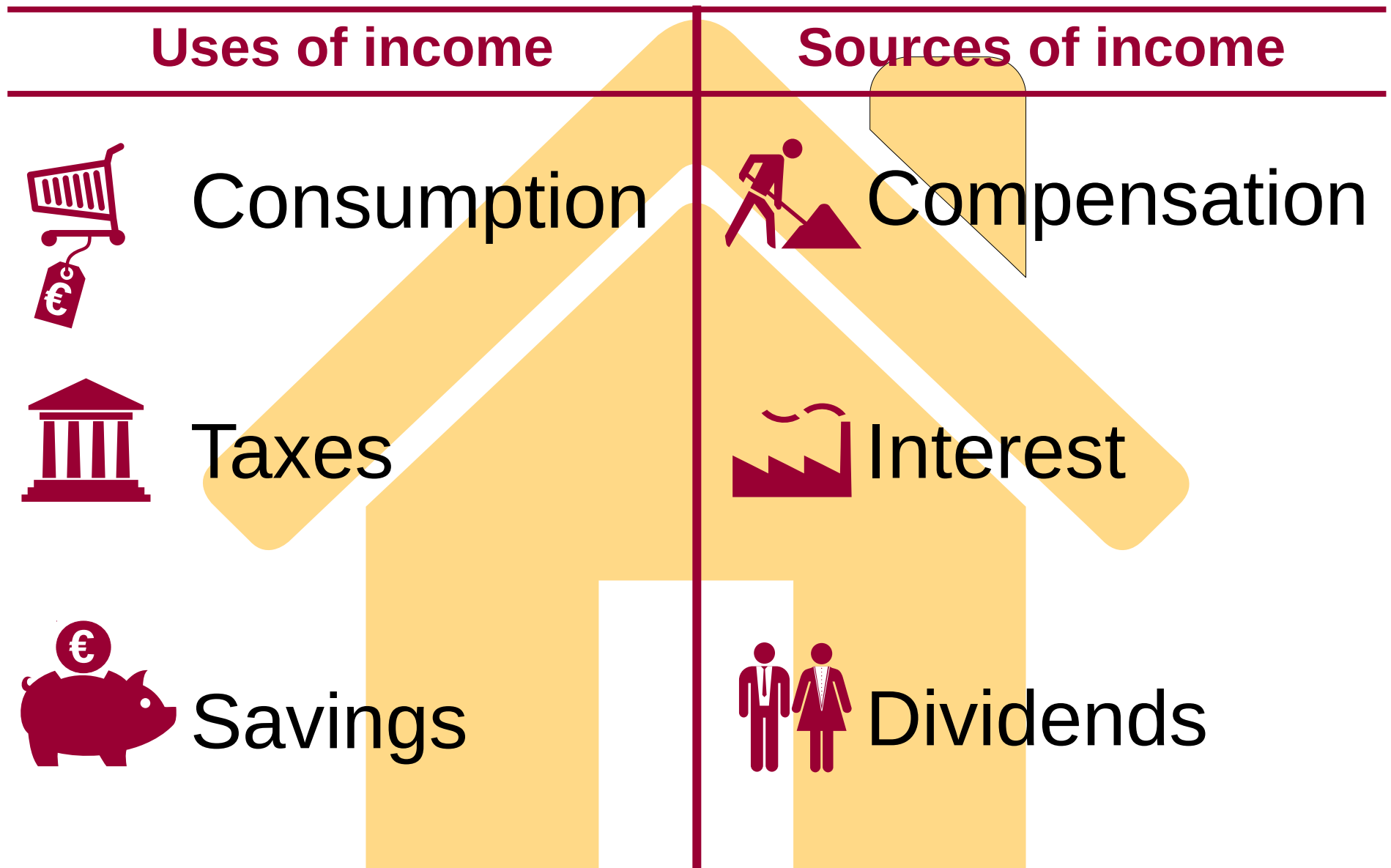


Bart Hobijn - ASU

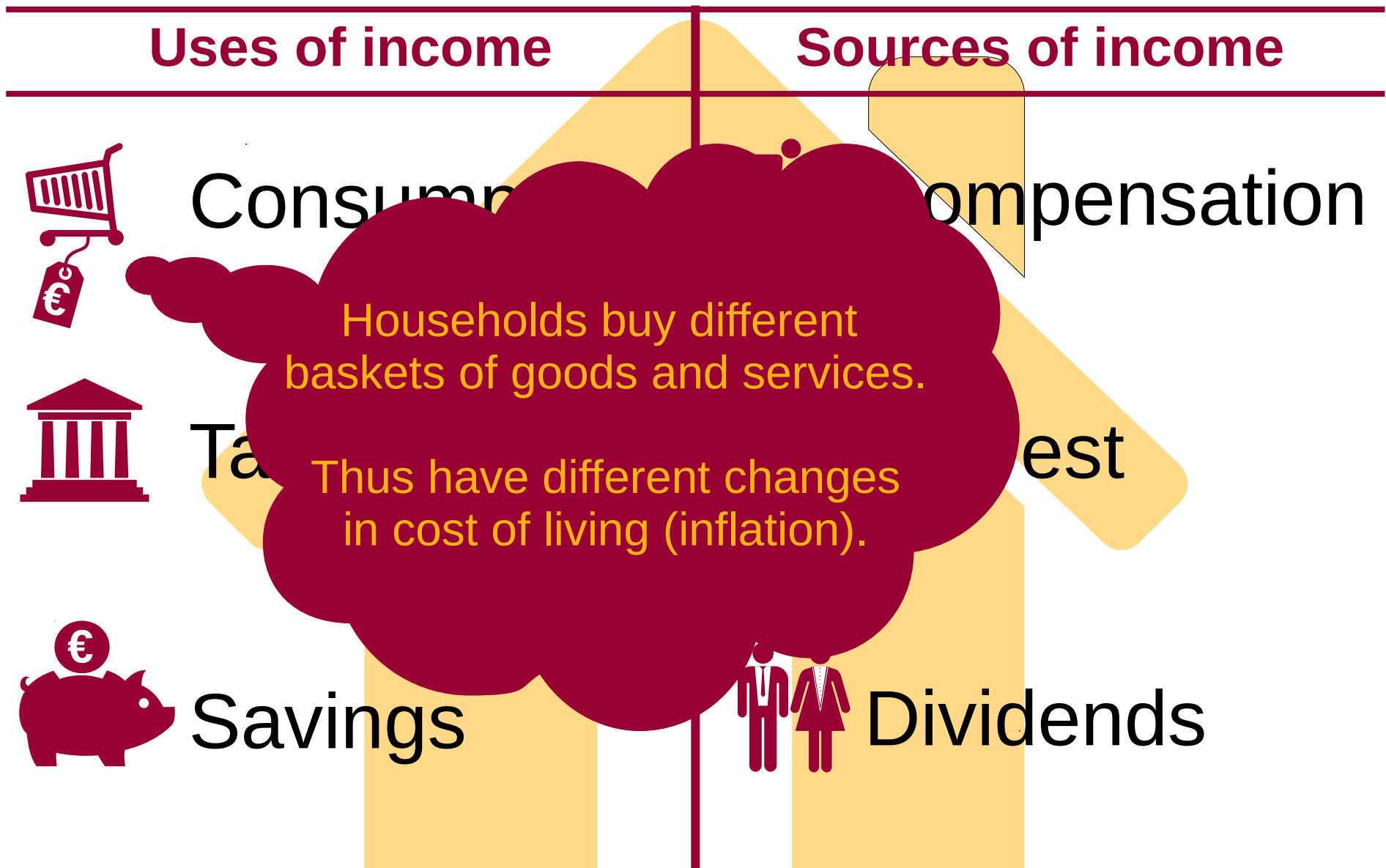
# Inequality and Inflation

EIB – May 12, 2016

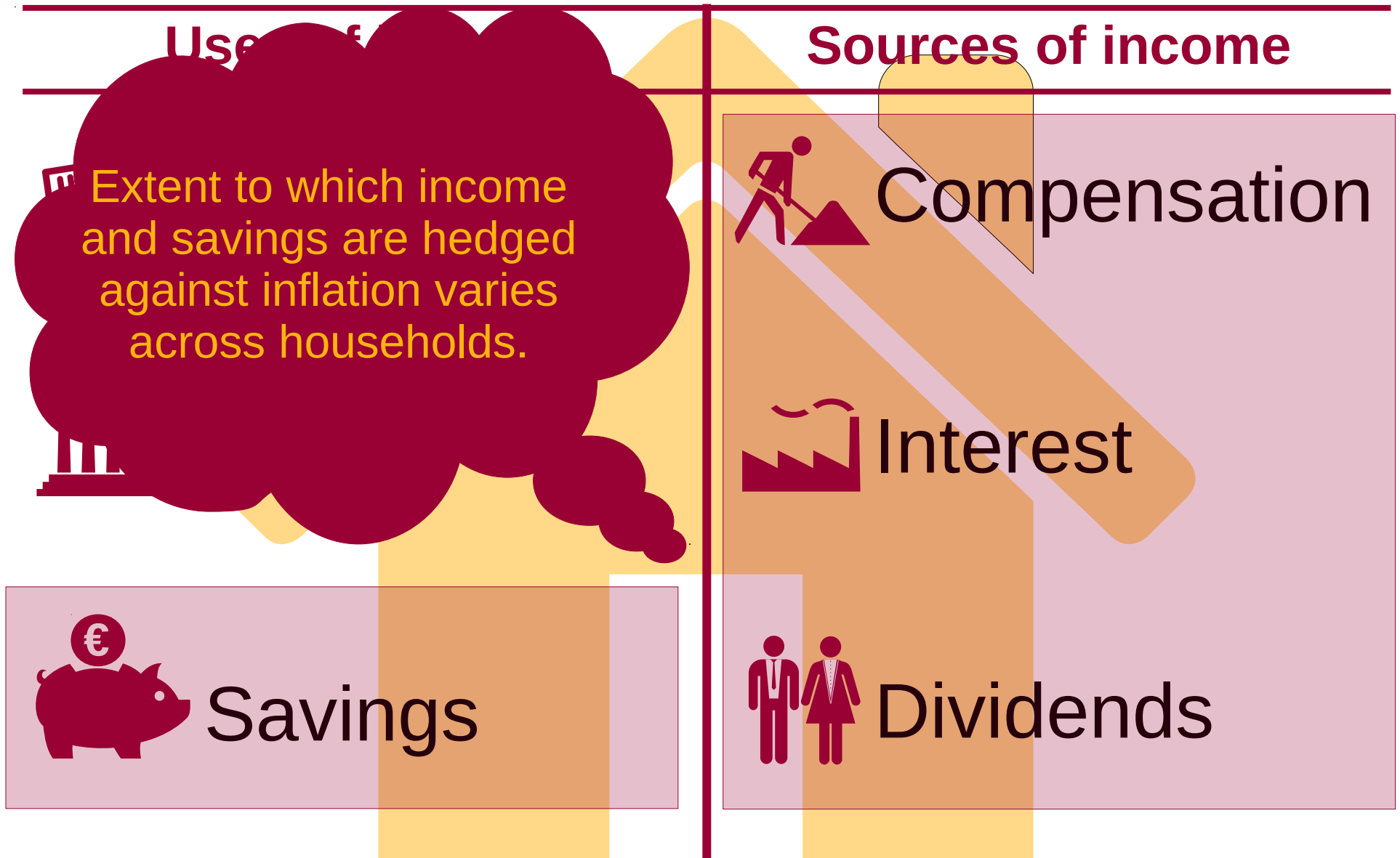
# Household income statement (T-account)



# First part on inflation experiences



# Second part on inflation exposure



# Two main takeaways

## Inequality in *Inflation Experiences*

- Very little variation in inflation experiences in Euro Area.
- Max is 0.16 percentage point annually between groups.
- Less variation in Euro Area than in the U.K. and the U.S.

## Inequality in *Inflation Exposure*

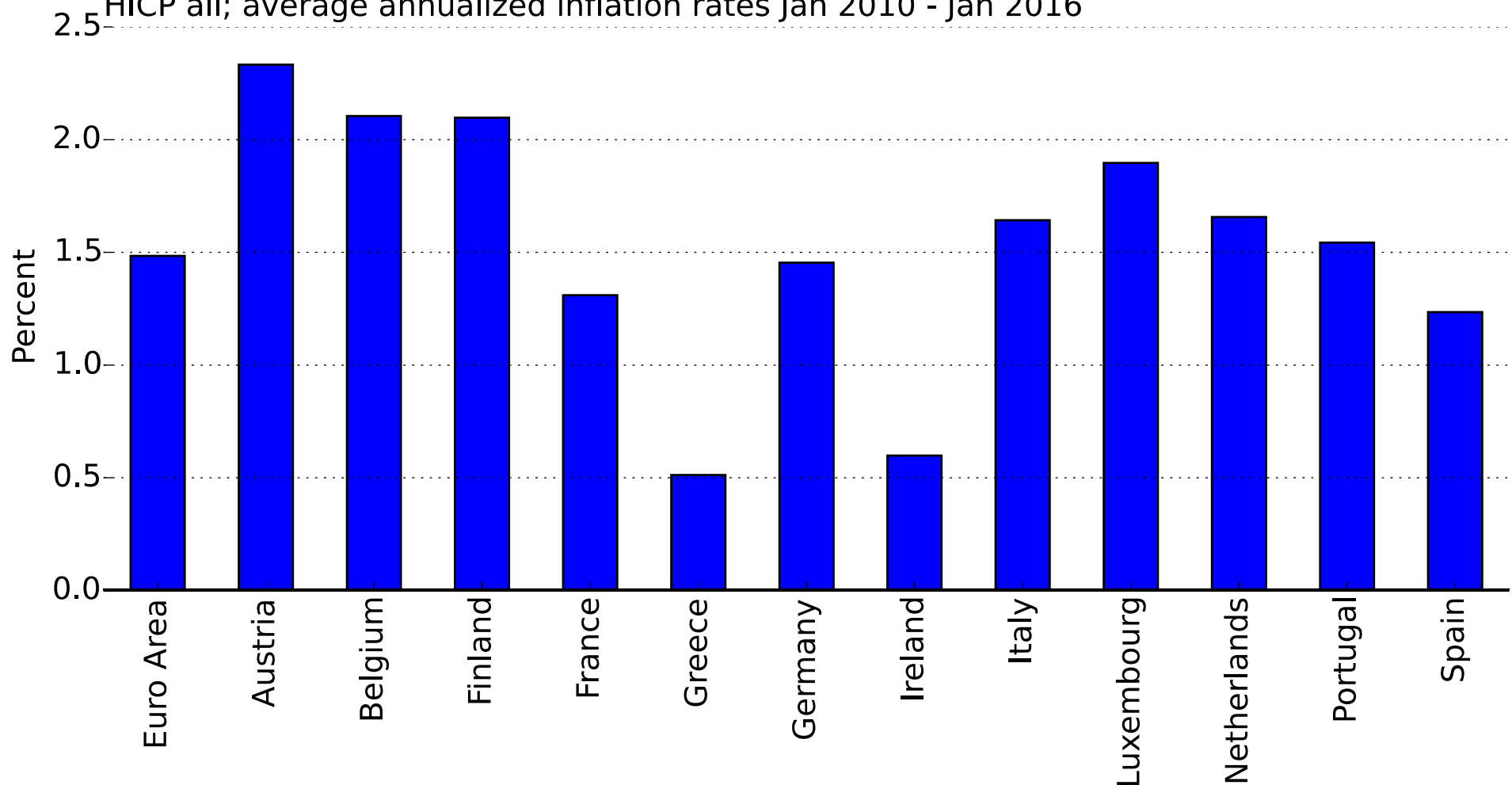
- Varies a lot across the income distribution.
- Surprise inflation in Euro Area has very regressive impact.

# Inflation Experiences

# Inflation varies across countries

## Inflation across Euro Area countries

HICP all; average annualized inflation rates Jan 2010 - Jan 2016

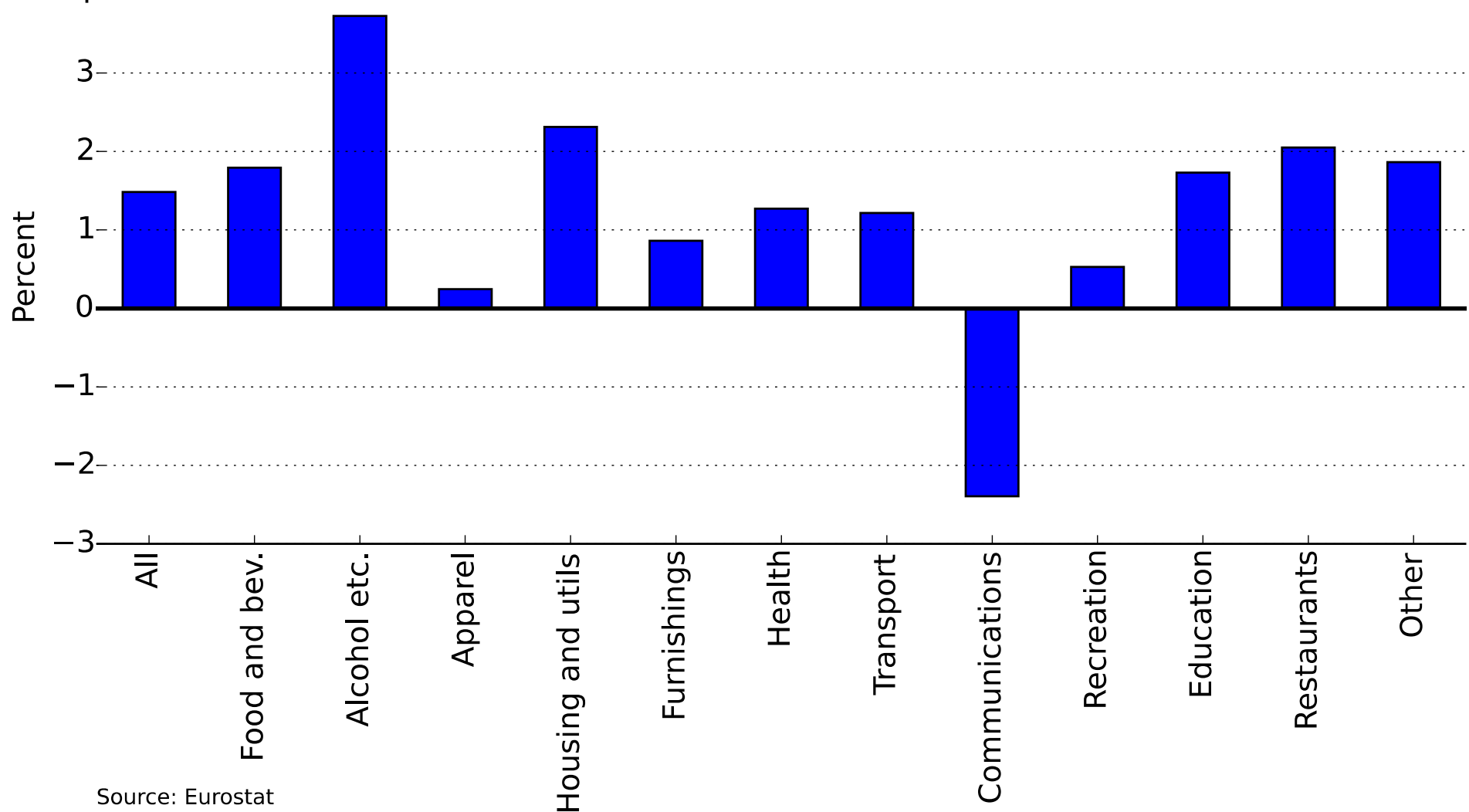


Source: Eurostat

# More variation across categories

## Euro Area Inflation by COICOP

Euro Area HICP; by COICOP 1; annualized average inflation rates Jan 2010-Jan 2016

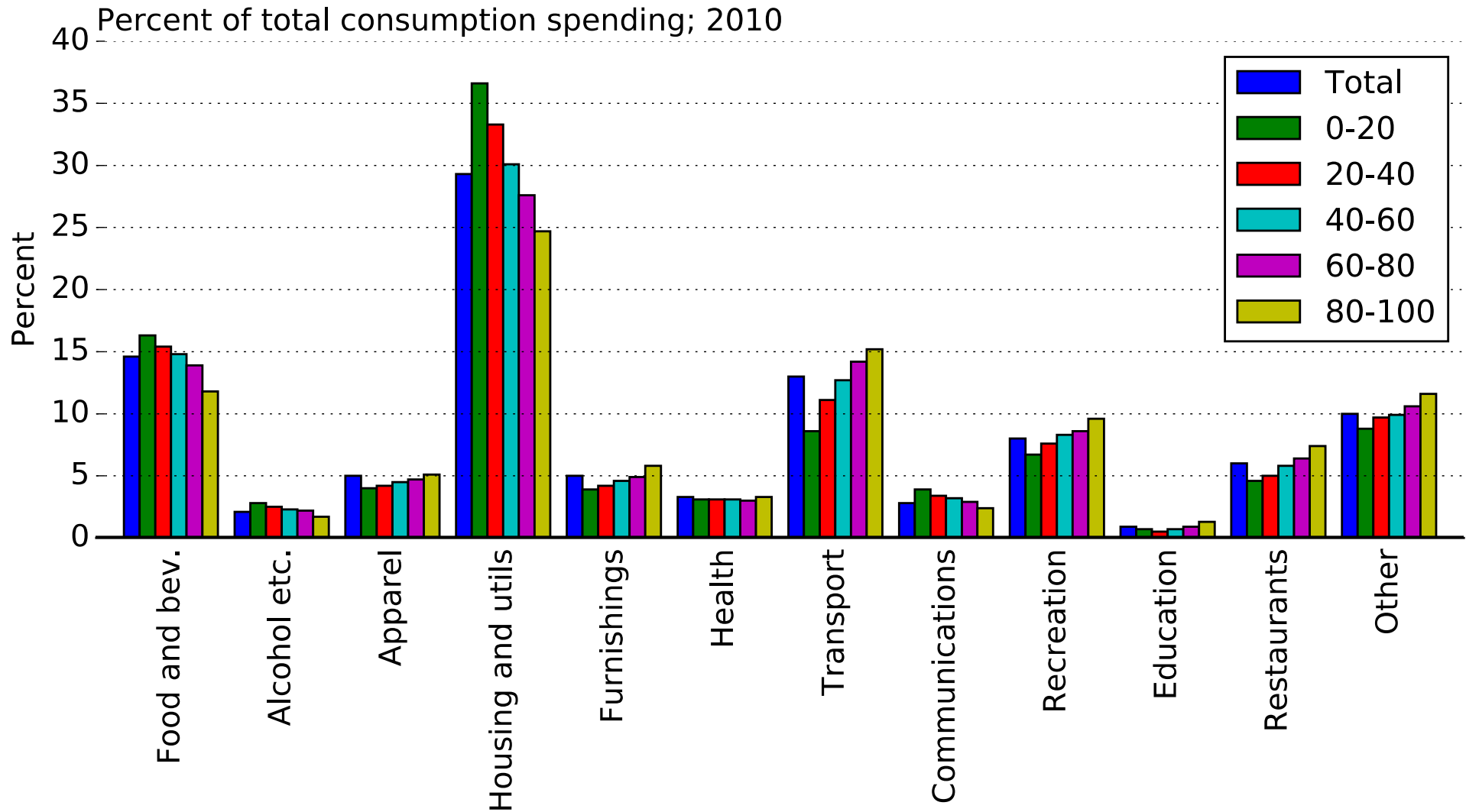


Source: Eurostat



# Differences in baskets bought by income

## Euro Area HICP weights by income quintile



Source: Eurostat, Household Budget Surveys

# Calculating household inflation experiences

**Account for the variation in the spending patterns across different types of households**

Calculate group-price Indices that based on different 2010 expenditure shares across various types of households.



**Equal inflation rates:**  
Assume that households pay same prices and all face same inflation rates for same expenditure categories.

Michael (1979), Polak (1980),  
Hageman (1982)  
Hobijn & Lagakos(2005), Wales (2014)

# Inflation inequality by income-quintile

## Group Inflation Rates by Income Quintile

Annualized average inflation rates Jan-2010 through Jan-2016

	Euro Area	France	Germany	Netherlands	Spain
Total	1.60	1.56	1.48	1.80	1.38
<i>By income quintiles</i>					
0-20	1.67	1.60	1.54	1.87	1.49
20-40	1.63	1.61	1.51	1.85	1.45
40-60	1.60	1.56	1.50	1.82	1.39
60-80	1.58	1.54	1.48	1.79	1.36
80-100	1.54	1.53	1.43	1.74	1.33

Source: Eurostat and author's calculations

# Low income hh's face higher inflation

## Group Inflation Rates by Income Quintile

Annualized average inflation rates Jan-2010 through Jan-2016

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Source: Eurostat and author's calculations

Average annual increase in cost of living of lowest quintile between 0.07 and 0.16 percentage point higher than that of 20% of households with highest incomes.

# Difference smaller than in UK and US

## Group Inflation Rates by Income Quintile

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80-100	1.54	1.53	1.43	1.74	1.33

Source: Eurostat, Household Budget Surveys, and author's calculations

Wales (2014): Difference in U.K. is around a percentage point.  
Hobijn and Lagakos (2006): Difference higher than 0.2 percentage points in US.

# Differences smaller for other groupings

## Differences in EA inflation experiences very small when we consider

- **Socio-economic status**

- Min: Non-manual workers 1.54
- Max: Retired and unemployed 1.65

- **Composition of household**

- Min: Adults with dependent children 1.55
- Max: Single persons 1.66

- **Age of head of household**

- Min: Less than 30 1.55
- Max: 60 and older 1.66

# Inflation inequality in Euro Area small

## Inequality in *Inflation Experiences*

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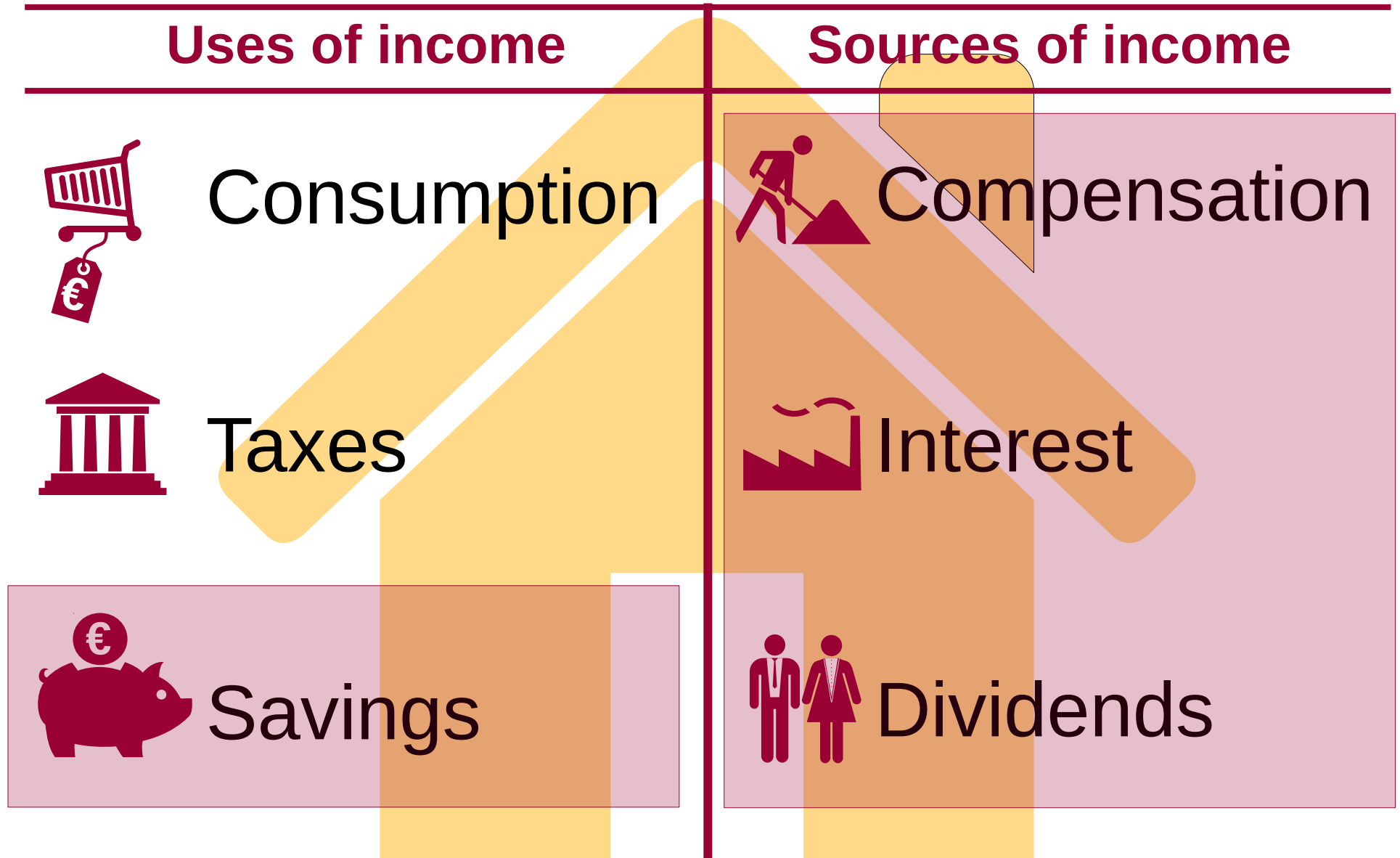
# Inflation Exposure



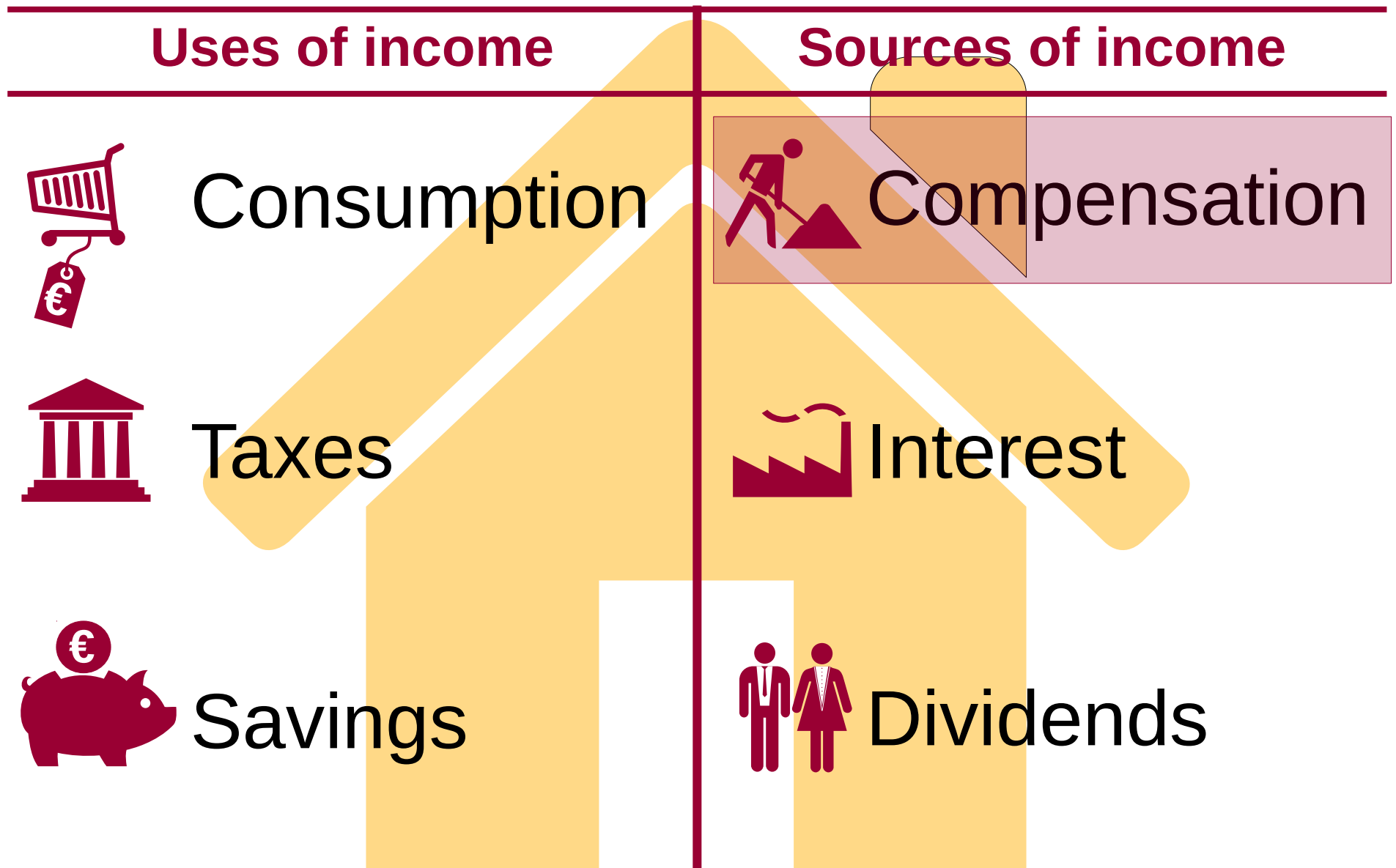
# Suppose we get unanticipated inflation



# How well are different households hedged?

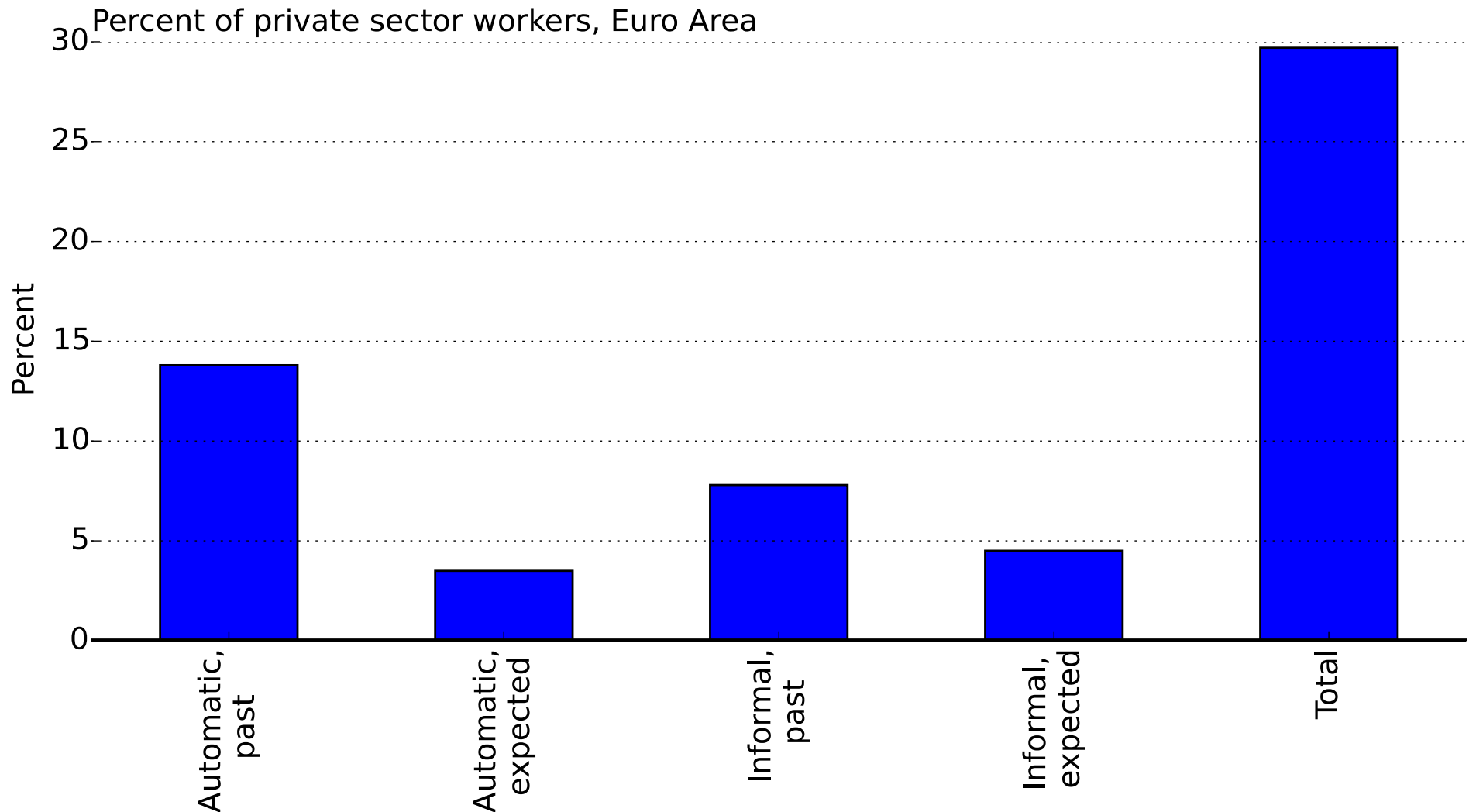


# Wage indexation protects real wages



# 30% of EA workers get form of indexation

## Prevalence of Wage Indexation to Inflation



Source: Druant et al. (2009)

# 30% of EA workers get form of indexation

## Prevalence of Wage Indexation to Inflation



Source: Druant et al. (2009)

# Insider-outsider effect of wage indexation

## **Hedges workers' compensation against inflation**

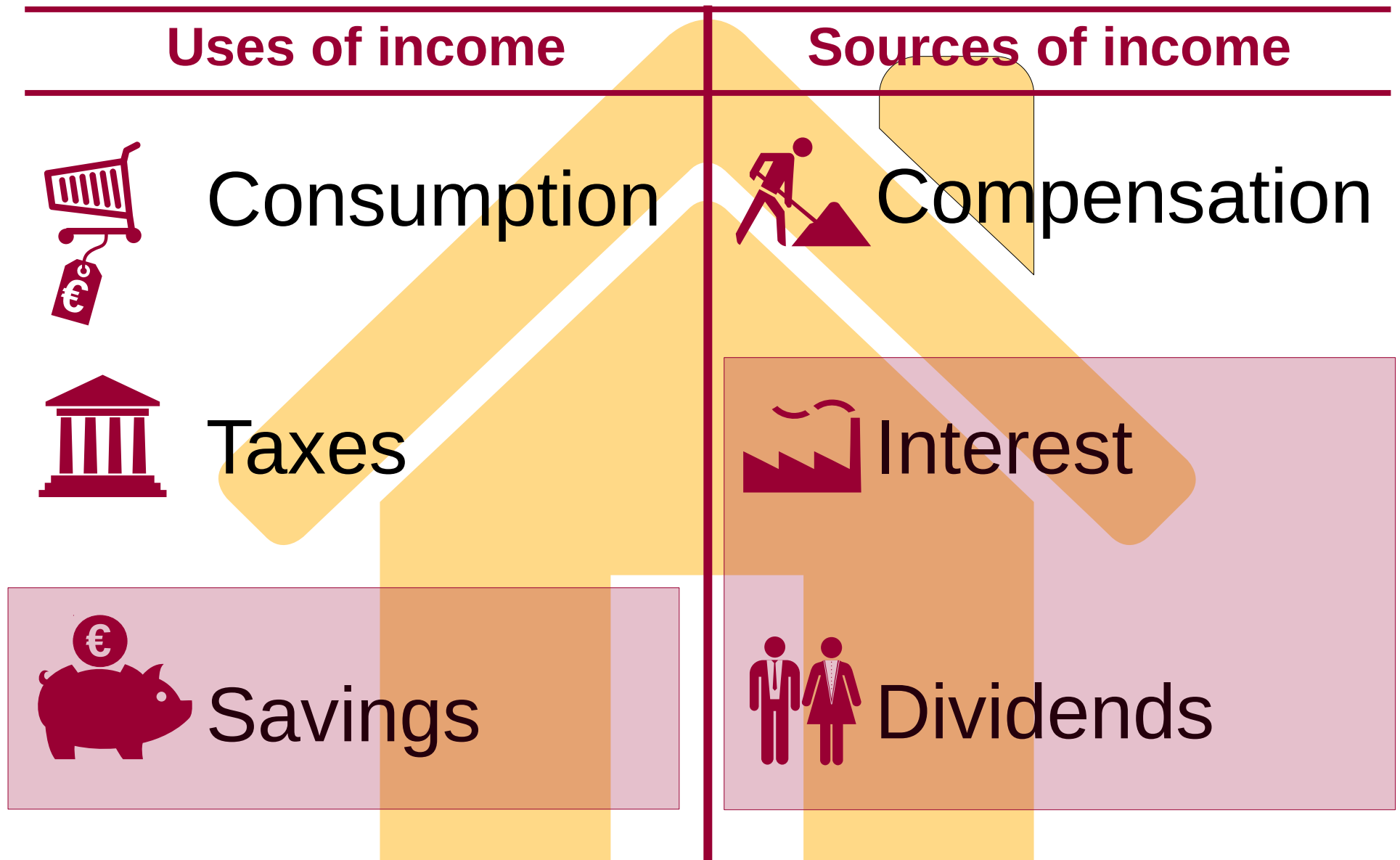
- Inflation-protects purchasing power of wages.
- Benefits insiders who have steady jobs.

## **Increases inequality in labor market outcomes**

- Wage rigidities make labor market adjust more through employment margin.
- Increases labor income risk of outsiders.



# Hedging capital income against inflation



# Housing wealth is most important asset



## Rent

Not hedged  
against inflation.

Unless rent-stabilized



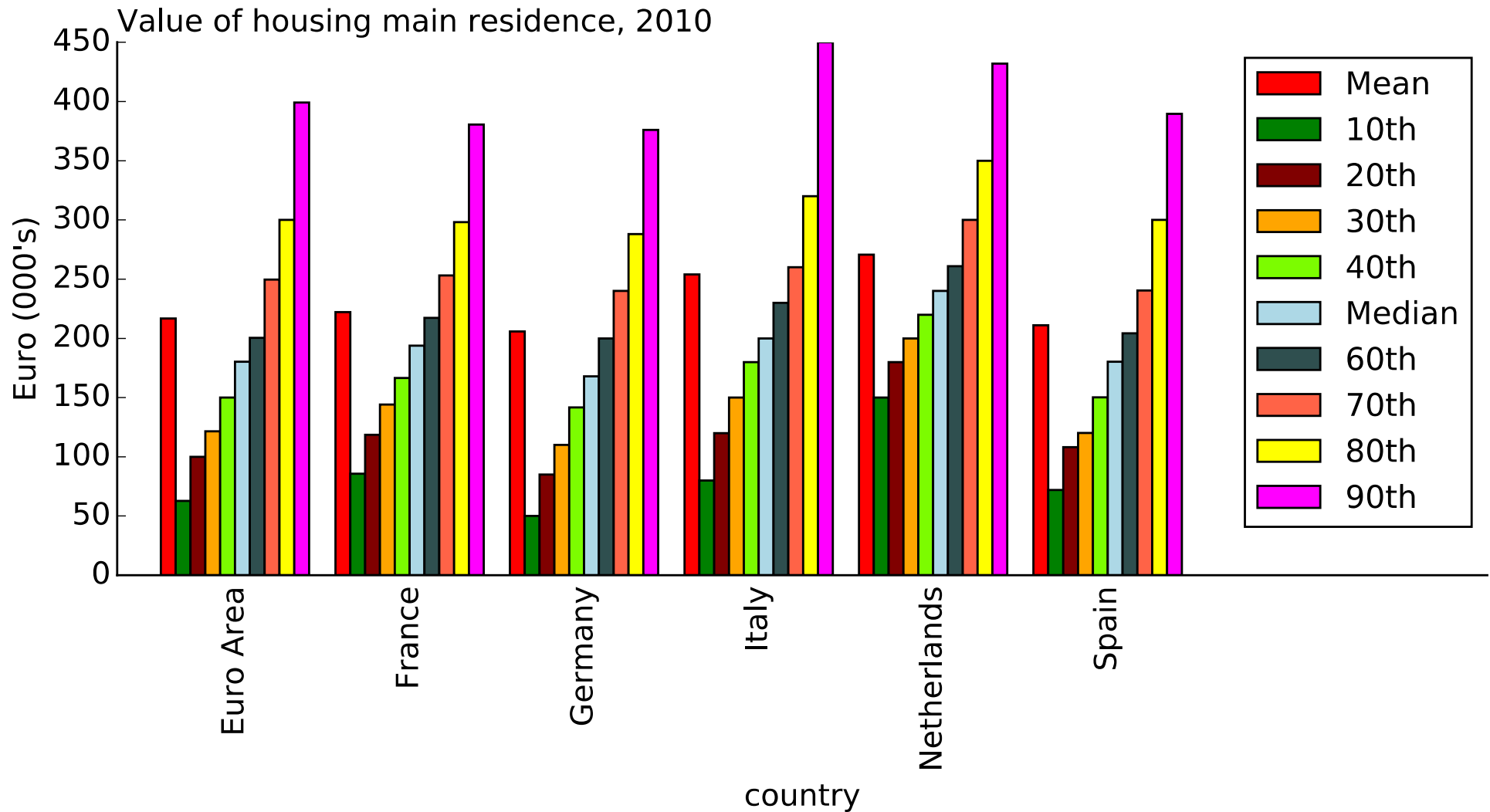
## Own

Hedged against inflation  
under fixed rate mortgage  
and through appreciation.



# Large inequality in housing wealth

## Housing Wealth by Income Percentile

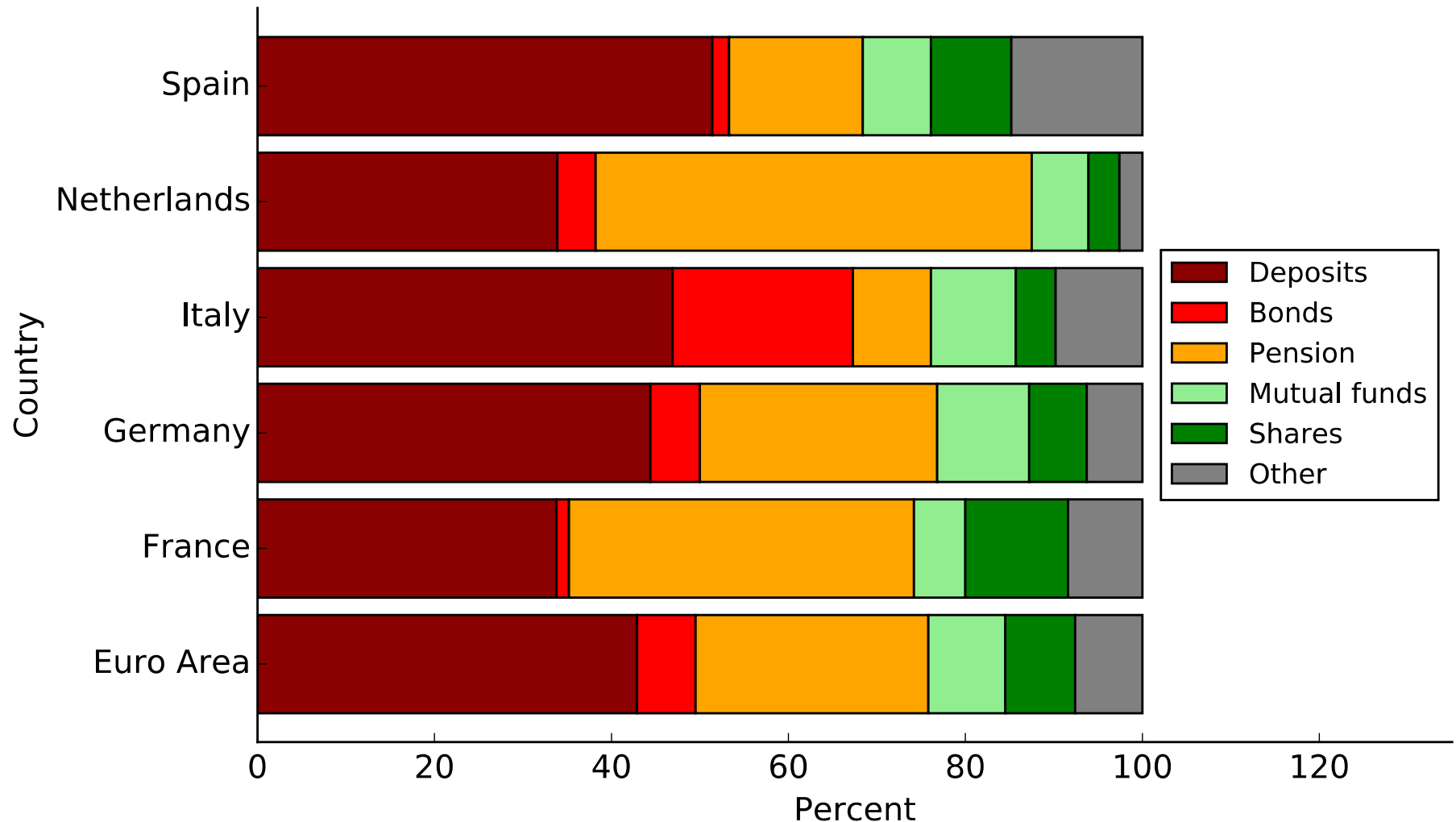


Source: Eurosystem Household Finance and Consumption Survey

# Financial assets differ in exposure

## Composition of Financial Assets

Share of total financial assets

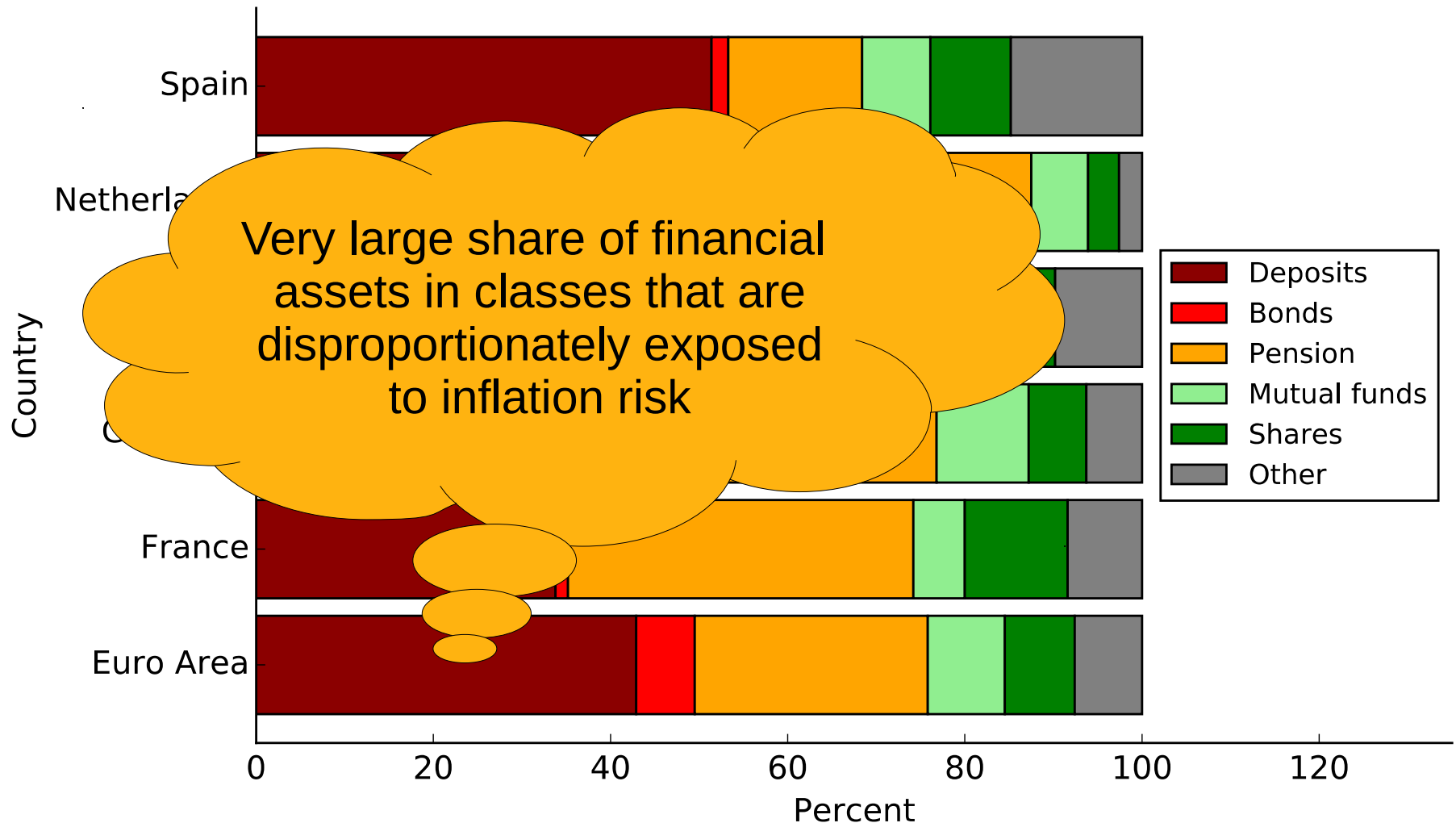


Source: Eurosystem Household Finance and Consumption Survey

# Financial assets differ in exposure

## Composition of Financial Assets

Share of total financial assets



Source: Eurosystem Household Finance and Consumption Survey

# Very unequal exposure to inflation

## Inequality in *Inflation Exposure*

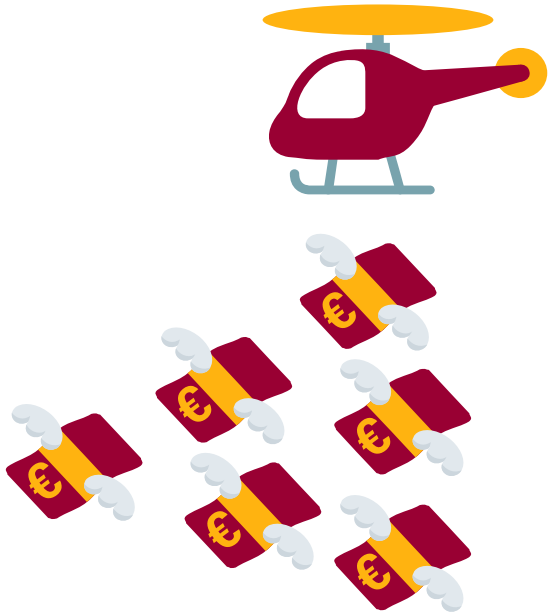
- Varies a lot across income and wealth distribution.

### Low income households

- Have lower home ownership rates.
- Have larger fraction of financial assets in deposits, bonds and pensions.

Important for distributional consequences of monetary and fiscal policy.

# Potential regressive policy consequences



## Monetary policy

Inflation is a tax,  
the burden of which  
gets borne by those  
exposed to it.



Russian pensioner

## Fiscal policy

Common reductions of  
indexation of benefits  
increase inequality.

# Main takeaways redux

## Inequality in *Inflation Experiences*

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- Less variation in Euro Area than in the U.K. and the U.S.

## Inequality in *Inflation Exposure*

- Varies a lot across the income distribution.
- Surprise inflation in Euro Area has very regressive impact.

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