ASIAN INSTITUTE OF MANAGEMENT

Mapping the 4IR At-Risk Workers in the Philippines

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Introduction

Fourth industrial revolution (4IR, FIRe, Industry 4.0)

> "*Current period of rapid, simultaneous, and systematic transformations driven by advances in science and technology*"
>
> – World Economic Forum

Introduction

Fourth industrial revolution (4IR, FIRe, Industry 4.0)

- Machine learning
- Artificial intelligence
- Robotics
- Big Data
- ***Automation of tasks***

Introduction

Benefits of automation

- Faster
- Cost efficiency
- Product quality
- Not prone to human errors

- Technological advancement can affect employment by making workers unnecessary through automation (Brynjolfsson and McAfee, 2011)

Impediments to automation of a task (Frey and Osborne 2017)

- Perception and manipulation tasks
- Creative intelligence tasks
- Social intelligence tasks

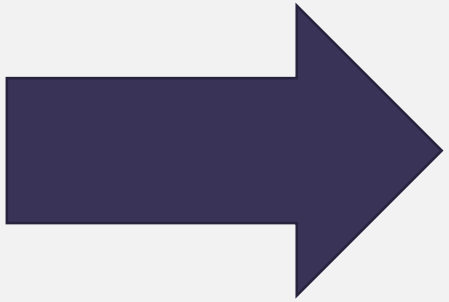
Frey and Osborne 2017

- Assigned probability of automation for more than 700 occupations

Perception and manipulation	Creative intelligence	Social intelligence
• Finger dexterity • Manual dexterity • Cramped work space and awkward positions	• Originality • Fine arts	• Social Perceptiveness • Negotiation • Persuation • Assisting and caring for others

Methodology

Occupations in Frey and Osborne study



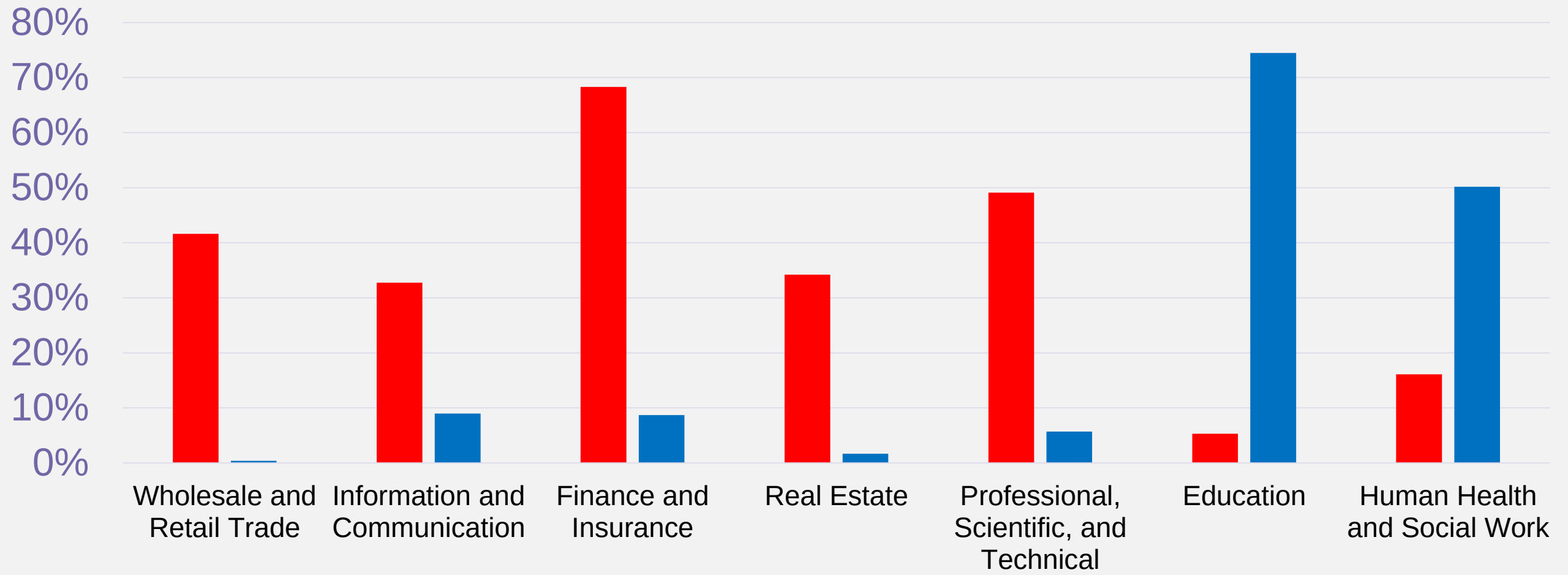
Philippine occupations in merged 2015 FIES and LFS

- **Mapping of Top 50 and Bottom 50 High-Risk Jobs**
  - By Sector
  - Educational Attainment
  - Gender
  - Income
  - Other Variables

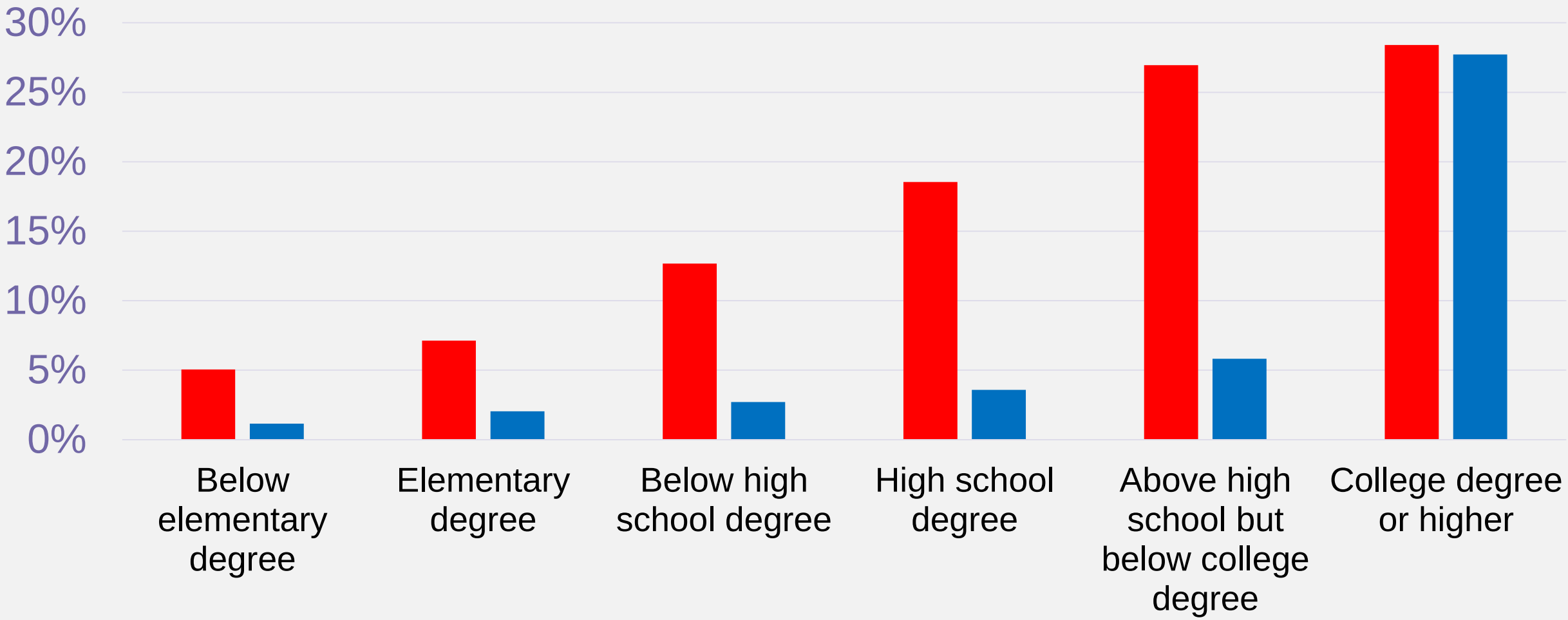
Results

***Services* is the sector with the largest proportion of high-risk workers; *Agriculture* has the smallest.**

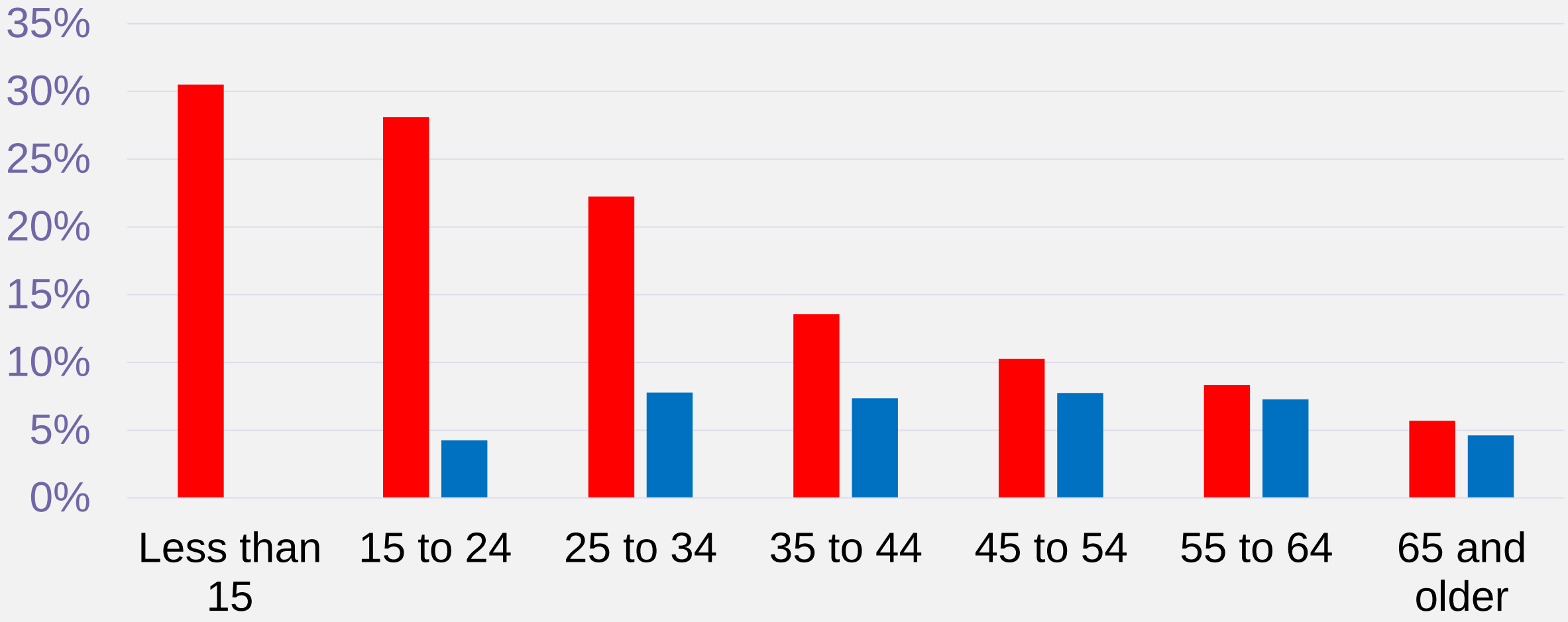
***Finance* is the sub-sector with the largest proportion of high-risk workers; *Education* has the largest proportion of low-risk.**



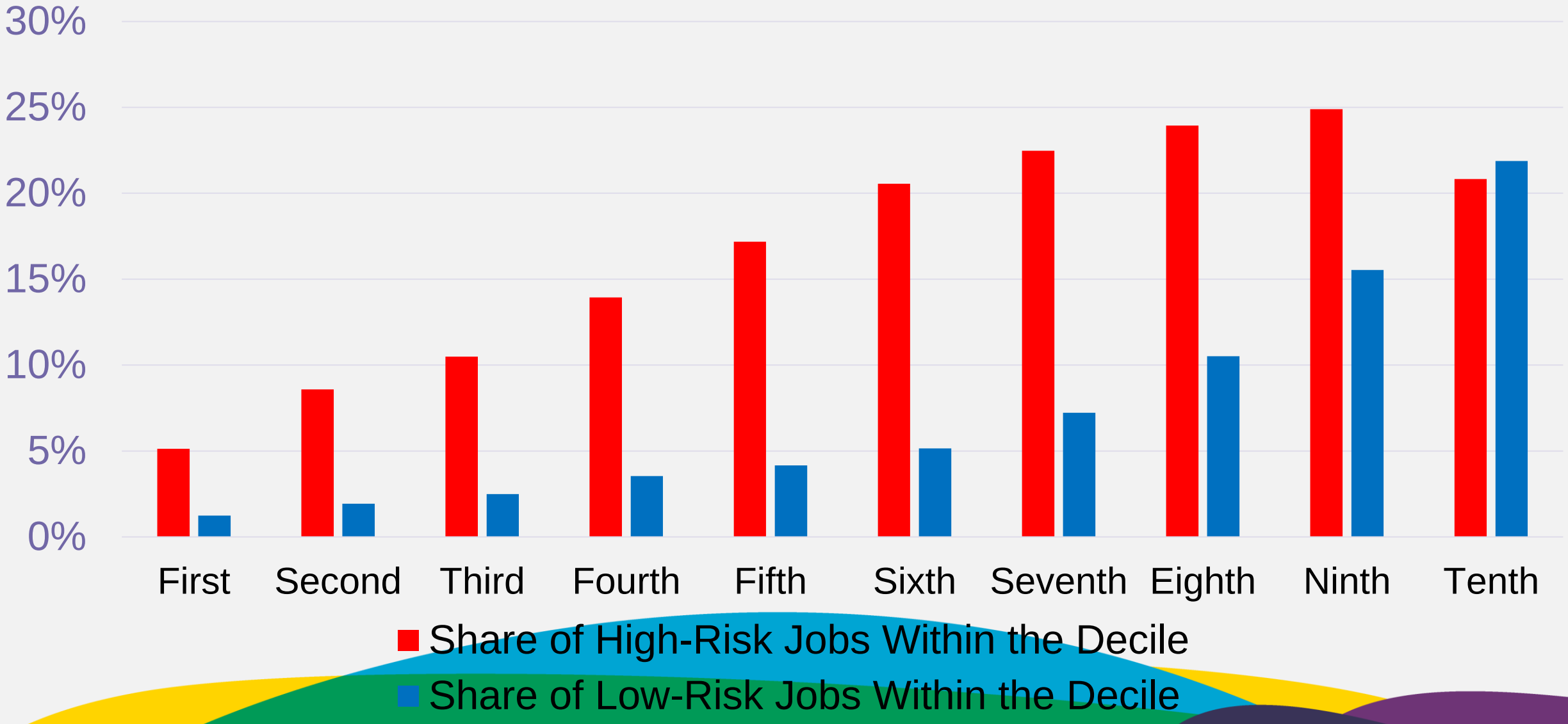
Proportion of high-risk workers increases with educational attainment.



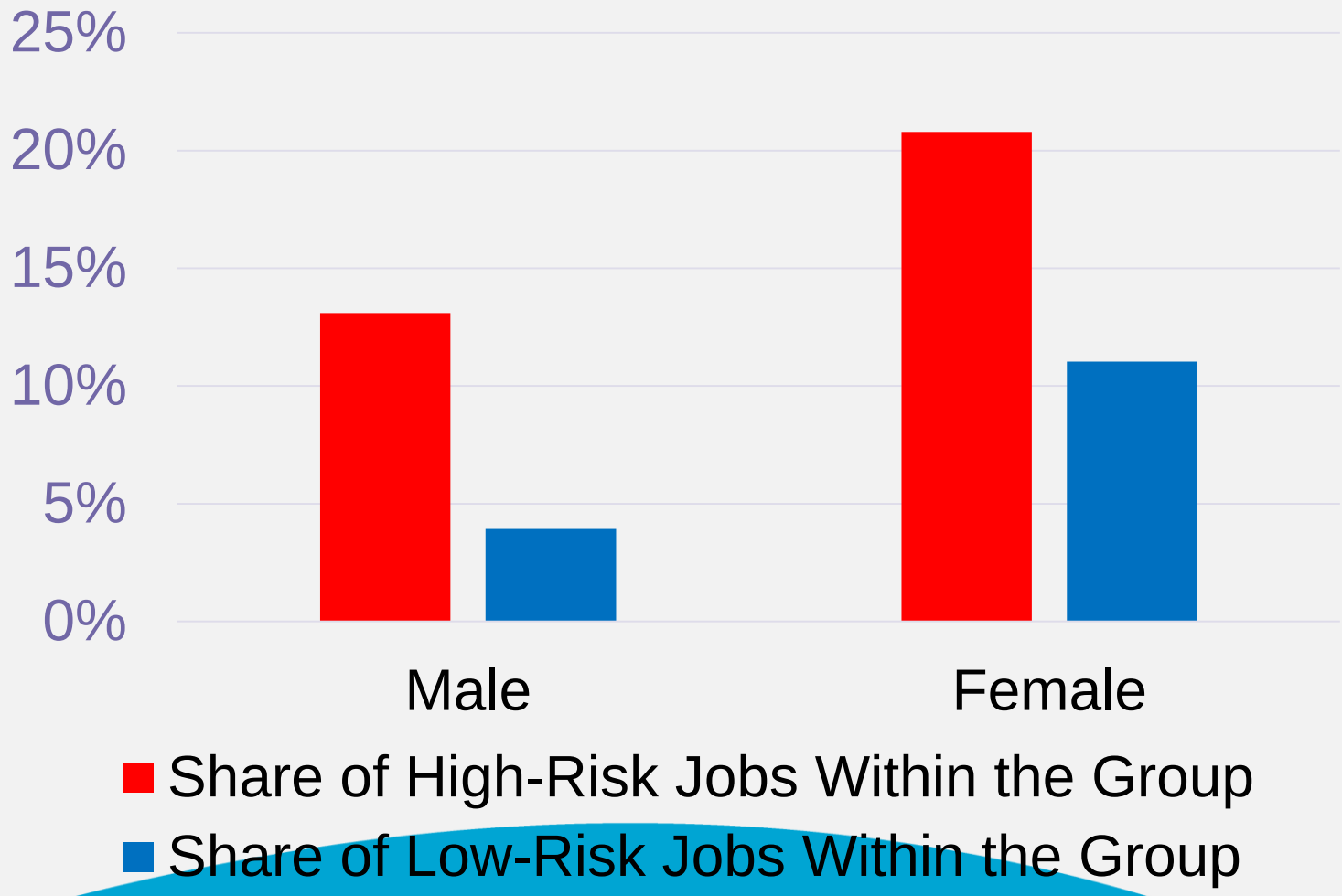
***Younger* people have higher proportion of high-risk workers.**



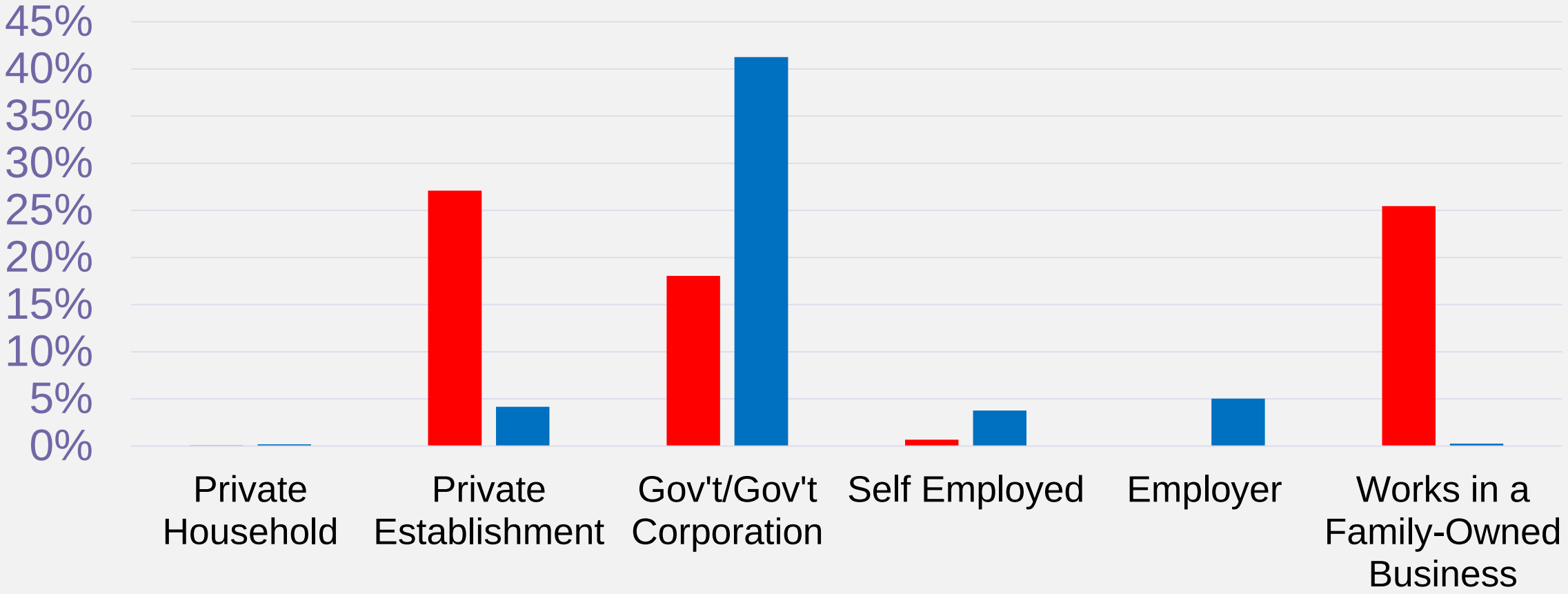
Proportion of high-risk workers increases with income; except in the 10th decile.



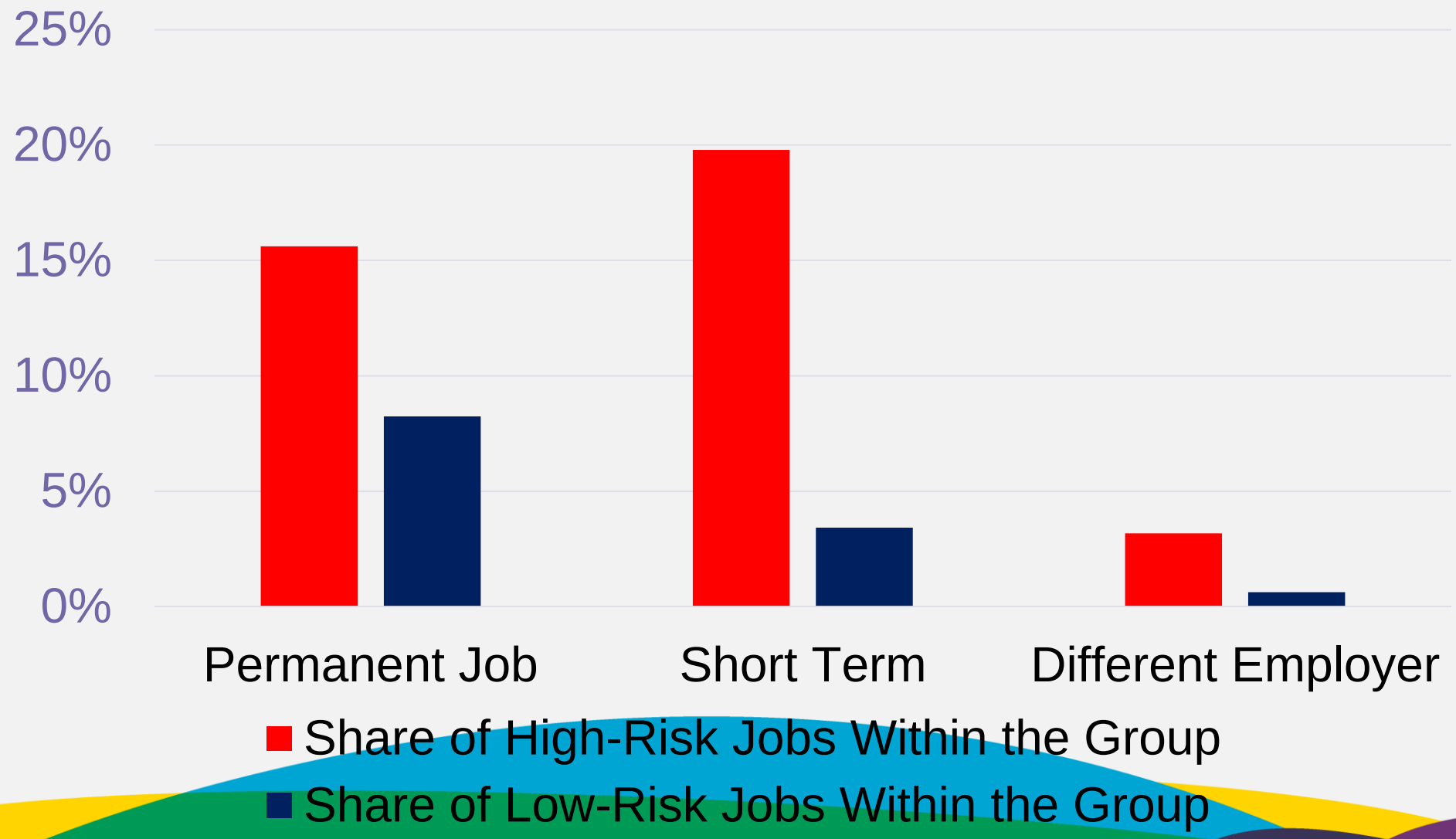
<u>Females</u> have a higher proportion of high-risk workers; but they also have a higher proportion of low-risk.



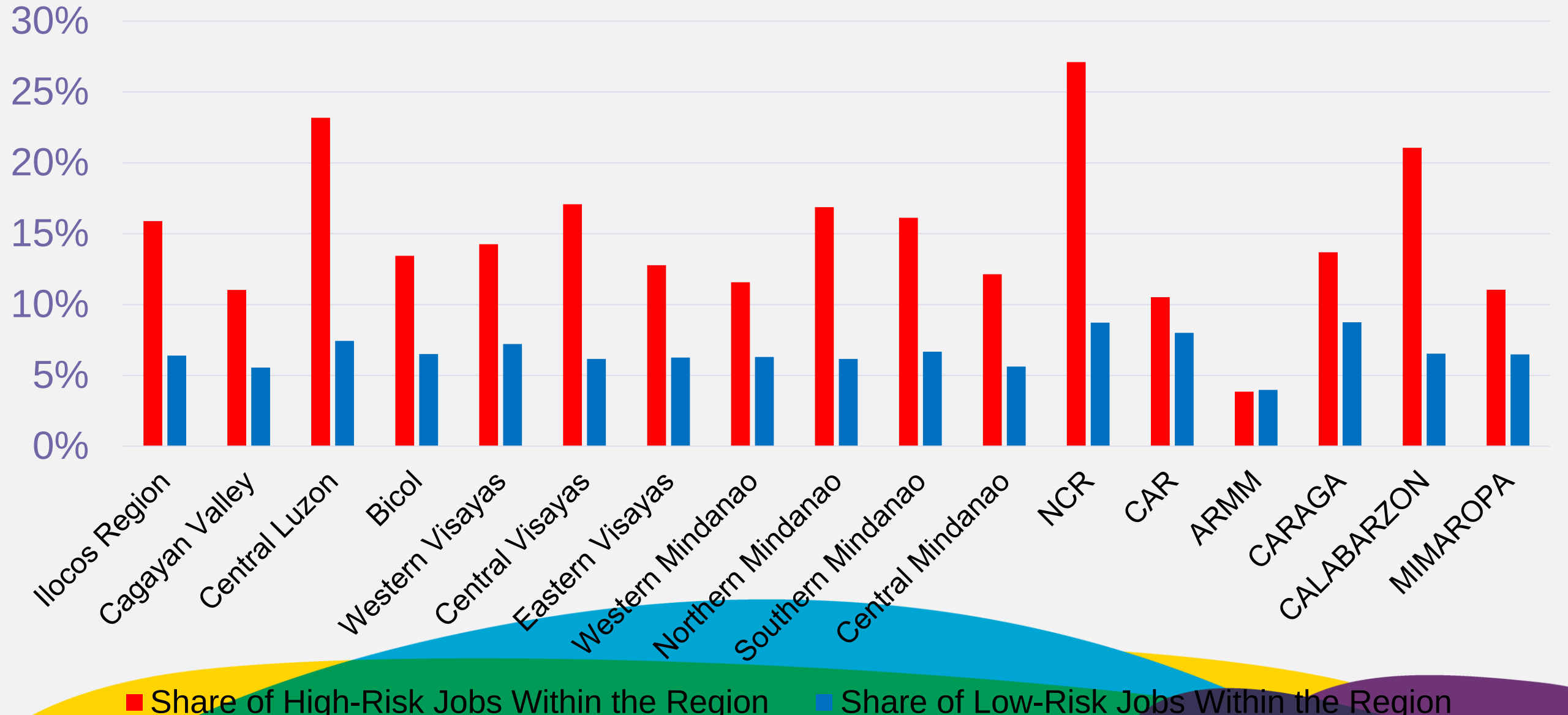
Private establishments and family businesses have the highest proportion of high-risk workers; Government has the highest share of low-risk.



Those under short-term employment have the highest proportion of high-risk workers



NCR, Central Luzon, and CALABARZON workers have the highest proportion of high-risk jobs.



Some VERY Important Points

- **Technical Feasibility ≠ Economic Viability**
- But it is a matter of **when**? (not **if**)
- We have more catching up to do.

Key Messages

- Largest proportion of Philippine workers at high risk of automation is in **Services.**

- Sub-sectors with the largest proportion of high-risk workers are those engaged in **Finance**; **Professional, Scientific, and Technical** activities; **Wholesale and Retail Trade**; **Real Estate**; and **Information and Communication** (**ICT)**.

Key Messages

- A **college degree** does **not** guarantee immunity from automation.
- BUT having the right degree (and skills set) matters.
- **Women** and **youth** have a higher proportion of high-risk workers.

Key Messages

- The **proportion of high-risk workers increases with income**, from the lowest to the second-highest income decile, but decreases slightly in the highest decile.

- **Automation** may seem to be a “middle class problem”.

- BUT for those in lower income groups it may also be a major **hurdle to upward socioeconomic mobility**.

Key Messages

- It is a matter of **when**, not **if.**

- **We need to get ready**

- **Education Reform**
- **Social Safety Nets**

- **Raising National Competitiveness**
  - **Digital Infrastructure**
  - **Competition Policy**
  - **Business-Friendly Environment**

THANK YOU