



Joint distribution of income, consumption and wealth

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Relevance

**Interest in understanding
the **impact** of
social and fiscal policies
on
poverty and inequality**

Relevance

Three dimensions of **economic vulnerability or wellbeing**

- Income
- Consumption
- Wealth

Data sources

Three different data sources

Income: **EU-SILC** - Statistics on Income and living conditions

Consumption: **HBS** – Household budget survey

Wealth: **HFCS** - Household finance and consumption survey

Methodology

Statistical matching

using "random hot-deck" method:

- **Stratify SILC and HBS data using common categorical variables**
- **For each observation in the recipient dataset (SILC) randomly select an observation from the corresponding stratum of the donor dataset (HBS)**

Statistical matching

Preparation:

- 1. Ex-post harmonisation of common variables (defining a common reference person & household structure)**
- 2. Selection of potential candidate variables based on Hellinger distance**
- 3. Backward regression to select variables with highest explanatory power**

Methodology

Statistical matching

Core process:

4. Random hot-deck selection of donor observations (100 repetitions)
5. Re-calibration of SILC weights to fit a number of consumption margins from HBS
6. Repeat procedure for matching HFCS (donor) to the matched SILC-HBS (receiver) dataset using hh type + food consumption quintile + tenure status as matching variables

Methodology

Statistical matching

Result:

- **Joint SILC-HBS-HFCS micro dataset for Euro countries**
- **Joint SILC-HBS micro dataset for other countries**

 Experimental aggregate statistics of income, consumption and wealth

Methodology

Methodological weakness

Hot-deck method is based on the Conditional Independence Assumption (CIA)

Methodology

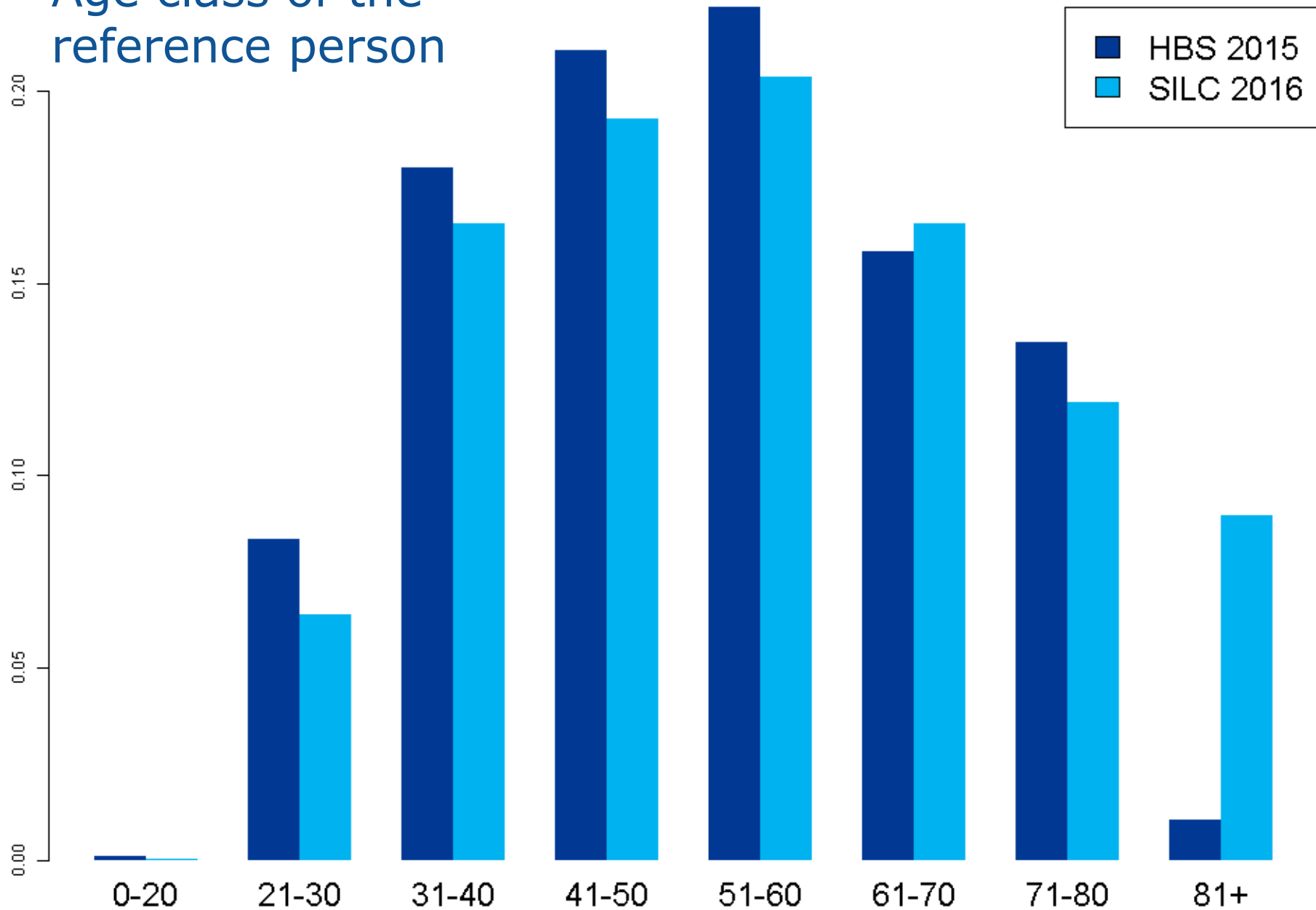
Example: Belgium

Six selected matching variables:

- Age class of the reference person
- Activity status of the reference person
- Main source of income
- Income quintile
- Tenure status
- Density level

Age class of the
reference person

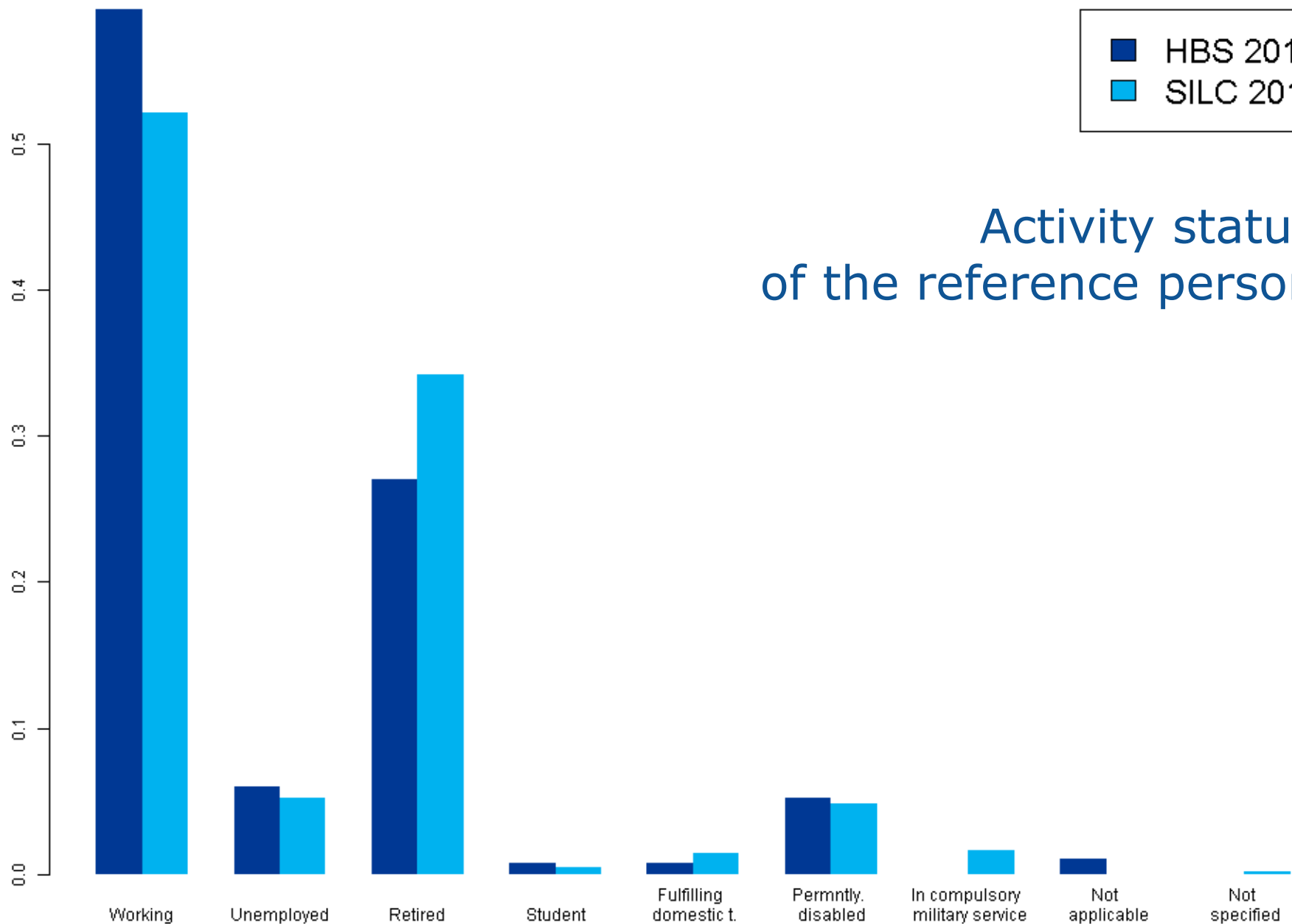
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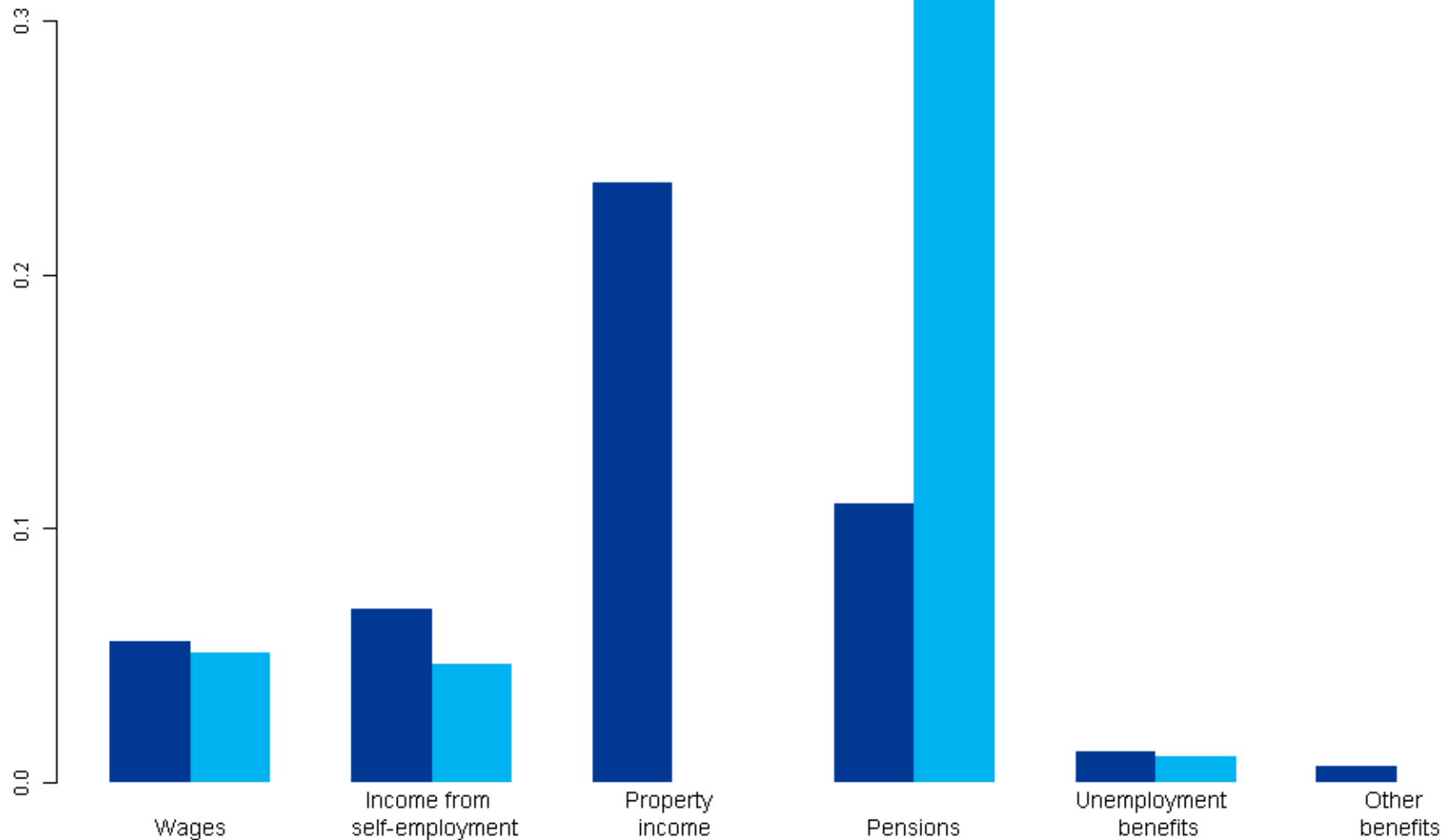
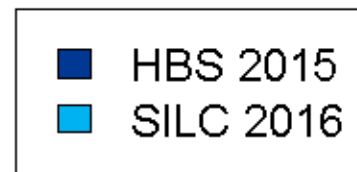


Activity status of the reference person

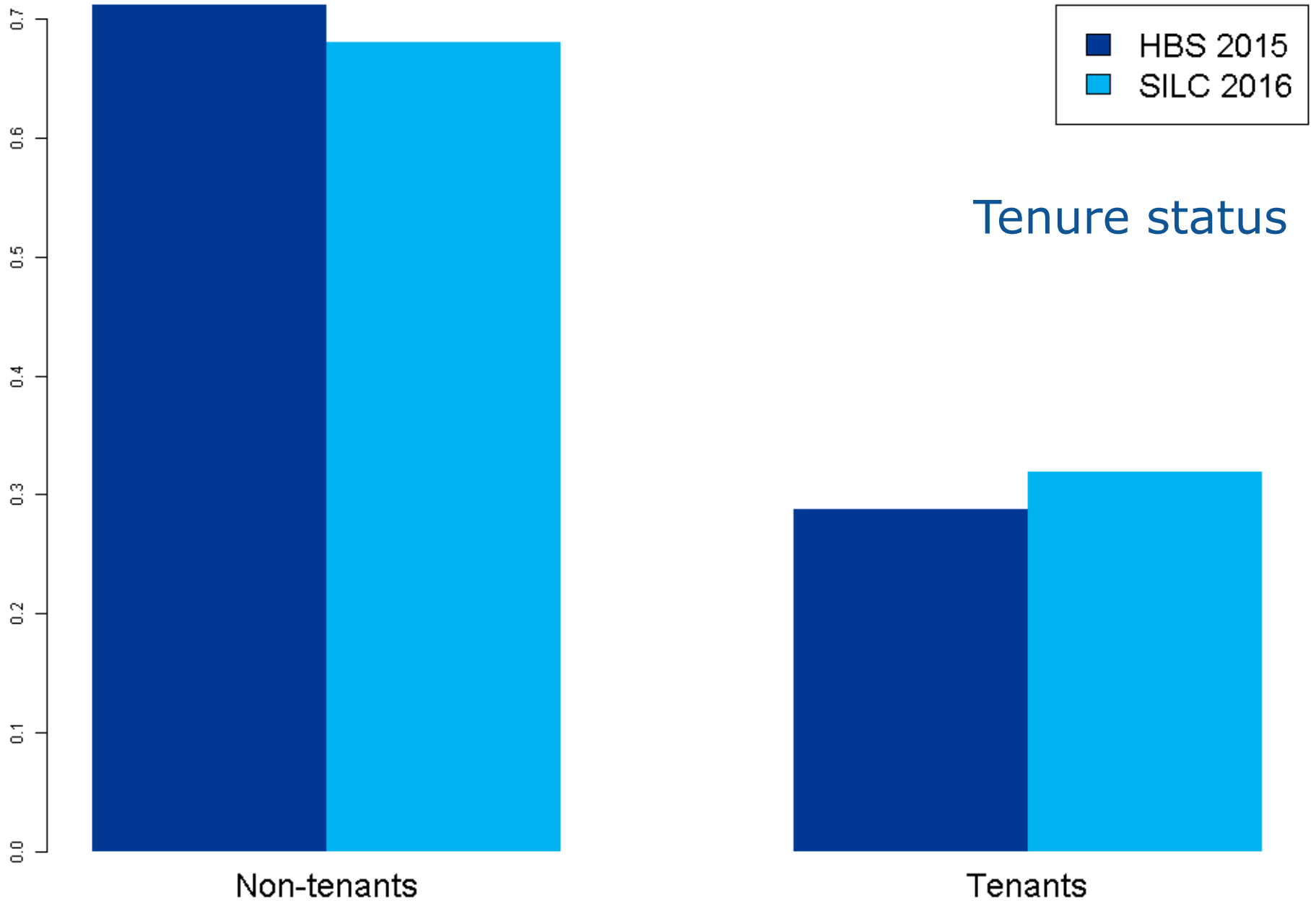


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Main source of income

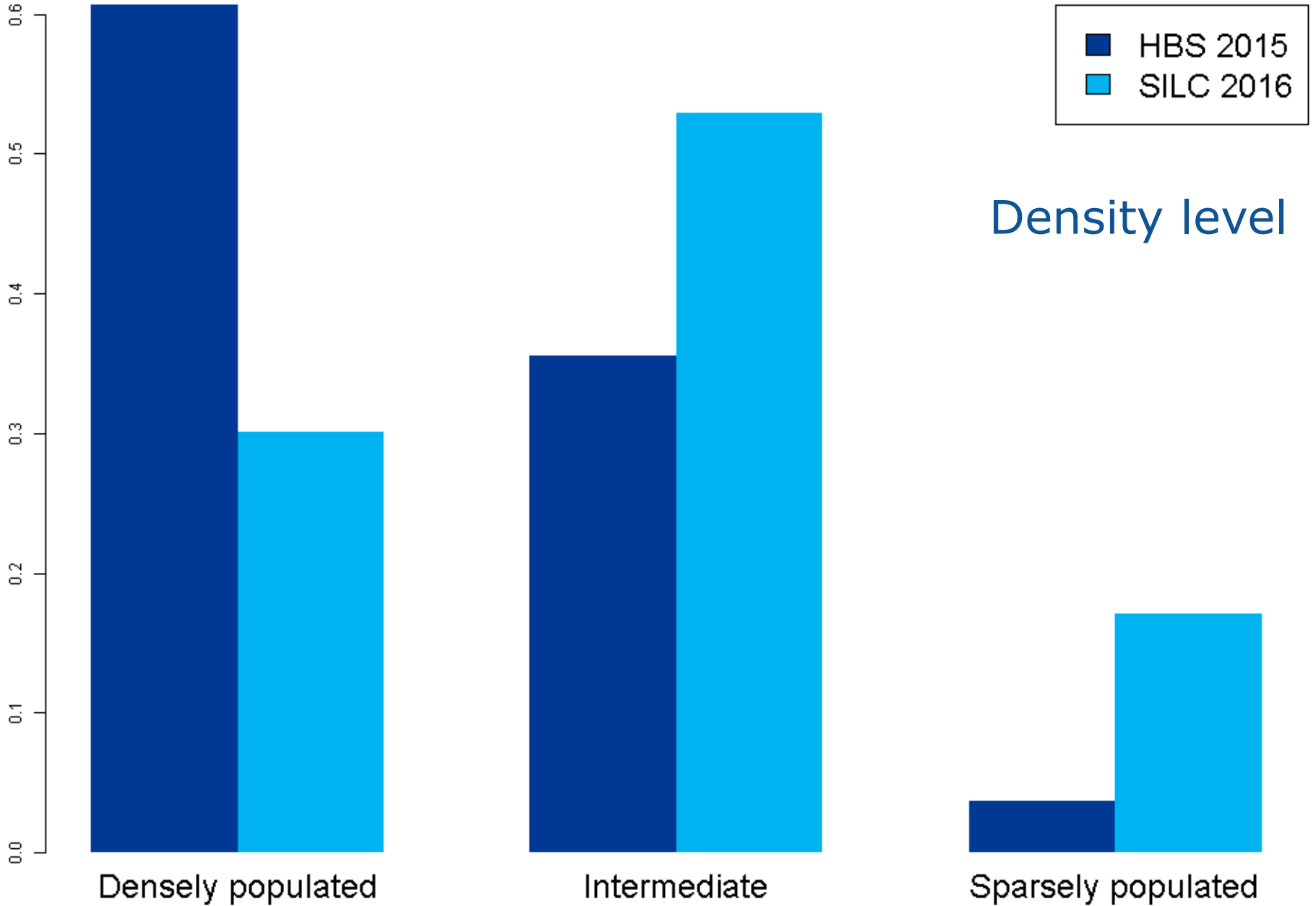


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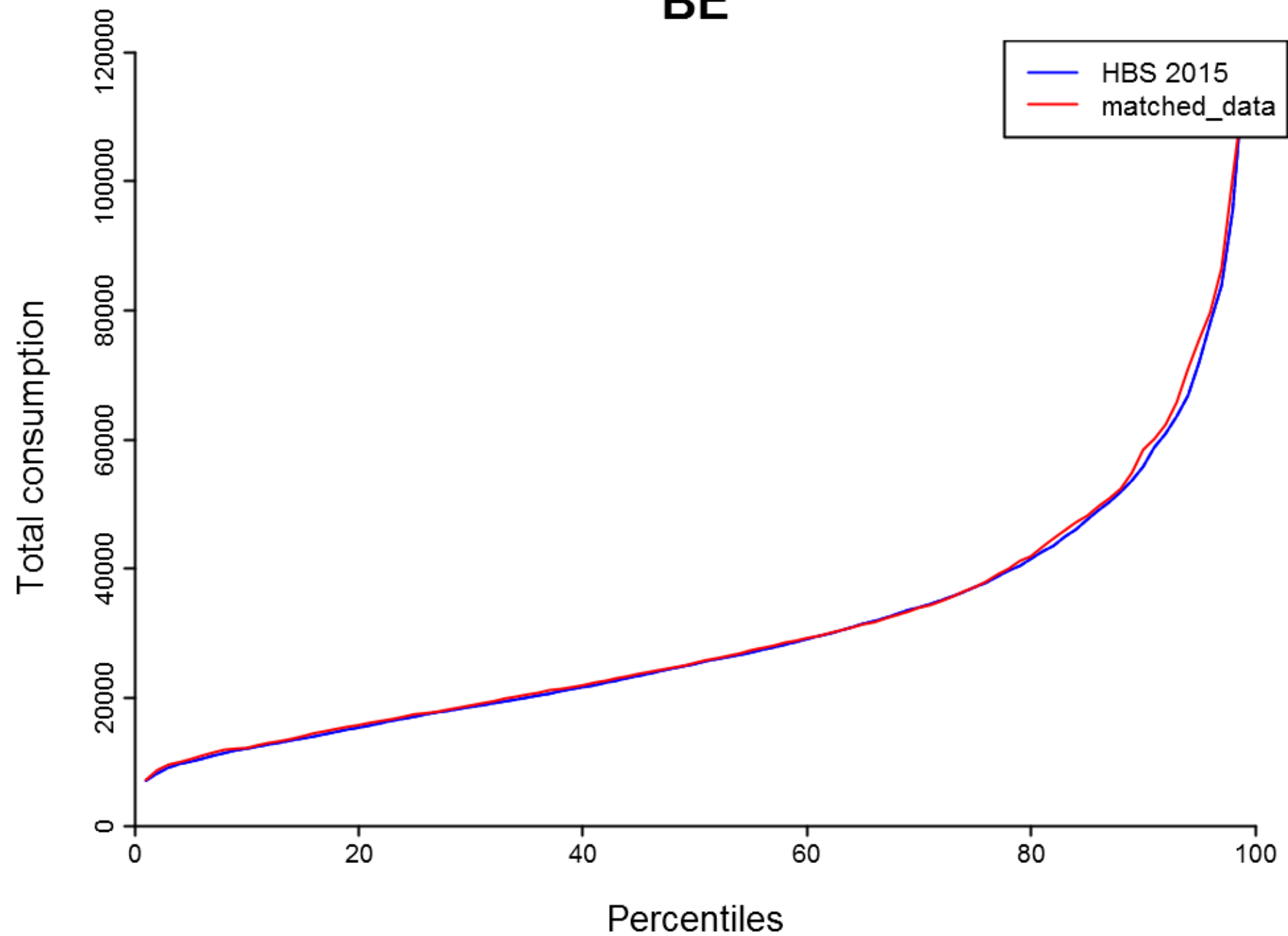


Tenure status

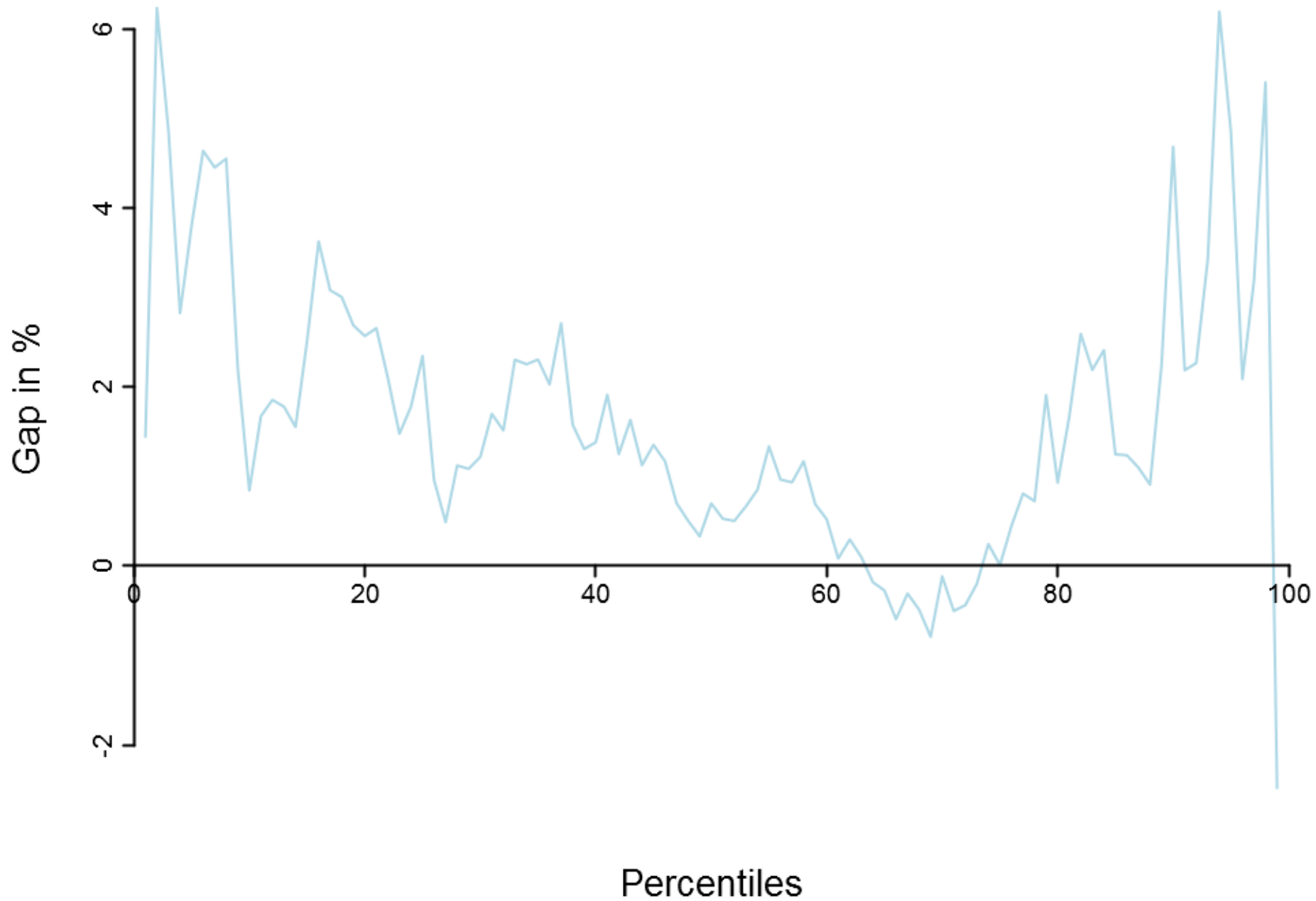
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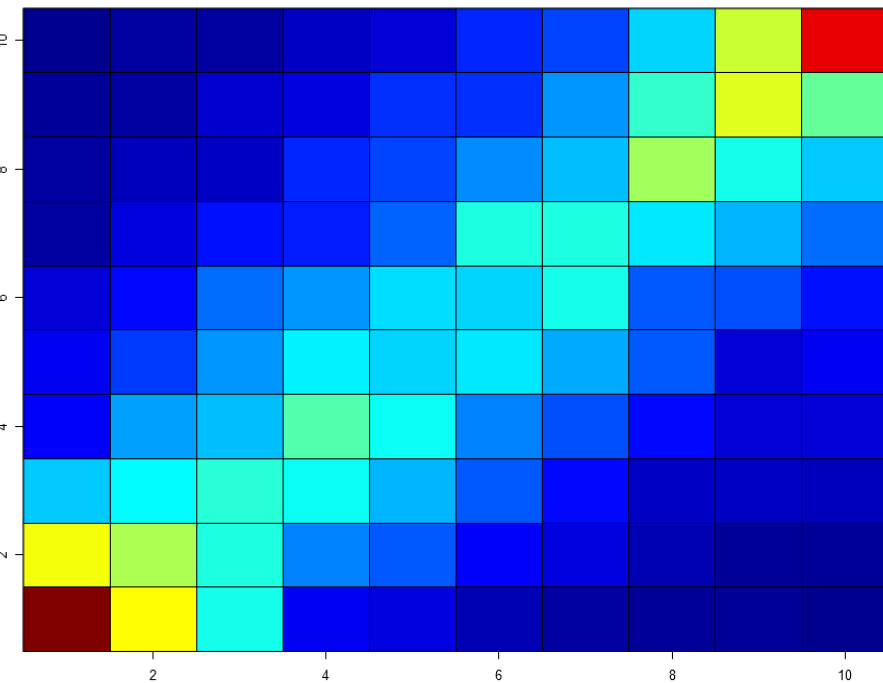


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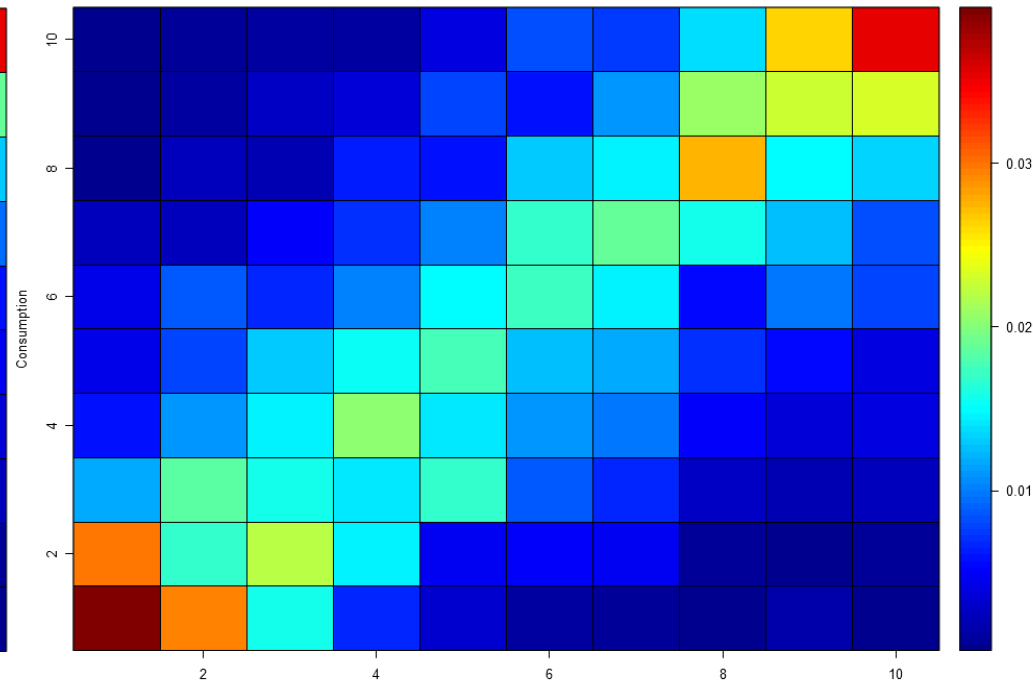
Heatmaps: population distributions by income and consumption deciles, BE 2015

Original HBS data



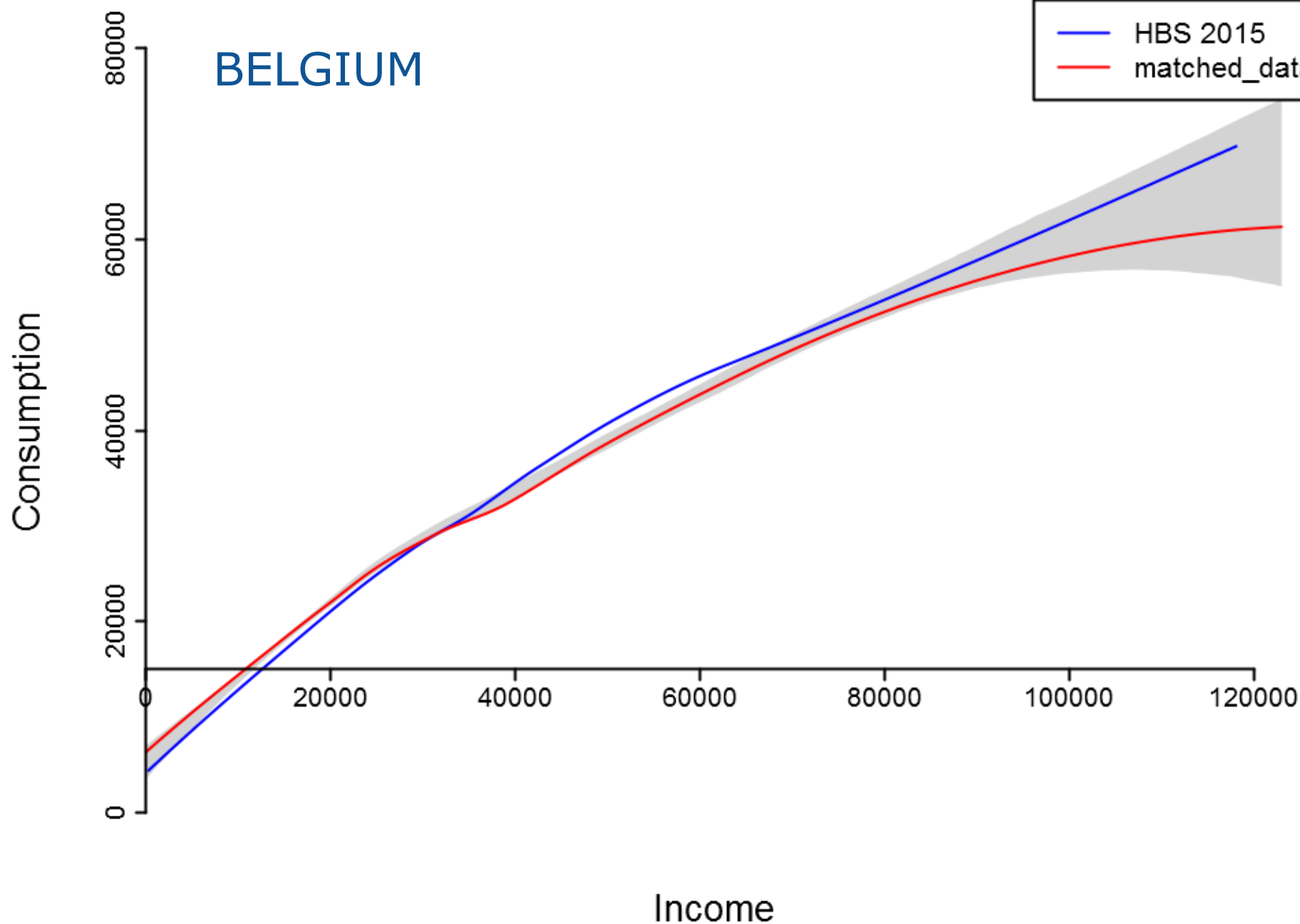
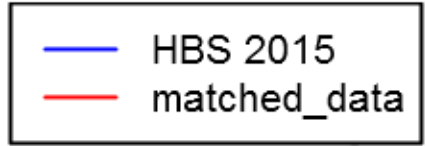
Y: HBS – consumption deciles
X: HBS – income deciles

Matched dataset



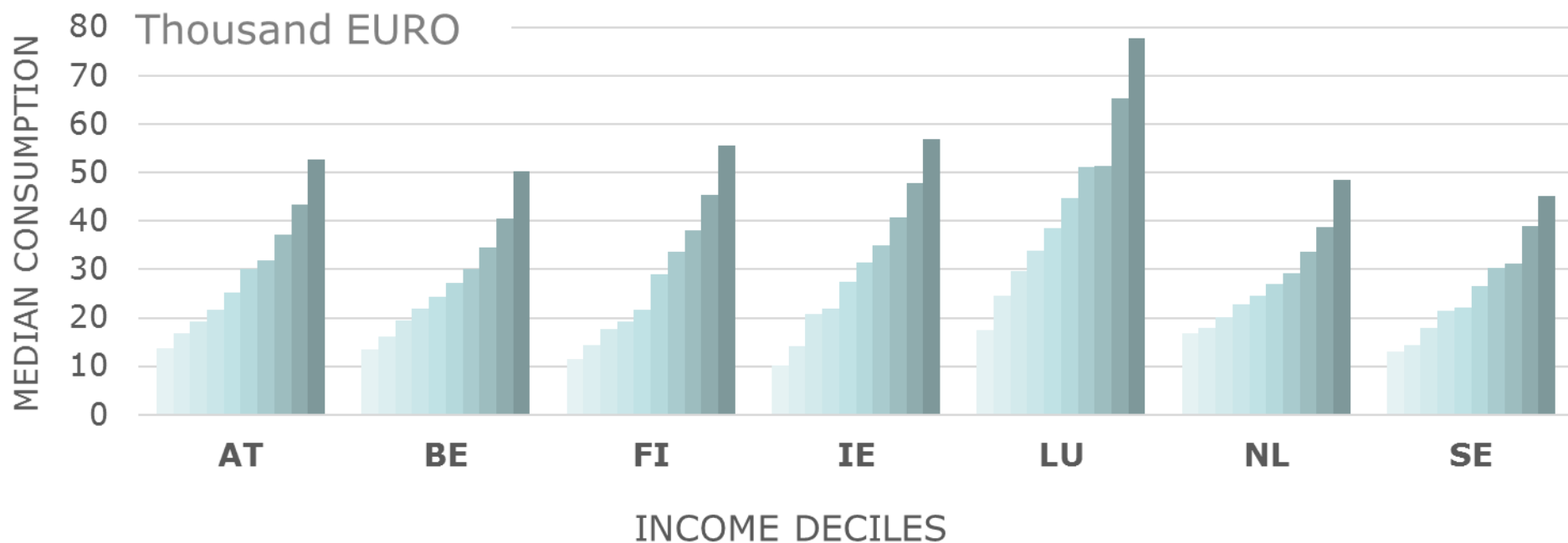
Y: HBS – consumption deciles
X: SILC – income deciles

BELGIUM



Preliminary results

Median consumption by income decile, 2015 CENTRAL/NORTHERN EUROPE



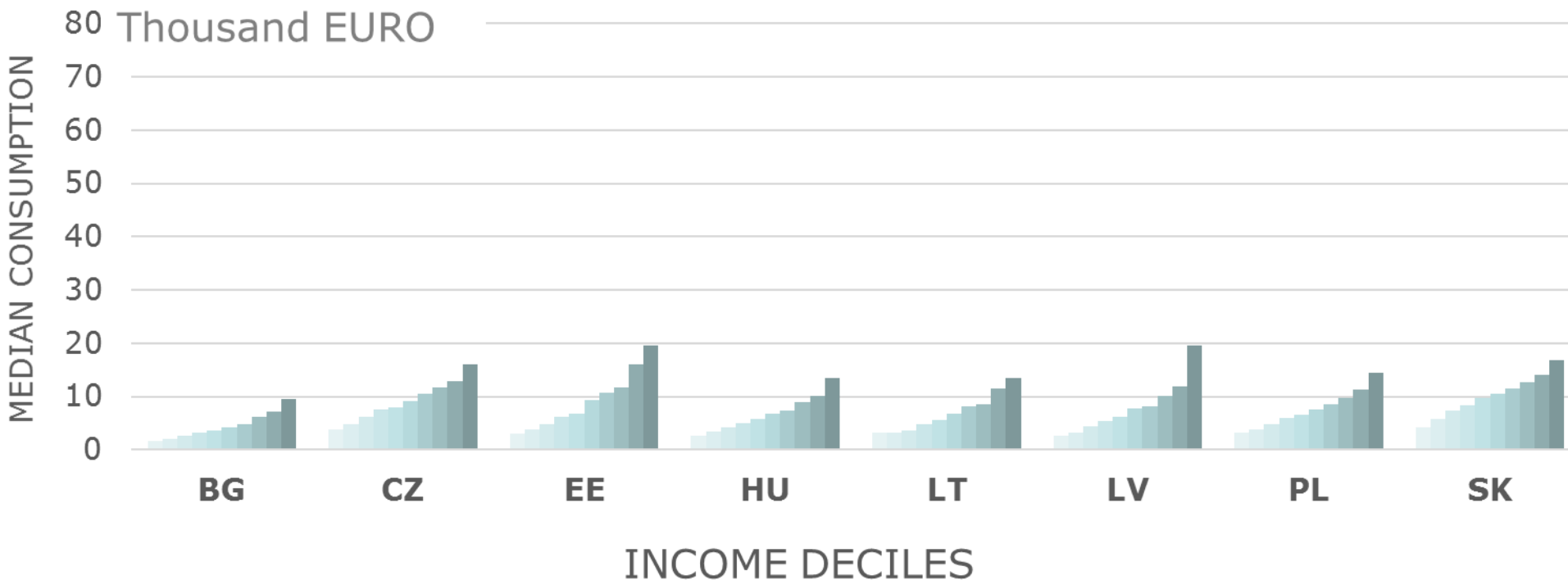
Preliminary results

Median consumption by income decile, 2015 SOUTHERN EUROPE



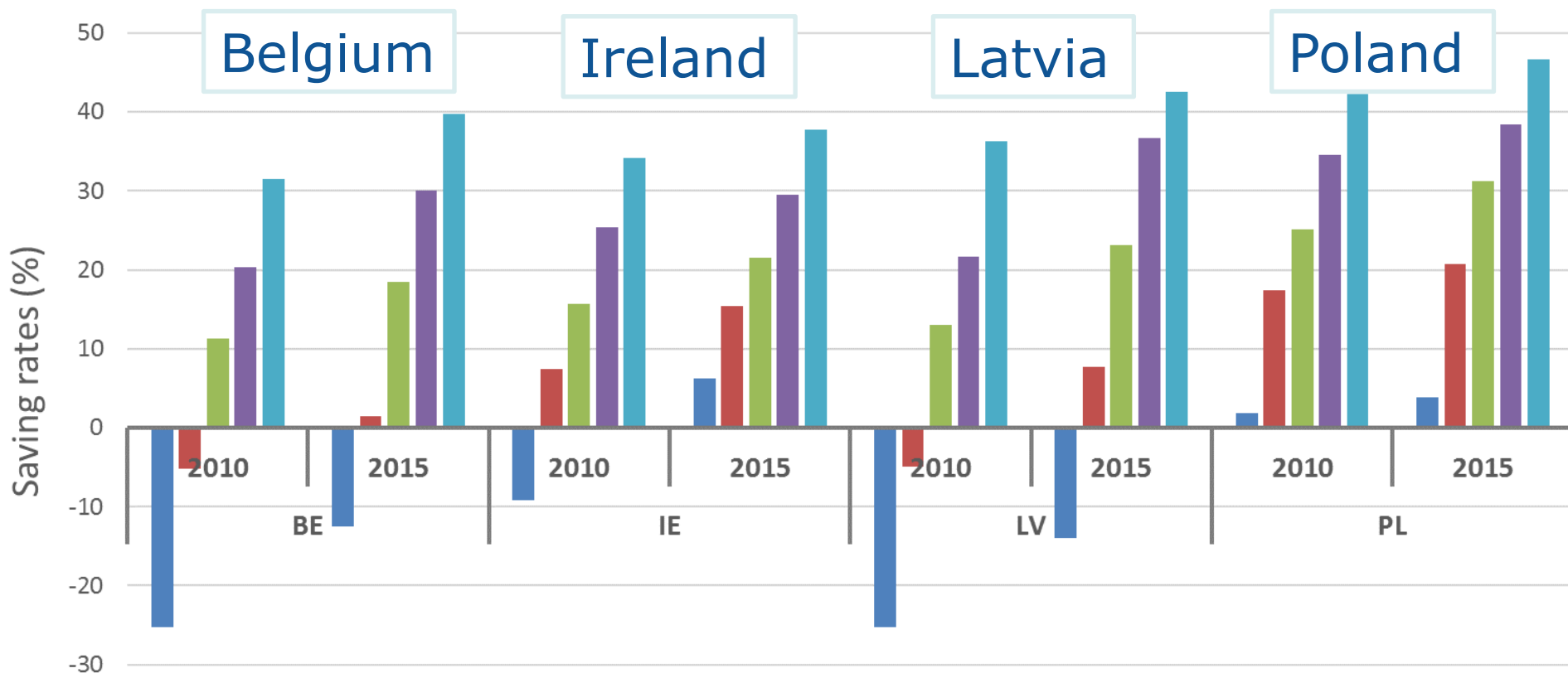
Preliminary results

Median consumption by income decile, 2015 EASTERN EUROPE



Preliminary results

Median saving rates (%) by income quintile, 2010 & 2015
 -> positive trend



Note:

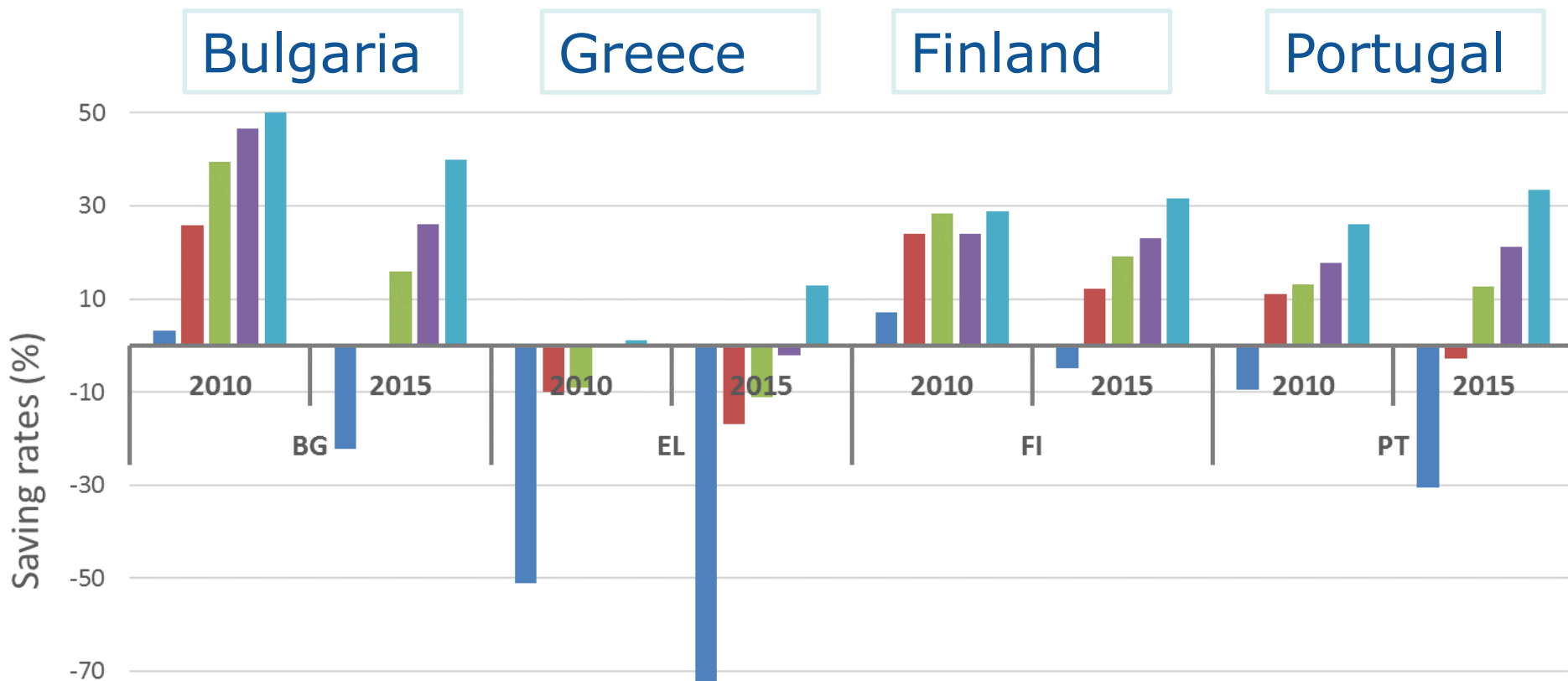
savings = disposable income - consumption

saving rates = savings as percentage of disposable income

consumption = Total consumption expenditure - imputed rents

Preliminary results

Median saving rates (%) by income quintile, 2010 & 2015
 -> increasing inequality



Note:

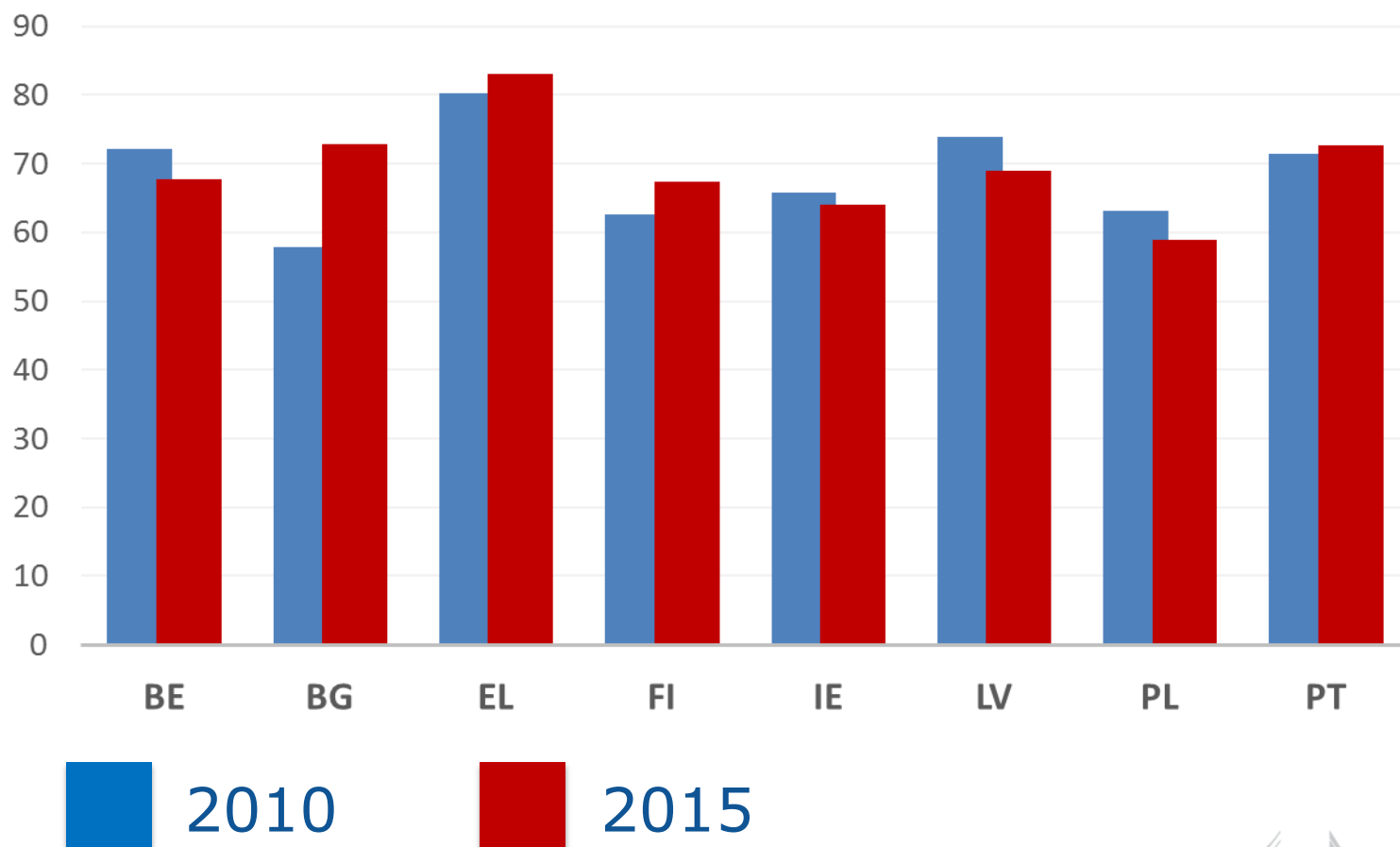
savings = disposable income - consumption

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Preliminary results

Gini coefficient on savings, 2010 & 2015



Preliminary results

Proportion of households at risk of asset-based vulnerability after a certain period of time



Source: European Central Bank, computation by Eurostat

Next steps

- Conduct the exercise for the missing countries.
- Assess the quality of matched micro datasets.
- Publish 2015 meso-level indicators.
- Publish metadata & quality reports.
- **Get feed back from potential data users and the research community!**

Feed-back ?



https://ec.europa.eu/eurostat/web/ess/forum/-/message_boards/message/8869535

Join the user forum or email:

ESTAT-ICW@ec.europa.eu

Thanks

Many thanks to
You
for your attention
and to
Pierre Lamarche
for his work