

A study of immigrant skills gaps based on PIAAC data and AI-enabled intervention pathways

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SELF-INTRODUCTION



PhD

University of Jyväskylä
Information system technology



Graduate Studies

University of Pécs
Adult Education

OUTLINE

1



PHENOMENON

What are we observing?

2



CAUSES

Why does this phenomenon occur?

3



WHAT CAN WE DO?

What actions can we take?



INTRODUCTION



PHENOMENON



CAUSES



ACTION

Introduction & Research Problem

From Qualifications to Opportunities: Why Skills Matter



Imagine a woman from a developing country, with a Master's degree in Biochemistry from a top university.

In her home country, she is a key researcher in the laboratory; but now, at a checkout counter, she is asked, *"Would you like to get a membership card?"*

The Paradox

- Many immigrants arrive in host countries with **university degrees and valuable human capital**.
- Yet, a substantial proportion still **struggle** to convert their qualifications into comparable labor market outcomes.

Key Questions

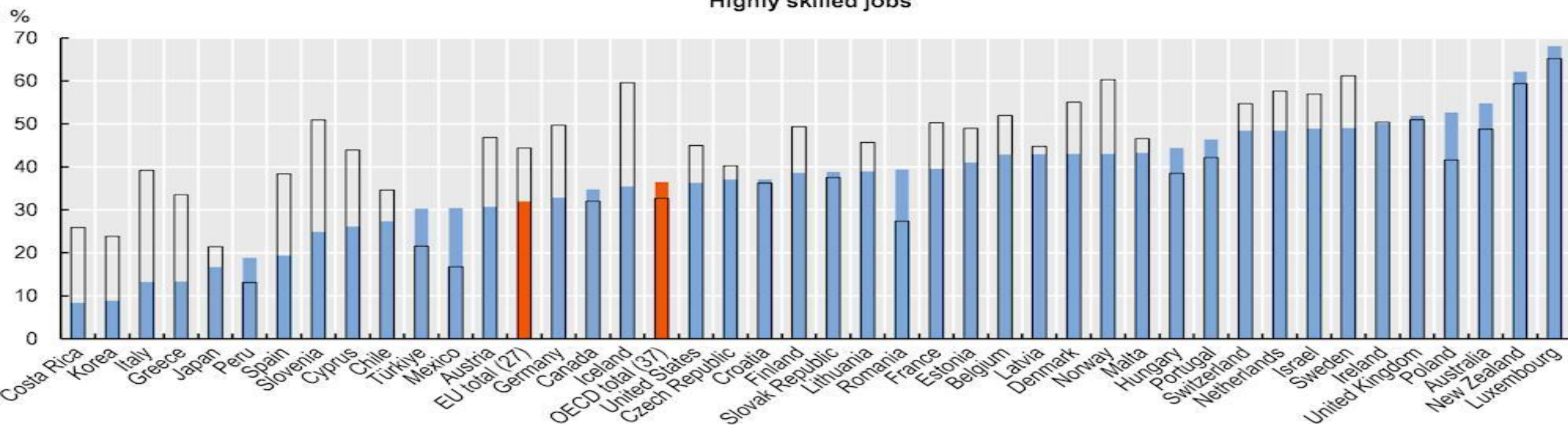
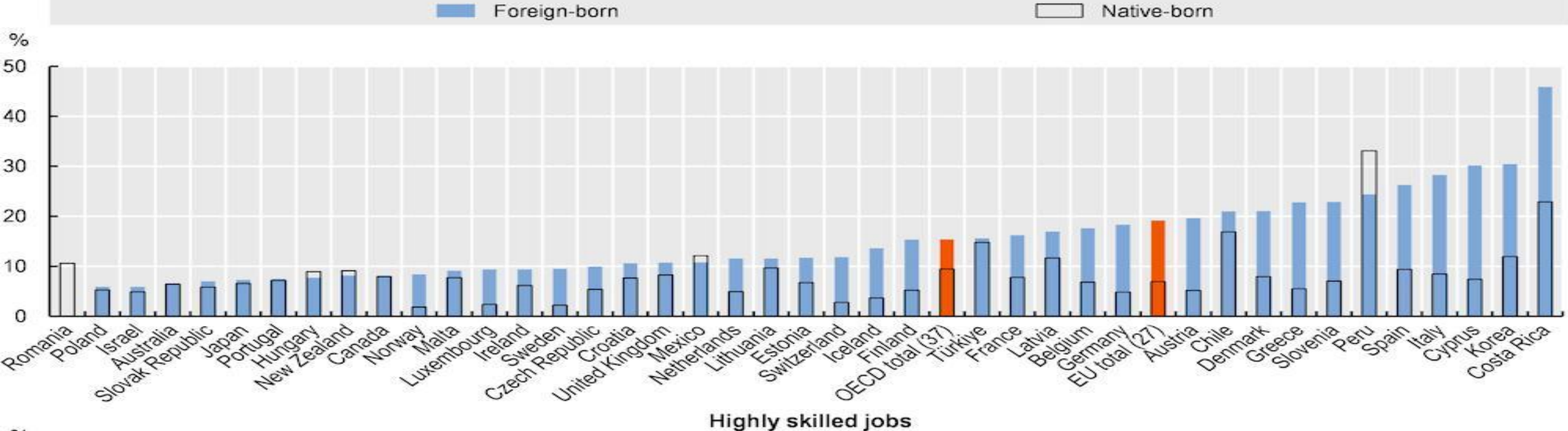
- Why does **high education not translate into high returns** for immigrants?
- Where are the **structural barriers**?
- Is it **language, certification hurdles**, or a mismatch between real skills and labor market needs?

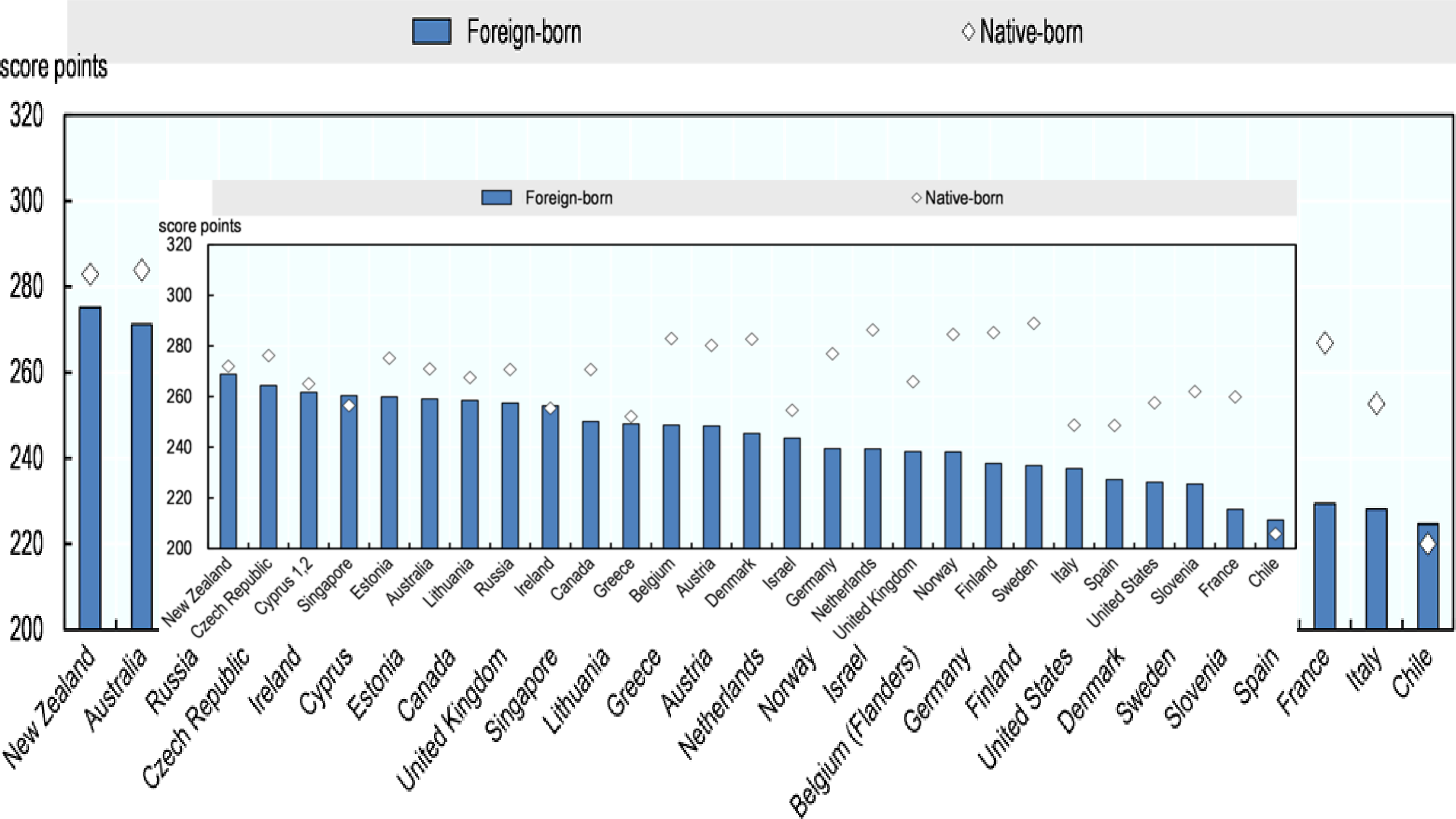
Our Research Perspective

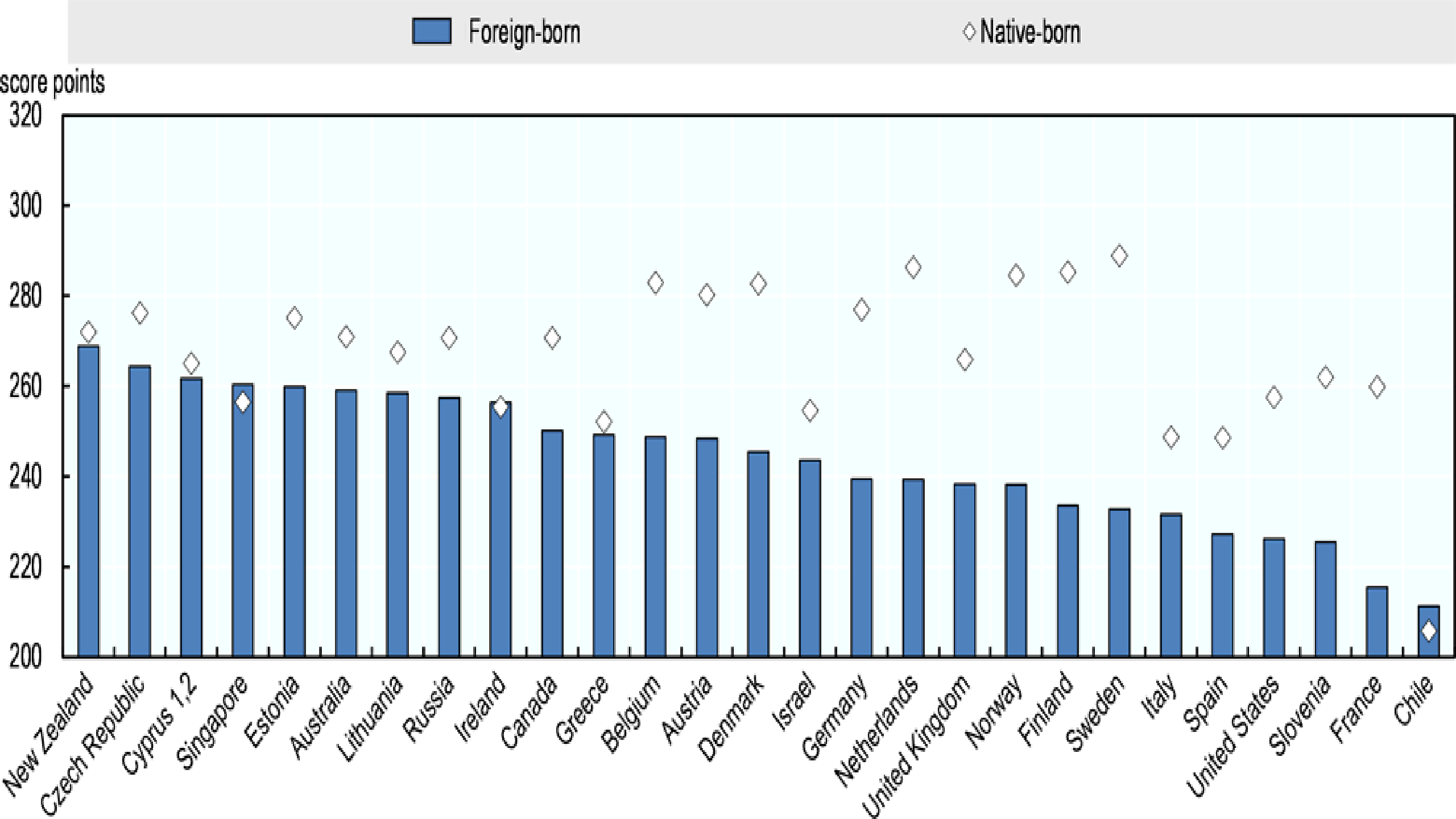
- This is where **PIAAC** becomes particularly useful. It allows us to compare immigrants and native-born populations in terms of **actual cognitive and problem-solving skills**, rather than relying only on educational qualifications.
- At the same time, the rapid development of **artificial intelligence** creates a new possibility: **Can AI help bridge these skill gaps?**



Our study therefore connects three issues: **immigrant skill gaps, labor market integration, and the emerging potential of AI-based learning.**







■ Native Speakers

◇ Non-native speakers

Percentage change in wages

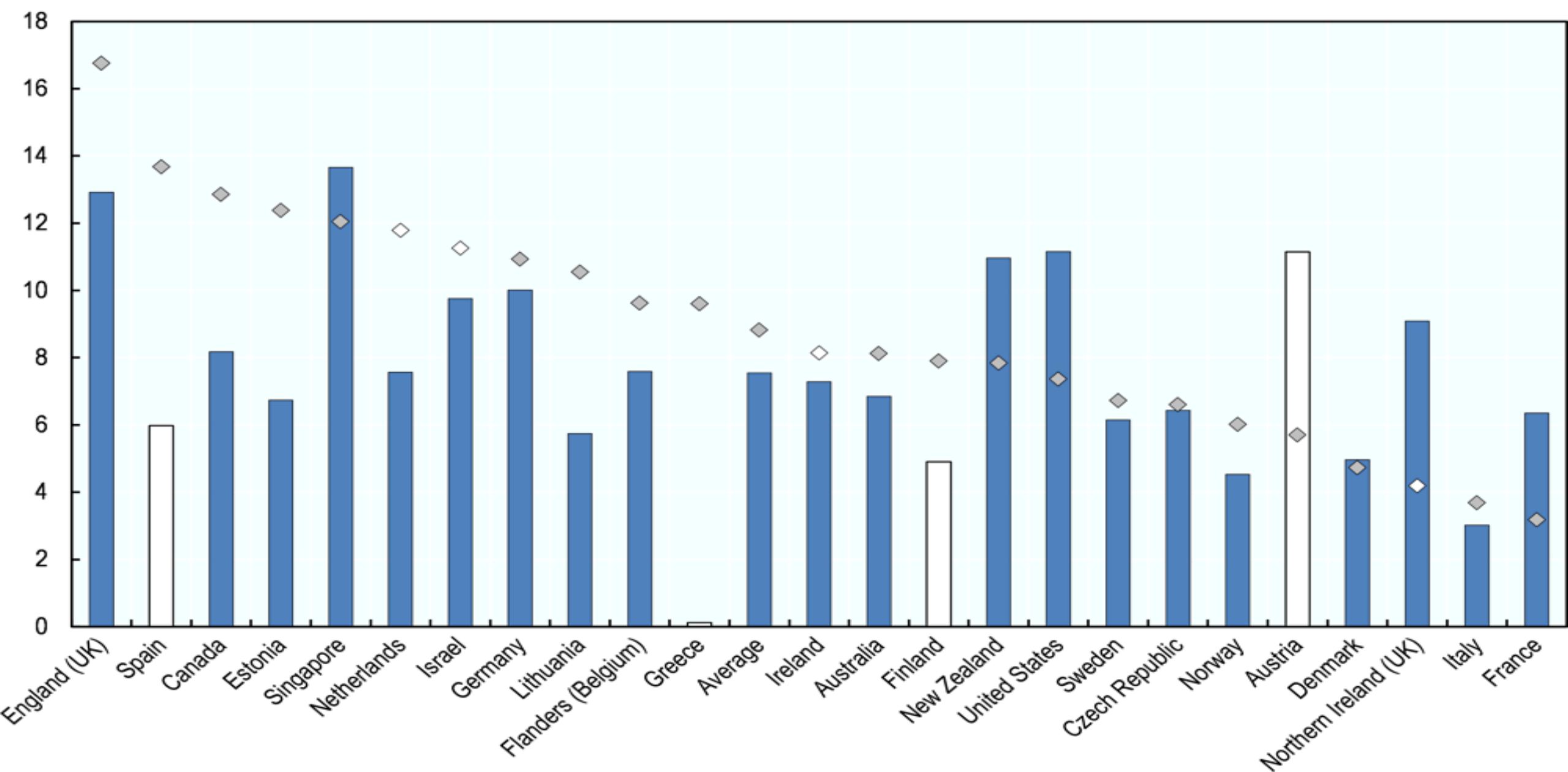
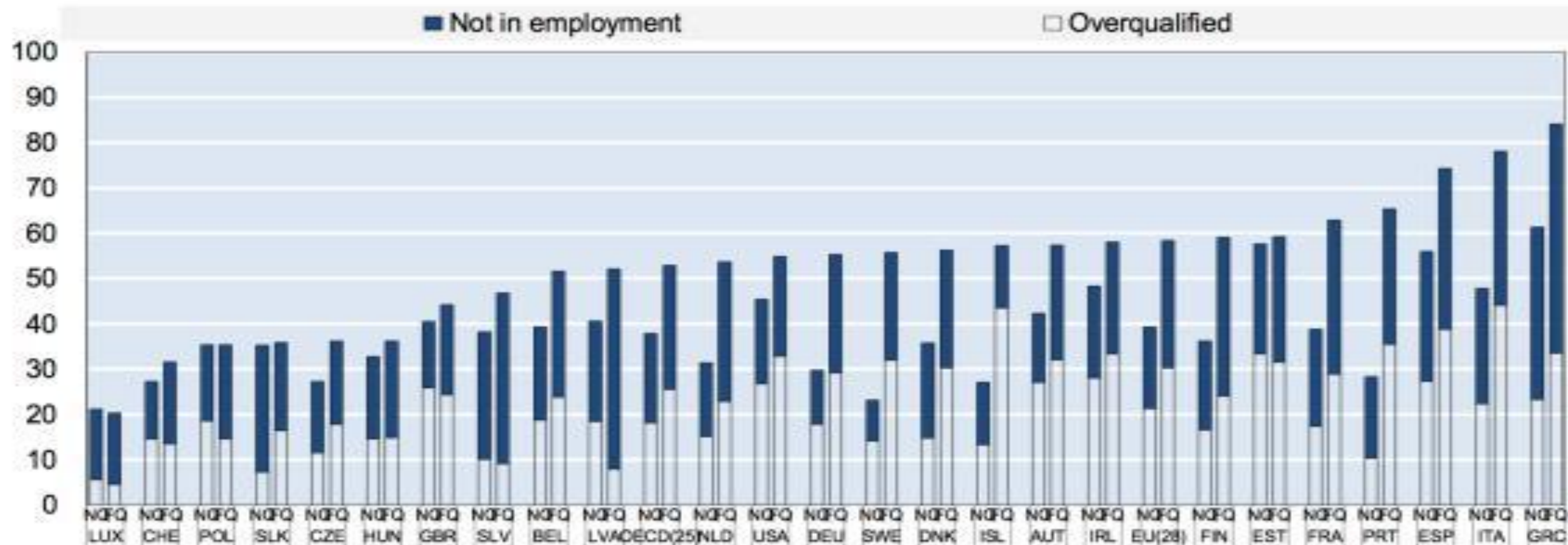


Figure 1. Highly educated foreign-born either overqualified or not in employment, by country of qualification, 15-64 years old, 2013-15

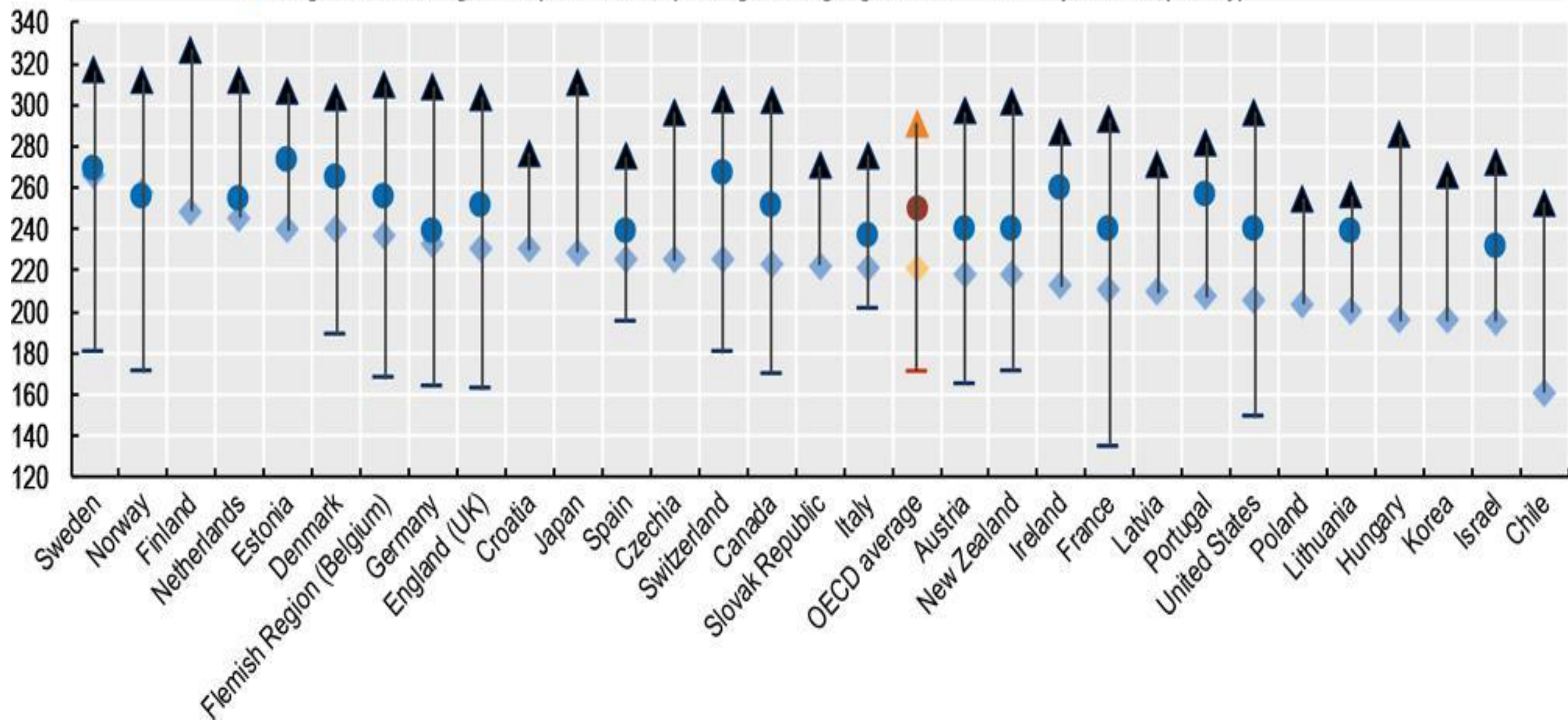
Percentages (excluding people in education)



Note: FQ stands for foreign qualification; NQ for native (host-country) qualification; data for Germany is based on 2012-2013. Overqualified are persons who are tertiary-educated (levels 5 and 6 in the International Standard Classification of Education) but work in low- or medium-skilled jobs (levels 4-9 in the International Standard Classification of Occupations); see OECD/EU (2015).

Source: European Union Labour Force Surveys (Eurostat); US Current Population Surveys, March supplement.

- ◆ Native-born of native-born parents (below upper secondary)
- ▲ Native-born of native-born parents (tertiary)
- Foreign-born of foreign-born parents: not speaking the language of the host country at home (below upper secondary)
- Foreign-born of foreign-born parents: not speaking the language of the host country at home (tertiary)



What Does PIAAC Tell Us?

Skills $\neq$ Returns

Education $\neq$ Job Match

Qualification $\neq$ Proficiency

What can we do using AI tools

Seeing Skills – From “Invisible” to “Explicit”: Intelligent Recognition and

Assessment of “Invisible” Skills

Personalized learning 、 skills enhancement and showcase

Efficient labor market matching

Thank you for your
attention



All tables are sourced from the OECD website ●