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SKILLS FOR A DIGITAL SOCIETY

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OECD
BETTER POLICIES FOR BETTER LIVES

ICT USAGE AND SKILLS

- **Access to Internet** and digital infrastructure is **merely the first step** to digital inclusion.
- Move from **digital inequalities** in **access**, to inequalities in **use** and **outcomes**.
- How does **digitalisation change the skills** people need to participate in society?
- Use **internationally comparable data – CSIS and PIAAC** and **move beyond digital competencies** to identify the skills (digital, literacy, numeracy) necessary to **participate in the digital society**.

DATA – CSIS (ICT USAGE) AND PIAAC (SKILLS)

Community survey on ICT usage in households and by individuals (CSIS)

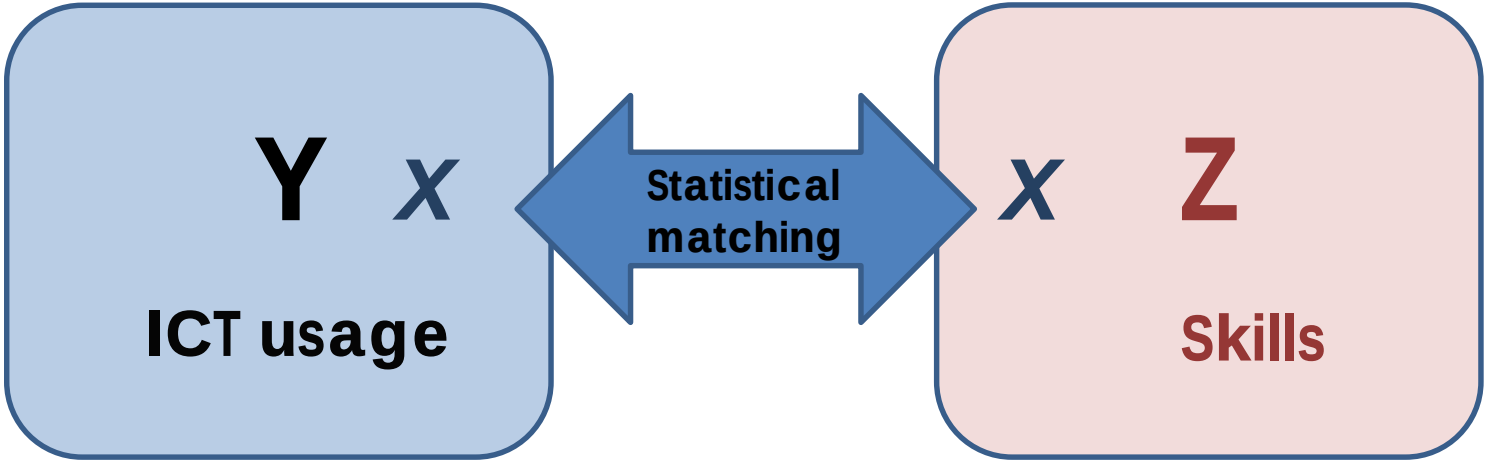
- Covers households with at least one member aged 16-74 and individuals aged 16-74.
- Comprises detailed data on individuals' online activities (e-government, e-commerce, e-learning, etc.).
- Annual survey conducted since 2002. The 2016 wave contains data for 24 OECD countries.

Survey of Adult Skills (PIAAC)

- Assesses the proficiency of adults aged 16-65 in literacy, numeracy and problem solving in technology-rich environments.
- These skills are "key information-processing competencies" that are relevant to adults in many social contexts and work situations.
- Two waves of assessment : 2011/2012 (24 countries) and 2014/2015 (9 countries).

STATISTICAL MATCHING – THEORY

- Set of statistical procedures aiming to integrate two datasets in order to explore the relationship between variables of interest that could not be jointly observed.



Dataset A **CSIS**

Dataset B **PIAAC**

MATCHING SKILLS DATA WITH ICT USAGE DATA (1)

- Methods that rely only on X to integrate the datasets are based on the **assumption** that **only X explain the association between Y and Z**.

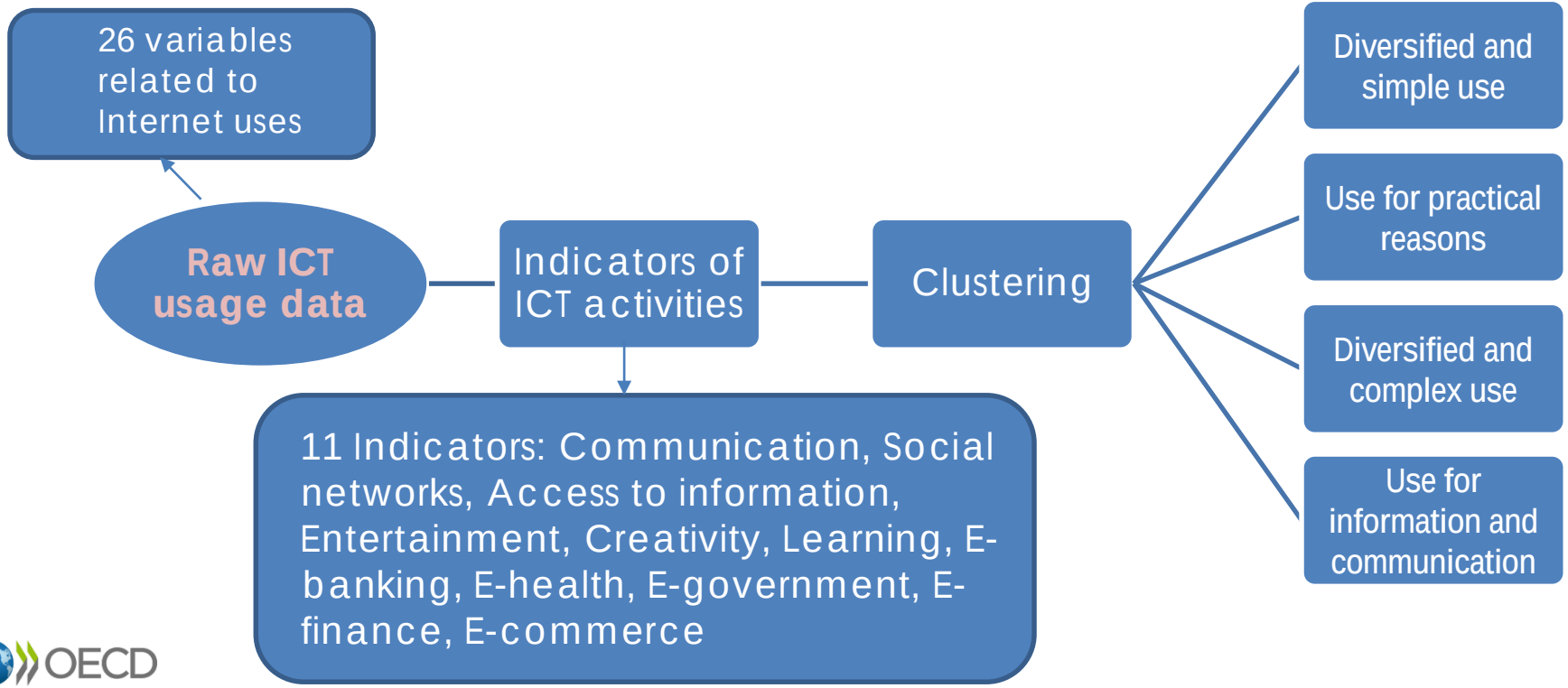
- If Y and Z are partially correlated given X and the procedure assumes a zero partial correlation, the analysis results in **incorrect inferences**.

- **Matching of CSIS and PIAAC assuming a non-zero partial correlation** between Y (ICT usage) and Z (skills) given X, using additional information from PIAAC (Rubin, 1986; Alpman, 2016).

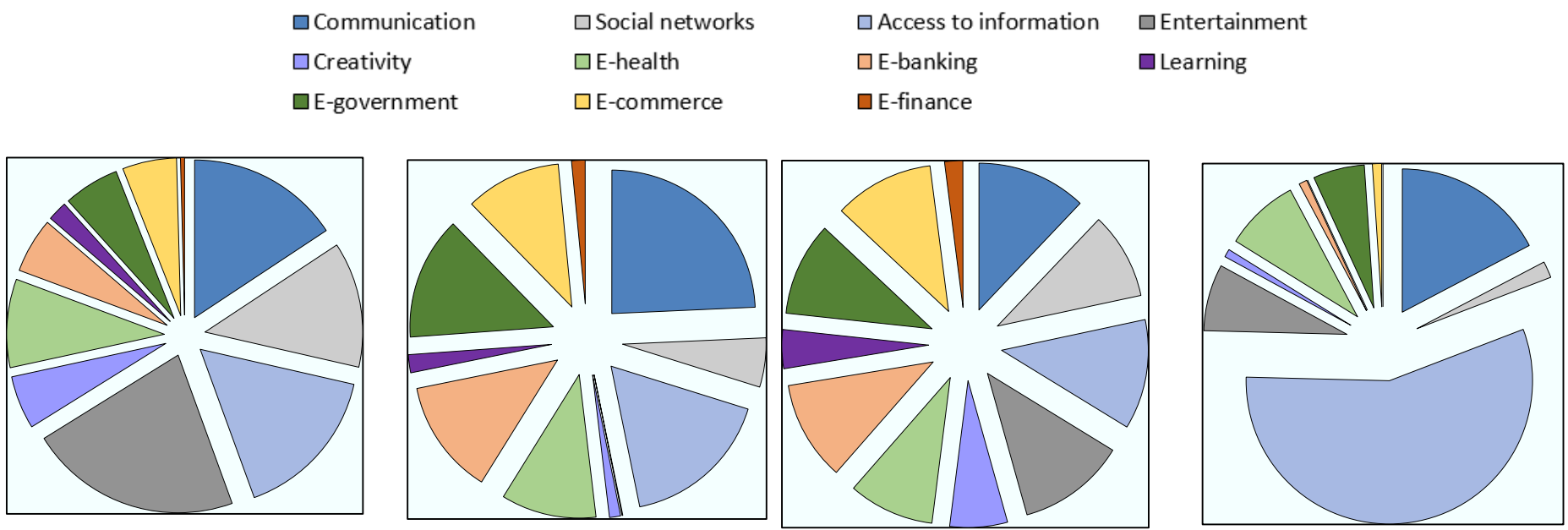
MATCHING SKILLS DATA WITH ICT USAGE DATA (2)

- Matching performed by country, for **seven countries**: Czech Republic, Finland, France, Ireland, Italy, Lithuania and Spain.
- Data for PIAAC: 2012/2015. Data for CSIS: 2016.
- PIAAC is the “recipient” file.
- Analysis on the links between skills and Internet uses is performed on the **PIAAC-CSIS matched sample**.

IDENTIFYING PROFILES OF INTERNET USERS



PROFILES OF INTERNET USERS



Cluster 1: Diversified and simple use
(4.3 activities on average)

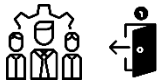
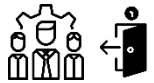
Cluster 2: Use for practical reasons
(3.7 activities on average)

Cluster 3: Diversified and complex use
(8 activities on average)

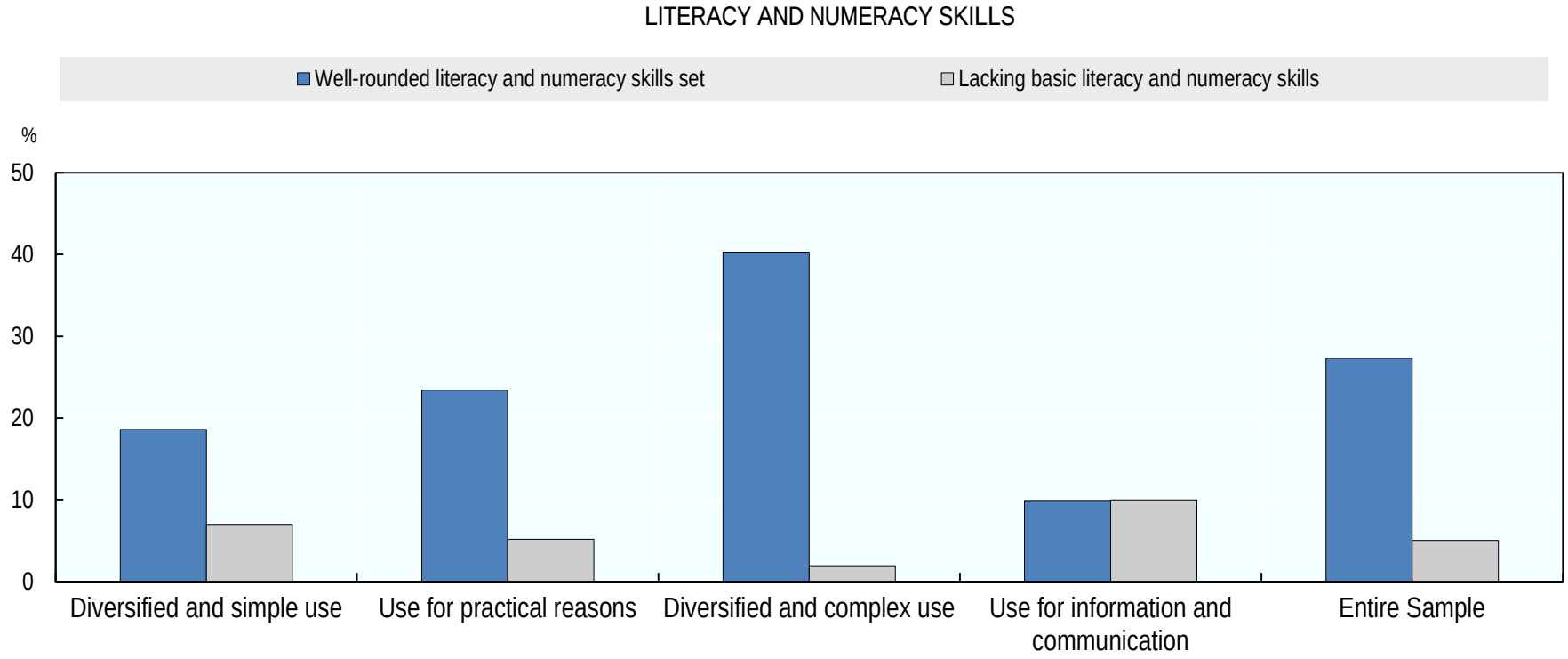
Cluster 4: Use for information and communication
(1.8 activities on average)

Source: OECD, *Skills Outlook 2019* (forthcoming).

WHO ARE THE INTERNET USERS?

	Cluster 1 **Diversified and simple use**	*Cluster 2* **Use for practical reasons**	*Cluster 3* **Diversified and complex use**	*Cluster 4* **Use for information and communication**
Age				
Education				
Employment status				

DESCRIPTIVE STATISTICS: SKILLS OF INTERNET USERS BY PROFILE



Source: OECD, *Skills Outlook 2019* (forthcoming).

ECONOMETRIC ANALYSIS: EFFECT OF SKILLS ON THE LIKELIHOOD TO PERFORM DIVERSE AND COMPLEX USES

Relative risk ratios (comparison profile- “Diversified and complex use”, reference profile- “Use for information and communication”)

Source: OECD, *Skills Outlook 2019* (forthcoming).

SUMMING UP

- Statistical matching procedures offer new possibilities for analytical work.
- A bigger harmonisation of different data sources would increase the quality of such procedures.
- Having a good level of skills enables individuals to participate in more complex and diverse activities online.
- Next steps: further analysis, statistics at the country level.

THANK YOU!