

The joint distribution of income, consumption and wealth from a micro perspective

G20 DGI-2 Workshop on Household distributional accounts

4TH November 2021

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Eurostat-OECD EG on joint distributions of Household Income, Consumption and Wealth

Objective:

Produce joint distributions of household ICW at micro level

=> meso-level indicators of well-being, inequality and economic vulnerability

- reference year “around 2015”
- quality framework

Estimates produced for 36 countries.

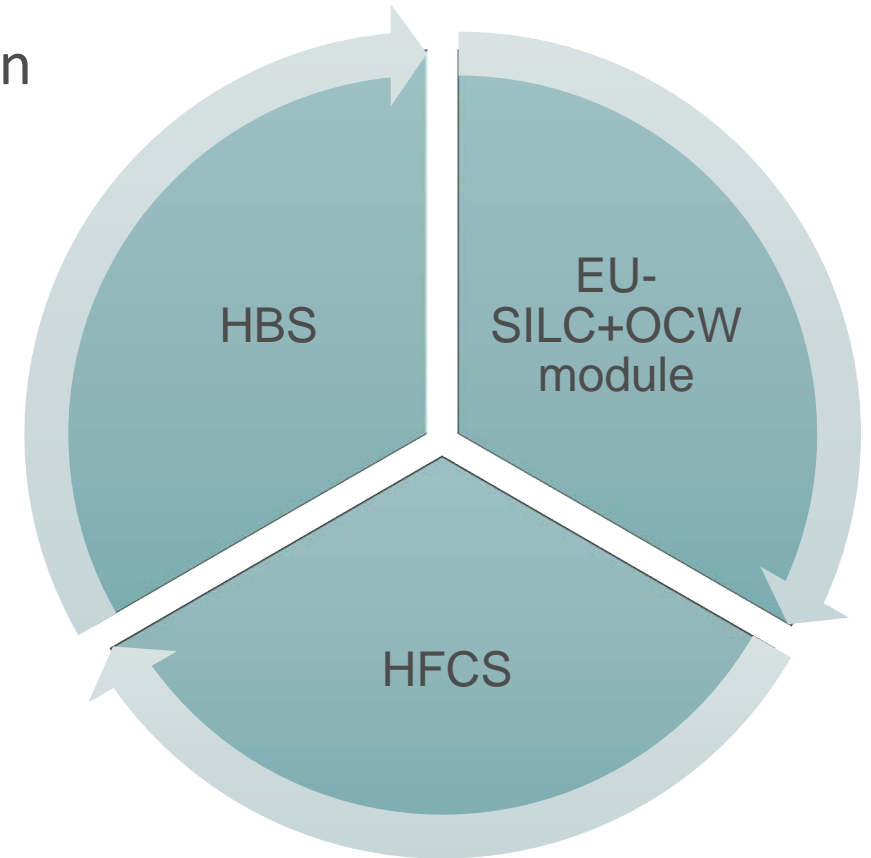
Australia, Canada, France, Germany, Japan, Mexico, UK, US
Spain, Netherlands and Switzerland

Country	HH ID	Disposable income	Consumption expenditure	Net wealth
A	1	€ 65,000	€ 50,000	€ 100,000
A	2	€ 90,000	€ 60,000	€ 900,000
A	3	€ 20,000	€ 20,000	0
B	1	€ 9,000	€ 11,000	-€ 20,000
B	2	€ 20,000	€ 16,000	€ 200,000
B	3	€ 18,000	€ 16,000	0
C	1	€ 35,000	€ 28,000	0
C	2	€ 70,000	€ 40,000	€ 800,000
C	3	€ 40,000	€ 32,000	€ 50,000

Data sources and integration methods

Single source including information on the joint distribution of ICW rarely available.

- **record linking** of data from surveys or administrative registers → *preferred option*
- **modules** in existing surveys → *second best option*
Better integration in some national sources (e.g. France)
e.g. 'Over-indebtedness, consumption and wealth' (OCW) module of the EU-SILC survey 2017 – so far only used to test and improve model assumptions for statistical matching
- **statistical matching** → *main option for most countries, in particular to join consumption expenditure data*



Statistical matching

Target variables (Y, Z): annual household disposable income, annual household consumption expenditure, household net wealth

Matching variables (X): variables available in both datasets, that are coherent, comparable and having an explanatory power of the target;

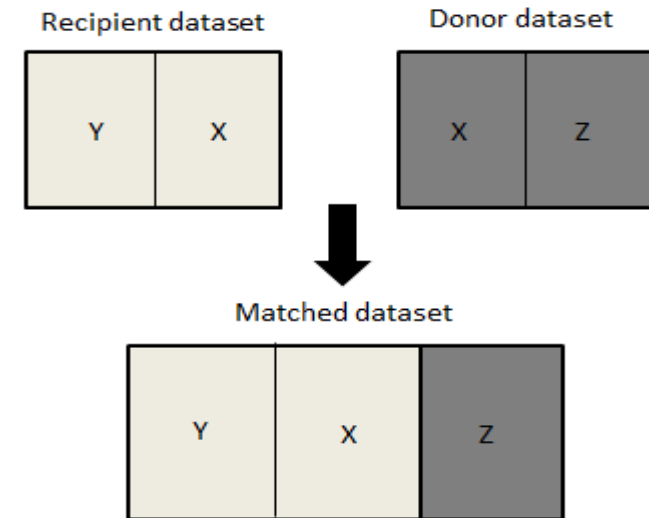
Set of matching variables varies from country to country, mostly including household type or size, age of the reference person, etc.

Important: Use of income quantiles as a “hook” variable.

Matching method: mainly non-parametric hot deck methods

Re-calibration of weights for some countries.

Integration of specific “target” variables from several independent data sources (referring to the same population), using common information as a link



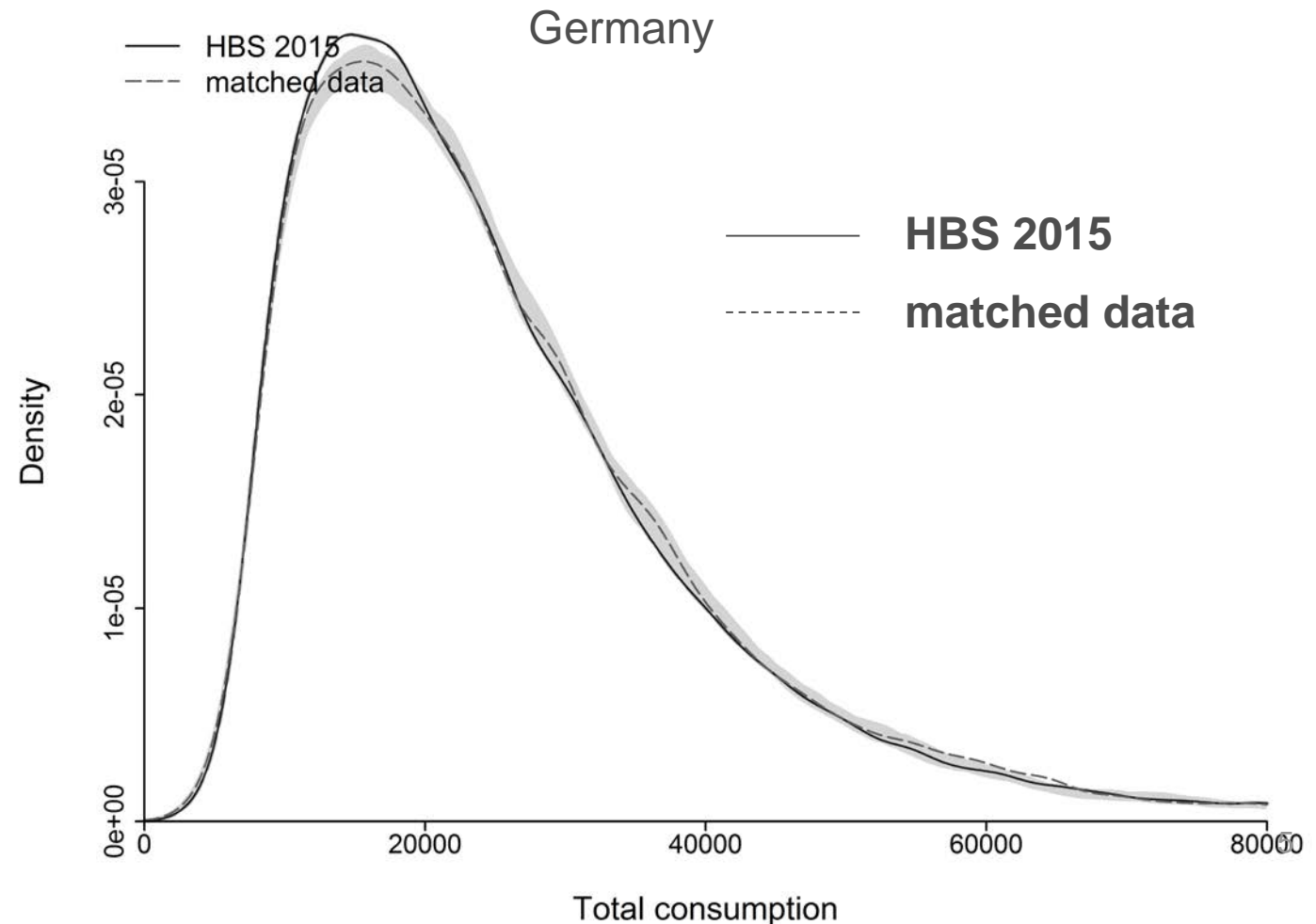
Quality assessment, example IC

Matching variables

Household type, age class,
tenure/rent, main source of income,
income ventile interval

The statistical matching
**reproduces the original
distribution of total consumption
expenditure (HBS)** very well in the
joint IC dataset.

Original vs matched distributions



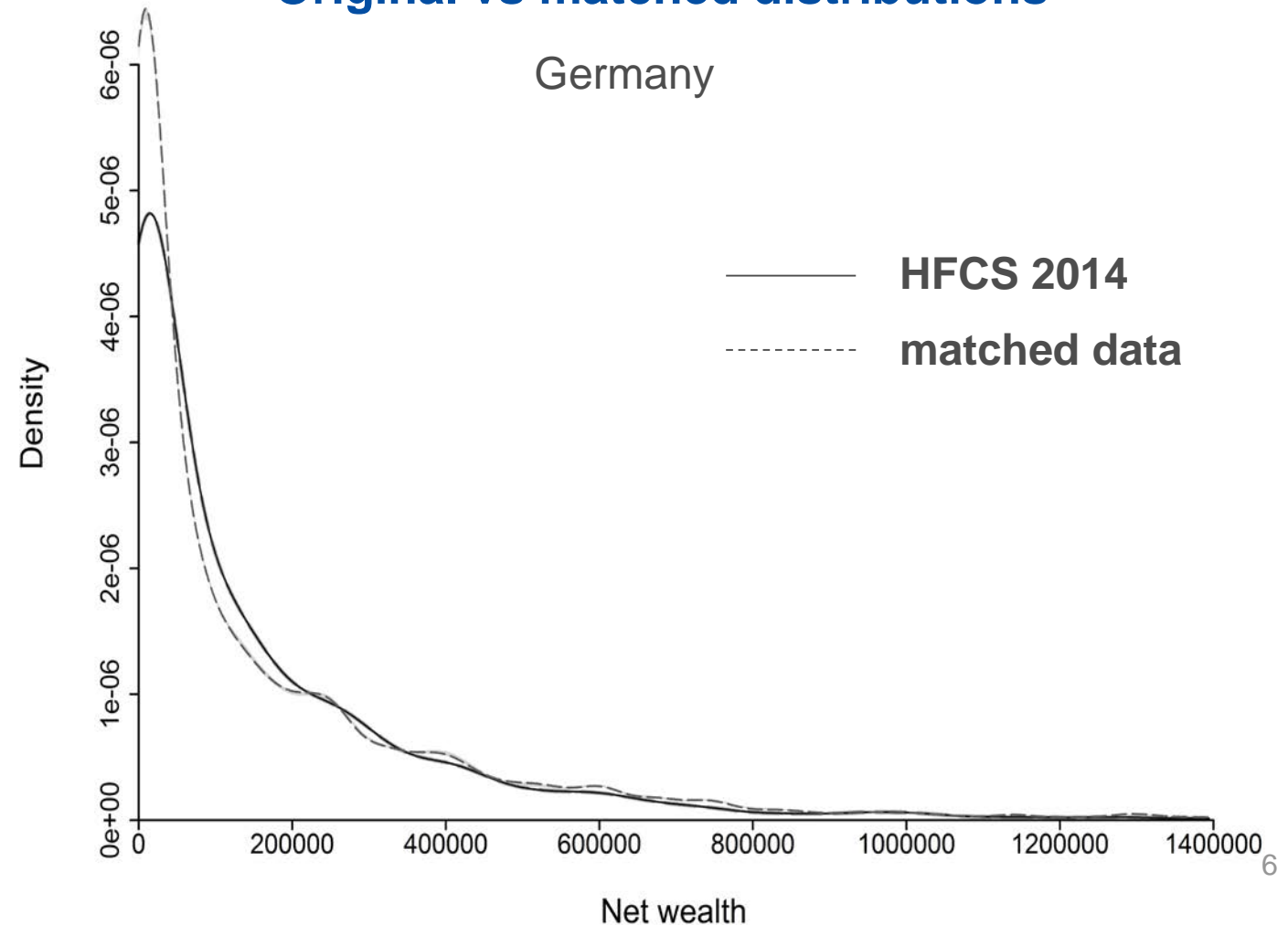
Quality assessment, example IW

Matching variables

Food consumption quintile, household type, tenure status, gross income

The **original distribution of net wealth (HFCS)** is reproduced **fairly well** in the joint ICW dataset.

Original vs matched distributions



Experimental results

Despite being able to reproduce original distributions fairly well in the joint ICW dataset, estimates based on the joint distribution are not to be classified as official statistics.

Results

Joint distribution of household **disposable income** and household **net wealth**

AU

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	6%	3%	3%	5%	3%
	2	6%	4%	3%	4%	3%
	3	4%	5%	4%	4%	3%
	4	3%	4%	5%	4%	3%
	5	1%	3%	4%	4%	7%

CA

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	11%	4%	2%	2%	2%
	2	5%	5%	4%	3%	2%
	3	2%	5%	5%	4%	3%
	4	1%	4%	5%	6%	4%
	5	0%	2%	4%	5%	9%

DE*

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	8%	5%	3%	2%	1%
	2	5%	5%	5%	3%	2%
	3	3%	4%	5%	4%	4%
	4	2%	3%	5%	5%	5%
	5	1%	2%	3%	5%	9%

FR

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	9%	5%	3%	2%	1%
	2	6%	5%	4%	3%	1%
	3	3%	5%	5%	5%	2%
	4	2%	4%	5%	6%	4%
	5	0%	2%	3%	4%	11%

JP

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	6%	5%	4%	3%	2%
	2	5%	4%	4%	4%	3%
	3	4%	4%	4%	4%	4%
	4	3%	4%	4%	4%	4%
	5	2%	3%	4%	5%	7%

UK

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	8%	4%	3%	3%	2%
	2	6%	5%	4%	4%	2%
	3	3%	5%	4%	4%	4%
	4	2%	4%	5%	4%	5%
	5	1%	2%	4%	5%	8%

US

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	9%	6%	3%	1%	0%
	2	5%	6%	5%	3%	1%
	3	3%	5%	5%	5%	2%
	4	2%	3%	6%	6%	4%
	5	0%	0%	2%	4%	13%

CH

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	7%	4%	3%	3%	3%
	2	6%	5%	4%	3%	2%
	3	4%	5%	4%	4%	3%
	4	2%	4%	5%	5%	4%
	5	1%	2%	4%	5%	8%

ES*

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	8%	5%	3%	1%	2%
	2	5%	4%	5%	4%	3%
	3	4%	3%	5%	5%	3%
	4	3%	3%	4%	5%	6%
	5	1%	2%	2%	4%	11%

NL

		Wealth quintiles				
		1	2	3	4	5
Income quintiles	1	5%	9%	3%	2%	2%
	2	3%	6%	5%	3%	3%
	3	4%	3%	5%	5%	4%
	4	5%	1%	4%	5%	5%
	5	4%	1%	3%	5%	7%

Data source: National estimates complemented by Eurostat estimates for DE and ES.

Results

Joint distribution of household **disposable income** and household **consumption expenditure**

AU

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	10%	5%	3%	1%	1%
	2	6%	7%	4%	2%	1%
	3	2%	5%	6%	5%	2%
	4	1%	3%	5%	7%	4%
	5	0%	1%	2%	5%	11%

CA

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	10%	5%	2%	1%	1%
	2	7%	6%	4%	2%	1%
	3	3%	6%	6%	5%	1%
	4	1%	2%	6%	7%	5%
	5	0%	1%	2%	5%	12%

DE*

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	13%	5%	1%	1%	0%
	2	5%	7%	5%	2%	1%
	3	2%	4%	6%	5%	2%
	4	1%	2%	5%	7%	5%
	5	0%	1%	2%	5%	12%

FR

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	7%	4%	3%	3%	3%
	2	5%	4%	4%	4%	3%
	3	4%	4%	5%	4%	4%
	4	3%	5%	4%	4%	4%
	5	2%	3%	4%	5%	6%

JP

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	11%	5%	2%	1%	1%
	2	5%	6%	5%	3%	1%
	3	2%	4%	6%	5%	3%
	4	1%	3%	5%	6%	5%
	5	1%	2%	3%	5%	10%

MX

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	11%	5%	2%	1%	0%
	2	5%	7%	5%	3%	0%
	3	3%	5%	6%	5%	1%
	4	1%	2%	5%	7%	4%
	5	0%	1%	1%	4%	14%

UK

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	10%	6%	2%	1%	1%
	2	6%	6%	4%	2%	1%
	3	2%	5%	6%	4%	2%
	4	1%	2%	6%	7%	4%
	5	0%	0%	2%	6%	12%

US

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	10%	5%	3%	1%	0%
	2	6%	5%	5%	3%	1%
	3	3%	5%	5%	5%	2%
	4	1%	3%	5%	6%	5%
	5	0%	1%	2%	5%	12%

CH

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	10%	5%	3%	2%	1%
	2	6%	6%	4%	3%	1%
	3	3%	5%	5%	5%	2%
	4	1%	3%	5%	6%	5%
	5	1%	2%	3%	5%	10%

ES*

		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	10%	5%	3%	1%	1%
	2	6%	6%	4%	3%	1%
	3	3%	5%	5%	4%	3%
	4	1%	3%	5%	6%	5%
	5	1%	1%	3%	5%	10%

NL

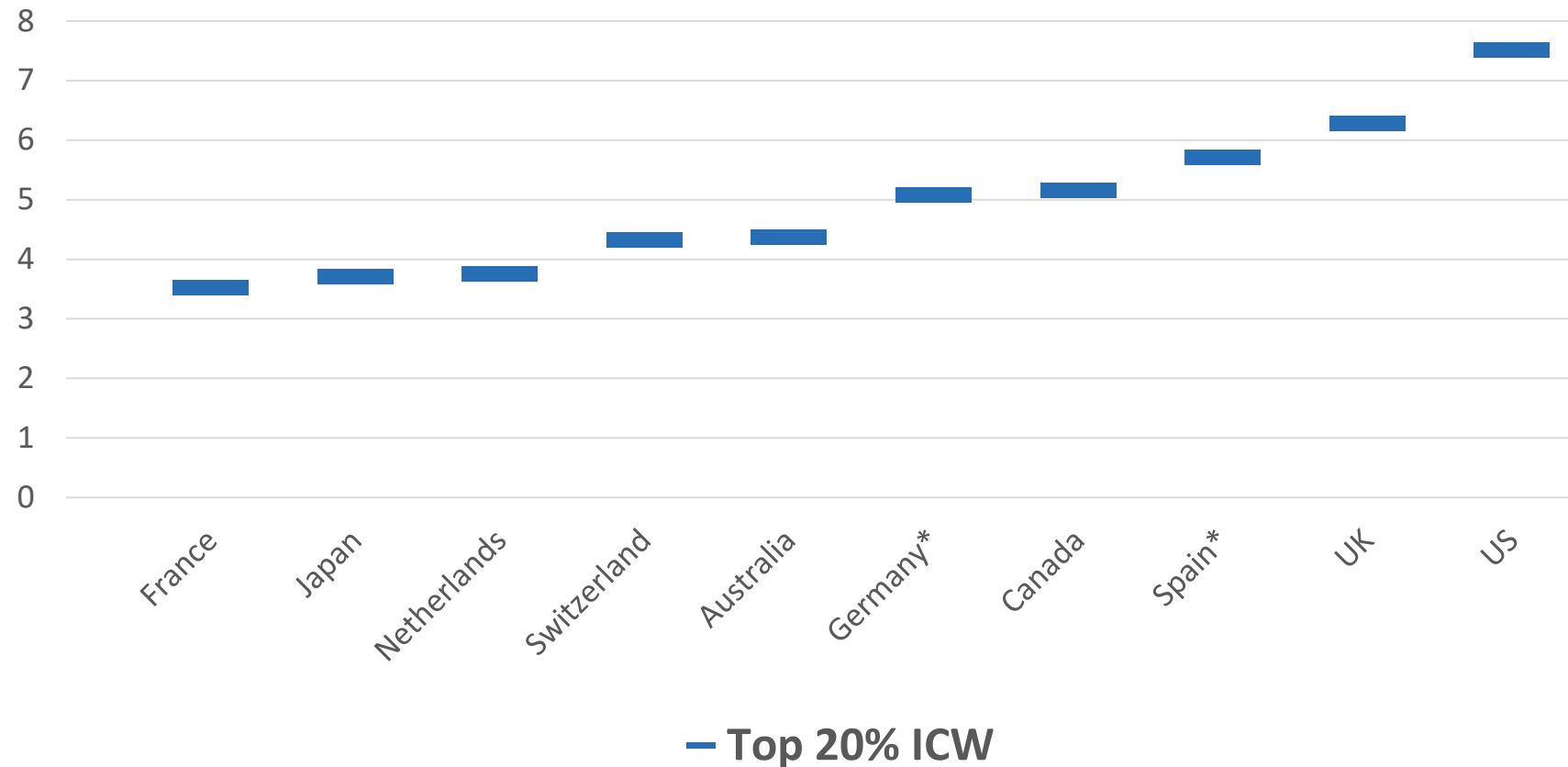
		Consumption quintiles				
		1	2	3	4	5
Income quintiles	1	9%	5%	3%	2%	1%
	2	6%	6%	4%	3%	1%
	3	3%	5%	5%	4%	2%
	4	2%	3%	5%	6%	5%
	5	1%	1%	2%	5%	11%

Data source: National estimates complemented by Eurostat estimates for DE and ES.

Results

Share of households in the **top 20%** of the joint distribution of income, consumption and wealth **ICW**

Share of households (%) in the top 20% of the joint ICW distribution, 'around 2015'



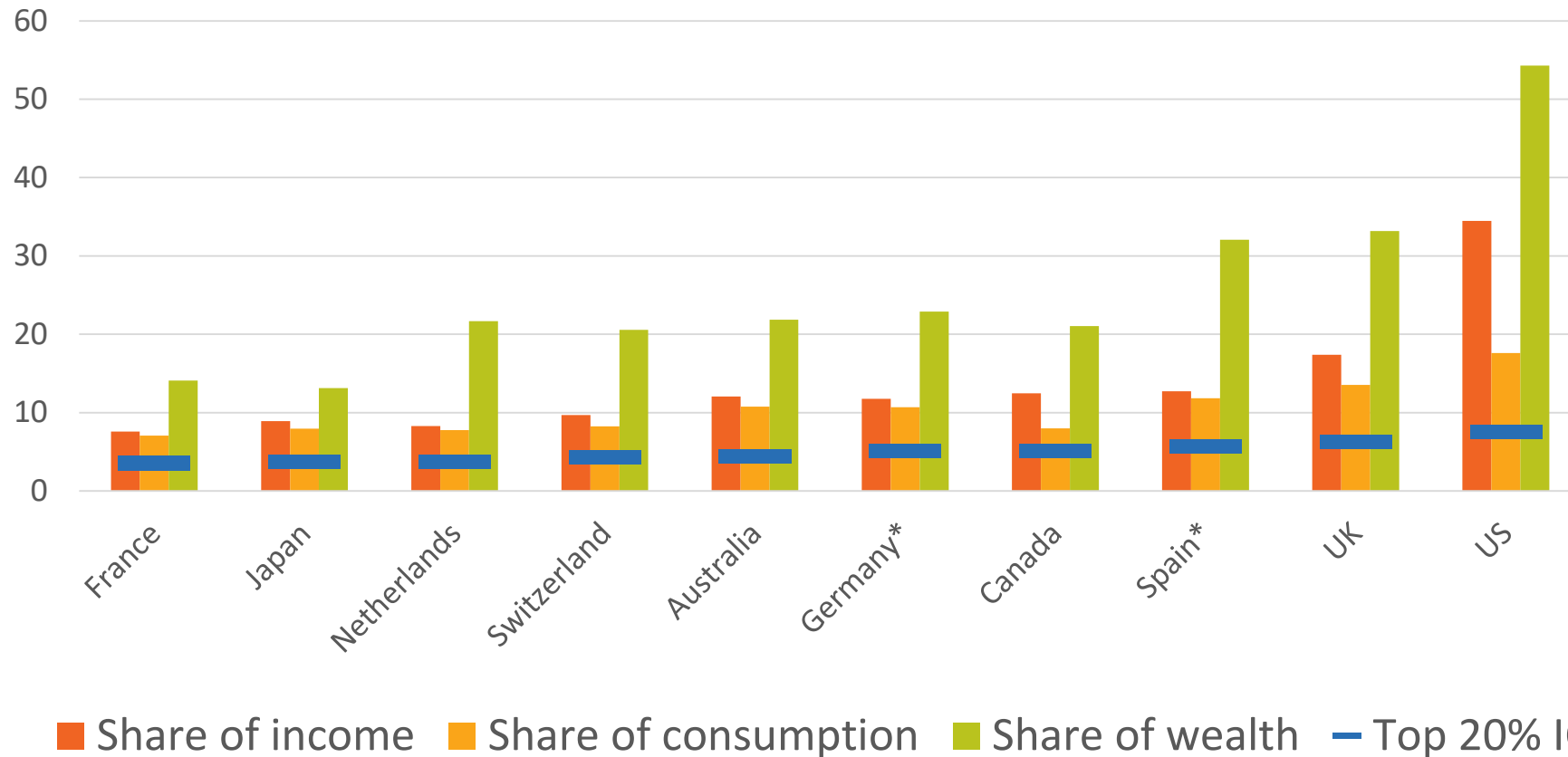
3.5 – 7.5 % of households belong to the top quintile of income, the top quintile of consumption & the top quintile of wealth.

* Eurostat estimates

Results

Share of resources held by the top 20% of the joint distribution of income, consumption and wealth **ICW**

Share of resources (%) held by the top 20% of the joint ICW distribution, 'around 2015'



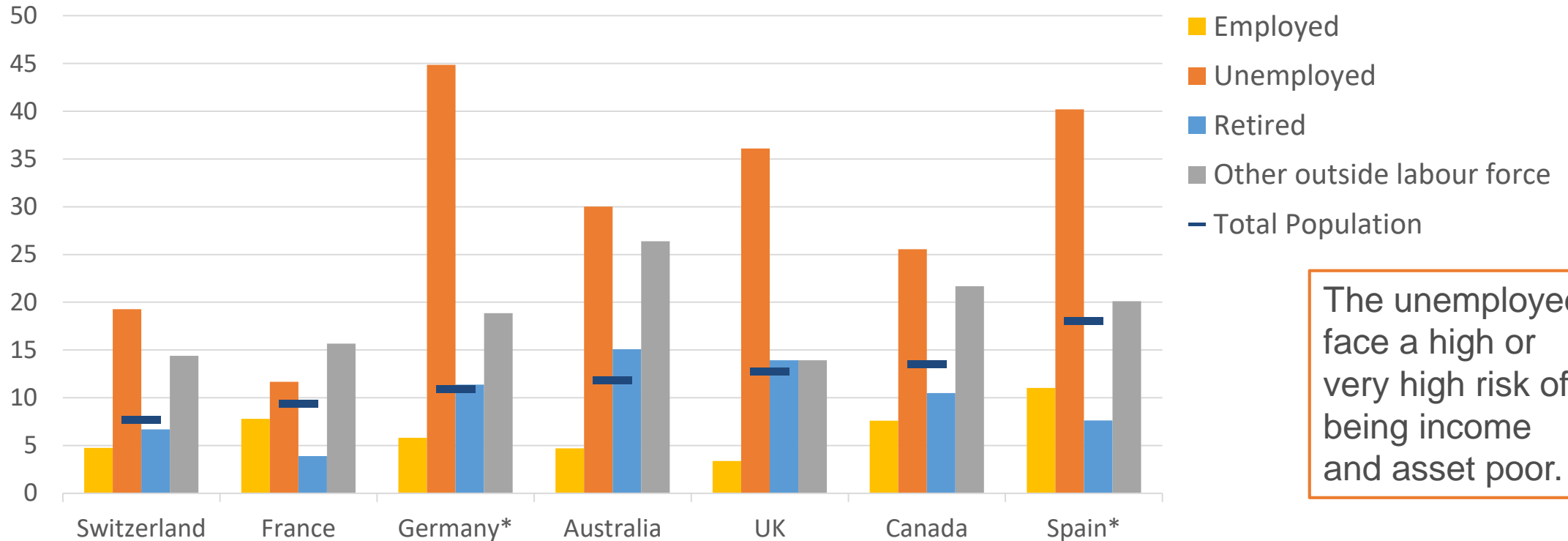
8 - 34 % of income and 13 - 54 % of net wealth is held by households in the top 20 of ICW.

* Eurostat estimates

Results

Share of individuals who are both
income and asset poor
by activity status

Share of individuals who are both income and asset poor (%) by activity status, 'around 2015'



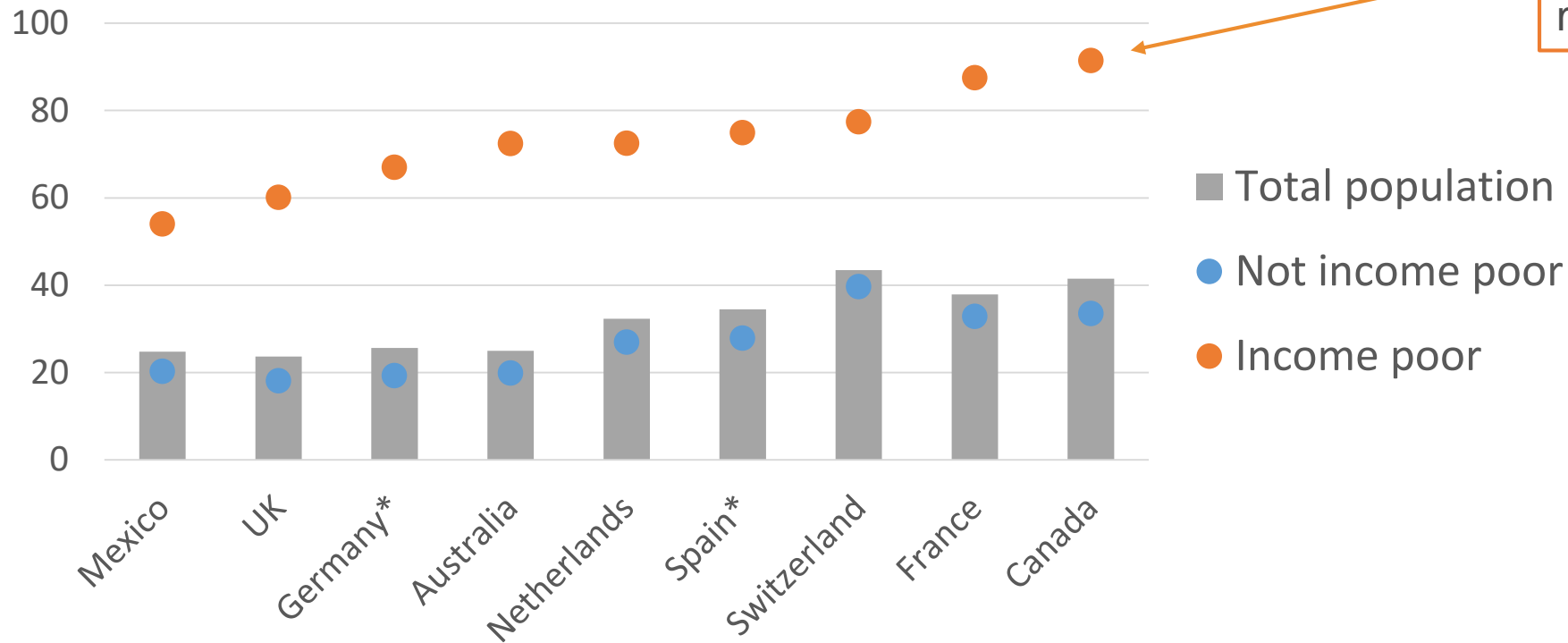
The unemployed face a high or very high risk of being income and asset poor.

* Eurostat estimates

Results

Share of **dissaving households**
by income poverty status

Share of dissaving households (%) by income poverty status, 'around 2015'

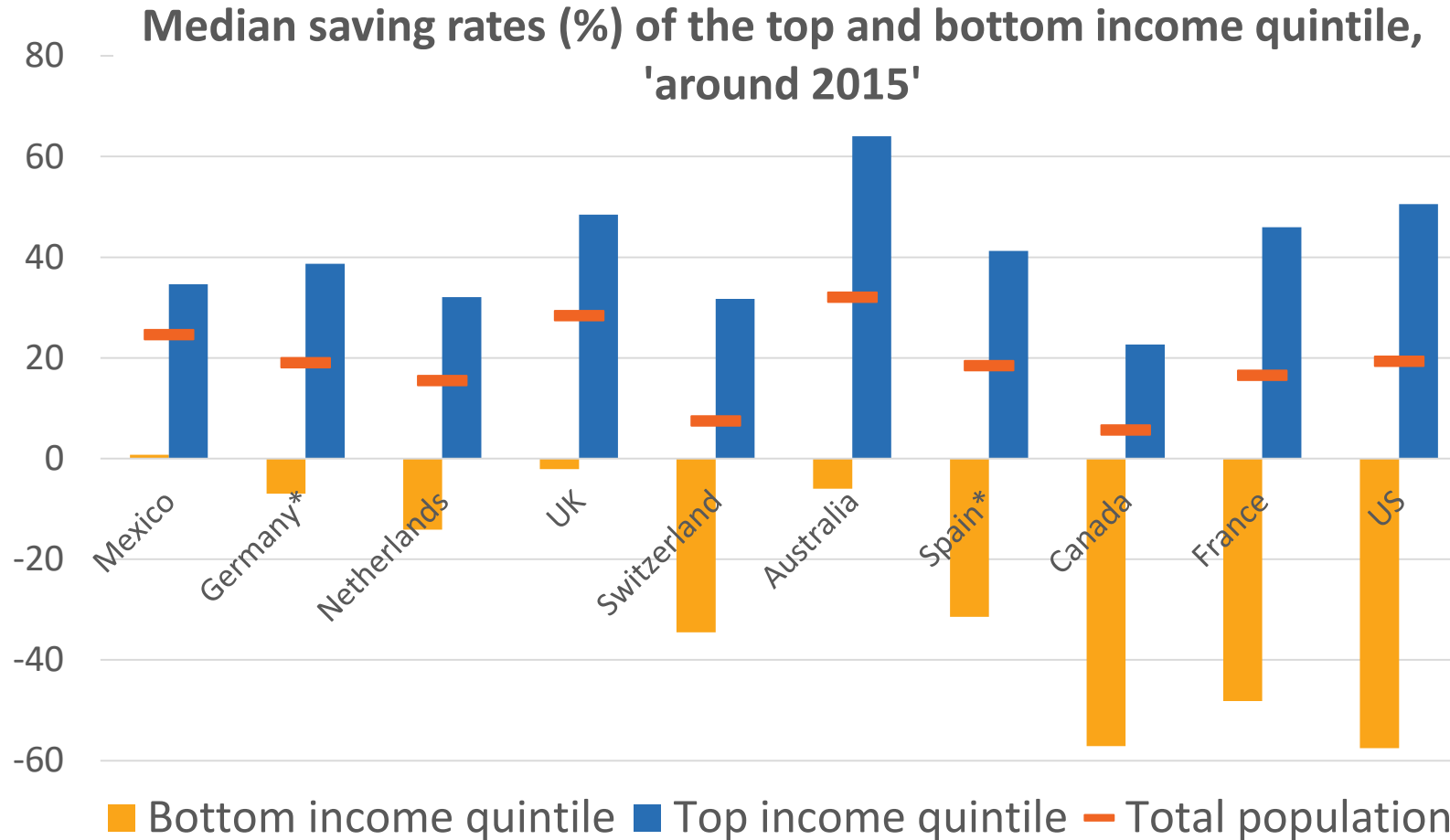


50 – 90 % of the
income poor do not
make ends meet

* Eurostat estimates

Results

Median saving rates by income quintile



Median saving rates of the total population hide large differences between the top and bottom income quintile

* Eurostat estimates

Countries ordered by the difference of top to bottom quintile median saving rate.

Conclusions

- Indicators based on joint ICW distributions are still experimental.
- Estimates produced by different countries are not fully comparable, due to differences in the methodology and source data.

Nevertheless:

- The two and three-dimensional indicators emphasise vulnerabilities hidden in unidimensional analyses
- Joint IC distributions enable the estimation of household savings.
- Joint ICW distributions can help in the assessment of tax burden of different household groups.

2020 wave

For countries of the Euro area, the reference year 2020 will be the first year, for which all data are collected together:



Income

EU-SILC - Statistics on Income and Living Conditions, Incl. the Over-indebtedness, consumption & wealth module



Consumption expenditure

HBS – Household Budget Survey



Wealth

HFCS - Household Finance and Consumption Survey

THANK YOU