

# Peers and achievement in England's secondary schools

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## Motivation

- Schools often judged on the characteristics of the pupils they enrol rather than quality of teaching
- School choices made on the basis of average test scores, or characteristics of intake
- Possible reasons:
- Parents read intake quality as a signal of school quality?
- Parents believe in 'peer group' effects i.e. their child will do better in a school which has better kids?

## Motivation

- Both reasons will draw high and low achievers apart into different schools, if high achievers outdo low achievers in gaining access to the preferred schools.
- 'Peer group' effects – also impact on efficacy of educational interventions
- Targeted individuals benefit more if they are treated in groups than if they are treated individually
- Theoretical explanations: constraints, preferences, expectations (e.g. Manski 2000)

## Research question (and answer)

- Do high school children benefit academically from attending schools with other high-achieving children?
- Not very much, if at all
- At least not in first 3 years at high school in England
- As measured by standard tests in maths science and English

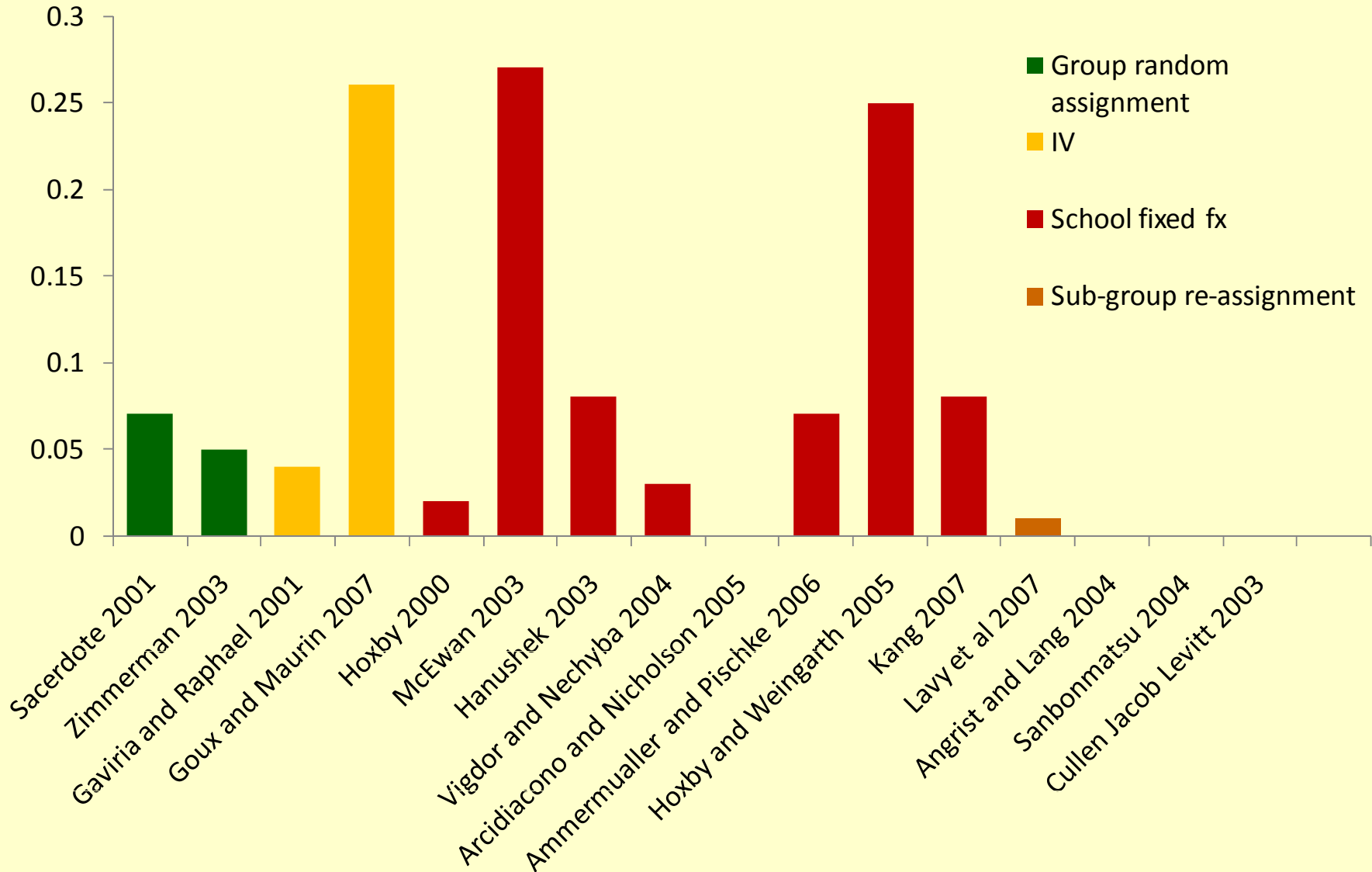
## Research challenges

- Many obstacles to answering this question e.g.
- People choose their schools and their friends: similar people group together along lines (e.g. motivation) that are unobservable to researchers
- Unobservable characteristics of schools attract like-minded individuals
- → 'Sorting'
- Actual reference groups unknown and unobservable (school, class, friends, facebook?)

## Potential research methods in economics

- Find 'quasi-experimental' settings where policy randomly creates groups
- e.g. school admissions lotteries, college dorm assignments
- Use survey or administrative data and try to mimic this design statistically
- But, between group variation in characteristics of interest likely to be small unless groups are small
- Ideal research design requires random assignment of sub-groups of children to pre-sorted groups

# Recent economic research



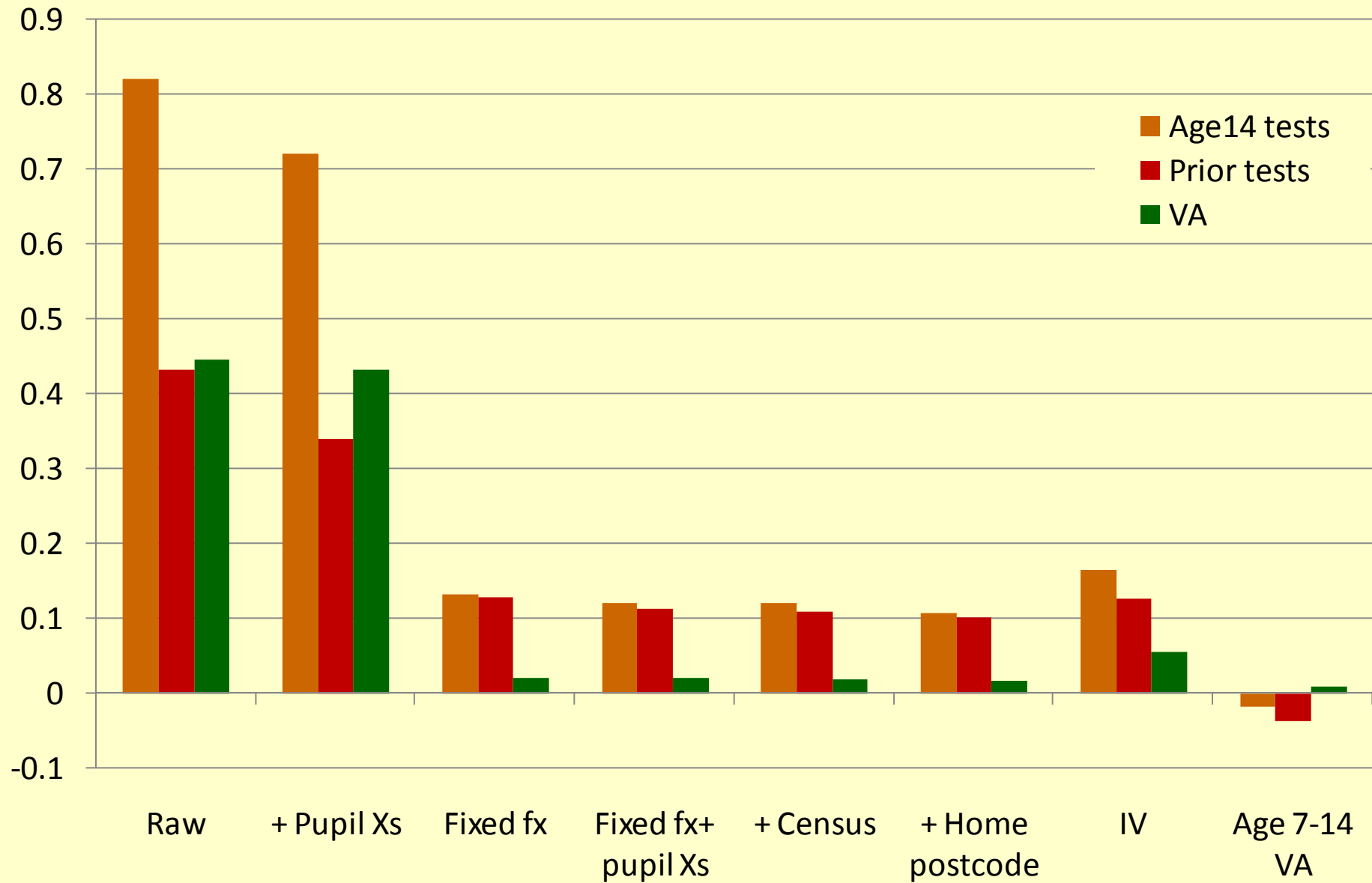
## Our methods

- Look at 3 year test score gain (value-added) after pupils switch from primary to secondary at age 12
- Large group reassignments through choice and allocation of secondary school places
- Compare pupils within primary-secondary school transition groups – primary x secondary fixed effects
- e.g. pupil switches Primary A → Secondary B in 2002. Does he/she progress more than pupils moving A→B in other years if the entry cohort to B was higher than average in 2002?
- Control for own primary school peer groups

## Data

- National Pupil Database, England
- 1.6 million children starting high school (Year 7, age 12) in 2002-2005
- National tests Year 9 (age 14), Year 6 (age 11, primary school) in Maths Science and English
- And Year 3 (age 7) in Maths and English
- Basic pupil characteristics – age, gender, FSM, ethnicity, English first language
- Residential postcode and census characteristics

# Regression results



## Summary (1)

- Pupils entering schools that have high achieving age-12 intakes...
- Have higher percentile age-12 test scores (sorting)
- Obtain even higher percentile age 14 test scores
- Have greater age 12-14 value-added
- 10 percentile higher age-12 peer group achievements  
↔ 4 percentile higher pupil age-14 achievements
- But this can be explained by sorting on unobserved school factors, and unobserved pupil factors...

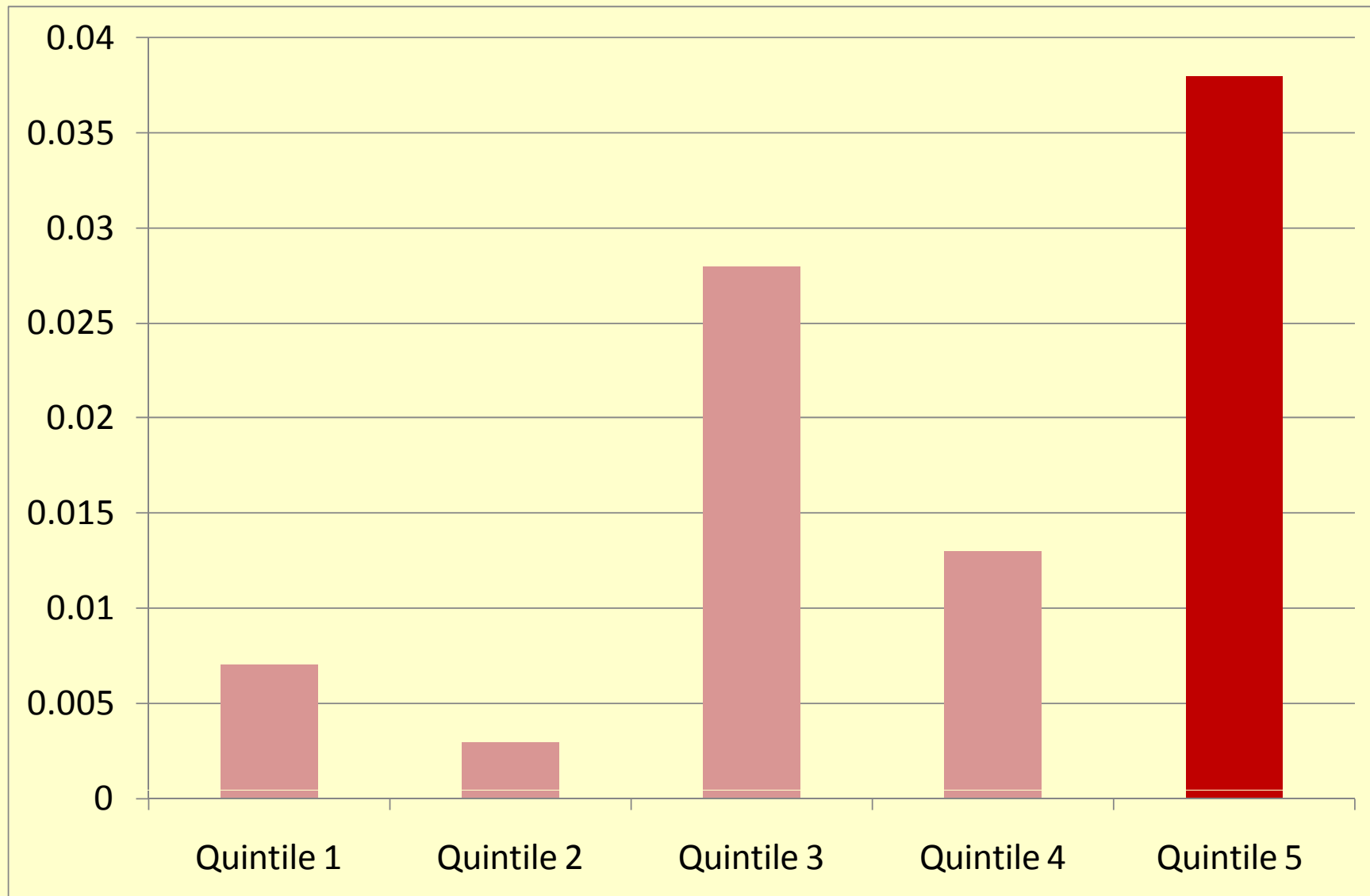
## Summary (2)

- Within schools, pupils entering in high achieving intake years...
- Have higher percentile age-12 test scores (sorting)
- Obtain similarly higher percentile age 14 test scores
- Have no greater age 12-14 value-added than pupils entering in low achieving intake years
- No evidence of peer-group effects
- Sorting alone means 1 s.d. higher peer group achievements associated with 0.035 s.d. increase in own test scores

## Potential explanations

- No causal effects?
- Class peer groups, not school peer groups? Setting within schools?
- But, better school intakes implies better class peer group quality so we should detect an effect
- Wrong peer group measure? – but we find poverty, ethnicity etc. don't matter either
- Heterogeneous effects by gender, income? – we find none
- Non linear, or heterogeneous effects by ability?...

## Peer impacts by own age-12 quintile



## Conclusions (1)

- No evidence of causal link between school intake achievements and individual child's outcomes on average
- No evidence of other contextual peer effects
- Statistically significant effects for specific achievement quintiles
- But very small: 10 percentile higher age-12 peers linked to 0.4 percentile higher individual test scores at age 14

## Conclusions (2)

- So why do parents care?
- Long-run intake quality signals other aspects of school quality – hence correlation between peers and individual achievement across schools but not within?
- Quality peer groups are a consumption good?:  
evidence for this in Gibbons and Silva 2008: - parents associate peers test scores with school quality (self reported)
- Other outcomes, not test scores?
- Even weak peer effects + signalling could cumulatively drive stratification across schools