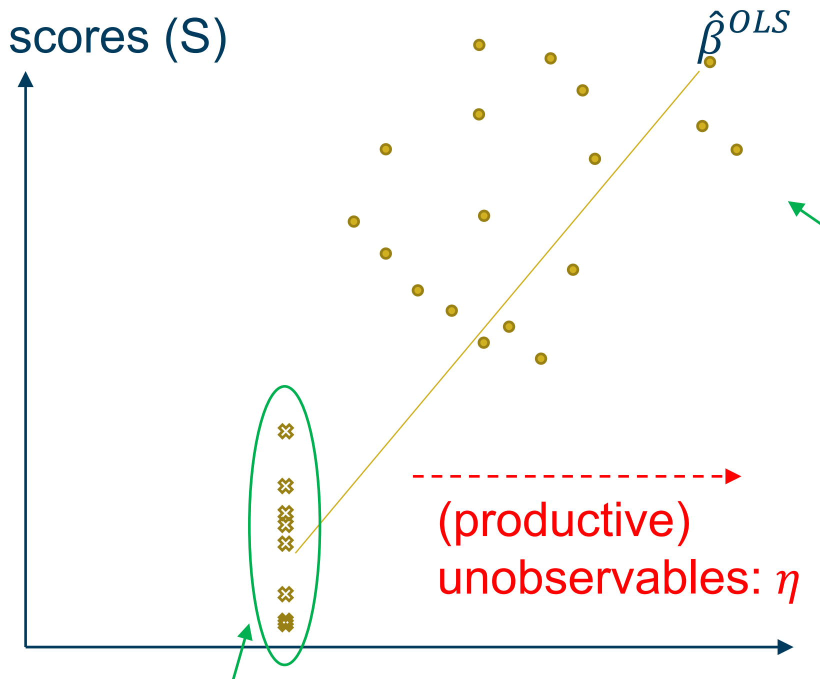
# How does this approach work?




These authors:
“But what if these moms could fix this problem?”

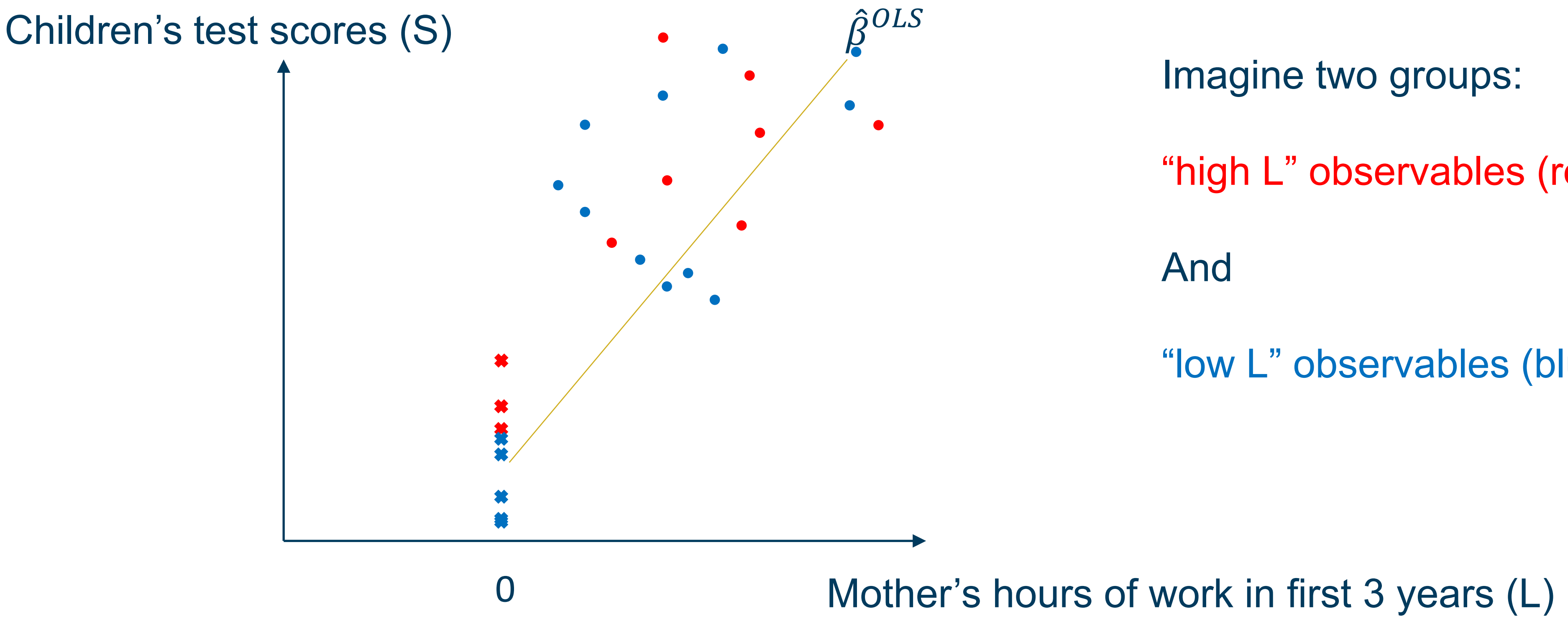
# How does this approach work?




Then net that confounding relationship out of $\hat{\beta}^{OLS}$ to deal with the bias!

If we could just figure out their unobservables, we could estimate how unobservables affect kids <u>because these moms don't *actually* work.</u>

# How does this approach work?



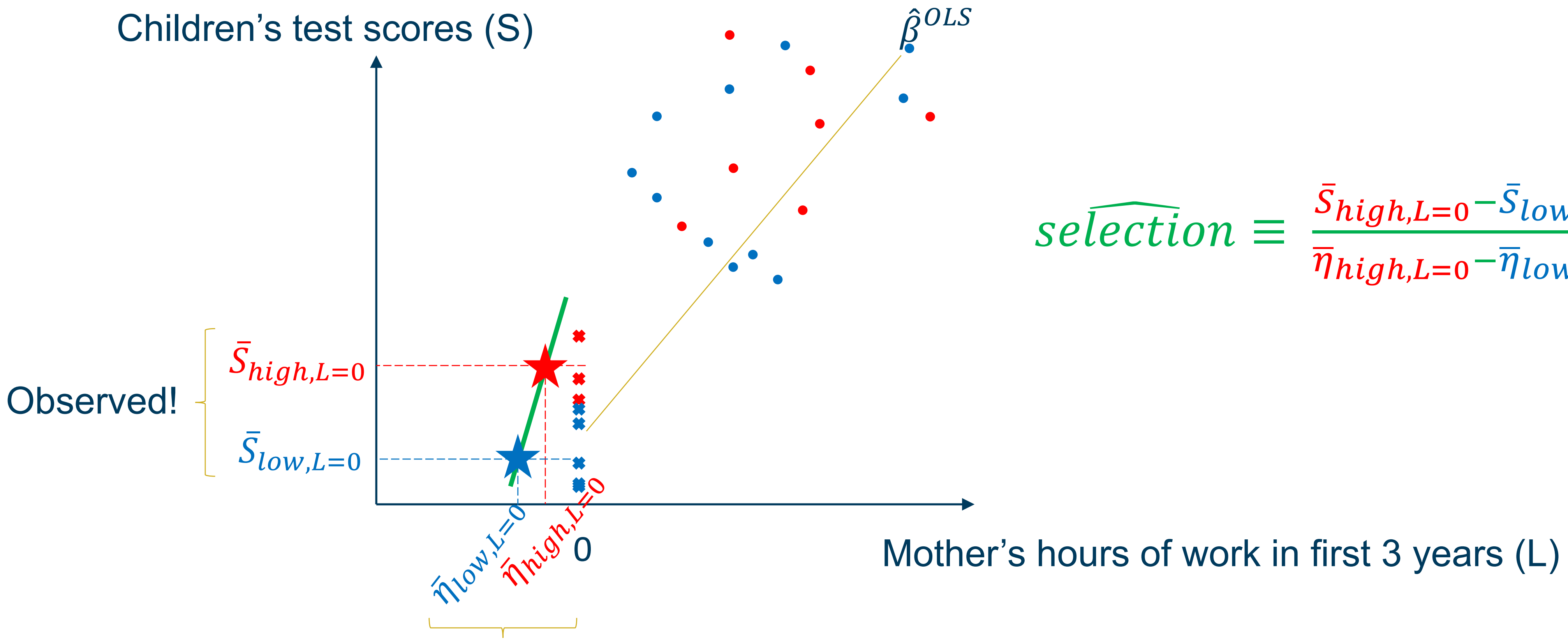

Imagine two groups:

"high L" observables (red)

And

"low L" observables (blue)

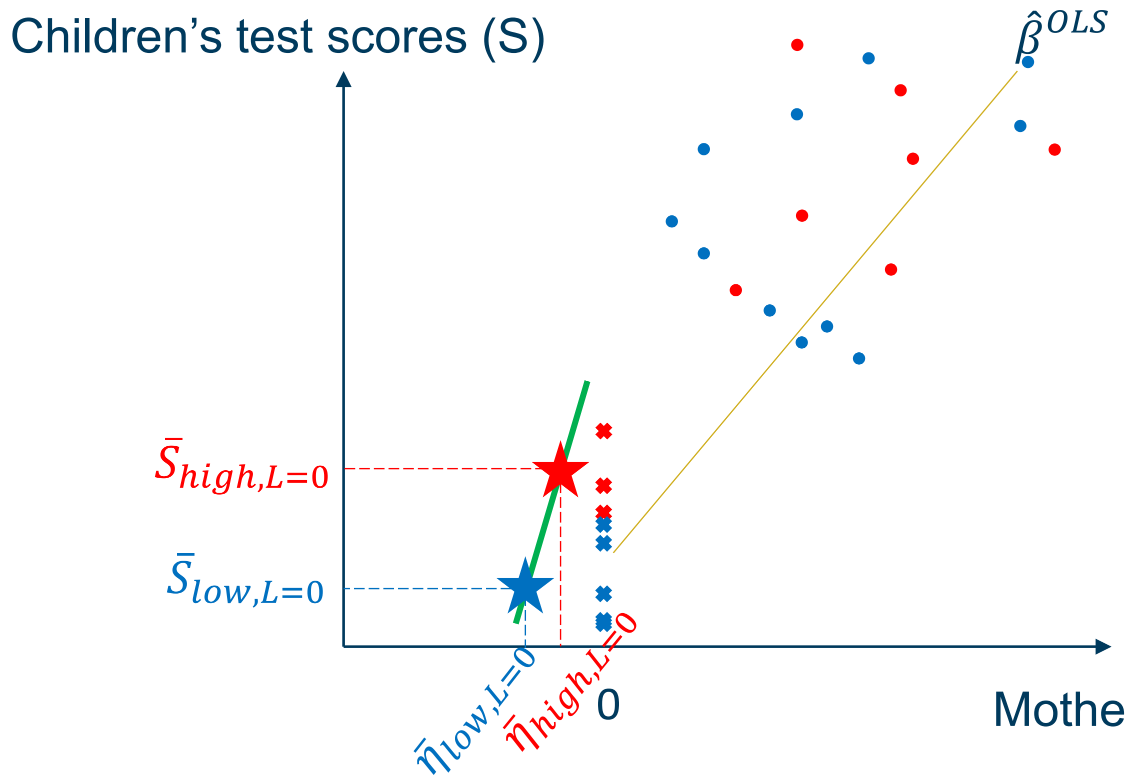
# How does this approach work?




$$\widehat{selection} \equiv \frac{\bar{S}_{high,L=0} - \bar{S}_{low,L=0}}{\bar{\eta}_{high,L=0} - \bar{\eta}_{low,L=0}}$$

**If** we can estimate mean unobservables…

# How does this approach work?

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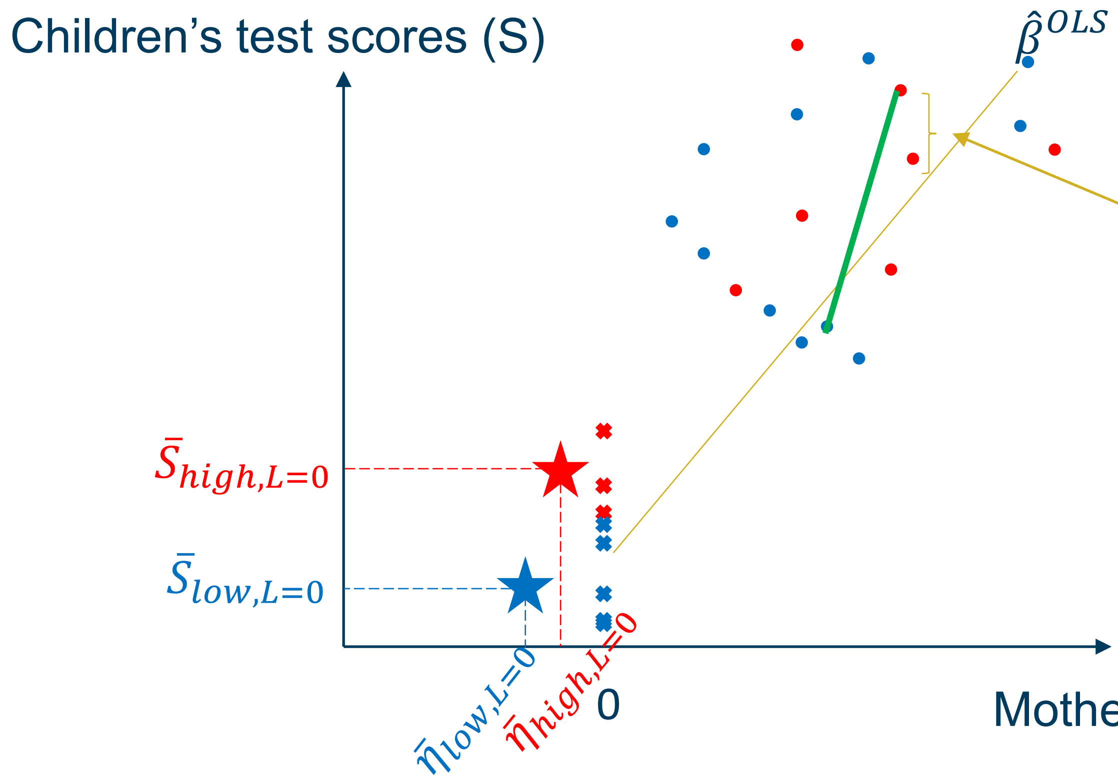


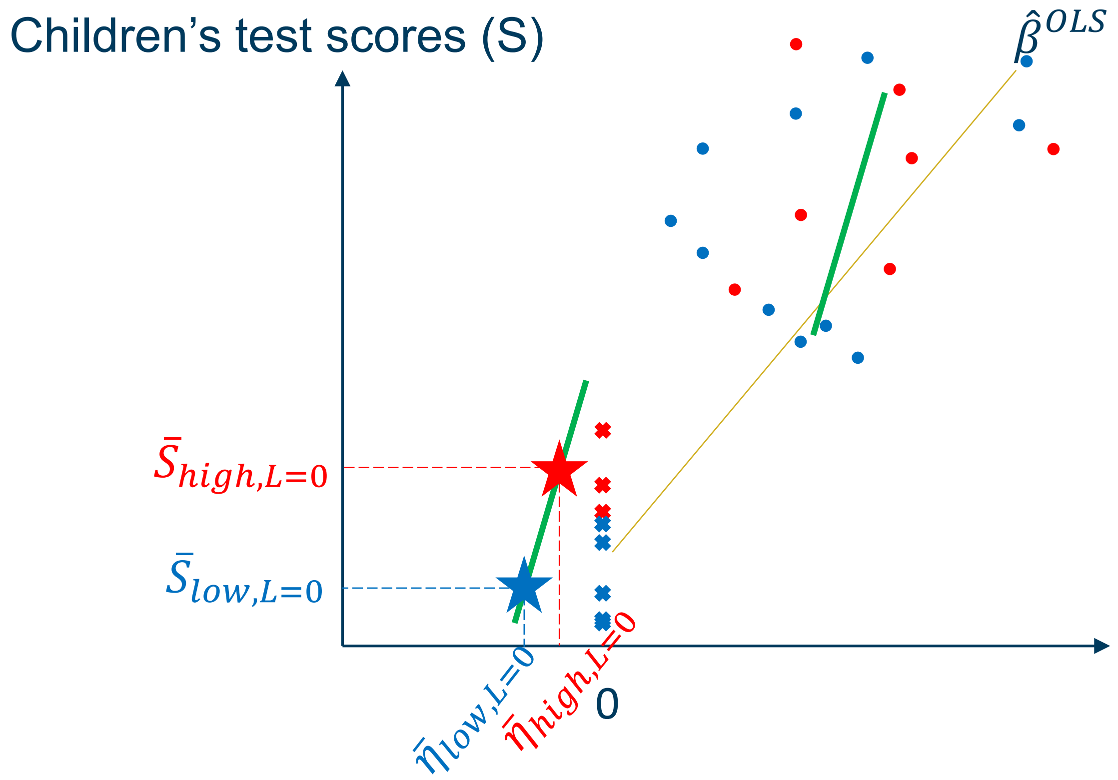

Test scores for kids whose moms work a lot are lower than what the moms' unobservables predict…

→

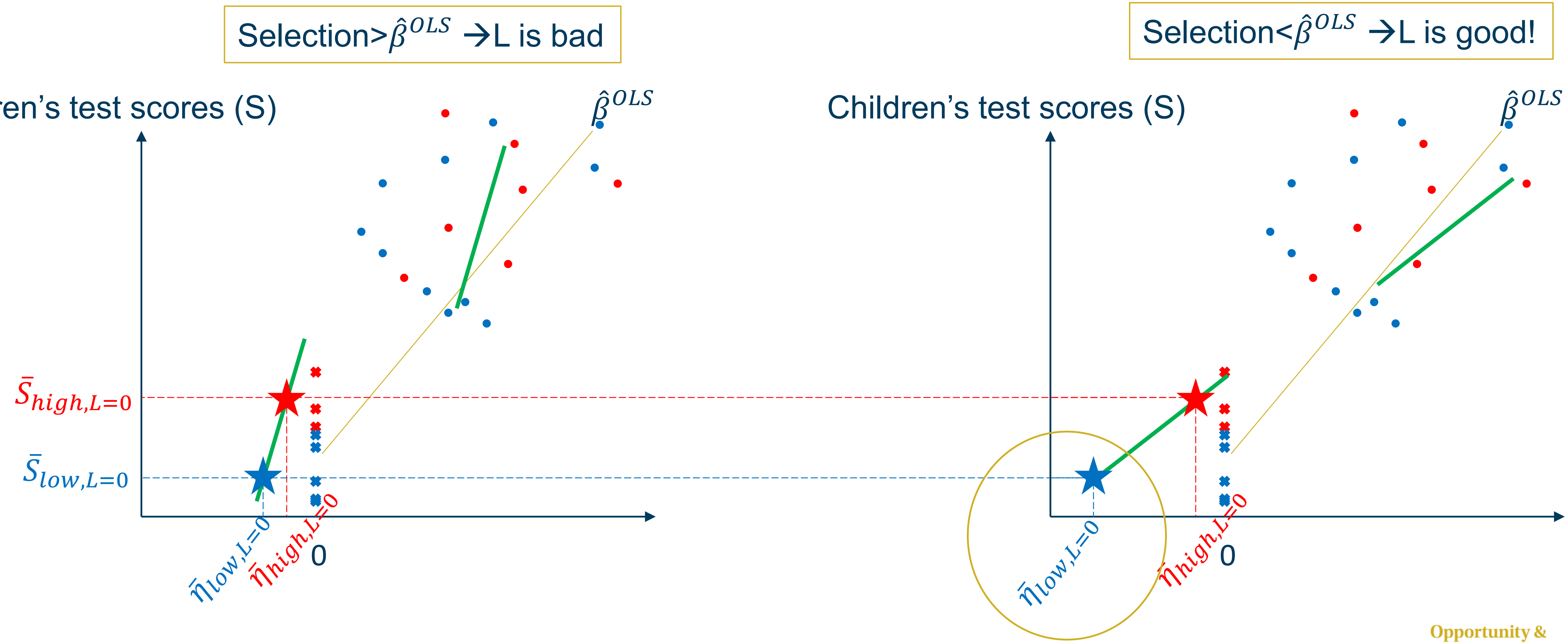
**labor supply slows skill development.**

# It's all about imputing $\eta$

Selection>$\hat{\beta}^{OLS}$ →L is bad

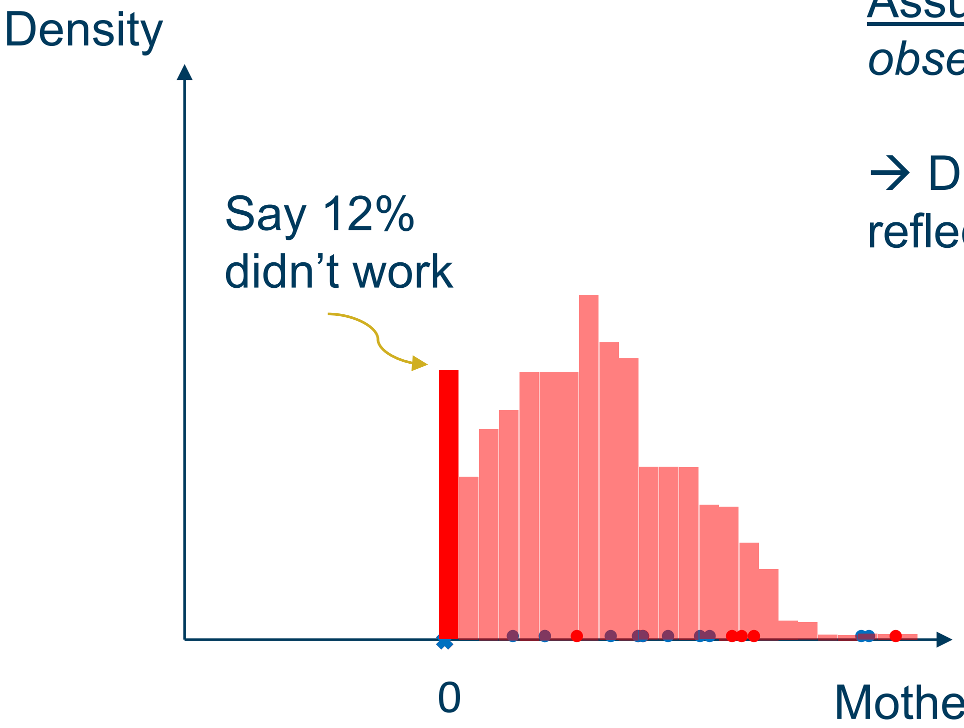


# It’s all about imputing $\eta$




All we did was impute a little differently

# How to impute $\eta$?




<u>Assume</u> that type completely accounts for *observable* reasons why L differs.

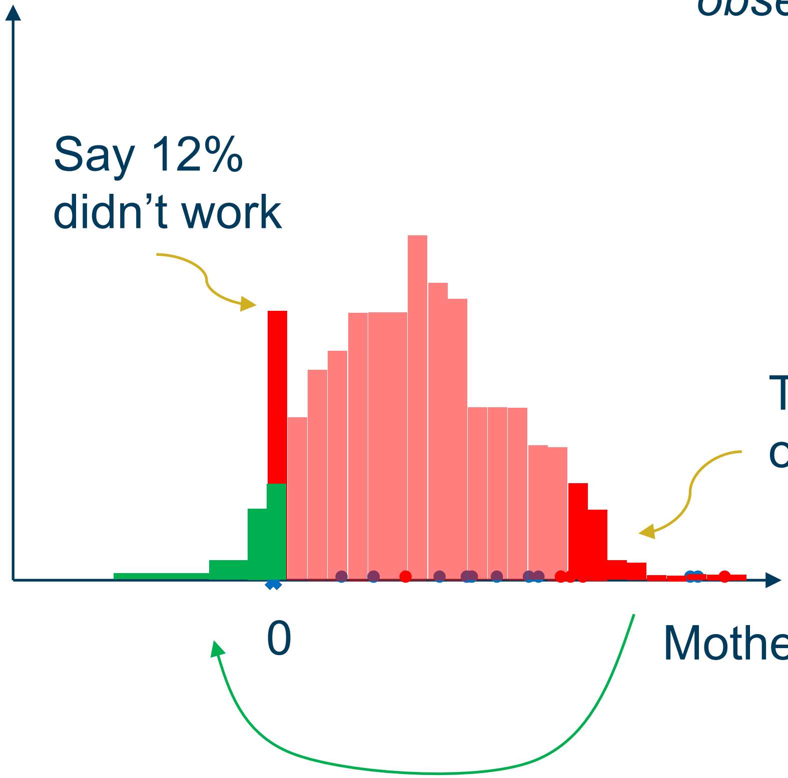
→ Differences in L among these moms only reflect their random unobservable

# How to impute $\eta$?

Assume that type completely accounts for *observable* reasons why L differs.

Density

Say 12% didn't work



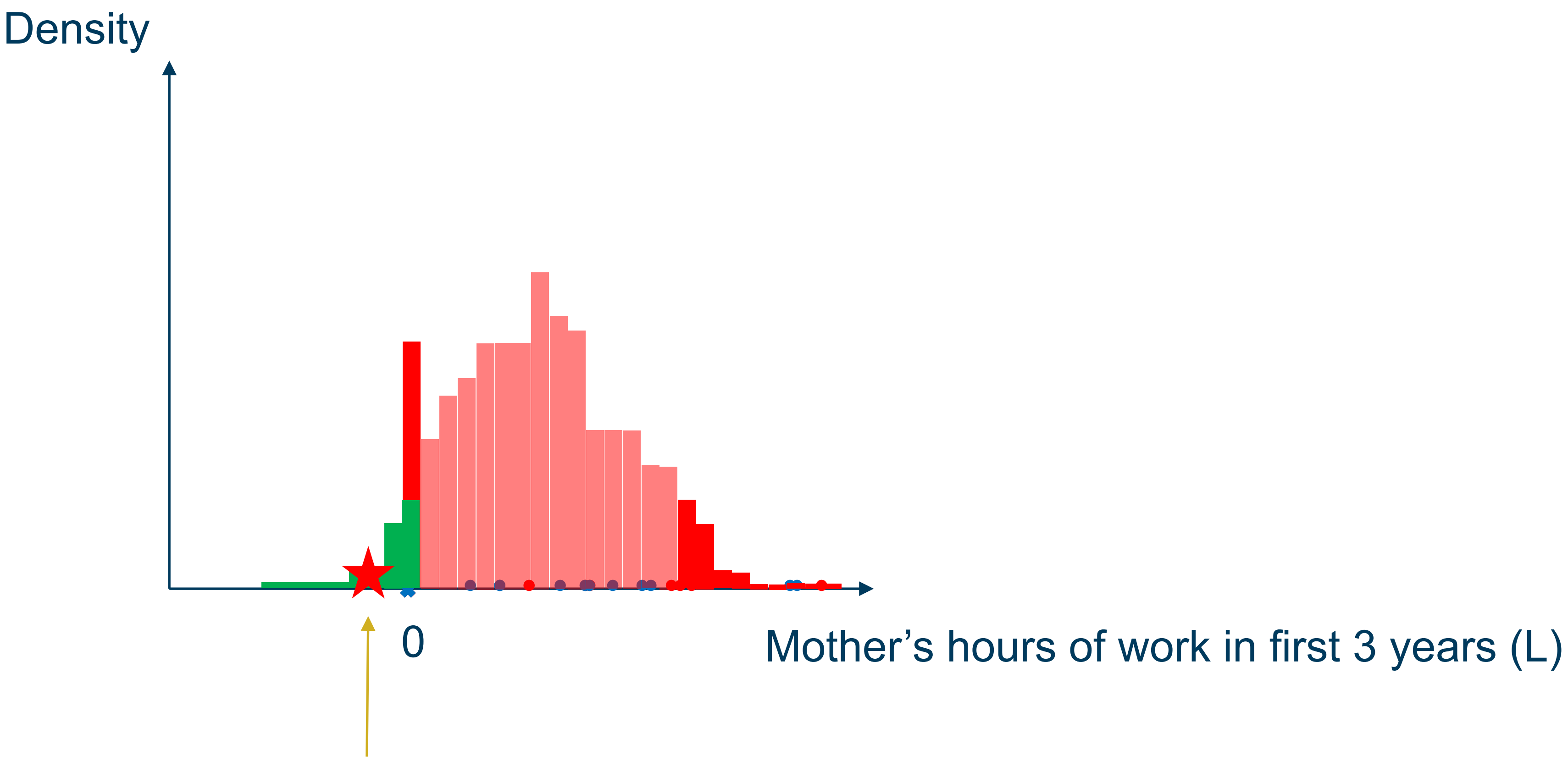
Then take the top 12% of L *for this detailed type*

0

Mother's hours of work in first 3 years (L)

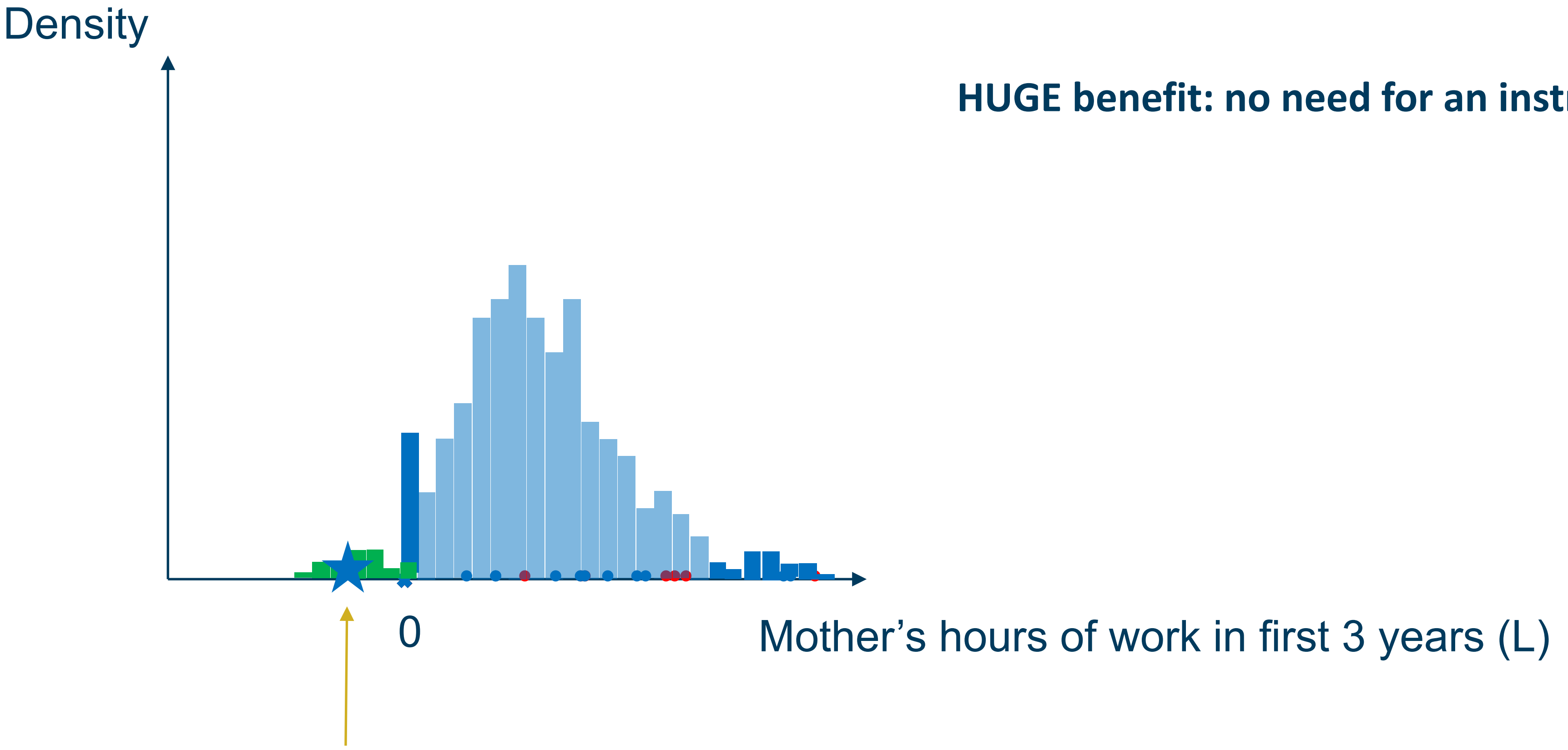
Assume symmetry in the distribution of unobservables and stick that mass down here.

# How to impute $\eta$?




Now we "know": $E[unobservables|L=0,$ high L type] (call it $\bar{\eta}_H$)

# How to impute $\eta$?

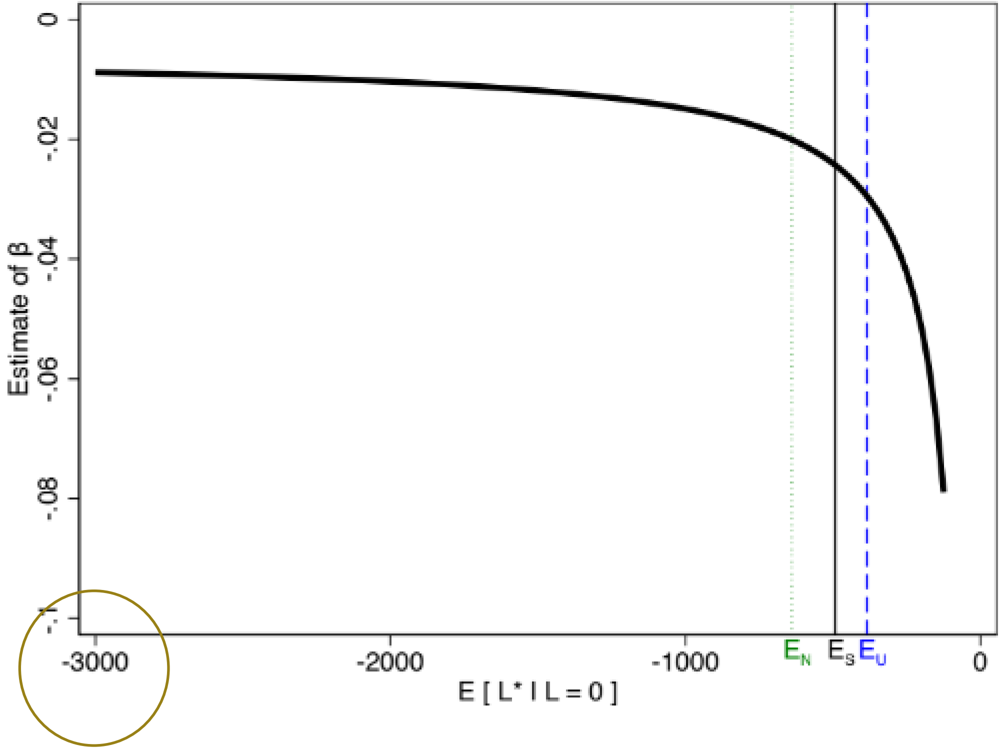



**HUGE benefit: no need for an instrument.**

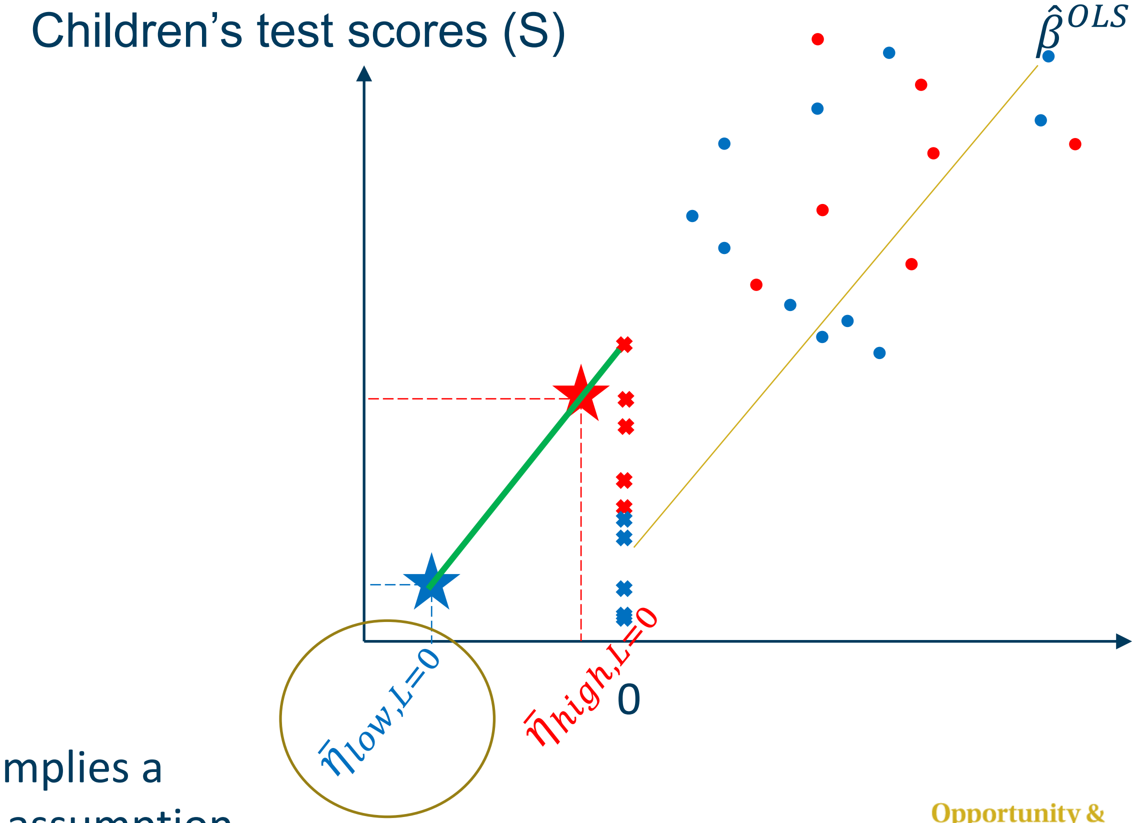
Now we "know": $E[unobservables|L = 0,$ low L type] (call it $\bar{\eta}_L$)

# Issues with $\eta$ ←are there none?

Figure 5: Model from Section 5.1: $\hat{\beta}$ for each counterfactual true value of $\mathbb{E}[L^*|L=0]$




**Why isn't this exercise about $E[L^*|L=0,X]$?**




Apparently the relevant selection estimate still implies a negative effect even at the most extreme hours assumption

# Issues with $\eta$

Table 1: Summary Statistics

| | Mean | Std.Dev. |
|---|---|---|
| ***Outcome variables*** | | |
| PIAT Reading Recognition | 105.33 | 14.04 |
| PIAT Math | 99.72 | 14.03 |
| ***Treatment variable*** | | |
| Mother's average hours worked in 3 first years | 847.64 | 838.18 |
| ***Bunching variables*** | | |
| Mother worked 0 hours in 3 first years | 0.25 | 0.44 |
| ***Control variables*** | | |
| Mother's AFQT score | 38.20 | 28.21 |
| Mother's wage year prior to the birth of the child | 14.69 | 11.04 |
| Mother's education less than high school | 0.23 | 0.42 |
| Mother's education completed high school | 0.43 | 0.50 |
| Mother's education some college | 0.19 | 0.40 |
| Mother's education completed college | 0.10 | 0.30 |
| Mother's education more than college | 0.04 | 0.20 |
| Mother's age less than 20 years old | 0.11 | 0.32 |
| Mother's age 20 to 24 years old | 0.33 | 0.47 |
| Mother's age 25 to 29 years old | 0.28 | 0.45 |
| Mother's age 30 to 34 years old | 0.18 | 0.39 |
| Mother's age 35 years old or more | 0.09 | 0.29 |

**Other income (spouse or unearned/wealth)?**

| | | |
|---|---|---|
| Mother's spouse present | 0.60 | 0.49 |
| Mother's spouse highest grade | 12.83 | 2.69 |
| Child's age at test (in months) | 75.07 | 14.13 |
| Sex of child (male=1, female=0) | 0.51 | 0.50 |
| Birth order of child | 2.06 | 1.18 |
| Child is Hispanic | 0.21 | 0.40 |
| Child is Black | 0.29 | 0.45 |
| Family size | 3.85 | 1.91 |
| Lives in north region | 0.15 | 0.36 |
| Lives in north-central region | 0.23 | 0.42 |
| Lives in south region | 0.35 | 0.48 |
| Lives in west region | 0.19 | 0.39 |

**Age and composition of other siblings?**
**(a baby with an toddler gets a VERY different treatment than a baby with a 4th grader…)**

Big Sisters

Pamela Jakiela, Owen Ozier, Lia Fernald, and Heather Knauer*

June 29, 2020

# Unobserved home productivity

What if the unobservable is not taste for work (latent labor supply), but the returns to home production (ie. childcare)?

EVALUATING PUBLIC PROGRAMS WITH CLOSE SUBSTITUTES: THE CASE OF HEAD START*

PATRICK KLINE AND

CHRISTOPHER R. WALTERS

impact of moving from home care to Head Start is large—on the order of 0.37 standard deviations. By contrast, estimates of

TABLE VIII

TREATMENT EFFECTS FOR SUBPOPULATIONS

| | | Control function | | |
|---|---|---|---|---|
| Parameter | (1) IV | (2) Covariates | (3) Sites | (4) Full model |
| $LATE_h$ | 0.247 | 0.261 | 0.190 | 0.214 |
| | (0.031) | (0.032) | (0.076) | (0.042) |
| $LATE_{nh}$ | | 0.386 | 0.341 | 0.370 |
| | | (0.143) | (0.219) | (0.088) |
| $LATE_{ch}$ | | 0.023 | –0.122 | –0.093 |
| | | (0.251) | (0.469) | (0.154) |

# Upshot

Fascinating, clear, creative new empirical approach.

Fits will with complementary methods (not just IV, but things like Altonji/Elder/Taber/Oster)

Biggest challenge is not robustness in that the results change, but cementing the case that this is not just a robustly omitted co-determinant of NILF and children's test scores.