

Inequality in school readiness in Australia, Canada, UK and US

Bruce Bradbury
University of New South Wales

Miles Corak
University of Ottawa & IZA

Jane Waldfogel
Columbia University & London School of Economics

Elizabeth Washbrook
University of Bristol

We are grateful to Russell Sage Foundation and Sutton Trust for funding support and to Ali Akbar Ghanghro for assistance with the NLSCY data.

Introduction

- ▶ We examine four countries -- AU, CN, UK and US – that have relatively high levels of inequality (gini coefficients of .31, .32, .35, and .37) , but differing levels of social mobility, with the US displaying stronger correlations between adult and child SES
- ▶ We examine whether these cross-country differences in social mobility are already apparent in early childhood
- ▶ We use large surveys following children from birth to age 4-5
- ▶ We examine cognitive, behavioral, and physical development
- ▶ This study builds on previous 2-country comparisons by Waldfogel and Washbrook (2009, 2010; US & UK) and Corak, Curtis and Phipps (2010; US & Canada)

Data

- ▶ AU: LSAC birth cohort
CN: NLSCY
UK: MCS
US: ECLS-B
- ▶ 3 waves: Age 0, age 2-3, age 4-5
- ▶ Main outcomes are when children are aged 4-5 (UK oldest)
- ▶ Sample size: 4,400 (AU) to 15,500 (UK)

Two measures of parental SES

Education

- ▶ Highest education level of either parent (if present)
- ▶ Low: ISCED 2 (lower secondary)
- ▶ Middle: ISCED 3/4/5B (finish school, non-university qual)
- ▶ High: ISCED 5A/6 (university degree)

Income

- ▶ Gross household income (equivalised)
- ▶ US income is grouped, so we group others similarly
- ▶ Mean income across all 3 waves (1 or 2 if missing)
- ▶ Low: In lowest quintile group
- ▶ Middle: in q2, q3, q4
- ▶ High: In top quintile group

Greater diversity and inequality in US

- ▶ US displays most racial/ethnic diversity among native-born
- ▶ Half of low educated parents in US are immigrants, a much higher concentration than in other countries (where immigrants are more equally distributed)
- ▶ Gaps in family resources between bottom and middle, and top and middle, tend to be greater in US than in other countries.
 - US has highest share of single mothers and young mothers (age<20)
 - While mean income is about the same across countries, US displays most income inequality
- ▶ The US also has less generous social welfare system
- ▶ US parents in this cohort did not have access to paid parental leave, universal preschool, child benefit, or universal health insurance

Cognitive outcomes

- ▶ All outcome measures are age-standardized (unit variance)
- ▶ Interviewer-administered
- ▶ Vocabulary
 - ▶ AU, CN, US: PPVT – receptive vocabulary
 - ▶ UK: BAS-NV – expressive vocabulary
- ▶ Math/number
 - ▶ CN: whole numbers test
 - ▶ US: number sense, geometry, counting, operations, patterns
 - ▶ UK: (@ 3 years) BRSA numbers, numbers + sizes + comparisons + shapes
- ▶ Copying
 - ▶ AU, CN Who Am I, copying shapes
 - ▶ US different copying shapes test

Socio-emotional and physical outcomes

- ▶ **Parent-rated**
- ▶ **Externalizing behavior**
 - ▶ AU, UK: Hyperactivity and conduct SDQ sub-scales
 - ▶ CN, US: similar questions
- ▶ **Birth weight**
 - ▶ LBW (<2.5kg)
 - ▶ Weight in grams

Estimation methods

$$y_{ic} = \beta_{0c} + \beta_{Lc} (1 | SES_{ic} = Low) + \beta_{Hc} (1 | SES_{ic} = High) + \varepsilon_{ic}$$

y_{ic} = standardized outcome measure of child i in country c

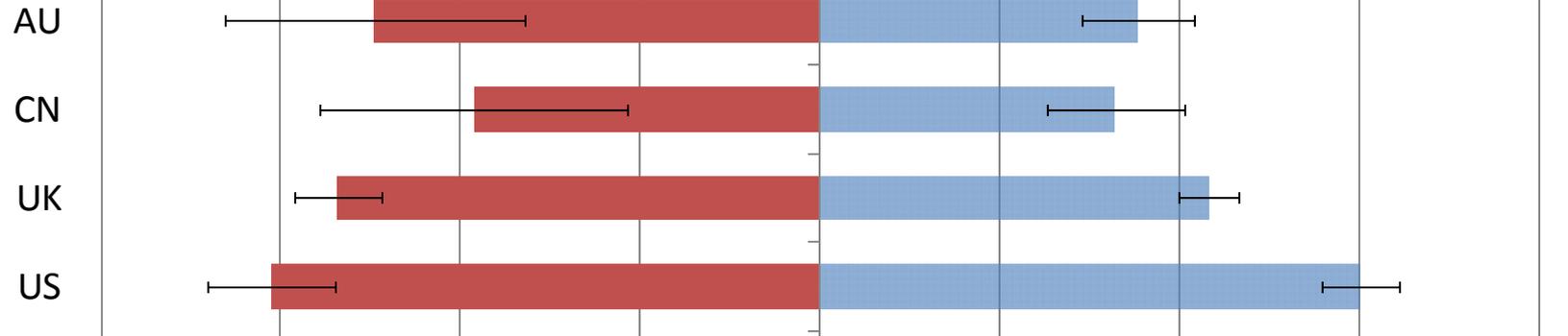
$(1 | SES_{ic} = Low)$ and $(1 | SES_{ic} = High)$ are binary indicators equal to 1 if child i in country c is respectively in the Low or the High SES group

Account for sample design in the estimation of confidence intervals (but don't account for the variance associated with the standardization of the dependent variable)

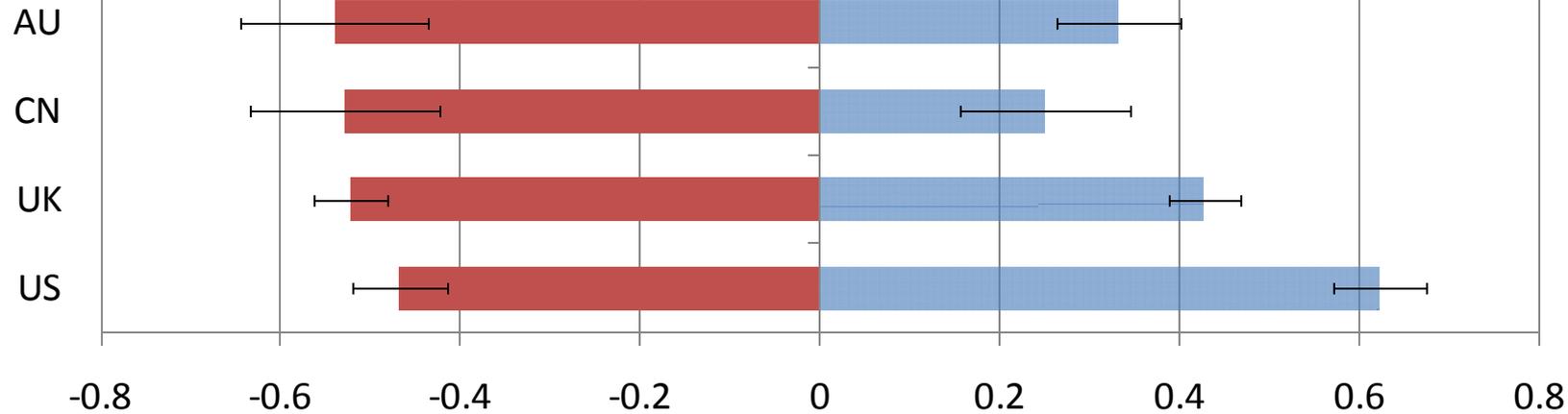
Vocabulary gradients

■ Bottom-middle gap ■ Top-middle gap

by education group



by income group

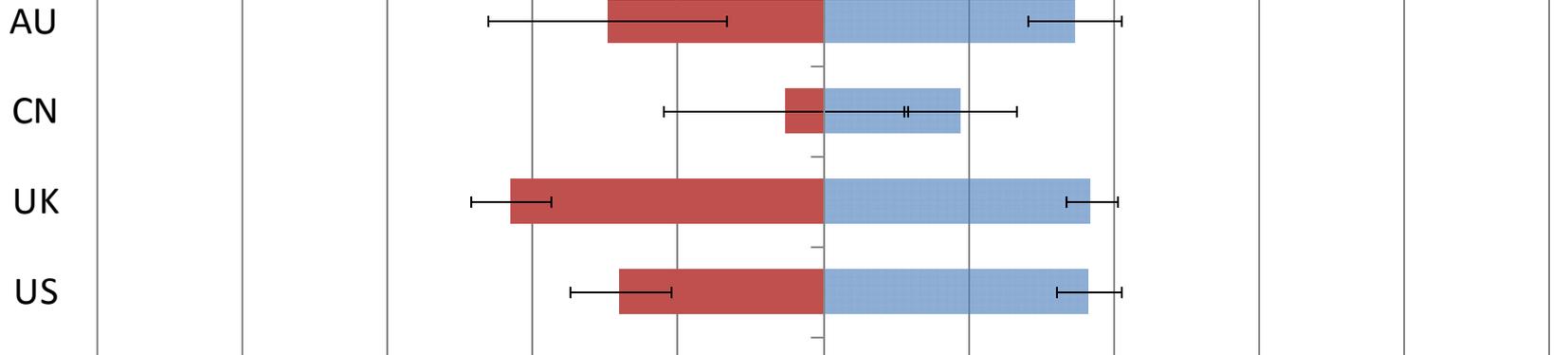


Standardized score Top-bottom gaps sig. larger in US & UK

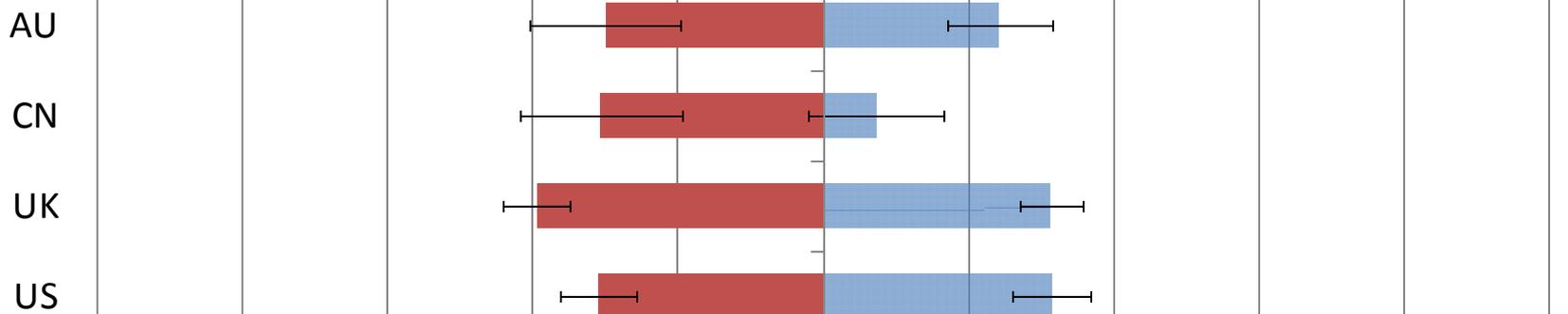
Externalizing behavior gradients

■ Bottom-middle gap ■ Top-middle gap

By education group



By income group



-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1

Standardized score

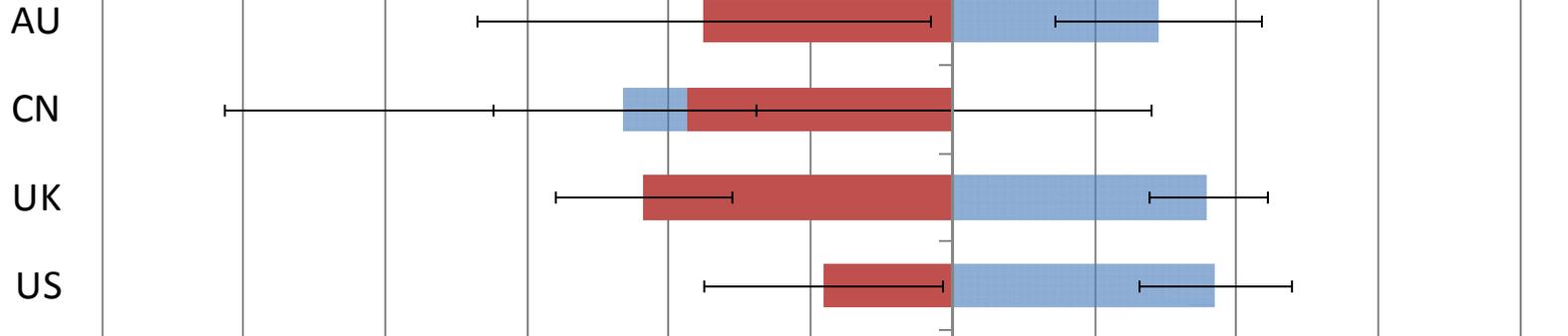
3 of 4 Canada gaps sig. smaller⁰



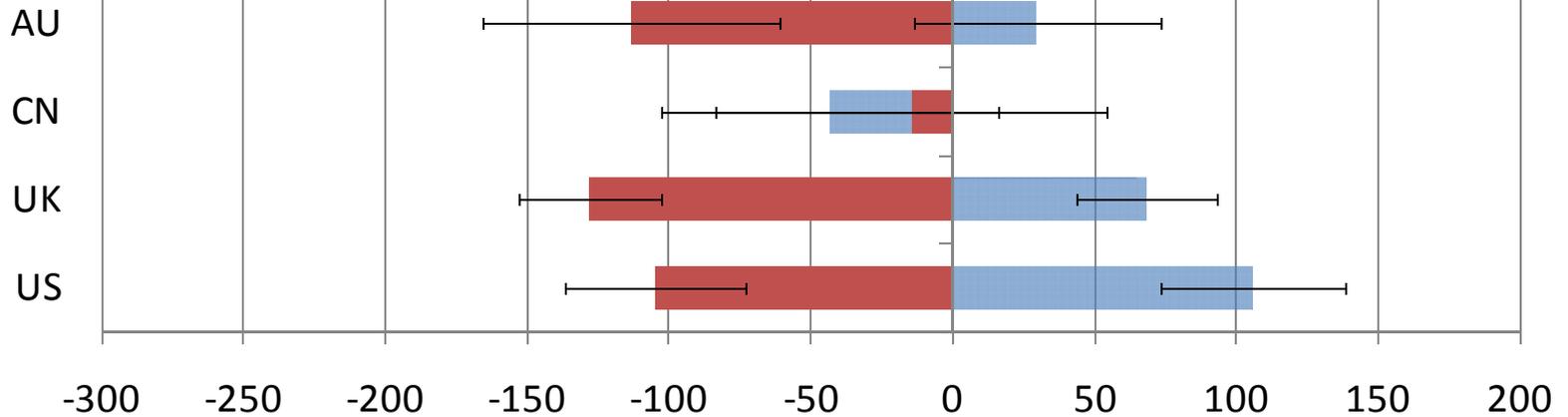
Birth weight gradients

■ Bottom-middle gap ■ Top-middle gap

By education group



By income group

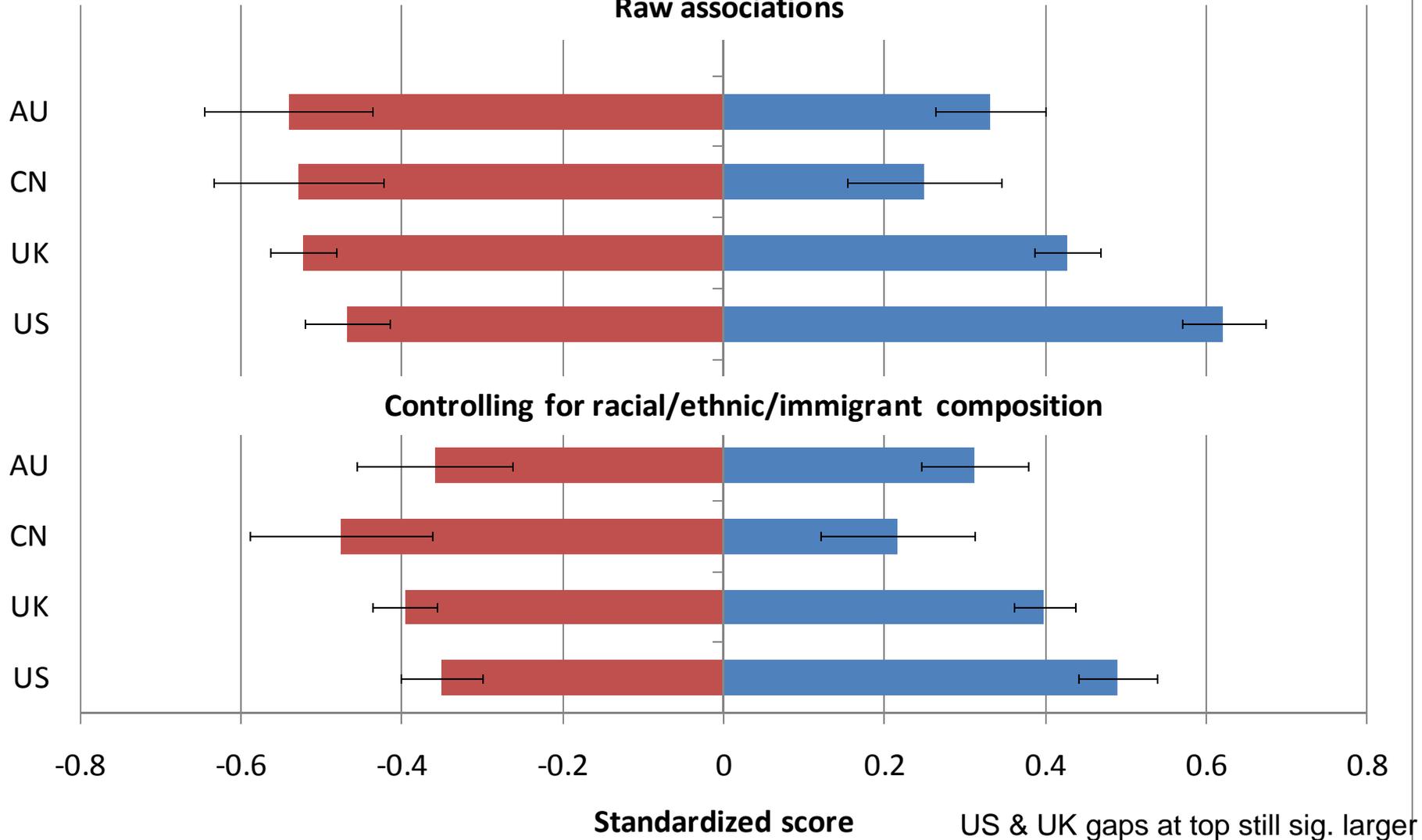


Grams

Vocabulary - income gradients controlling for ethnicity

Bottom-middle gap Top-middle gap

Raw associations



Summary

- ▶ **Substantial SES/child outcome associations in all countries**
 - ▶ Top-bottom education group difference in vocabulary score ranges from 0.71 in CN to 1.21 sd in US, while top-bottom income quintile group difference ranges from 0.78 sd (CN) to 1.09 sd (US)
- ▶ **The SES/cognitive association is strongest in the US (and UK)**
 - ▶ Vocabulary (and math): significant differences, particularly in top half
- ▶ **Race/ethnicity and immigrant status explain some, but not all, of this variation (both within and across countries)**
- ▶ **The SES/behavioral association is weakest in Canada (and strongest in UK)**

Implications

- ▶ What is responsible for the stronger correlations between SES and child cognitive outcomes in the US than in other countries?
- ▶ Across a wide range of key inputs, US children have more unequal access to resources
 - Differences in family resources between SES groups are greater in US than in other countries
 - And public sector role is less
 - As a result, differences in family resources may result in greater disparities in child outcomes
- ▶ If so, our results might help explain why the US tends to have low intergenerational mobility