

Reading and maths skills and the life-course outcomes of young people in NZ

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**NEW ZEALAND
WORK RESEARCH INSTITUTE**

Disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>.

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

The wider research programme

workresearch.aut.ac.nz/low-skills

- This project is a small part of a larger research programme
- Funded via the MBIE Endeavour (2019 – 2024)
- AUT; University of Waikato; Portland State University and the OECD
- Advisory group - policy makers and practitioners
- Aim: To deliver an empirical base for improved public policy delivery, interventions and wellbeing outcomes for adults living with low literacy and/or numeracy skills in NZ

This project

- What is the relationship between young people's reading and mathematics proficiency at age 15 and their life-course outcomes?
- We use Stats NZ's Integrated Data Infrastructure (IDI) to take measures of reading and maths skills of 15-year-old students from NZ's 2009 Programme of International Student Assessment (PISA) and link these to administrative data
- This allows us to follow a cohort of young people and track their outcomes for 11 years until they are about 26 years old

PISA

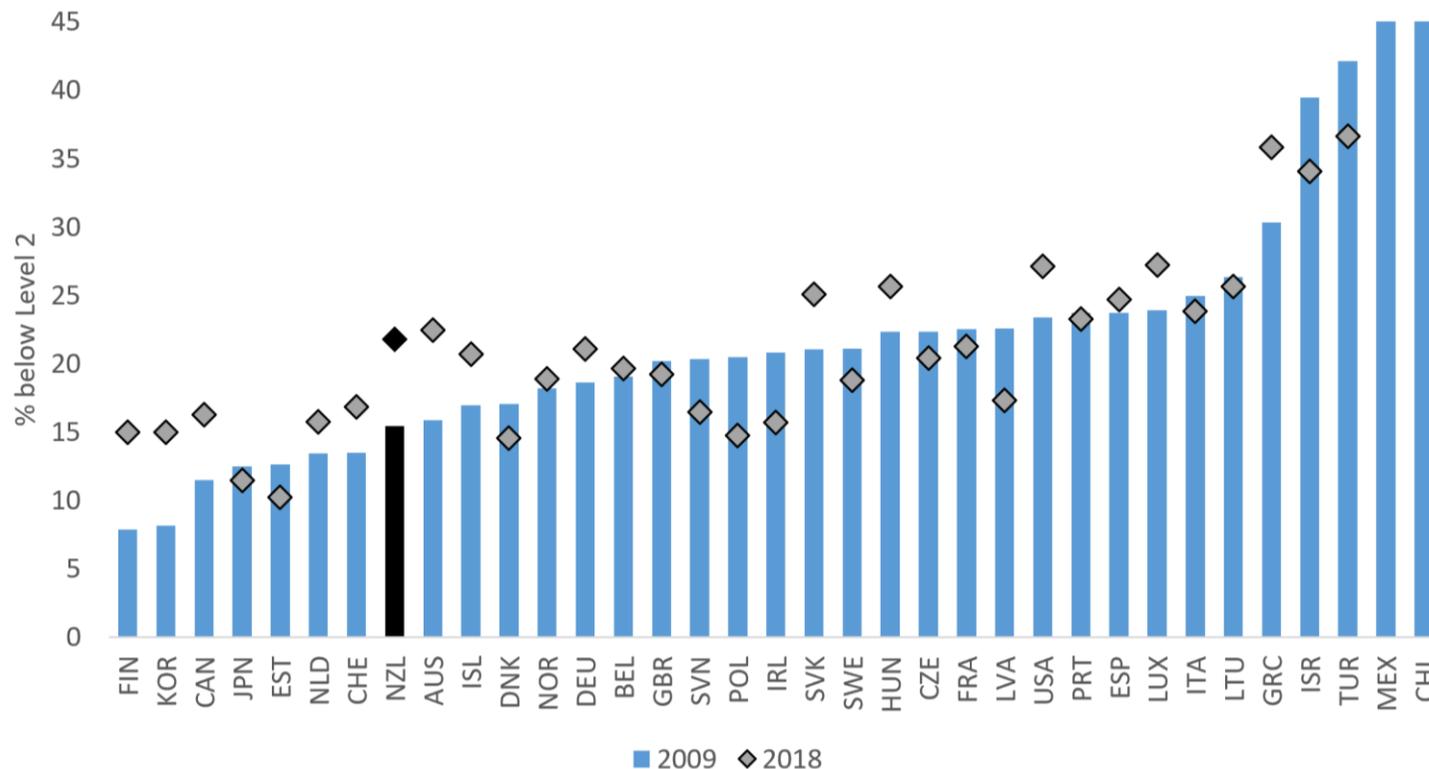
Programme for International Student Assessment

- Worldwide study to assess key competencies of 15 year olds
- In 2009, 4,500 students from 163 schools in NZ participated (representative sample)
- Low skills: Below Level 2 in reading and/or maths
 - OECD: baseline level that enables students “to participate effectively and productivity in life” (OECD, 2010, p. 13)

NZ's PISA results

International comparison and over time

Percentage of students scoring below Level 2: Maths



Population of interest

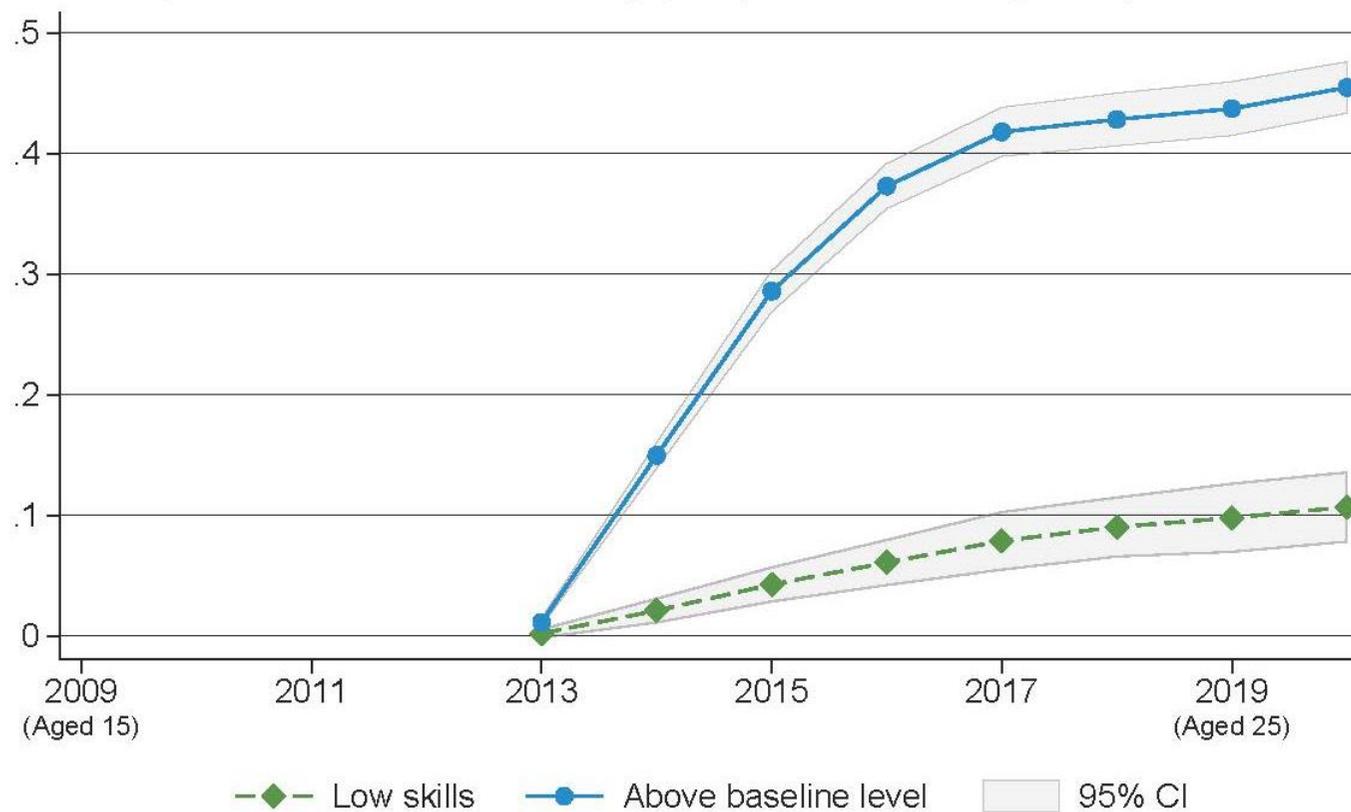
- 94% of PISA 2009 participants linked to IDI
- 19% have low skills (below Level 2 in either reading or maths); 81% have above-baseline skills
- Construct annual dataset of outcomes for each calendar year 2009-2020
- Exclude those who die or were overseas for >100 days in a given year

Results: Education

Educational attainment over time

Low-skills group are much less likely to attain Level 7 or above

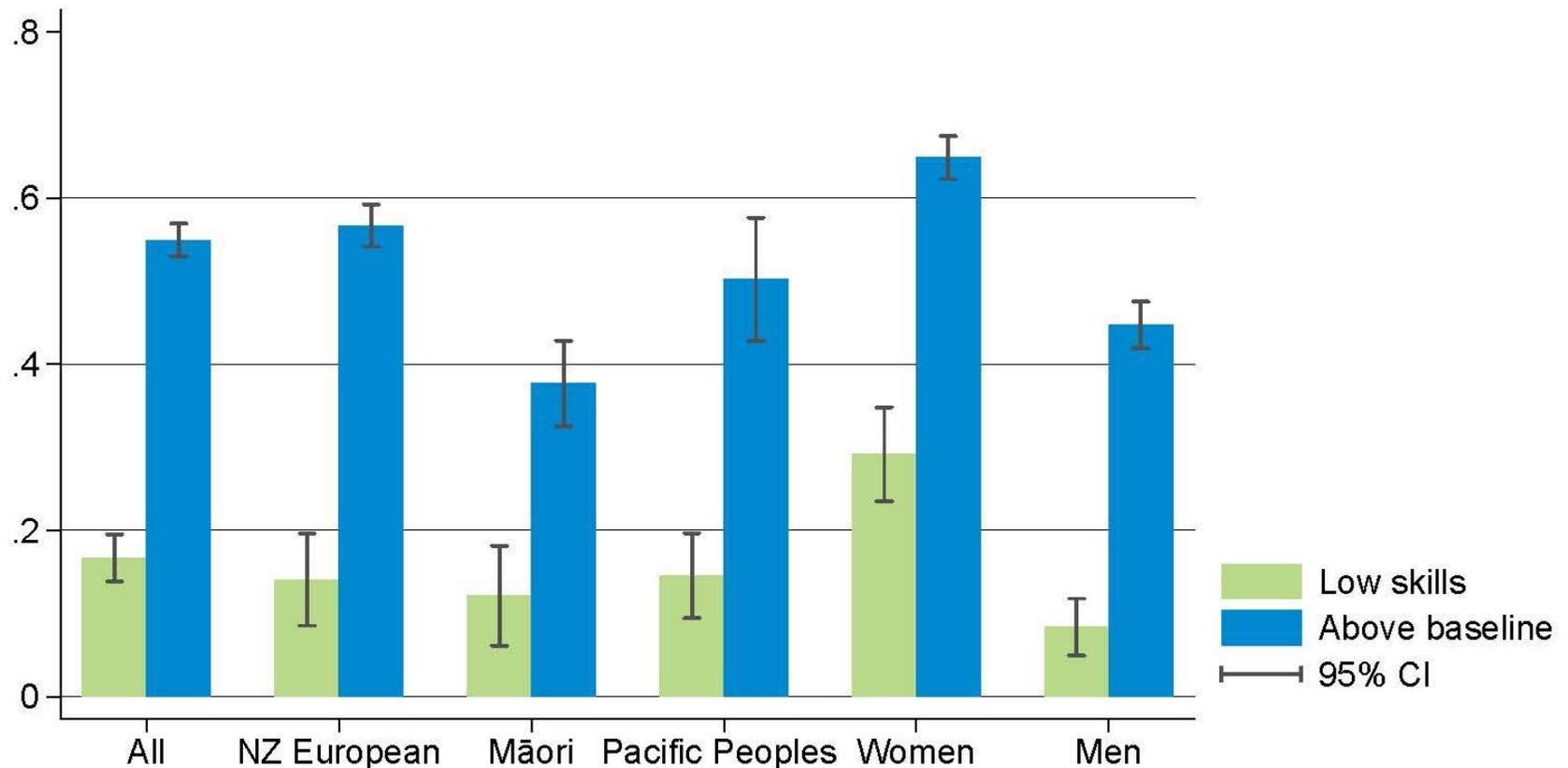
Share attaining Level 7 (bachelor's) or higher (cumulative)



Bachelor's enrolment by characteristics

Above-baseline Māori are less likely to enrol in a bachelor's than above-baseline NZ Europeans

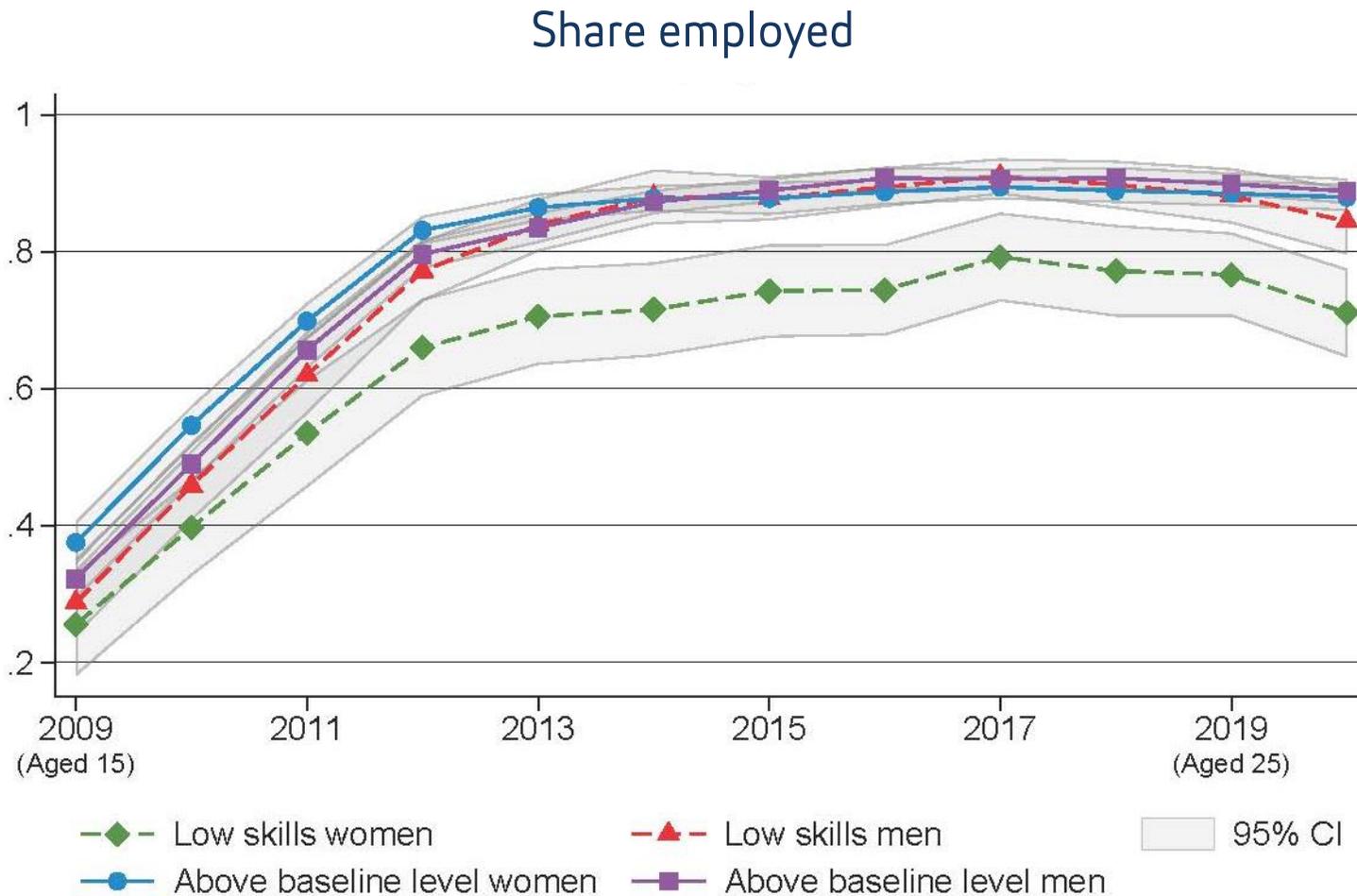
Share who have ever enrolled in a bachelor's degree



Results: Labour market

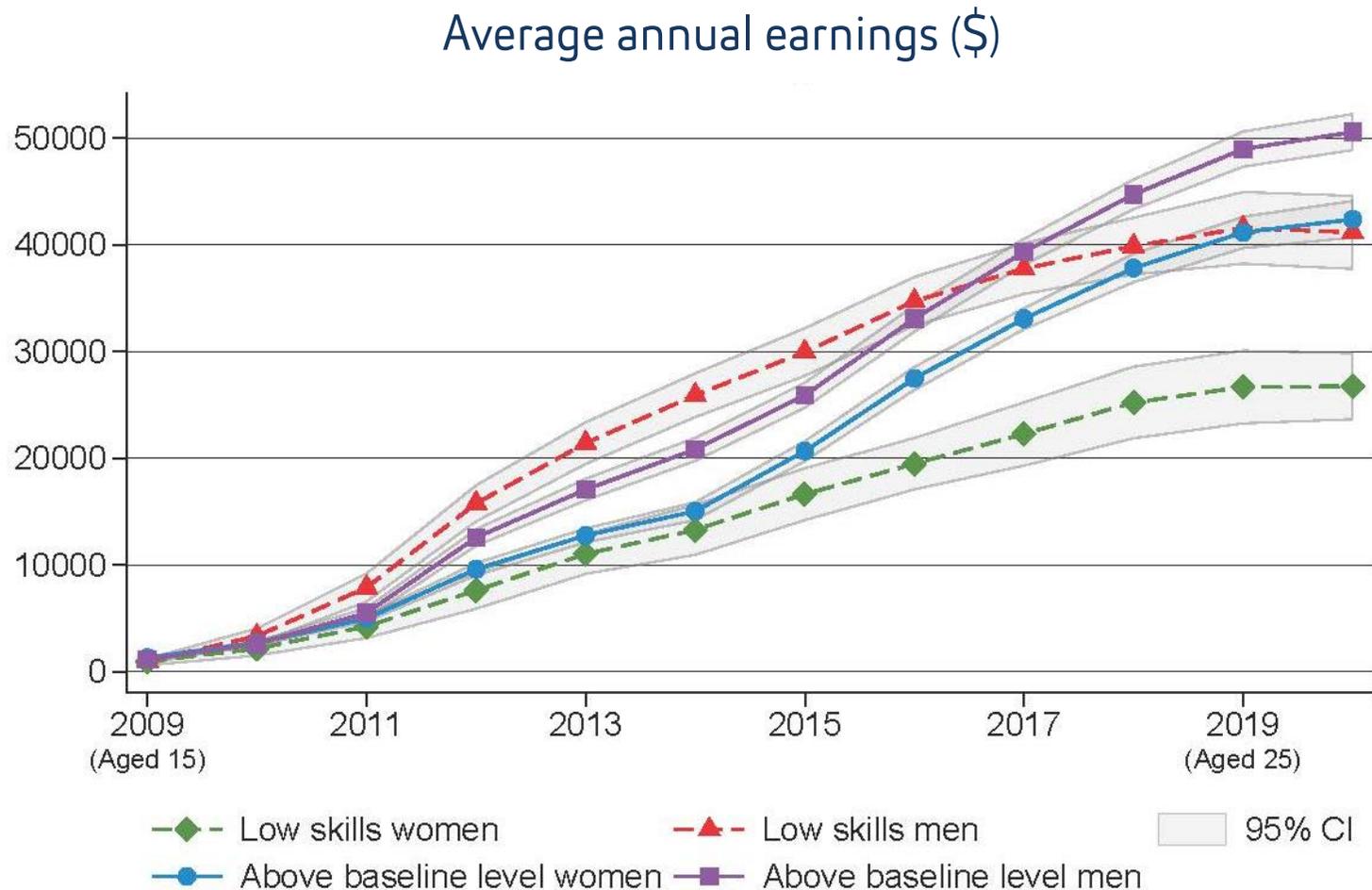
Employment over time

Women with low skills are less likely to be employed



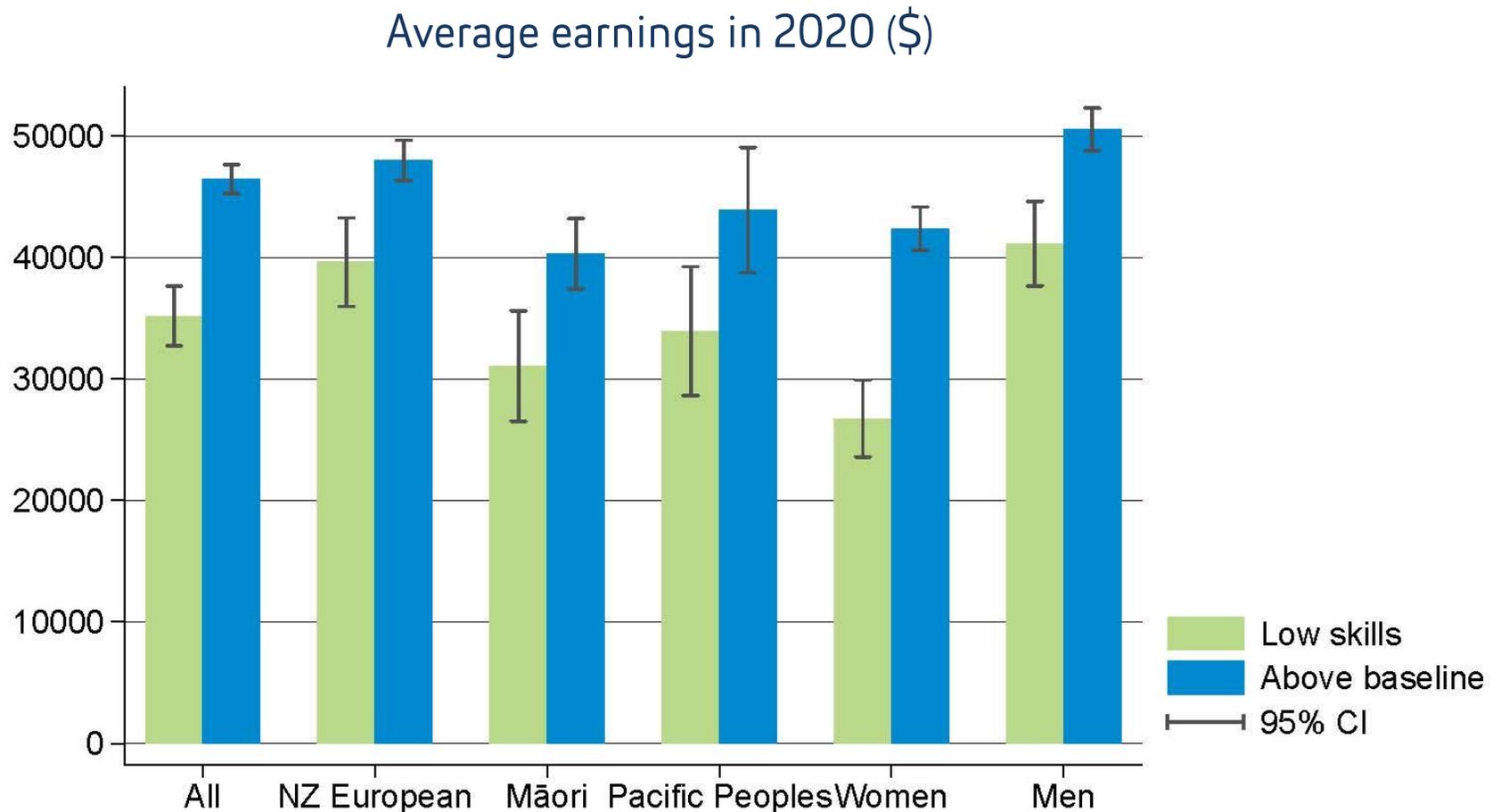
Earnings over time

Above-baseline men have highest earnings; low-skilled women have the lowest



Earnings by characteristics

Above-baseline Māori have similar average earnings to low-skilled NZ Europeans

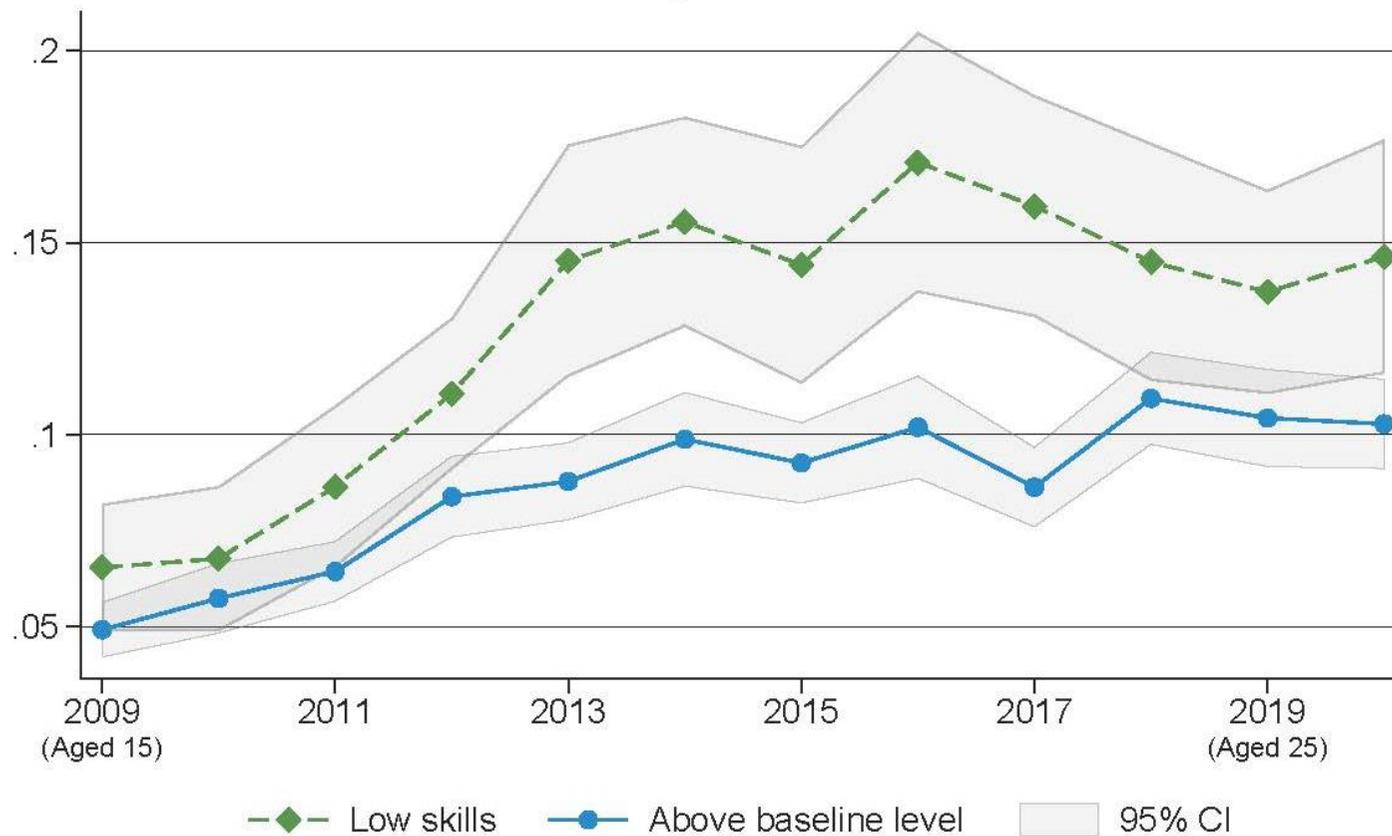


Results: Health

Hospitalisation rates

Those with low skills have higher rates of hospital admissions

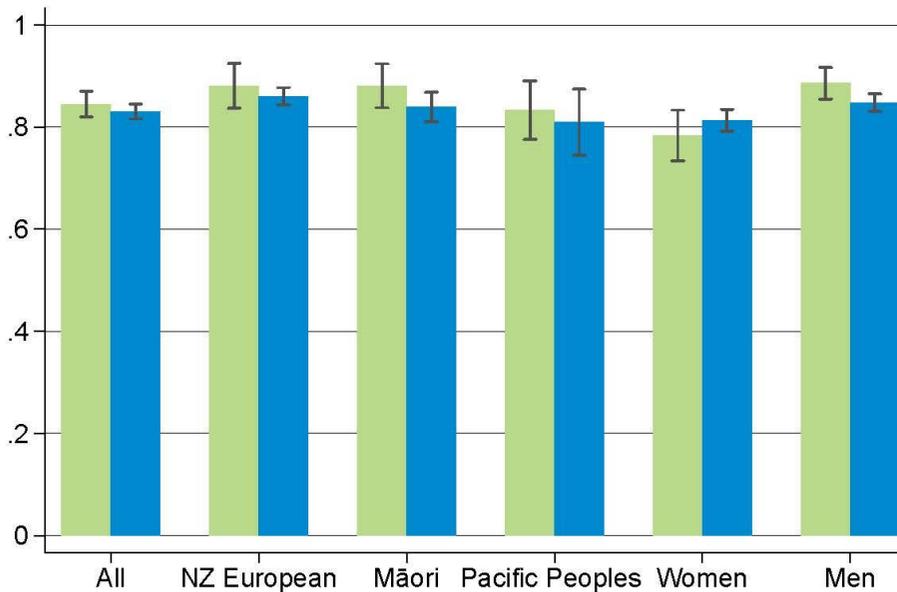
Share with hospital admissions



Injury rates

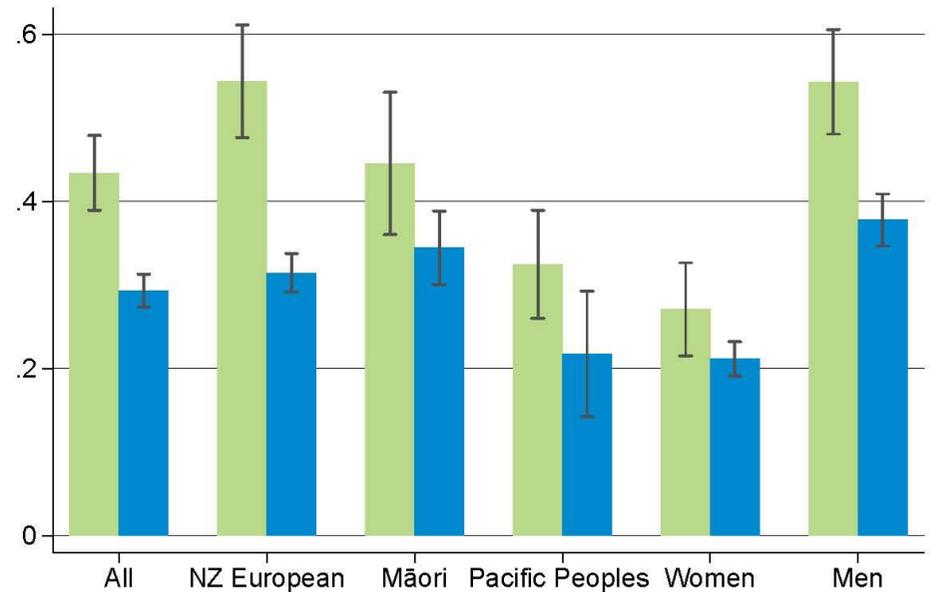
No difference in overall injury rates, but low-skills group have more work injuries

Share with any injury



Low skills
Above baseline
95% CI

Share with work-related injury

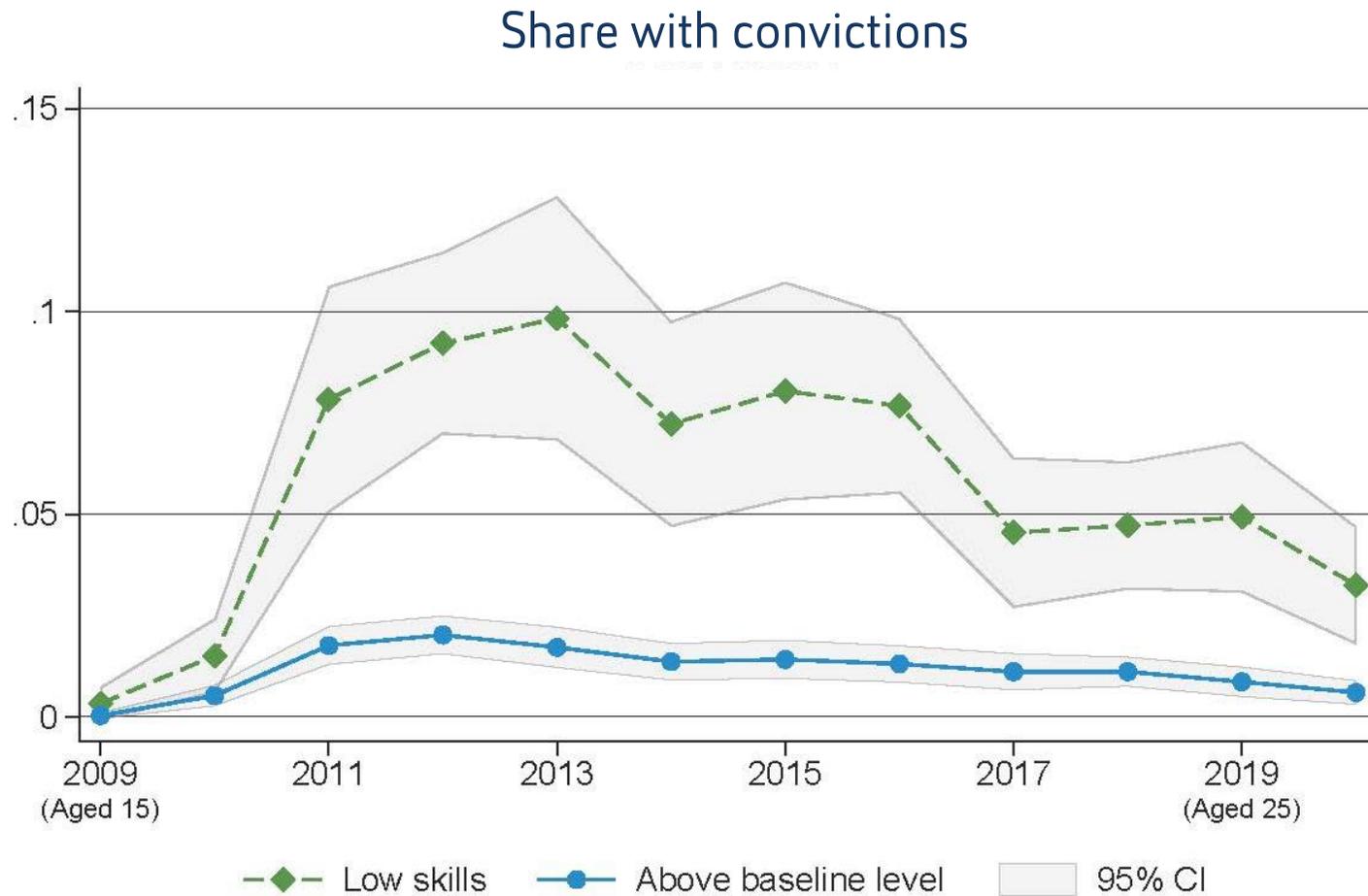


Low skills
Above baseline
95% CI

Results: Crime

Convictions over time

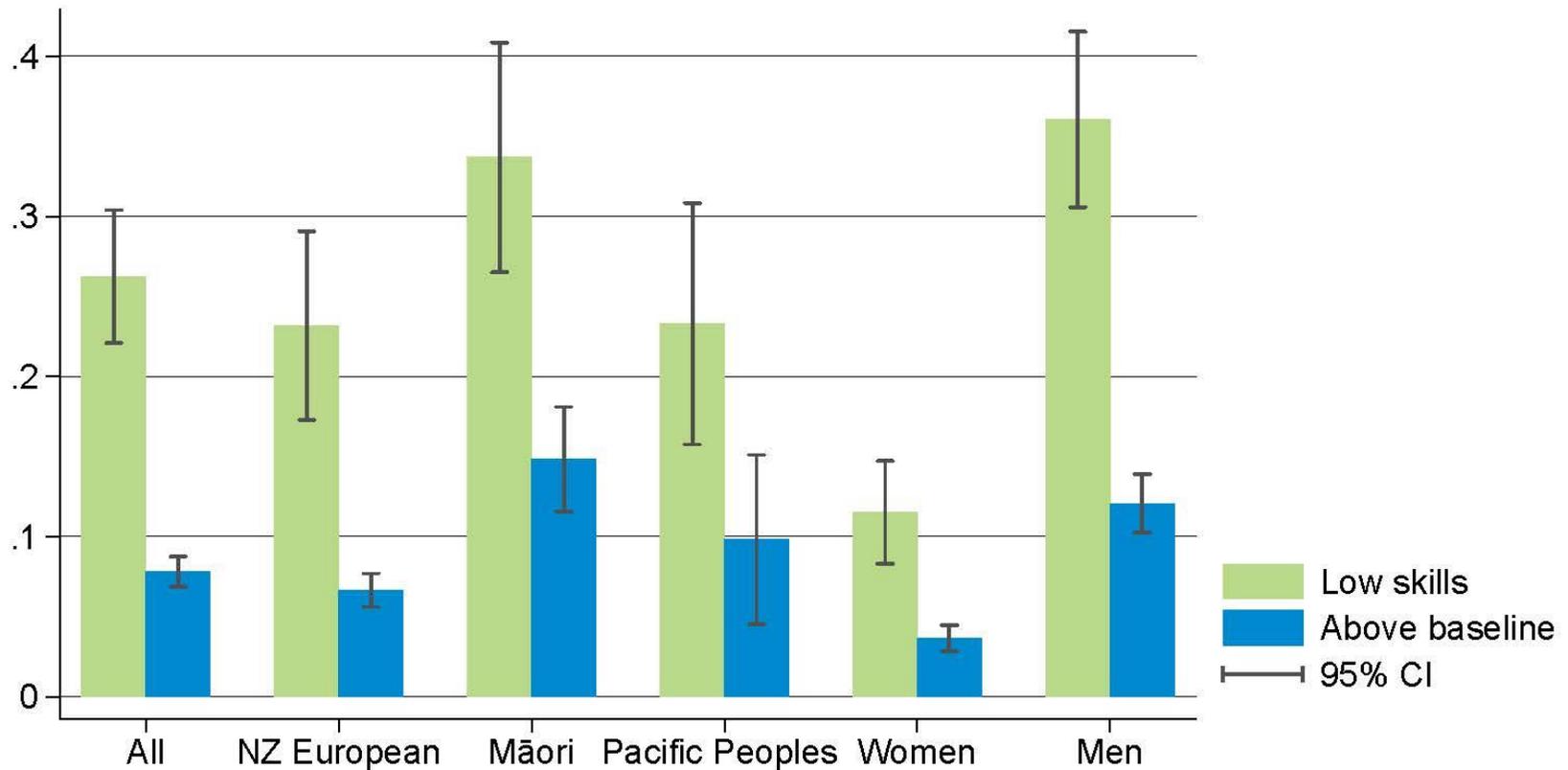
Those with low skills are more likely to have convictions



Convictions by characteristics

Low-skilled men and Māori have high conviction rates

Share with convictions



Controlling for differences in characteristics

- Results so far show unconditional differences between skills groups
- But, even when we adjust for differences in education pathways, family formation patterns, and health status
 - we continue to document significant negative effects on labour market outcomes

Next?

- Analysis of impact of interventions (workplace L+N; intensive L+N; intensive L+N for non-English speakers)
- Qualitative case study evidence from Maori and Pacific communities
- Analysis of TIMSS and PIRLS (Year 5 students' maths, science and literacy skills) when/if added to IDI

THANK YOU

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