fondazione RODOLFO DEBENEDETTI

Longer-term Consequences on Income Distribution of the Great Recession

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With
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Purpose

- Characterize, in several European Countries, the processes that generate household income and their evolution over recent years.
- Investigate the long-term effects to household income of:
  - financial hardship;
  - negative shocks (such as in the Great Recession).
- Characterize financial hardship
- Document the trends in these shocks and their relevance for well-being

Overview

- We document the dynamics and the long term effects of episodes of financial hardship experienced by individual households.
- We compare how their effect varies over the business cycle in several European countries.
- The international dimension is particularly important because of the role played by different institutions in determining the duration of the impact of financial hardship.

Overview

- We use micro data that allow us to study the distributional impact of recessions.
- Moreover, we control for demographic factors that affect welfare over the life-cycle. These partly explain observed differences in incomes between individuals and changes in income over time.
- We can therefore focus on the **unexplained** variability in income.

Overview

- The GR is having an impact on incomes that is different across individuals and countries.
- An important issue is whether insurance mechanisms provided by the government or the individuals can mitigate the effects for the hardest hit, and reduce their duration.
- We set about getting an answer to these questions looking at past experiences.

Overview

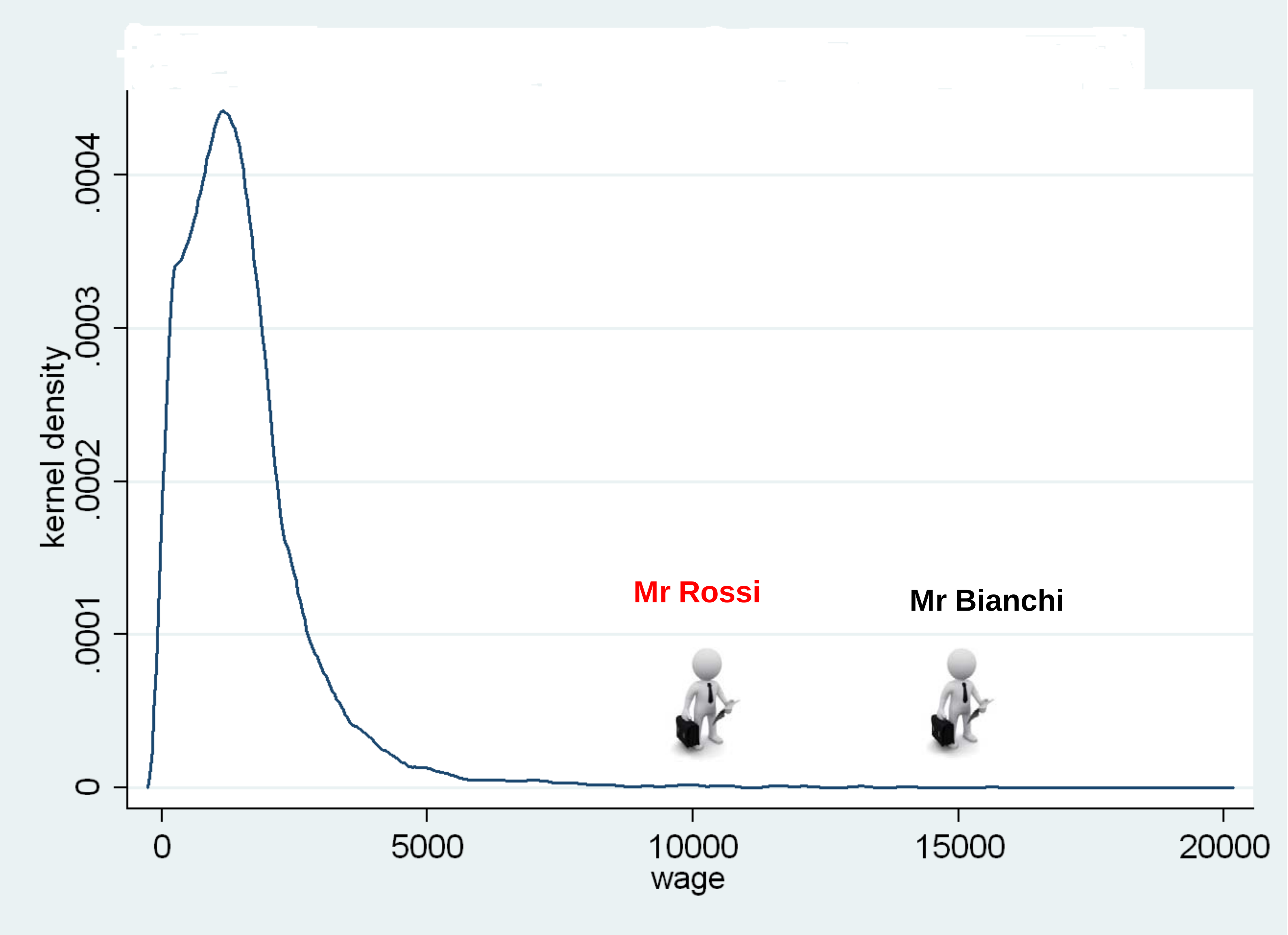
- Question: how relevant is the information on changes in the income distribution for household decisions and well-being?
- Which part of the income variability we observe in one given year causes important changes also in the future?
- Great Recession → Changes in the income distribution → Uninsured shocks to income → Reduction in consumption (particularly if shocks are also permanent)

Overview

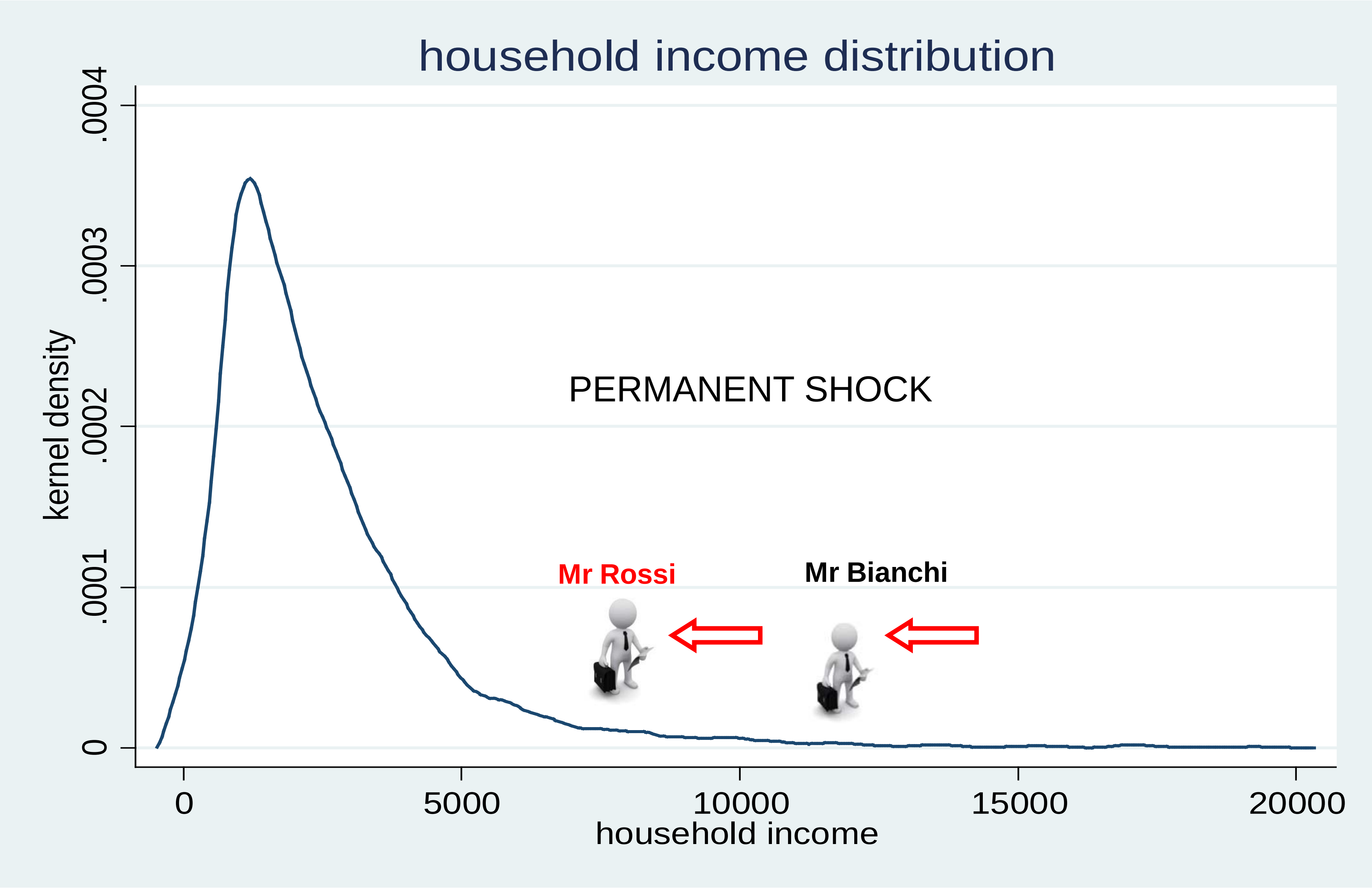
It is important to distinguish between permanent and transitory shocks

- Temporary shocks can be self-insured, that is individuals can use their savings to absorb them
- Permanent shocks alter the relative income distribution for good, temporary shocks do not (they are eventually reversed)
- Note that income distributions are affected not only by shocks, but also by changes in observable characteristics.

Before an income shock



After a permanent income shock



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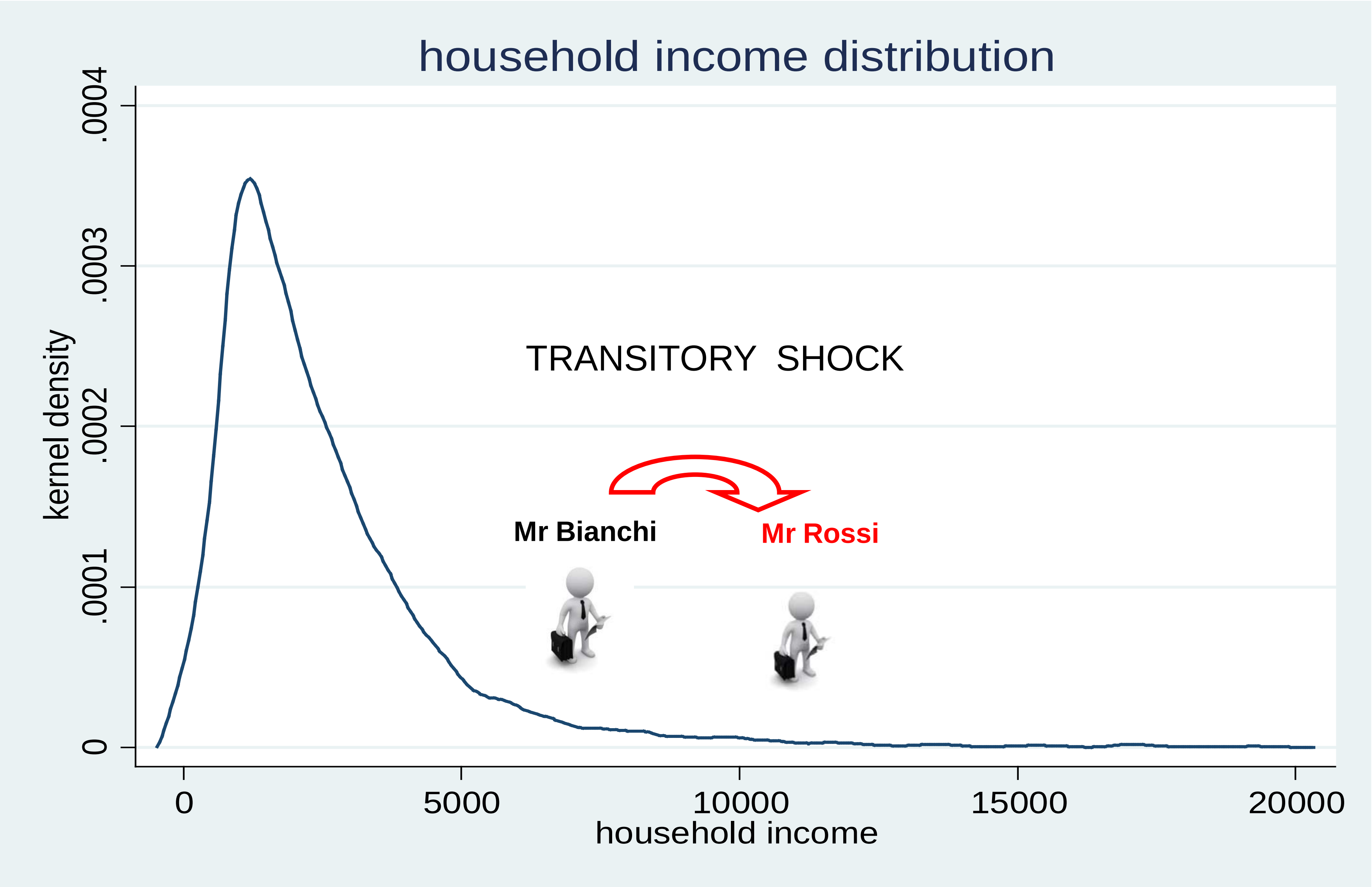
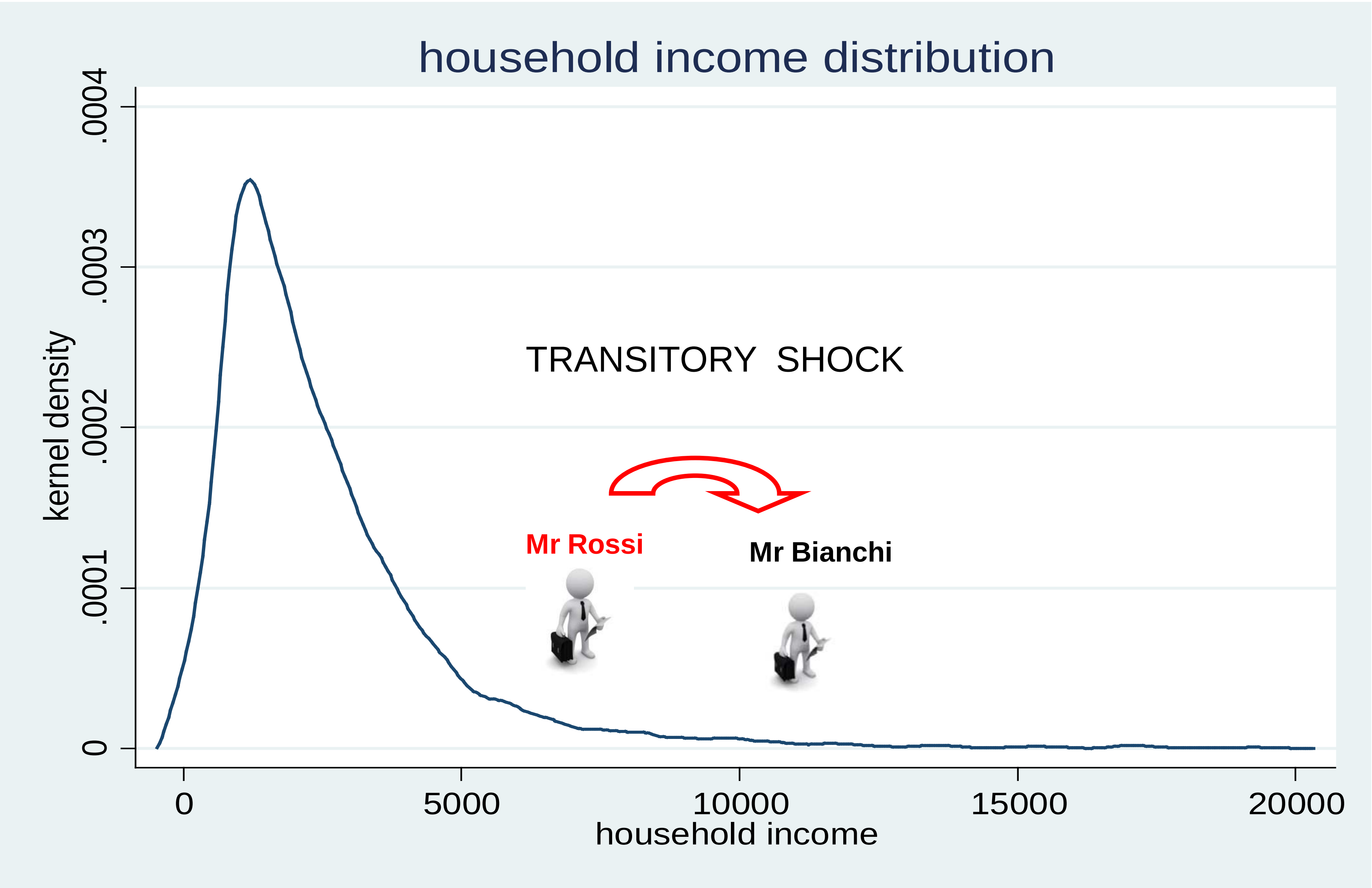
After a transitory shock



After another transitory shock



Overview

- Is the GR more like a transitory change, or are its effects (e.g. on income) likely to last?
- Remark 1: In Southern countries shocks, notably transitory shocks, play a greater role in affecting income distributions
- Remark 2: Permanent shocks are relevant in all countries and are transmitted to consumption

Overview

- Our evidence suggests no insurance of permanent shocks , partial insurance of temporary shocks
- Insurance mechanisms can be based on self-insurance (savings), informal insurance (help from family and friends), formal insurance (a private unemployment insurance policy or government-funded unemployment benefits)

Overview

Once we know that permanent shocks exist and affect well-being, can we better understand what determines the nature of the shocks?

Why are some shocks permanent and other temporary?

What makes individuals fall into financial hardship, or recover from it?

Overview

We find that early life conditions and age are important determinants of financial hardship

Micro shocks are much more important in explaining both probabilities of falling into financial hardship and of recovering from it than recessions and high inflation.

But macro episodes have important indirect effects (via unemployment, but also divorce and even poor health)

Overview

Hence we ask the following questions:

Does the occurrence of a financial hardship episode have an effect on short or long term indicators of economic well-being and financial success?

How does the answer to the previous question differ in countries with different institutions and labour market regulations?

Overview

We find that financial hardship is similar to a bad start in life: it takes six to eight years for an individual to recover from it.

But there are interesting differences between Nordic and German countries, on the one hand, and Southern European countries, on the other.

Part 1.1: Characterizing the properties of individual income processes.

- Modern economies are characterized by much heterogeneity and much uncertainty:
  - Earnings and incomes are, for many people, uncertain, both in the long run and in the short run.
  - Many individual households, at any given point in time, will be receiving positive shocks, while many others will be receiving negative shocks.
  - The average size of these shocks, around the 'average' level of income at any point in time, determines the level of income inequality.

Part 1.1: Characterizing the properties of individual income processes.

- There are different types of shocks people face:
  - Aggregate shocks, such as possible variability in wages (for a given skill level) or in the price level.
  - Individual shocks:
    - Earnings;
    - Unemployment.

Part 1.1: Characterizing the properties of individual income processes.

- There are different types of shocks people face:
  - Some shocks are permanent other are transitory
    - Promotions (or demotions);
    - Loss of human capital due to unemployment and change of sector;
    - Temporary setbacks and unemployment;
    - Illness.
  - The average size of shocks (the variability of the income process) varies over time:
    - With trends;
    - With the business cycle.

Part 1.1: Characterizing the properties of individual income processes.

- Using longitudinal data we can:
  - Characterize the nature of individual income processes.
  - Determine the relative size of the shocks.
  - Characterize how the relative size changes over time.
  - Whether it is related to other events, such as recessions or the prevalence of unemployment in the economy.
- We do this using the European Community Household Panel (ECHP):
  - 8 European countries (Italy, Spain, Denmark, UK, Germany, The Netherlands, France)
  - over the period 1994-2001

Part 1.1: Characterizing the properties of individual income processes.

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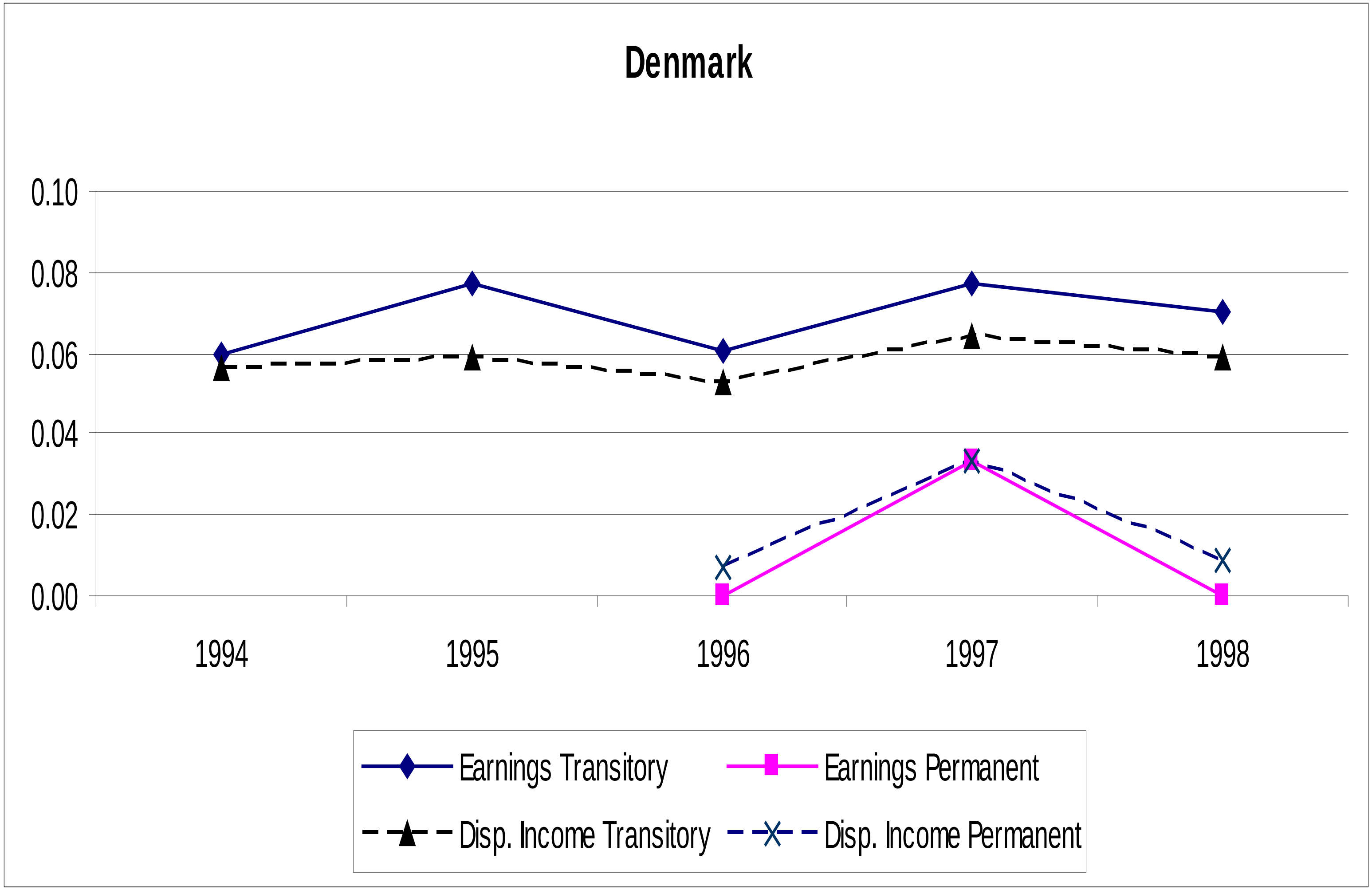
- Following a long established tradition in labour economics we decompose shocks to income and earnings into two component:
  - Permanent shocks.
  - Transitory shocks (which might – and do - have some persistence).
- This exercise is useful for several reasons:
  - Comparison with the existing literature;
  - More extensive comparisons across countries
    - But see the special issue of *Review of Economic Dynamics, Jan 2010.*
  - Direct link to the evidence we present in Part III on the persistence of financial hardship.

The methods

- Given observed income and earnings remove ‘predictable’ part (explained by age, education and other observable characteristics’.
- Model changes in the unobserved component for each household by looking how changes in one year are correlated to changes in subsequent years.
- We report the results graphically.

The Model

- The analysis is conducted on both household earnings and disposable income;
- Estimates of a model which relates earnings (income) to an observable component (education, employment etc…) and a component which is not explained and is formed by a permanent and a transitory shock.


Denmark
0.10
0.08
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1994
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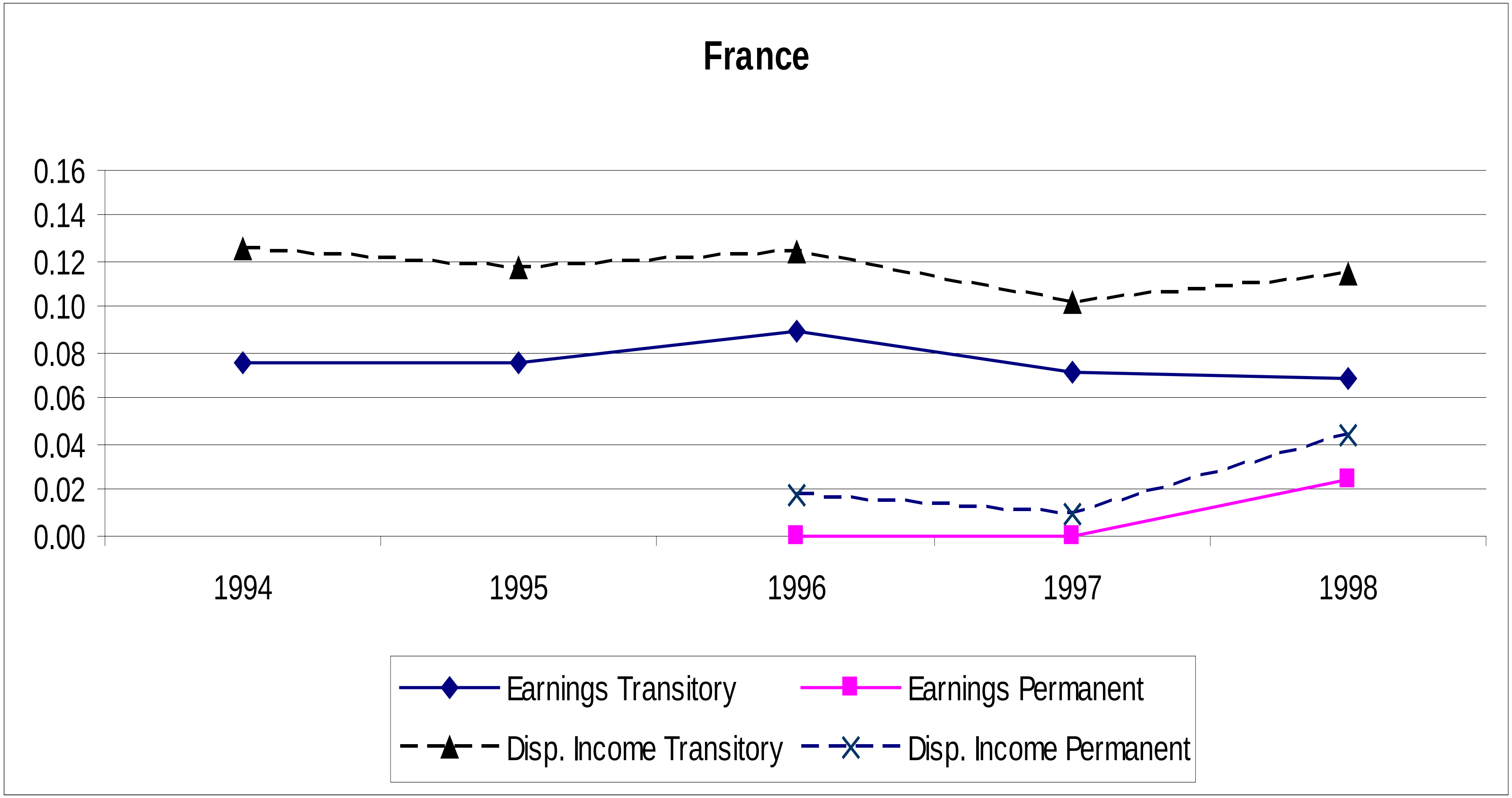
1998
Earnings Transitory
Earnings Permanent
Disp. Income Transitory
Disp. Income Permanent



France
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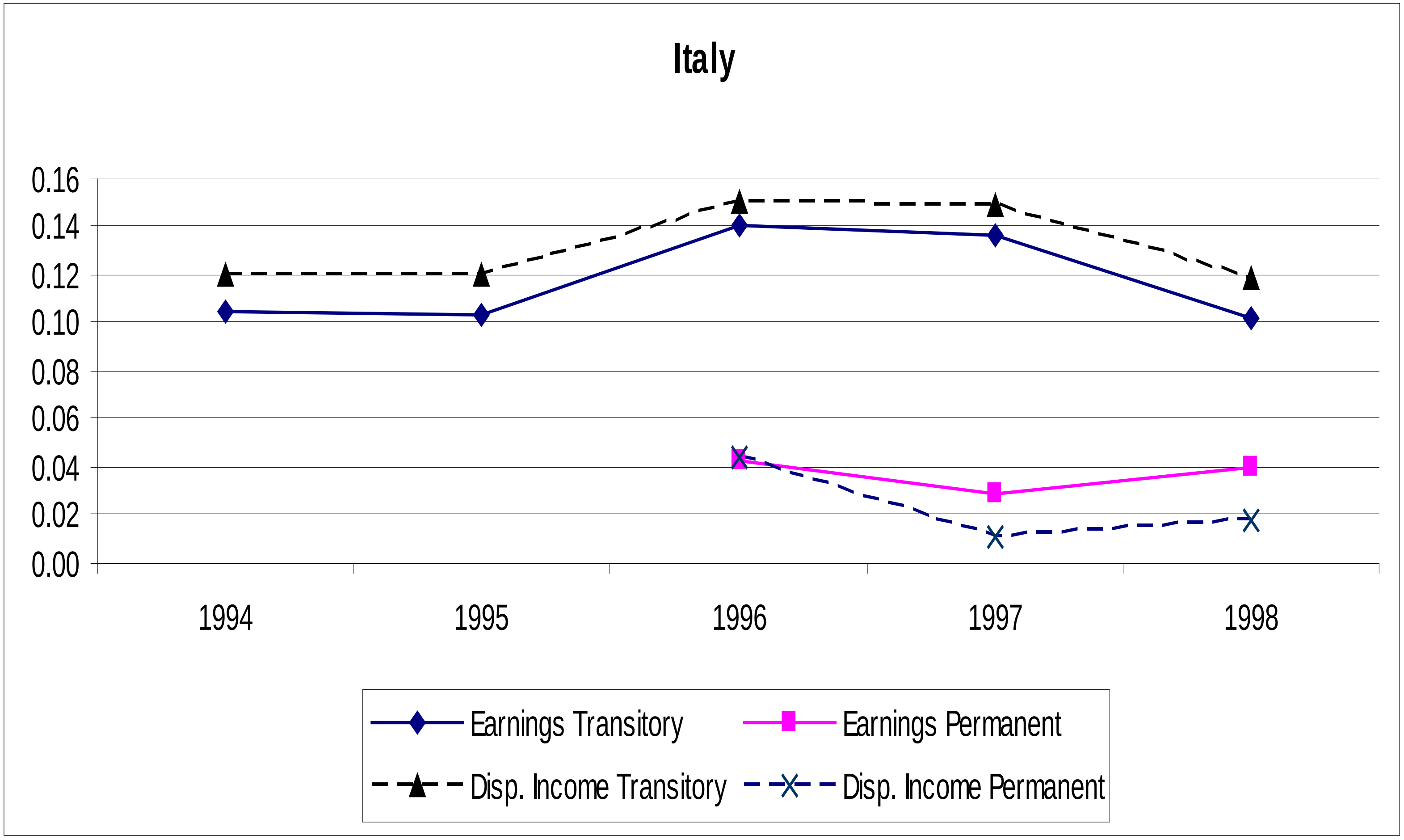
Earnings Transitory
Earnings Permanent
Disp. Income Transitory
Disp. Income Permanent


Italy
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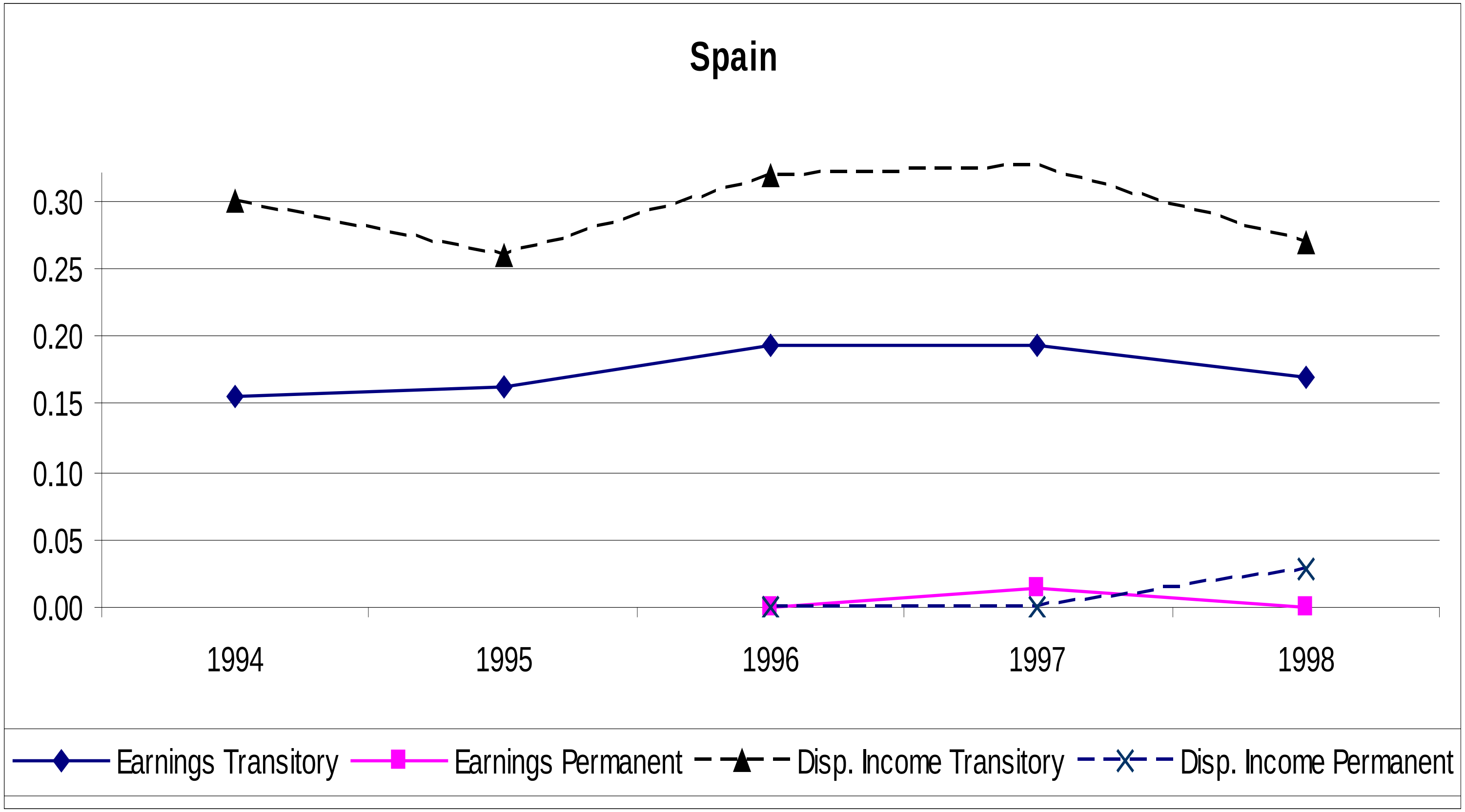
Disp. Income Transitory
Disp. Income Permanent


Spain
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Earnings Transitory
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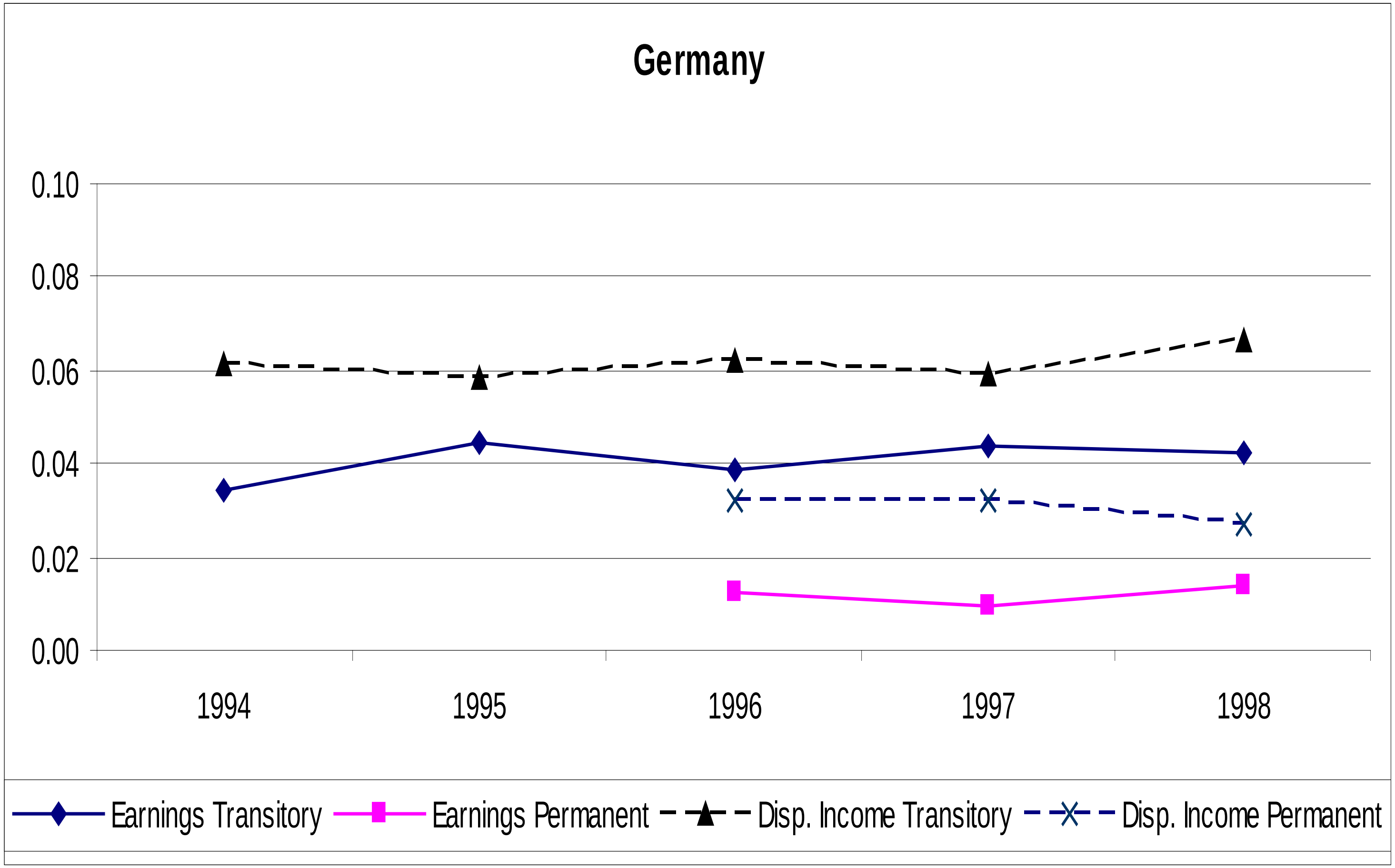
Disp. Income Transitory
Disp. Income Permanent


Germany
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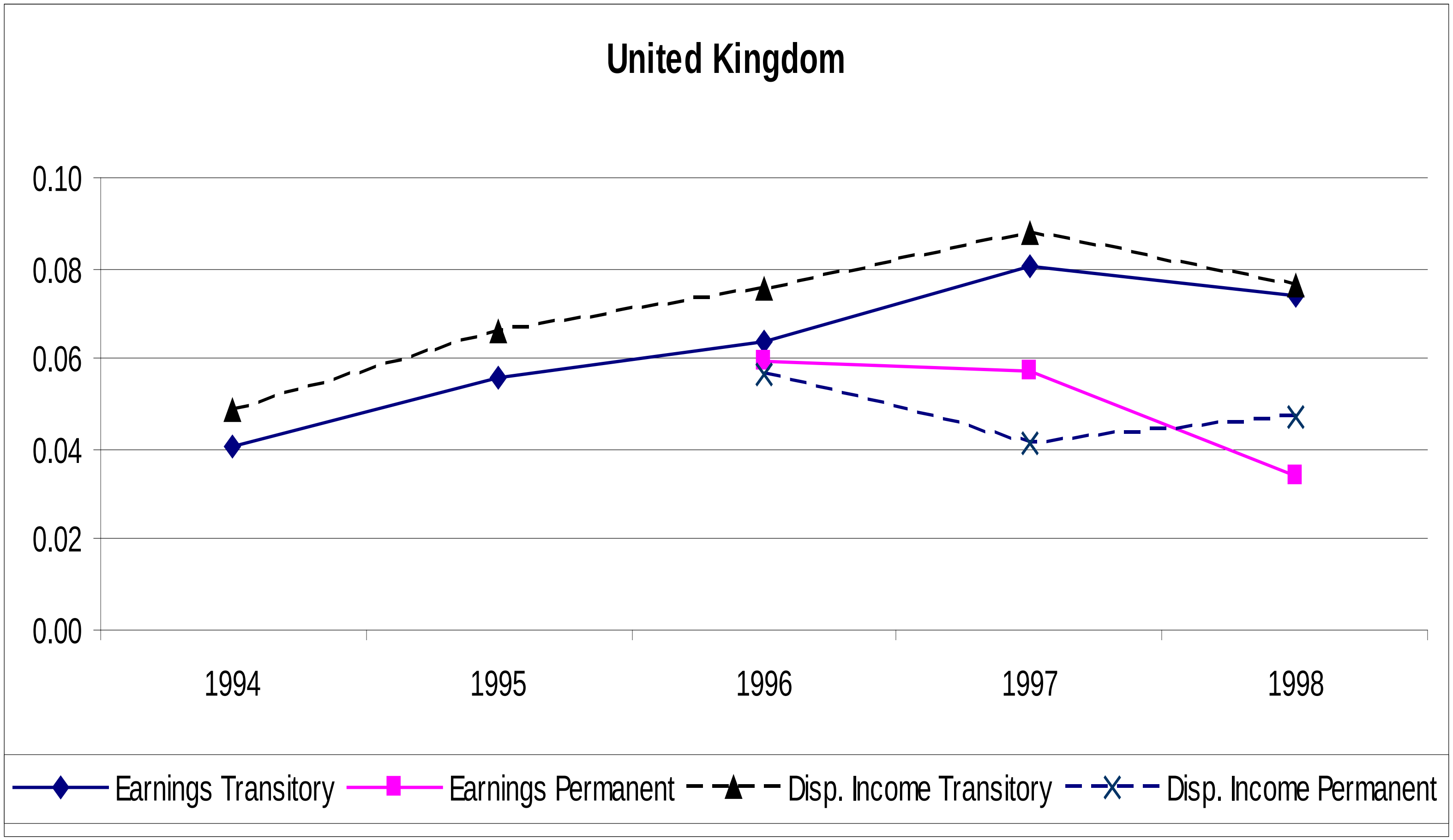
Earnings Transitory
Earnings Permanent
Disp. Income Transitory
Disp. Income Permanent


United Kingdom
0.10
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1994
1995
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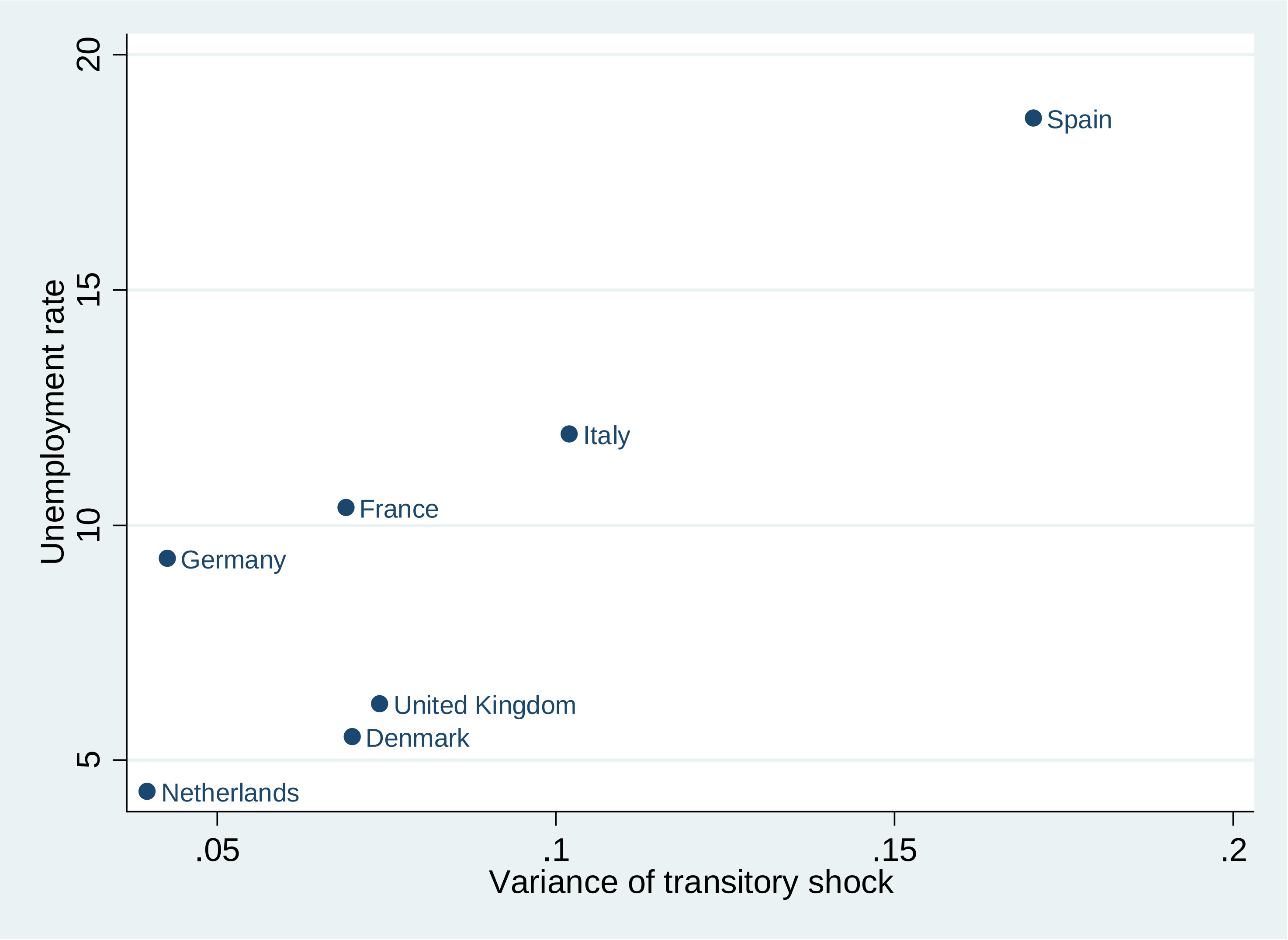
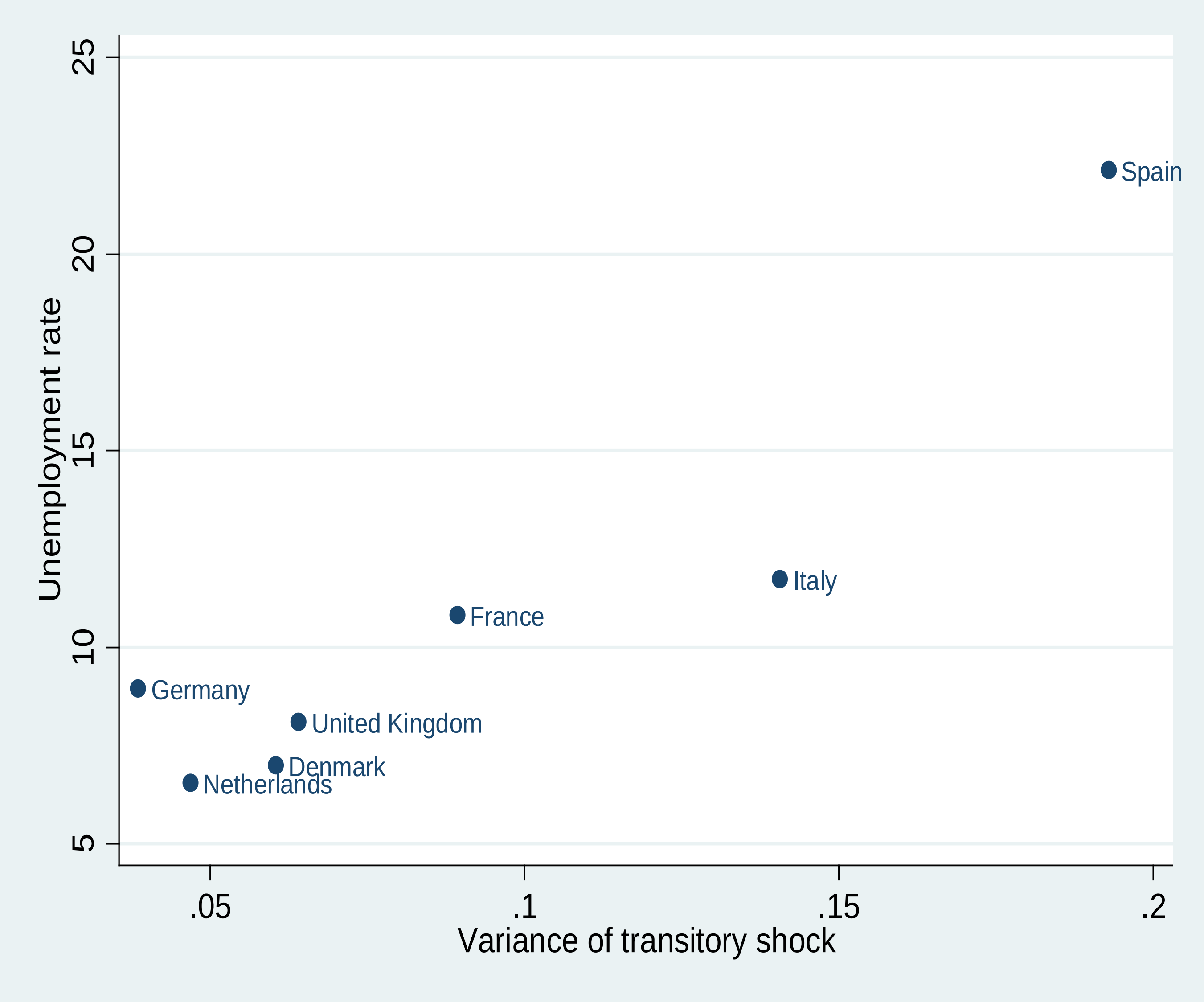
1998
Earnings Transitory
Earnings Permanent
Disp. Income Transitory
Disp. Income Permanent

Variance of transitory shocks and unemployment rate in 1994 in different countries



Variance of transitory shocks and unemployment rate in 1998 in different countries



Transitory variance is correlated with unemployment and income growth

Transitory variance	Coef.	Std. Err.
Unemployment rate	0.004904	0.0016
Gdp growth		
Lag 1	0.00512	0.00173
Lag 2	0.0046	0.00166
Constant	0.011978	0.021993

Why is this important?

- Individuals do not like uncertainty.
- The presence of (idiosyncratic) shocks should require insurance mechanisms.
- Transitory shocks are, in general, easier to insure.
  - Self insurance (savings)
  - Other (market) mechanisms.
- Permanent shocks are less likely to be insurable.

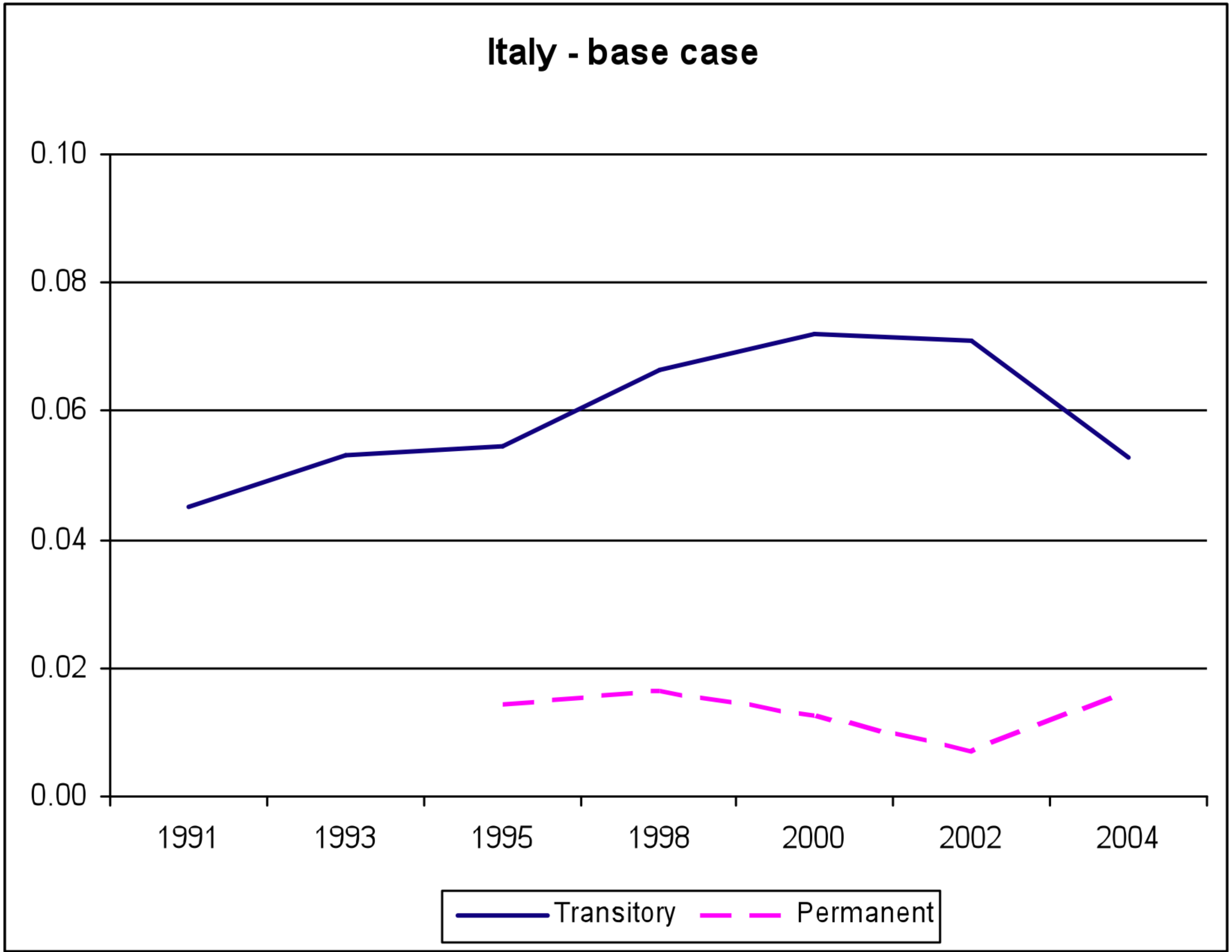
Part 1.2: How are income shocks translated into consumption?

- Recent contributions have considered the extent to which different types of shocks to income and earnings are reflected into consumption.
  - Attanasio and Davis (1996), Blundell, Pistaferri and Preston (2008), Heathcote, Storeseletten and Violante (2008), Kaplan and Violante (forthcoming).
- Such an occurrence is obviously an indication of a failure to insure shocks.
- We focus on three countries to identify the extent to which transitory and permanent shocks are reflected into consumption.
  - Denmark, Italy and Spain.

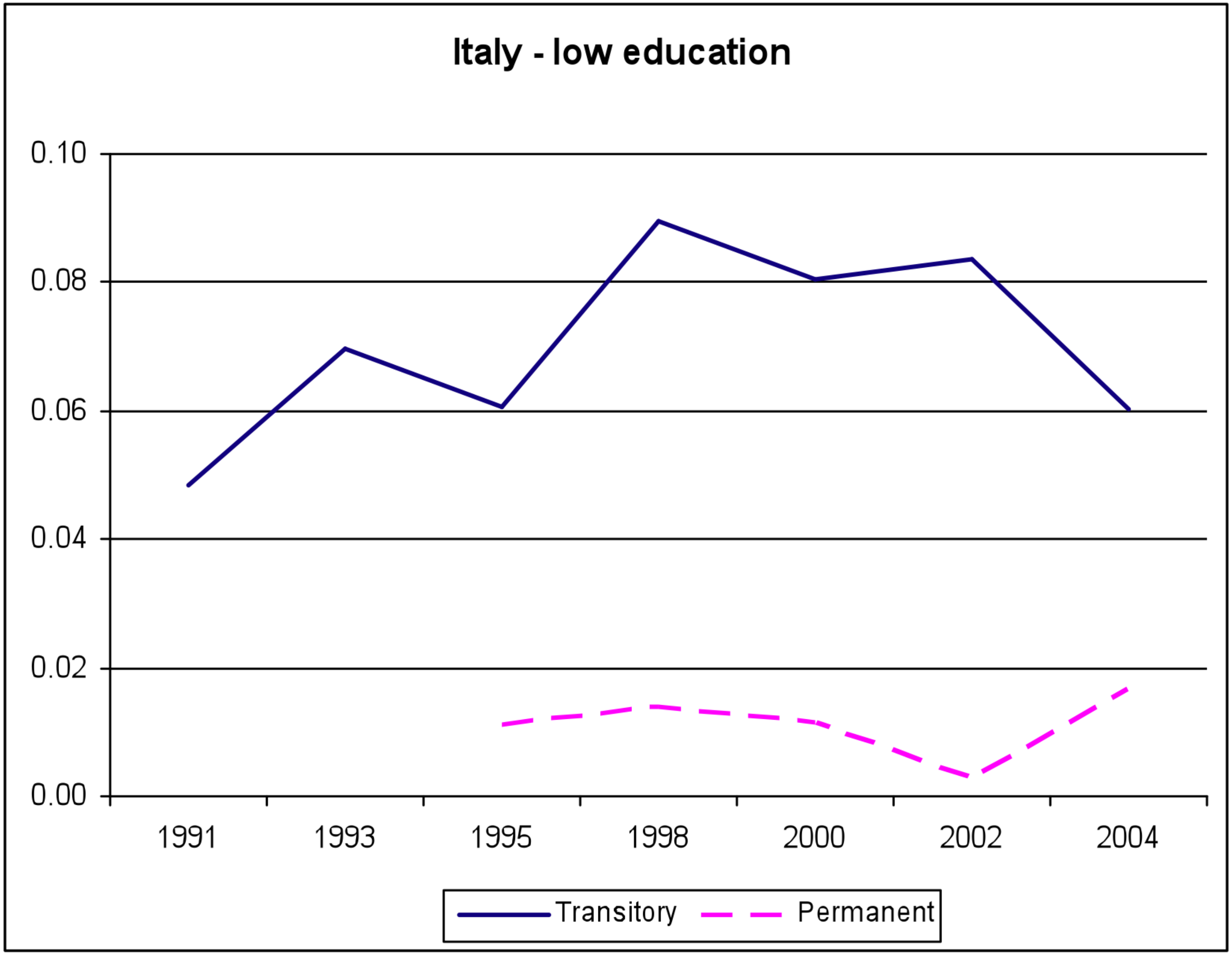
Data and facts

- Italy:
  - Survey of Households’ Income and Wealth (SHIW)
  - Data for 1989-2008
  - Early ’90s: labour market and pension reforms in the Italian economy with impact on incomes
- Spain:
  - Encuestas Continua de Presupuestos Familiares (ECPF)
  - Data for 1985-1997
- Denmark:
  - Administrative register data, imputed data for consumption
  - Data for 1997-2008

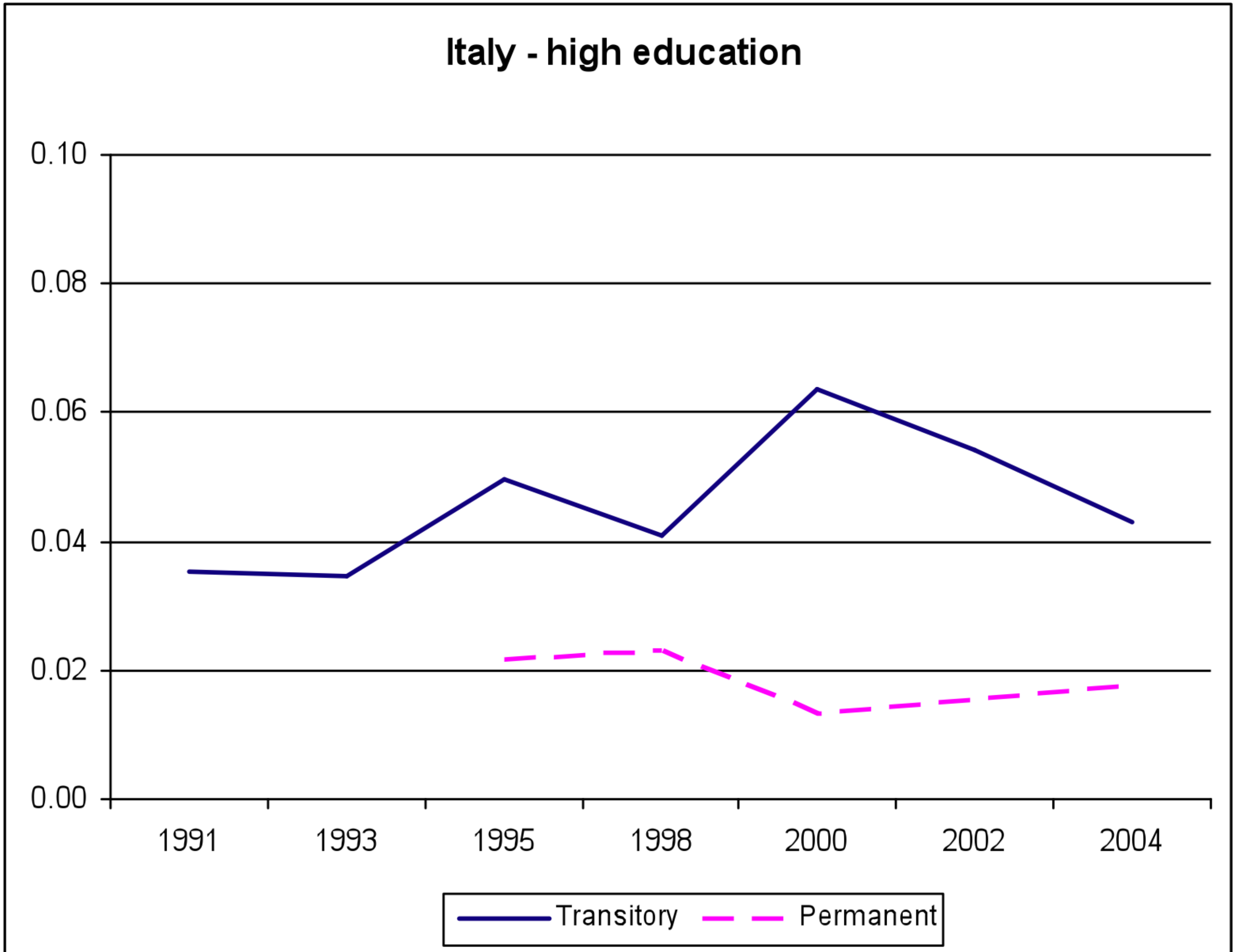
Evolution of permanent and transitory variances, Italy



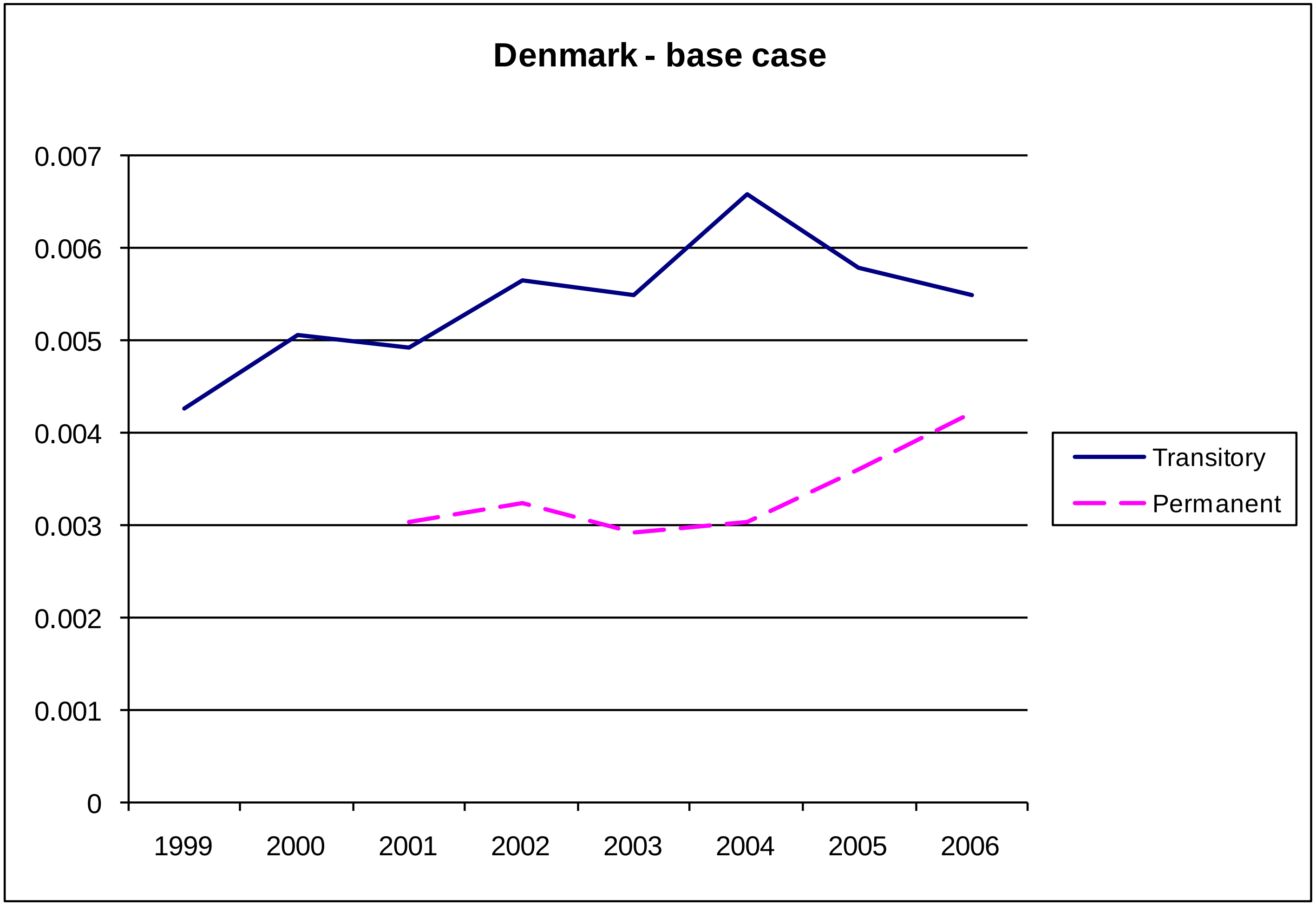
Evolution of permanent and transitory variances, Italy



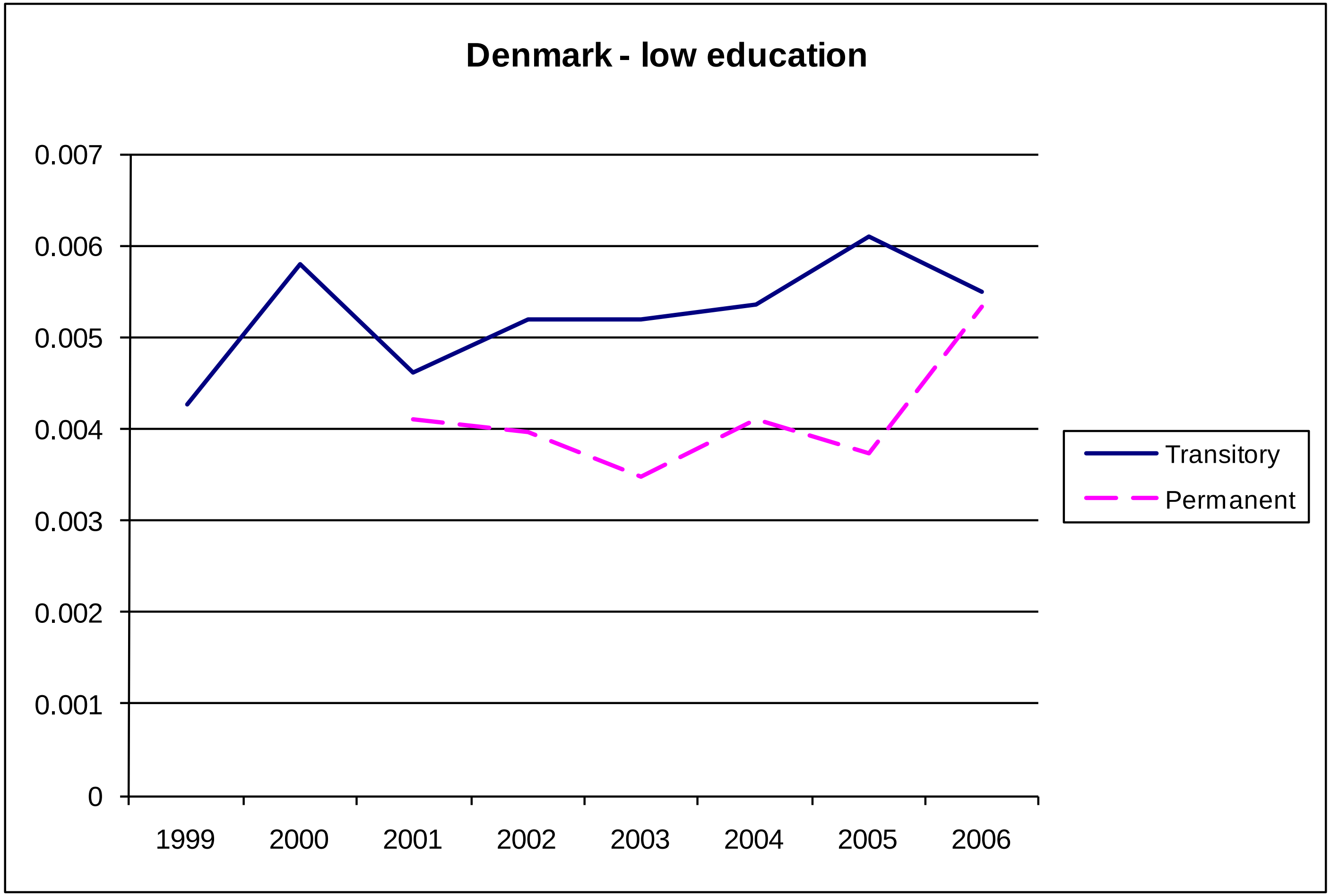
Evolution of permanent and transitory variances, Italy



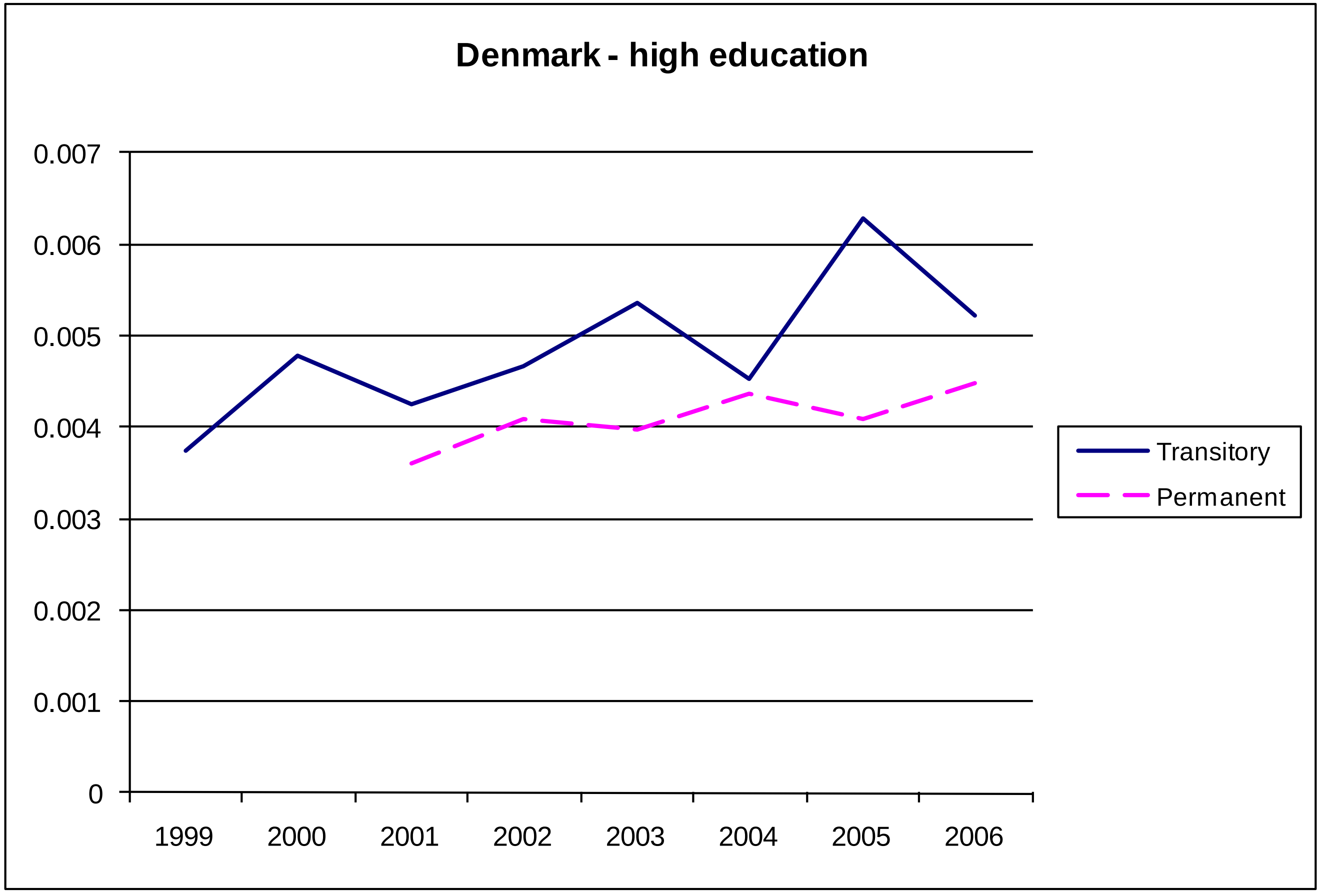
Evolution of permanent and transitory variances, Denmark



Evolution of permanent and transitory variances, Denmark



Evolution of permanent and transitory variances, Denmark



Partial Insurance Coefficients on non-durable consumption – various sub-samples

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	Baseline case	Home owners	Self-employed excluded
SPAIN Coefficient on: Permanent component	**0.655** ***-0.064***	**0.643** ***-0.066***	**0.881** ***-0.115***
Transitory component	**0.204** ***-0.054***	**0.159** ***-0.062***	**0.084** ***-0.063***
ITALY Coefficient on: Permanent component	**1.123** ***-0.242***	**1.129** ***-0.288***	**1.377** ***-0.333***
Transitory component	**0.24** ***-0.027***	**0.232** ***-0.03***	**0.278** ***-0.036***

Partial Insurance Coefficients on total consumption – various sub-samples

	Total Expenditure - baseline case	Home owners	Renters
SPAIN			
Coefficient on:			
Permanent component	**1.126** *-0.143*	**1.062** *-0.14*	**-**
Transitory component	**0.267** *-0.076*	**0.284** *-0.081*	**-**
ITALY			
Coefficient on:			
Permanent component	**1.452** *-0.388*	**1.465** *-0.513*	**-**
Transitory component	**0.304** *-0.043*	**0.307** *-0.05*	**-**
DENMARK			
Coefficient on:			
Permanent component	**1.762** *-0.078*	**1.559** *-0.073*	**1.623** *-0.131*
Transitory component	**0.461** *-0.021*	**0.381** *-0.026*	**0.667** *-0.033*

Part II: What determines the shocks?

- Explores the circumstances that determine income shocks

- Data: the SHARE sample (Survey of Health Ageing and Retirement in Europe).

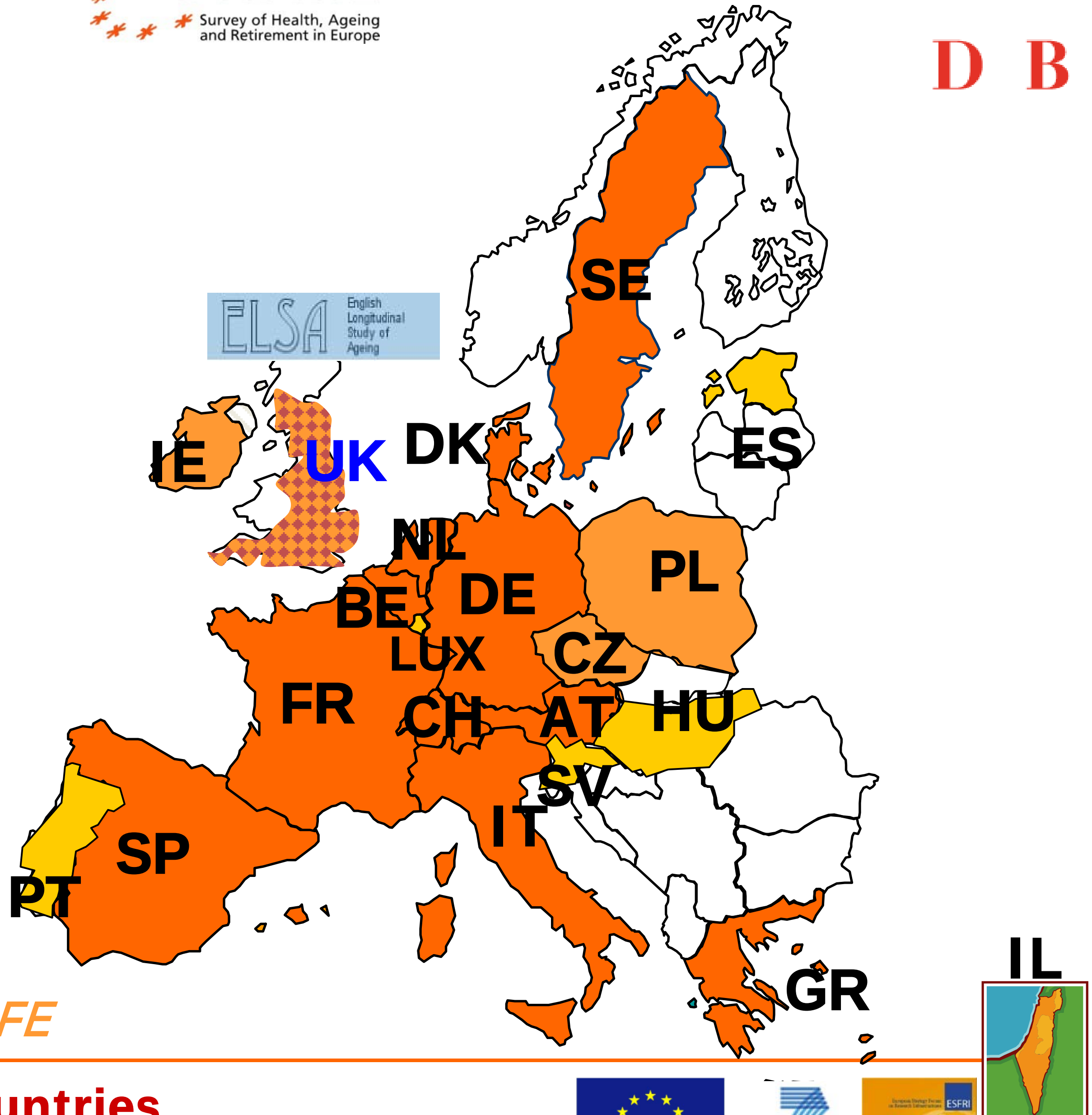
  More specifically the SHARELIFE component

- SHARE is an interdisciplinary survey on ageing that is run every two years on representative samples of the individuals aged 50 or over and their spouses.
- It collects information on family composition, income, wealth, accommodation, health status, stress, health care, hunger, social relations, financial help given and received etc.
- It also asks (in wave 3, SHARELIFE) questions on the whole life history of respondents

Wave 1: 2004/05
11 countries,
32,000 resp. 50+

Wave 2: 2006/07
15 countries,
38,000 responds.

Wave 3: 2008/09
15 countries,
43,000 est. responds.
Life histories - SHARELIFE



Wave 4: 2010/11: 21 countries

How do people fall in **Financial Hardship?**

- Key question in SHARELIFE:

  "(Looking back on your life), was there a distinct period of financial hardship?"
- Explore how financial hardship relates to shocks and changes in the socio-economic environment
- Investigate what factors affect the probability of falling into/recovering from financial hardship

Probability of falling into financial hardship by age
All individuals in the SHARE sample

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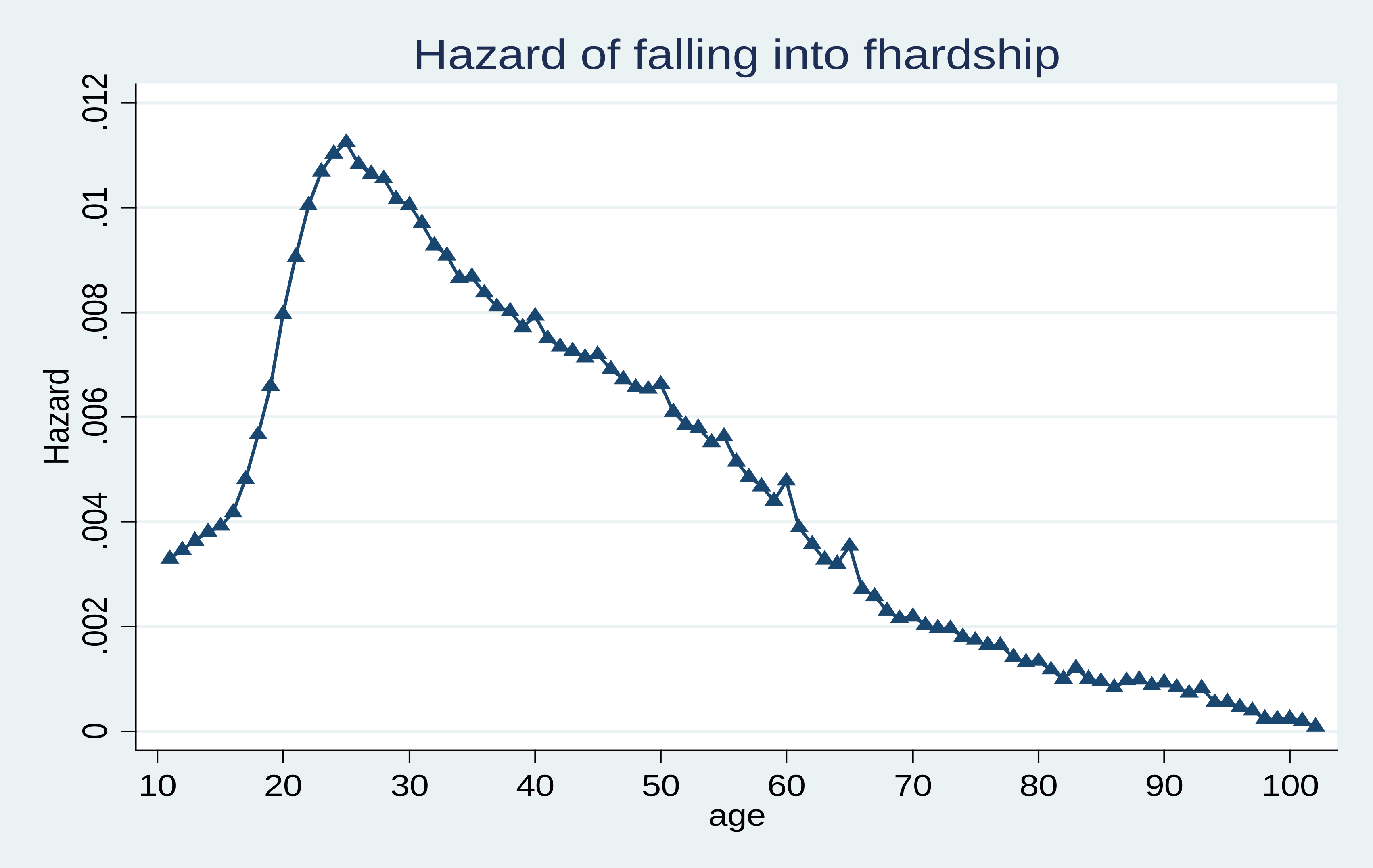
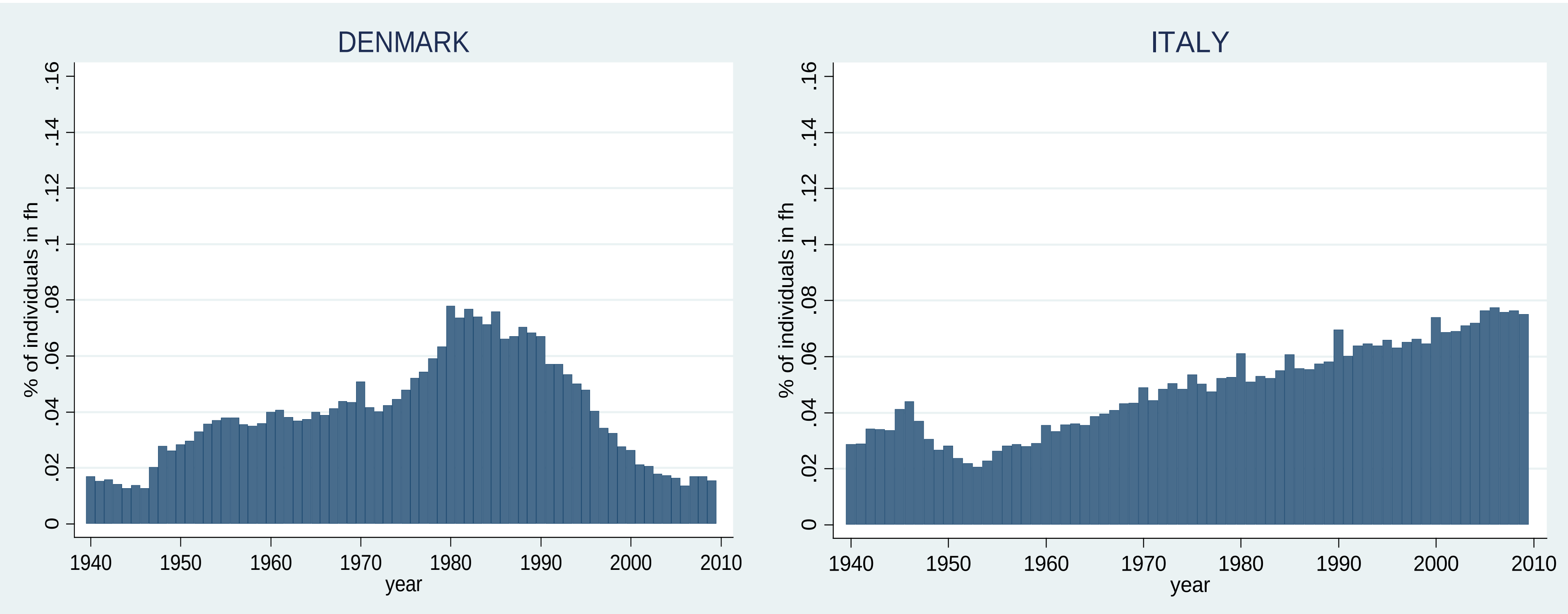


Percentage of individuals in financial hardship by year (selected countries)



Relating the probability of falling into financial hardship to characteristics.

- **Time invariant characteristics**: good living conditions and abilities early in life reduce the probability of falling into financial hardship later
- **Cohort effects**: the probability of experiencing financial hardship is larger for younger cohorts
- **Time varying determinants**: homeowners are less likely to be in financial hardship, unless they have recently taken up a mortgage.

Relating the probability of falling into financial hardship to other relevant variables.

Time varying determinants: strong effects of individual shocks

For a 40 years old man:

- widowhood increases the probability of financial hardship by **3.17%**,
- divorce by **2.04%**
- unemployment by **1.54%**
- and health problems by **1.23%**)

Relating the probability of falling into financial hardship to other relevant variables.

- **Macroeconomic variables:** very small direct effects of recessions and inflation episodes

  but of course important *indirect effects* through increased probability of unemployment and other individual shocks (**business cycle effects**), as we have seen

Leaving financial hardship

Time invariant variables

- We find that women have a lower probability of leaving financial hardship.
- Instead, individuals with favourable early life conditions and skills have a higher probability of leaving financial hardship

Leaving financial hardship

Time varying determinants

- Individuals exiting unemployment and poor health are much more likely to leave financial hardship
- Individuals who are unemployed are significantly less likely to leave financial hardship
- Homeowners who recently repaid their mortgage in full are more likely to leave financial hardship

Leaving financial hardship

- **Macroeconomic variables:** the length of a recession has a negative effect on exiting financial hardship
- **Duration effects:** In the first years of financial hardship, the probability to leave it is increasing. After five years, though, it starts decreasing.

Part III: The effects of financial hardship

fRDB

- Explore the effects of financial hardship on the earnings and well-being of individuals
- Short term effects on earnings
- Long term effects on measures of standard of living (income share spent on food at home; permanent income)

The effects of financial hardship/recessions on earnings

Explore effects of financial hardship on earnings of individuals

Current earnings for the employed, most recent earnings for the retired

We consider:

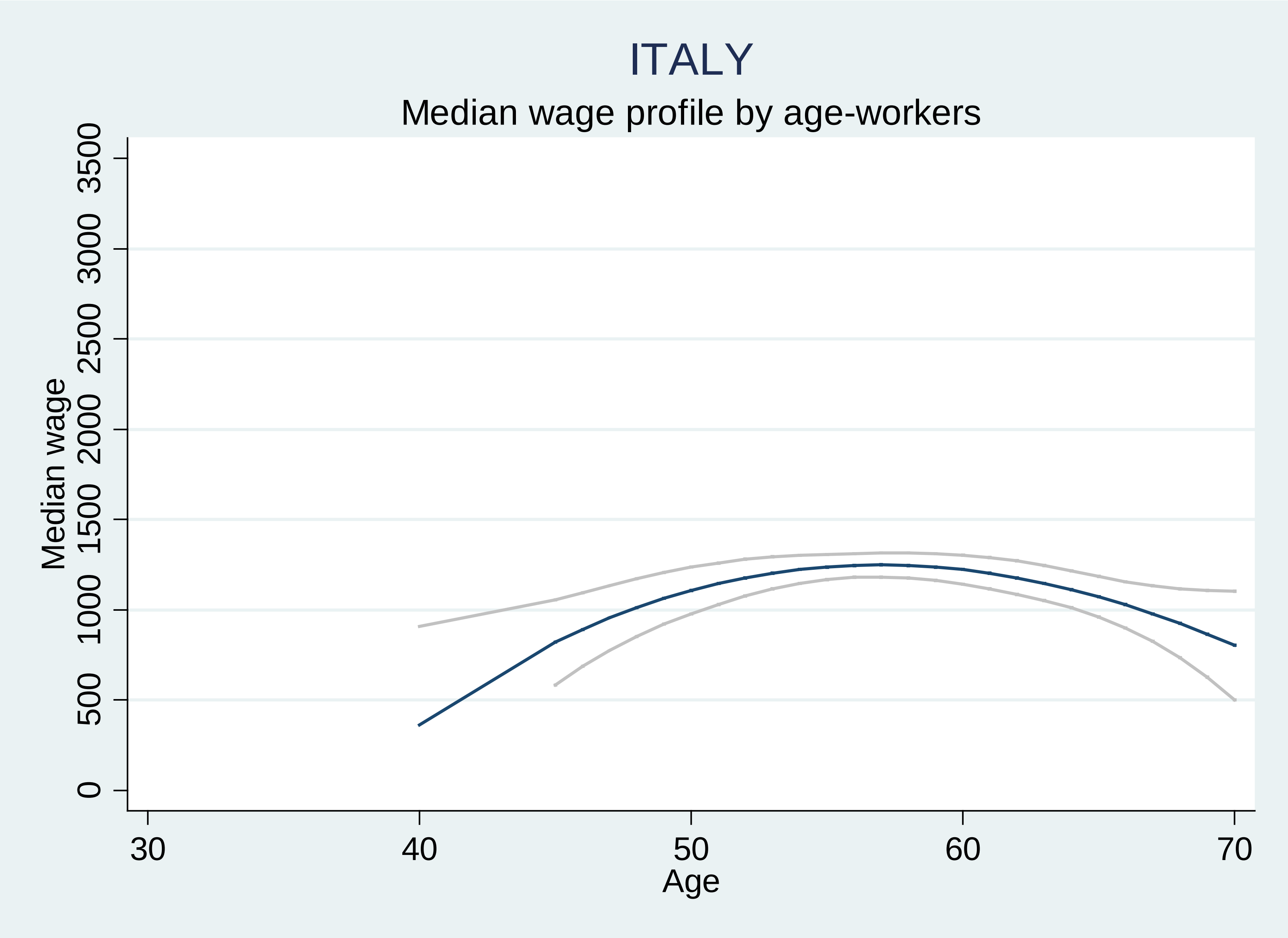
the impact of experiencing financial hardship at least once in life

the impact of how recent this episode was

Data and technique

- SHARE data for 11 countries
- Relate earnings to a number of determinants
- Split the sample by groups of countries (distinguish Nordic, Southern, French, German, East European countries) to assess the importance of different institutional arrangements in social insurance

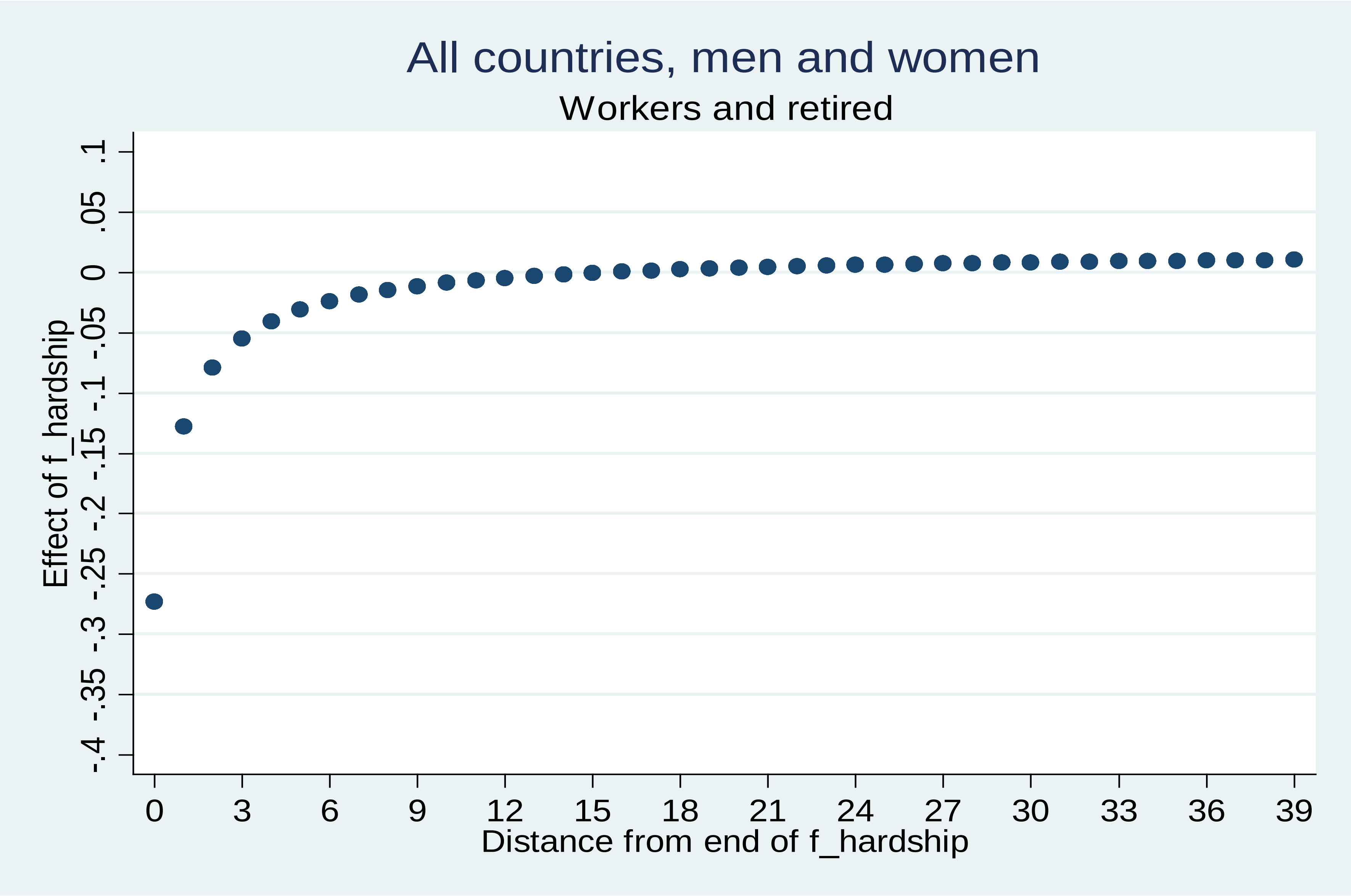
Data


ITALY
Median wage profile by age-workers
Median wage
0
500
1000
1500
2000
2500
3000
3500
30
40
50
60
70
Age

Effects on earnings

- A **recent financial hardship** episode has a *temporary* negative effect on earnings; this is larger the more recent the episode is, and vanishes in time after about 6-8 years. (e.g. there is a drop of 28.6% in earnings if the financial hardship has just started but falling to a 4% drop if it started six years ago)

Effect of financial hardship on earnings



Effects on earnings by groups of countries

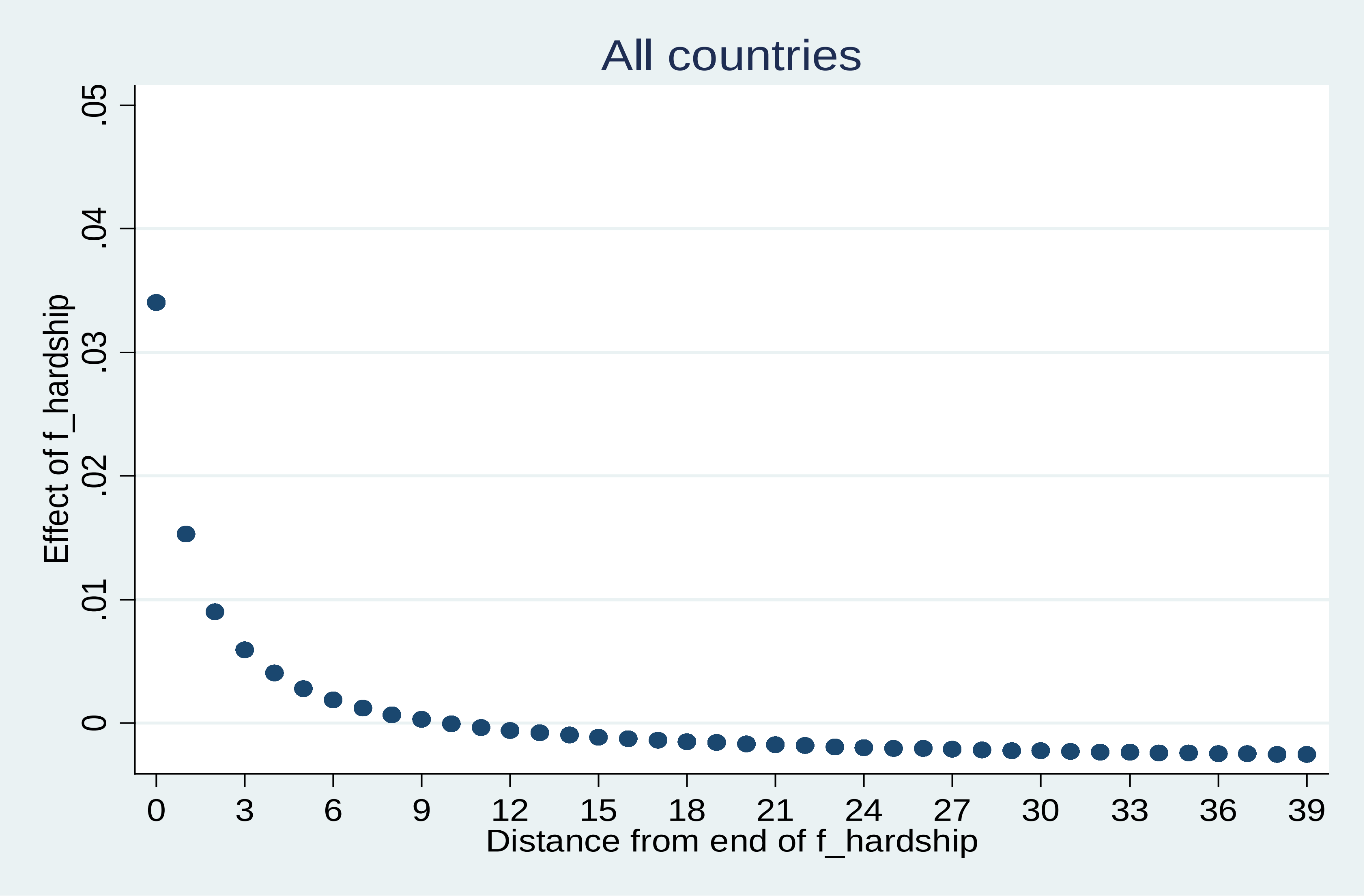
frDB

- Recent financial hardship determines a temporary drop in earnings in Nordic and German countries but this effect is not confirmed in Southern countries
- However, in Southern countries workers earnings are *permanently* affected by the incidence of an episode of financial hardship
- Financial hardship associated to high inflation has a significant negative impact on workers in Southern countries and on retired individuals in East European countries

Impact on food expenditure

- Food-share (the ratio of the value of food consumed at home to total household income) is an important welfare indicator: higher food-shares indicate lower levels of living standards
- In all countries, a recent financial hardship episode increases food share

Effect of financial hardship on food share



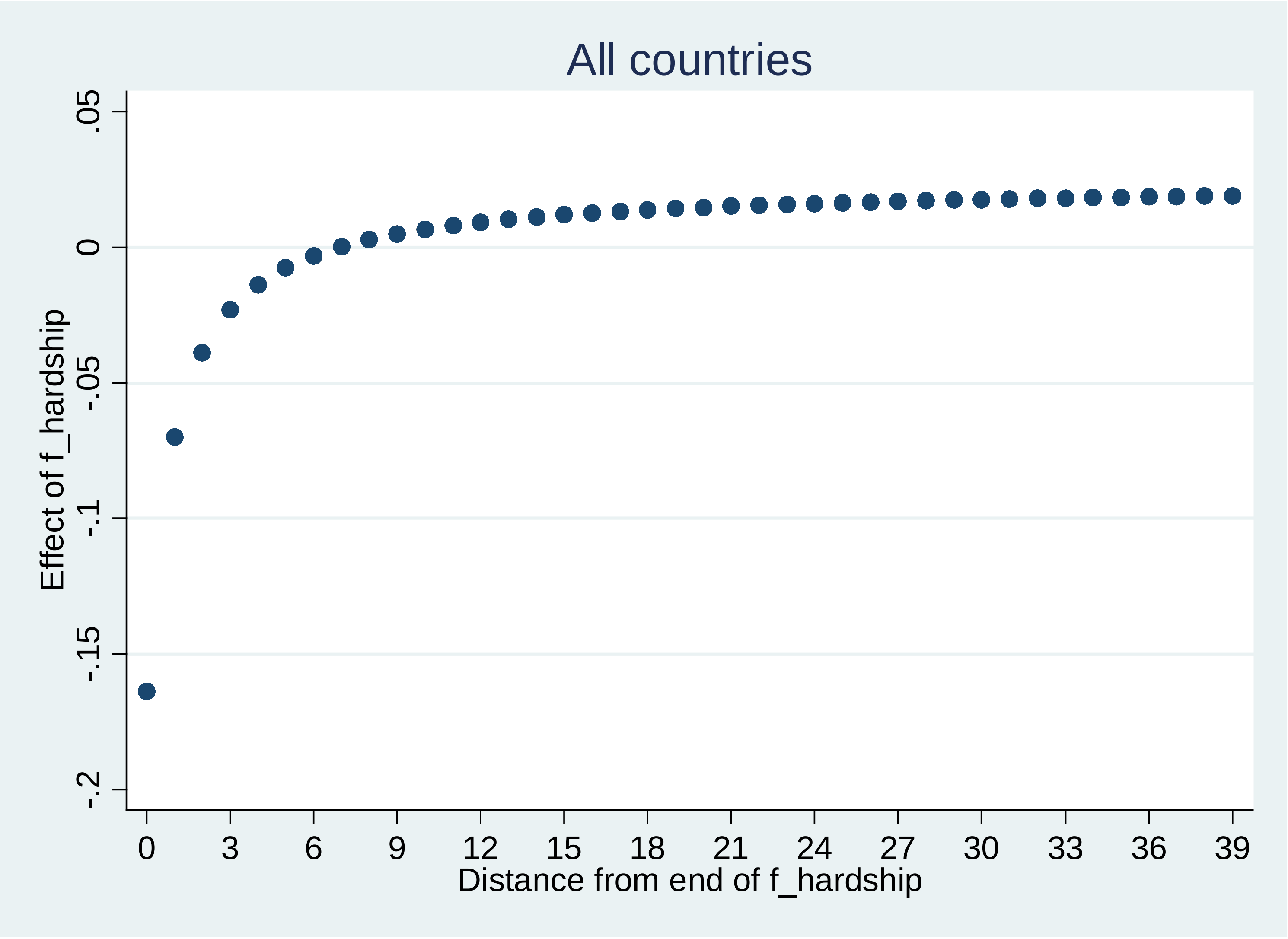
Impact on food expenditure

- Recent financial hardship determines a *temporary* increase in the food-share in German, Southern and Eastern countries (a very recent episode implies a 16% increase of the median food share)
- In Nordic countries the effects of financial hardship are not significant

Impact on permanent income

- We computed permanent income as the sum of current wealth and expected future earnings and pension income.
- We focused on men
- We find that a financial hardship episode depresses permanent income for 6-8 years – in the long run there is a slightly beneficial effect

Effect of financial hardship on permanent income (men)



Summing up

- Strong effects of recent financial hardship on earnings that fade away in a six-ten years interval; such effects are stronger for Nordic and German countries and lower for Southern countries

Summing up

- Financial hardship induces:
  - a temporary increase in food consumption share (with the exception of Nordic)
  - A sizable decrease in permanent income of men – that lasts at least six years

Implications

- Formal insurance mechanisms in Nordic countries (“welfare state”) compensate the effects of financial hardships related to unemployment on earnings and avoid the spillover to consumption and permanent income

Implications

- The informal insurance mechanisms (own savings, the family) in Southern Europe mitigate the effects on earnings but are unable to cope with the more persistent shocks which are translated (at least for some time) in consumption.

Policy implications

In Southern countries individuals have traditionally relied on their own savings and on family help for insuring against negative shocks.

But the Great Recession is eroding savings – and low fertility is reducing the ability of families to pool risks

Policy implications

Large government debts rule out the possibility of expanding the welfare state

One should consider market-based mechanisms, for example by unlocking some wealth trapped into housing for older cohorts.

Policy

Alternatives:

the welfare state should be organized (and financed) differently during a recession.

One "driver" of financial hardship is unemployment: special attention should be devoted to this risk as it has medium term effects.

Thank you!

The effects of financial hardship and recessions on earnings

WORKERS	All	Men	Women
Financial hardship	-0.020	-0.100**	0.055
Recent financial hardship	-0.370***	-0.222**	-0.506***
Recession at school leaving age	-0.052	-0.013	-0.108*
Financial hardship* recession	0.092**	-0.003	0.154***
Financial hardship* high inflation	-0.411**	-1.055***	-0.056

Tab 4 Summary of results: OLS estimation for the log of permanent income. Men.

	All countries	Nordic countries	German countries	Southern countries	French countries	Eastern countries
Financial hardship	0.044	0.07	0.066	-0.02	0.037	-0.02
Recent financial hardship	-0.323 ***	-0.337	-0.629 **	0.043	-0.537 **	0.233
Length financial hardship	-0.008 *	-0.0165 **	-0.016	-0.002	0.006	0.004
Recession at school leaving age	0.013	-0.028	0.06	0.064	0.072	-0.245 *
Inflation (>20%) at school leaving age	-0.03	-0.342		-0.019	-0.054	0.045
Financial hardship* recession	-0.071	-0.086	-0.082	-0.038	-0.063	0.05
Financial hardship* high inflation	0.179			-0.145	0.155	0.057
Widow	0.204 ***	-0.036	0.135	0.568 ***	0.270 **	0.277
Divorce	0.115 ***	0.044	0.215 **	0.053	0.143 *	0.116
Recent widow	0.281 ***	0.331 **	0.315	0.184	0.232	0.115
Recent divorce	-0.02	-0.021	-0.573	0.391	0.061	-0.371
Hunger	0.061	-0.225	0.083	0.021	0.076	0.141
Poor health	0.055 *	-0.015	0.094	0.079	0.079	-0.168
Recent poor health	-0.151 ***	-0.138	-0.248 ***	-0.127	-0.084	0.054
N. Obs.	7,167	1,574	1,974	2,042	1,740	584
R-squared	0.32	0.266	0.267	0.264	0.204	0.342

Tab 3. Summary of results: OLS estimation for the food-share

	All countries	Nordic countries	German countries	Southern countries	French countries	Eastern countries
Financial hardship	-0.003	0.007	0.001	-0.009	-0.002	-0.006
Recent financial hardship	0.037 ***	0.027	0.0451 ***	0.031 **	0.026	0.064 ***
Length financial hardship	0	0	-0.001	0.0003	0	0
Recession at school leaving age	-0.005	-0.005	-0.007	0	-0.006	-0.006
Inflation (>20%) at school leaving age	0	0.016		-0.006	0.005	0.005
Financial hardship* recession	0.006	-0.005	0.007	0.001	0.033 **	-0.015
Financial hardship* high inflation	-0.022	0.006		0.028	-0.053 **	-0.063 ***
Widow	-0.003	0.003	0.019	0.018	-0.017	-0.048 ***
Divorce	-0.009 **	-0.003	-0.006	-0.025	-0.022 **	-0.017
Recent widow	-0.015 *	0.001	-0.021	-0.027 *	-0.03	0.023
Recent divorce	-0.015	0.018	-0.018	-0.017	-0.025	-0.009
Hunger	-0.005	0.011	-0.002	0.004	-0.021 **	-0.012
Poor health	-0.002	0.001	-0.003	-0.051	0.003	-0.013
Recent poor health	0.005	0.006	-0.012	0.023	0.003	0.024
N. Obs.	24172	3791	5131	6686	4749	3815
R-squared	0.27	0.072	0.09	0.107	0.084	0.218