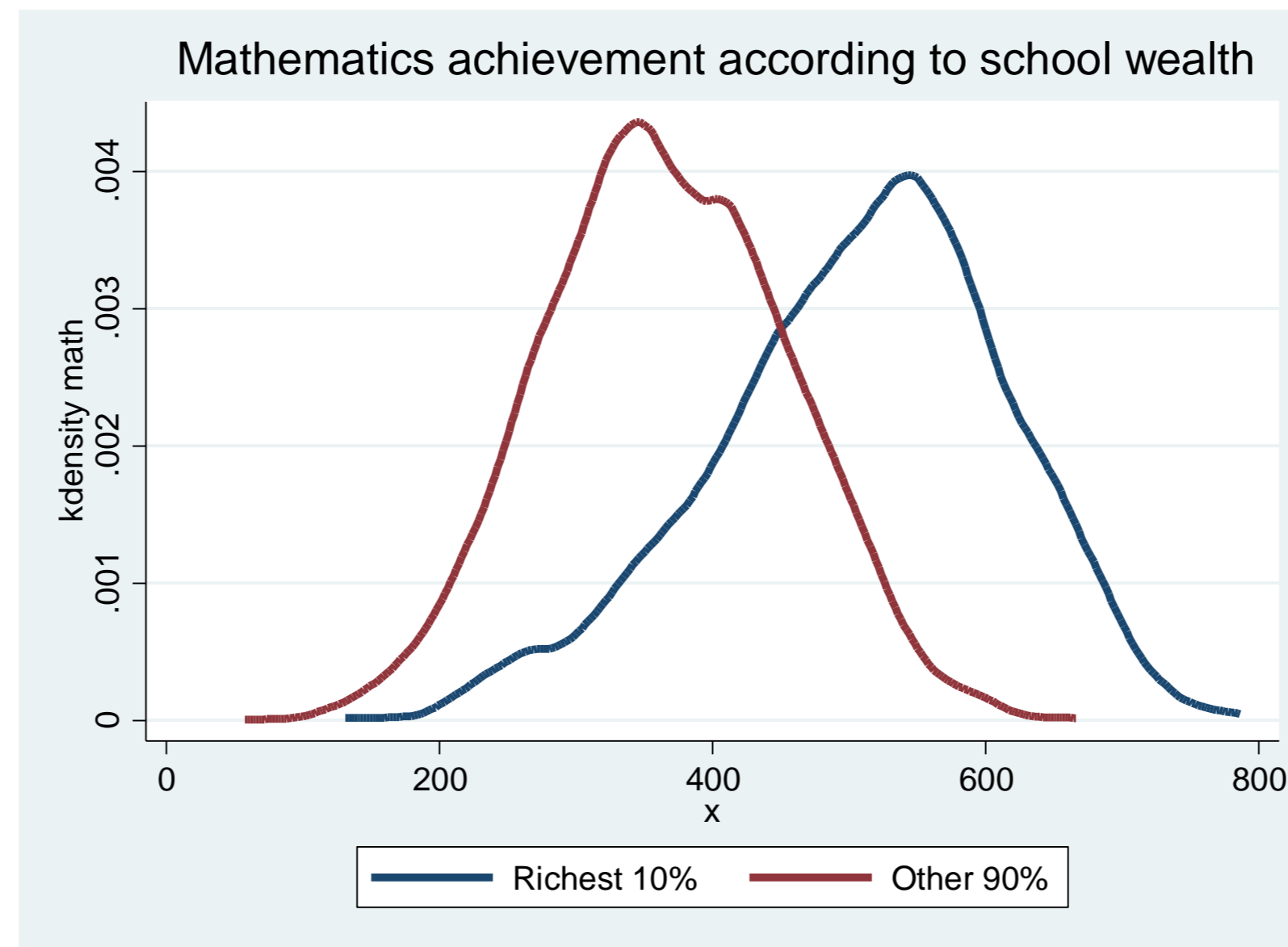


## SOUTH AFRICA AND TIMSS

- Improvement at Grade 9 level since participation in 1995
- First participation at Grade 5 level in 2015 (10 932 learners from 297 schools)
- National average: 376  
TIMSS low international benchmark: 400
- Benchmark for future performance in TIMSS 2019
- Large performance difference according to school wealth (average learner SES)



## METHODOLOGY

- Oaxaca-Blinder decomposition
- Two groups:
  - Richest 10% of schools ( $Y_{10} = 509$ )
  - Remaining 90% of schools ( $Y_{90} = 359$ )
- $Y_{10} - Y_{90} = (\alpha_{10} - \alpha_{90}) + (\beta_{10} - \beta_{90})X_{90} + \beta_{10}(X_{10} - X_{90})$
- Explained component:  $\beta_{10}(X_{10} - X_{90})$
- Unexplained component:  $(\alpha_{10} - \alpha_{90}) + (\beta_{10} - \beta_{90})X_{90}$

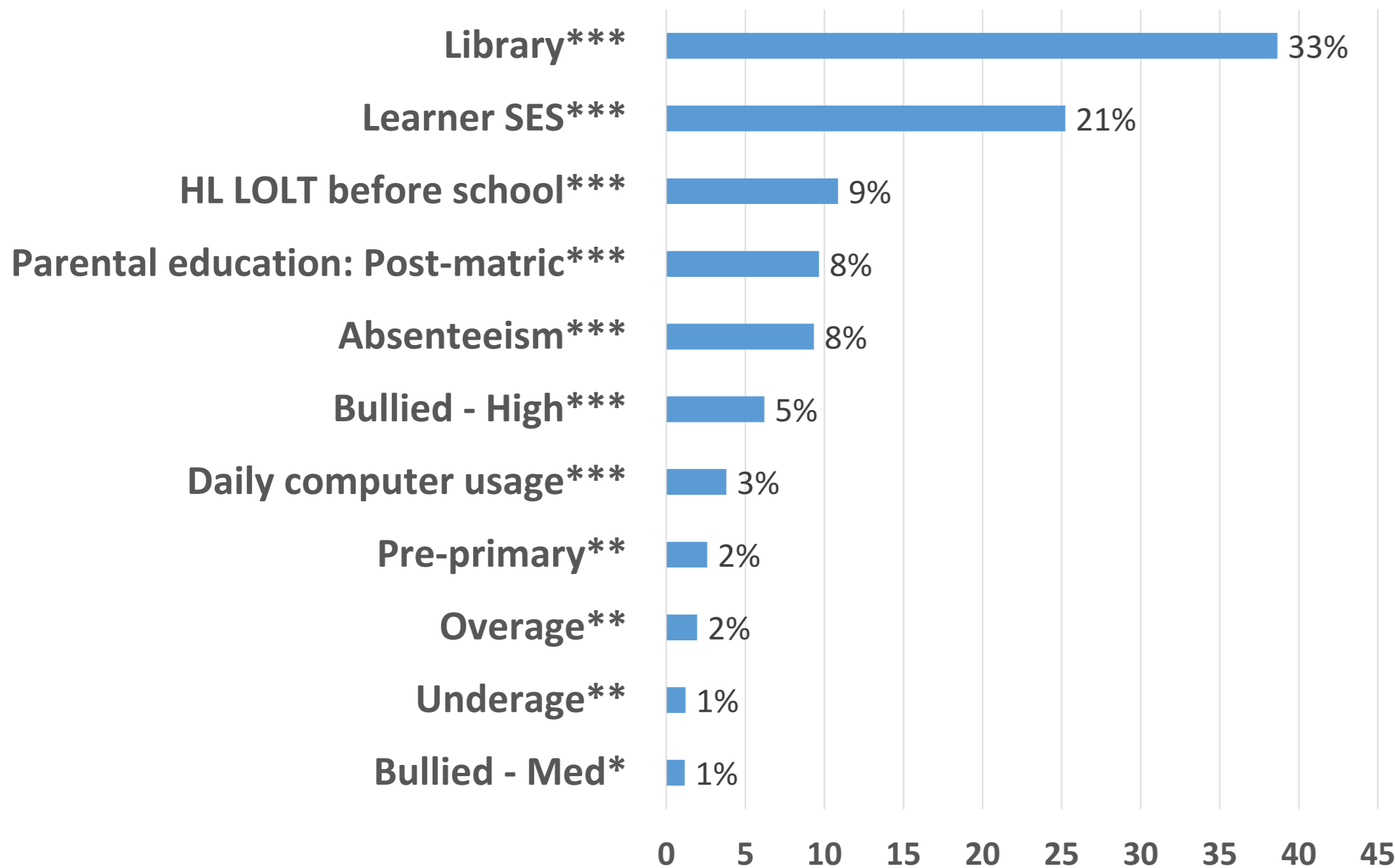
Difference in mean achievement: 150

Endowment effect: 118

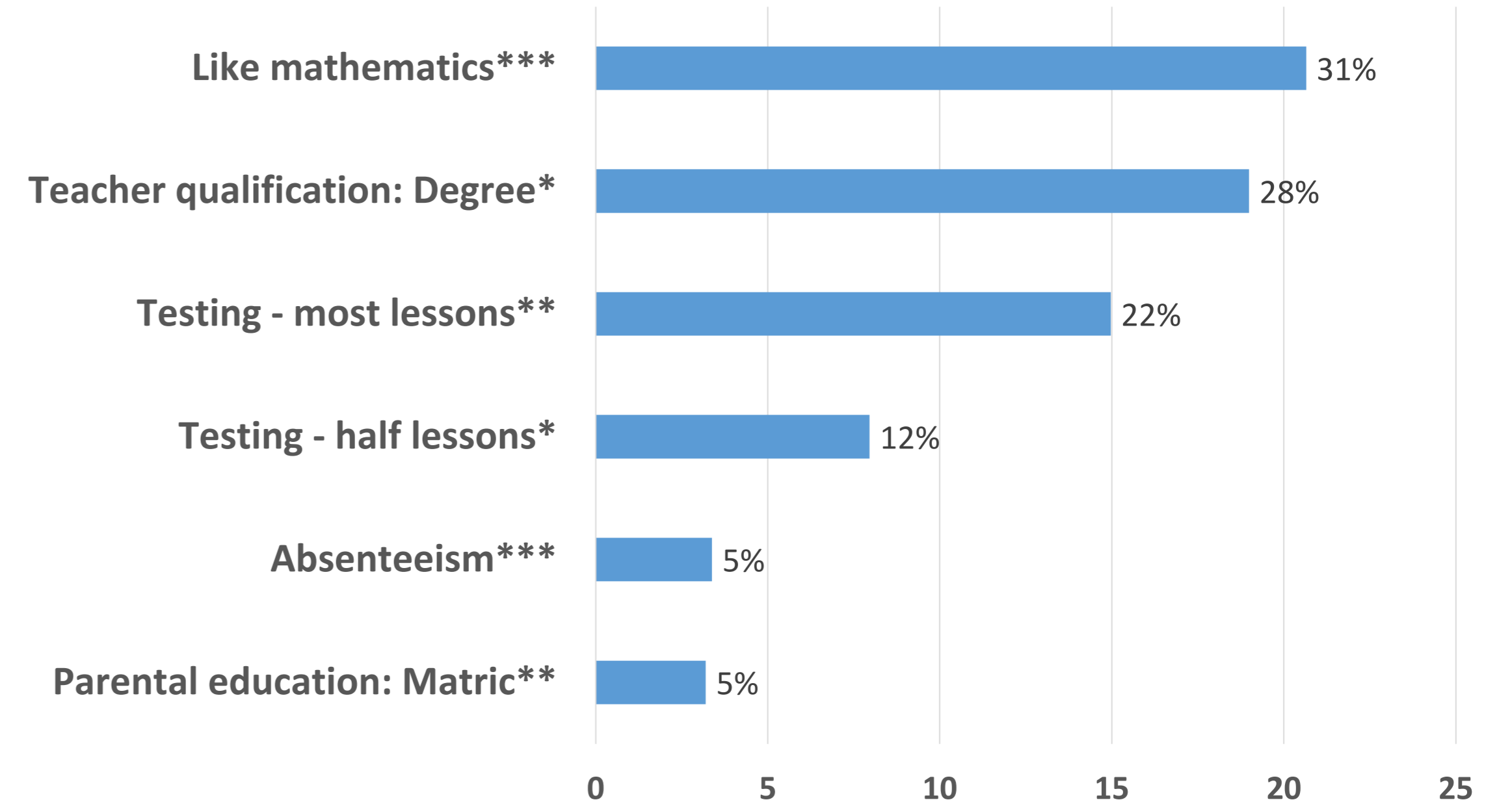
Interaction effect: -35

Coefficient effect: 67

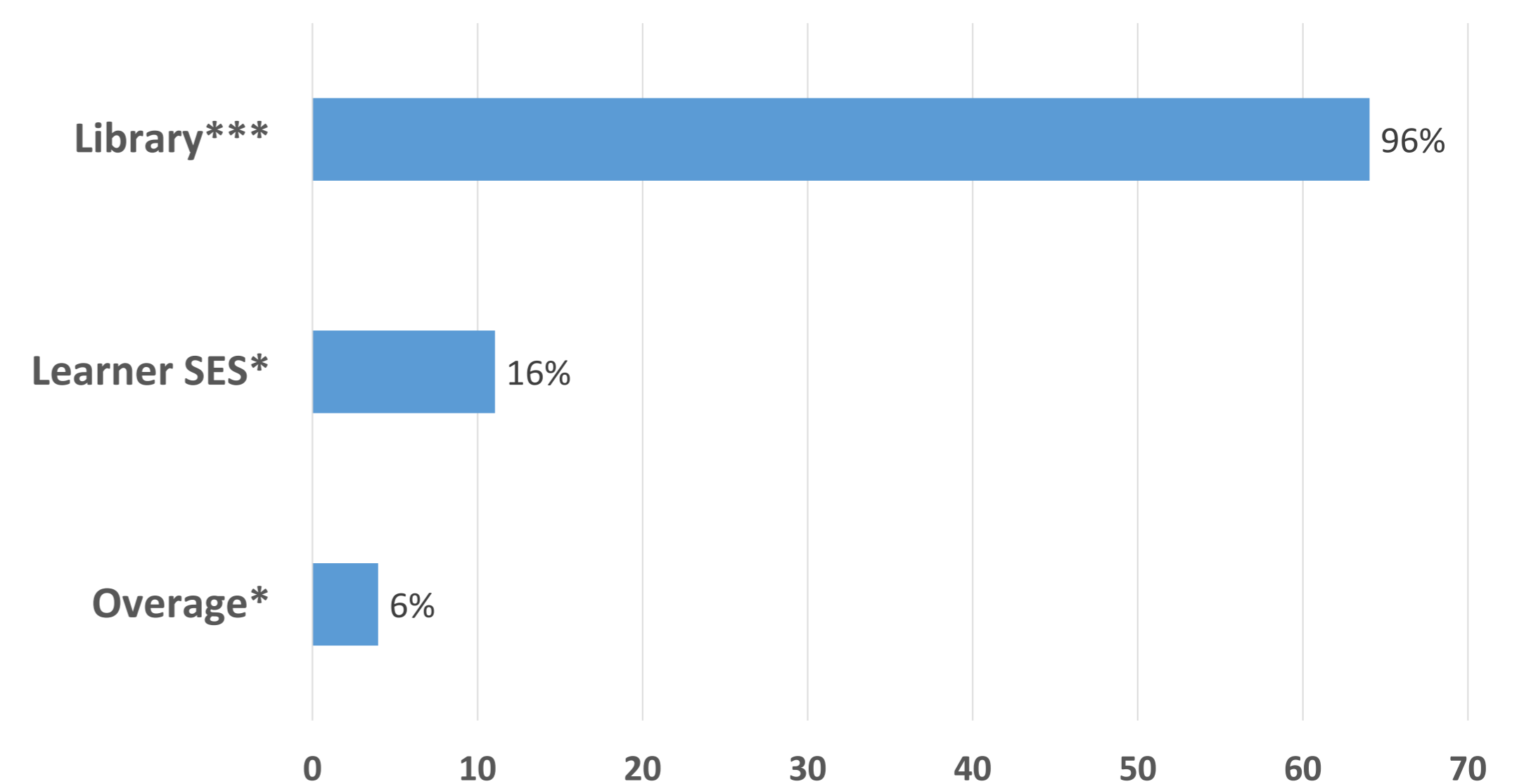
### Endowment effect sizes



### Negative coefficient effect sizes



### Positive coefficient effect sizes



- Only results significant at a 10% level are reported:  
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$
- Percentages indicate the contribution to the total endowment or coefficient effect
- Positive endowment effects indicate superior endowments belonging to the richest 90% of schools
- Positive coefficient effects indicate more positive (or less negative) returns exist in the richest 10% of schools
- Negative coefficient effects indicate more positive (or less negative) returns exist in the poorest 90% of schools

## Conclusions/ Further research

- Achievement differences between richer and poorer schools are not only from different endowments of learner, school and teacher inputs.
- Further research can focus on factors with possible insights for school or government policy:
  - Age effects can inform repetition policy
  - Library effects can aid in increasing the effective targeting of resources
  - Language effects can inform language policies
  - Absenteeism, bullying/school safety, and feelings towards mathematics can be addressed by schools and government