Income Comparisons, the Easterlin Paradox and Public Policy

Andrew E. Clark (Paris School of Economics and IZA)

http://www.pse.ens.fr/clark/

Projet "PIBien-être"

"Vers une meilleure prise en compte de la qualité de vie"

Luxembourg, November 11th 2010

BROAD IDEA

A common idea across the Social Sciences: well-being or utility depends on some kind of comparison process of what you have relative to a **reference level**.

Comparisons can be over "things" or over money.

A key idea: Individual Well-being might depend on the "relative" level of things of importance, as well as their absolute level.

An example. Two people, A and B, who live next to each other, both like cars.

$$W_A = W(Car_A,.....)$$
$$W_B = W(Car_B,.....)$$

Where "W" is the individual's well-being function.

First question: does well-being depend on realtive income?

Income and Subjective Well-Being (SWB)

Standard model: $W = W(y, ...)$
Comparisons: $W = W(y/y^*, ...)$

This is analogous to the car example.

The variable y^* is "comparison income": the income to which we compare/income of the reference group.

To whom do we compare?

➢ Peer group/people like me
➢ Others in the same household
➢ Spouse/partner
➢ Myself in the past
➢ Friends
➢ Neighbours
➢ Work colleagues
➢ "Expectations"

Mostly we just impose a reference group, such as people like me, neighbours or family.

I use the British Household Panel Study (BHPS) to look at the relationship between job satisfaction and labour income. Main findings:

There is some econometric evidence that job satisfaction is an increasing function of income. However, job satisfaction falls as others' income rises. This holds for:

➢ The income of "people like you" (same characteristics, same type of job).

➢ Partner's income.

➢ The income of other adults in the same household.

➢ The income that you yourself earned in the same job one year ago.

Clark and Oswald (1996). BHPS Data on 5000 Employees

Log income (y)	-0.02	0.11	-0.001
	(0.039)	(0.050)	(0.04)
Log comparison income (y*)	---	-0.20	---
		(0.062)	
Log NES comparison income (y**)	---	---	-0.26
			(0.073)

"Comparison Income" predicted from a Mincer Earnings equation (note: requires exclusion restrictions to avoid multicollinearity);

"NES comparison income" matched in from another data set by hours of work, and thus avoids identification problems (but assumes reference group defined by hours of work).

# Comparisons to the past: Clark (1999). BHPS Data

Log current monthly pay	0.086 (0.071)	0.486 (0.166)	0.042 (0.072)	0.038 (0.072)
Log current monthly hours	-0.081 (0.215)	-0.428 (0.295)	0.114 (0.236)	0.067 (0.219)
Log monthly pay one year ago	..	-0.442 (0.163)	..	..
Log monthly hours one year a	..	0.523 (0.288)	..	..
% Change in pay/100	..	..	0.439 (0.146)	..
% Change in hours/100	..	..	-0.518 (0.285)	..
% Change in hourly wage/100	..	..	..	0.450 (0.126)

Two waves only. Estimated on individuals who did not change job or get promoted between the two waves.
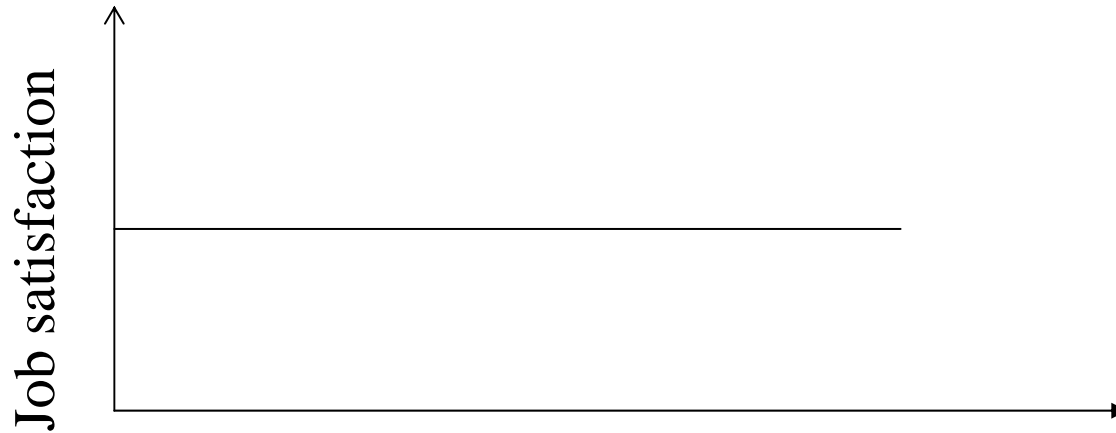
Therefore, when we look at the effect of own pay and others' pay on job satisfaction, we find the following kind of stylised relationships:
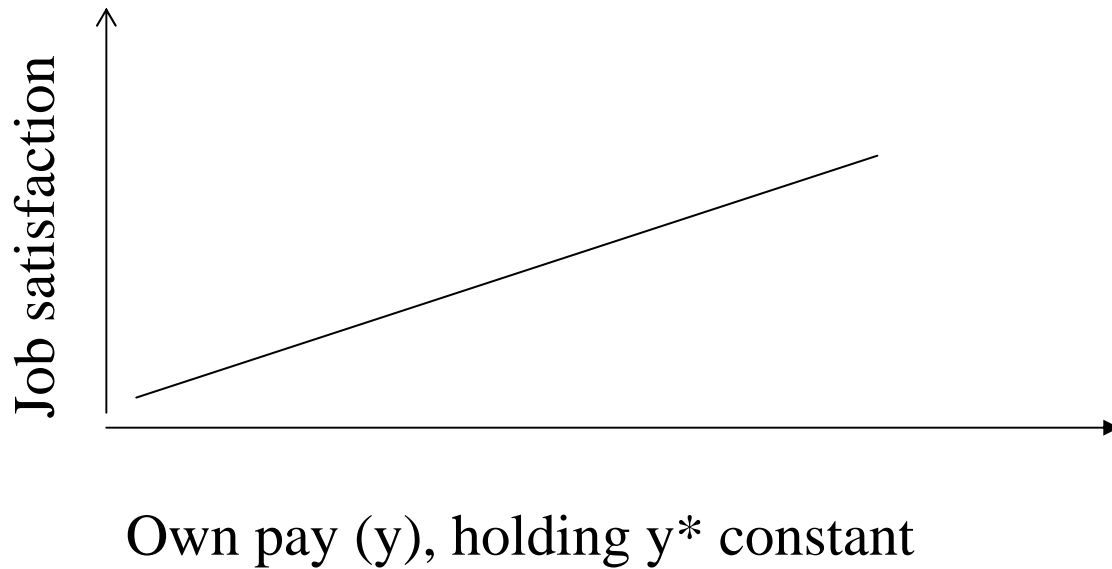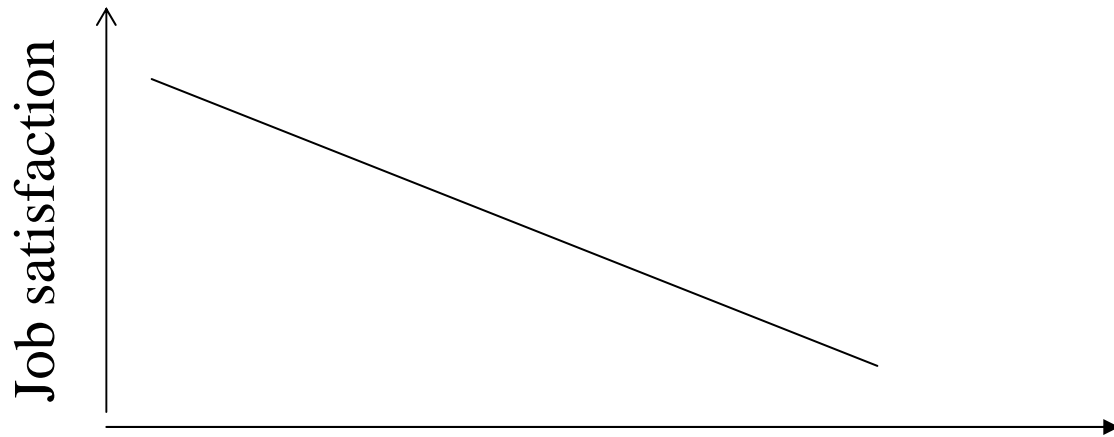

Own pay (y), holding y* constant

Job satisfaction (y-axis)

Pay rises for everybody (y/y* constant) (x-axis)

Others have replicated these broad findings with work on life satisfaction and local area average incomes: Ferrer-i-Carbonell for Germany, and Luttmer for the US.

The results with respect to past income are interesting: the more you earned in the past, the more you need to earn now in order to be just as satisfied: wages are habit-forming.

This implies that someone who receives a pay rise will have job satisfaction over time as follows:


Job satisfaction
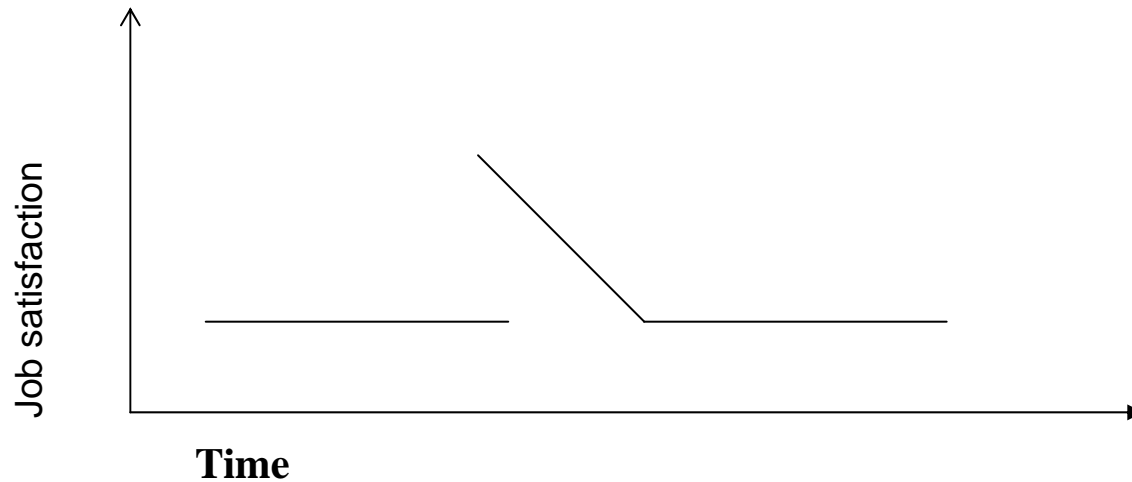
Time

Pay rises are good at the time, but then you get used to them. How can a firm keep its workers satisfied then? By starting them at a relatively low wage and giving them constant pay rises: profile C.

Pay

C

B

A
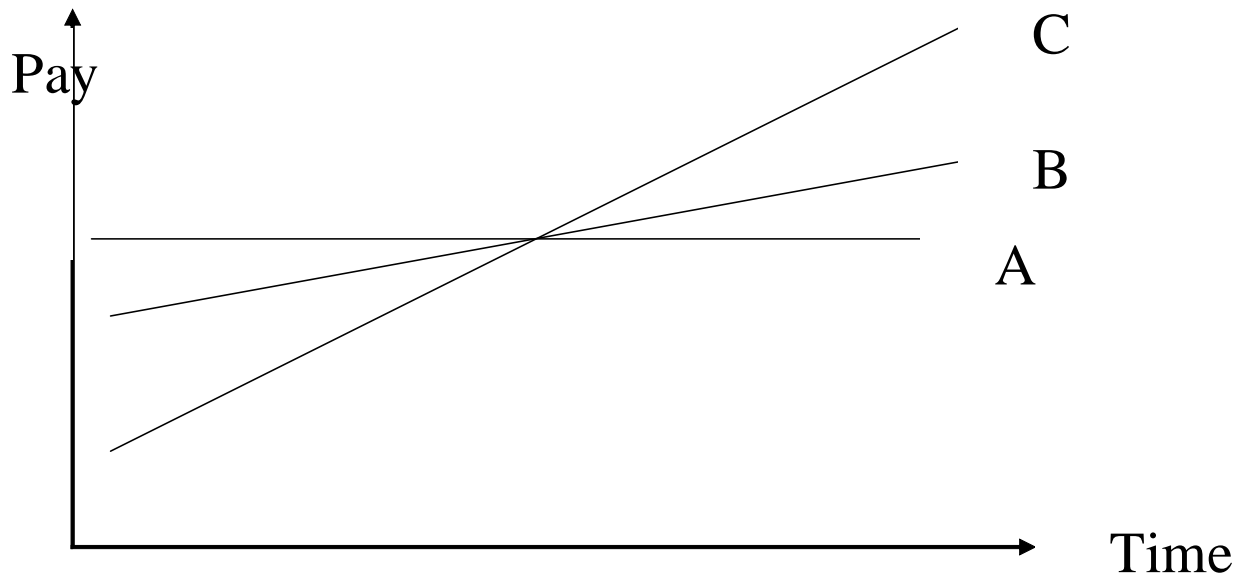
Time

Conclusion:

There are strong comparison effects both spatially (between groups) and over time with respect to income.

These two phenomena can explain the Easterlin paradox

FIGURE 1: Happiness and Real Income Per Capita in the US, 1973-2004
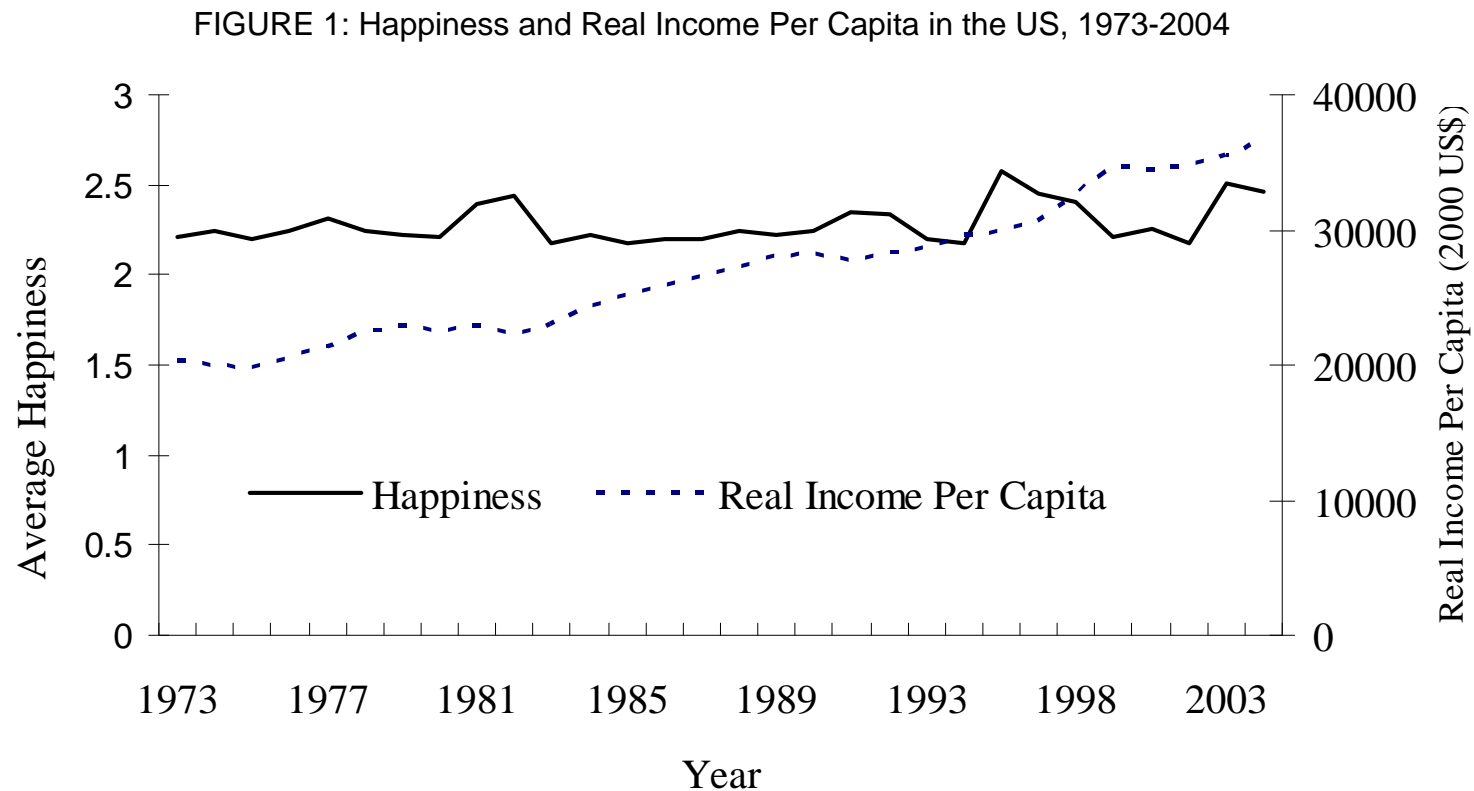
Subjective Well-Being Measures are not the only possible way of showing comparison effects.

1) The Leyden approach. Ask individuals to assign income levels (per period) to six different verbal labels (such as "excellent", "good", "sufficient" and "bad"); estimate <u>for each individual</u> a lognormal "Welfare Function of Income". The resulting individual estimated means (μ) and variances (σ) were then used as dependent variables in regressions to show which types of individuals require a higher level of income to be satisfied, and which individuals have valuations that are more sensitive to changes in income.

Those with higher reference group income, and who had earned more in the past, had higher values of μ.

2) Psychological experiments. Danny Kahneman's hand in bucket of water experiments show that the change in pain predicts overall evaluation (rather than the level).

3) Ask people. Preference for rising income profiles, and preferences for lower absolute incomes:

- **A**: Your current yearly income is $50,000; others earn $25,000.
- **B**: Your current yearly income is $100,000; others earn $200,000.

Individuals have a marked preference for A over B.

Positionality differs according to the domain. In Alpizar et al. (2005) this is stronger for cars and housing, and weaker for vacations and insurance.

4) Experimental. Rejection of "unfair" ultimatum game offers arguably shows relative reward effects. Zizzo and Oswald (2001) report the results of an experiment whereby subjects can pay to burn each other's money. A majority of subjects chose to do so, even though it costs them real earnings. The average subject had half of her earnings burnt, and richer subjects were burnt more often.

McBride (2006) introduces a novel way of calculating aspirations directly in a matching pennies game, where individuals play against computers.

The computer chooses heads or tails according to (known) probability distributions (for example 80% heads, 20% tails).

After each round of playing, individuals report their satisfaction with the outcome.

Introduces social comparisons in some of the treatments (by telling the individual the outcomes of the other players).

Aspiration effect identified by varying the heads and tails probabilities played by the computer.

Each subject has five pennies to play. When paired with a 80% heads, 20% tails computer, the best strategy is to always play heads, which gives an expected payoff of four pennies. When paired with a 65% heads, 35% tails computer, the best strategy is still to always play heads, but now the expected payoff is only 3.25 pennies.

Results: satisfaction is

a) higher the more one wins

b) lower the more others win

c) lower the higher was the aspiration level.

5) Neuro. Fließbach, K., Weber, B., Trautner, P., Dohmen, T., Sunde, U., Elger, C., & Falk, A. (2007). "Social comparison affects reward-related brain activity in the human ventral striatum". *Science,* **318**, 1305-1308.
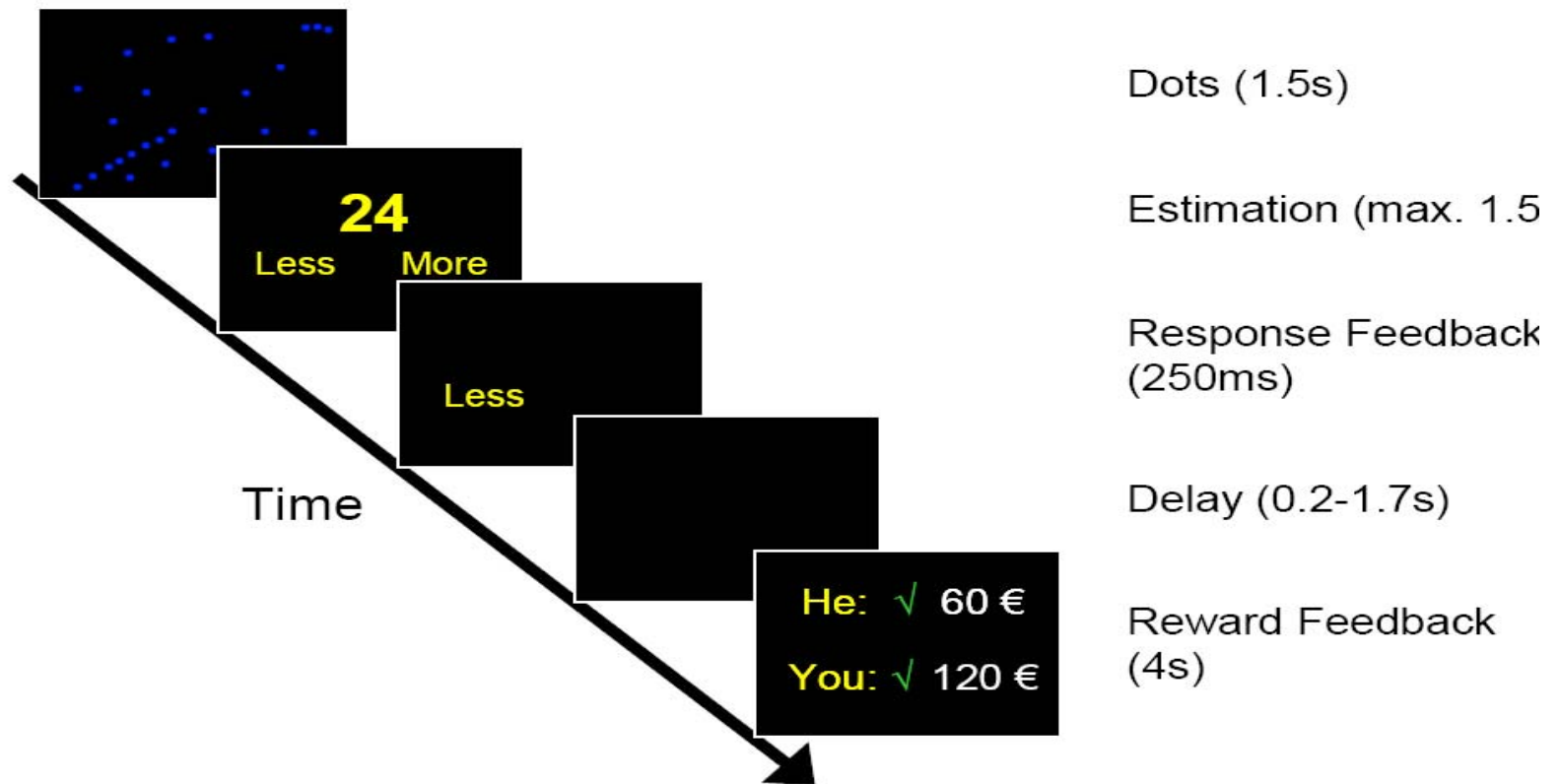
Payoffs vary according to whether the individual gets the task right, and also randomly when the task is correct

Accuracy	Relative reward level (A:B)	Absolute reward level	Payoffs in Euro (subject A – subject B)	Condition
Both subjects incorrect			0 – 0	C1
Subject A correct		High	60 – 0	C2
		Low	30 – 0	C3
Subject B correct		High	0 – 60	C4
		Low	0 – 30	C5
Both subjects correct	1 : 2	High	60 – 120	C6
		Low	30 – 60	C7
	1: 1	High	60 – 60	C8
		Low	30 – 30	C9
	2: 1	High	120 – 60	C10
		Low	60 – 30	C11

Table 1: Payoff conditions. Conditions of main interest (C6 to C11) are highlighted.

Brain activation depends on relative income: compare C6, C8 and C11 (where the individual receives 60 Euros), and C7 to C9.

Fig. 3 (b)
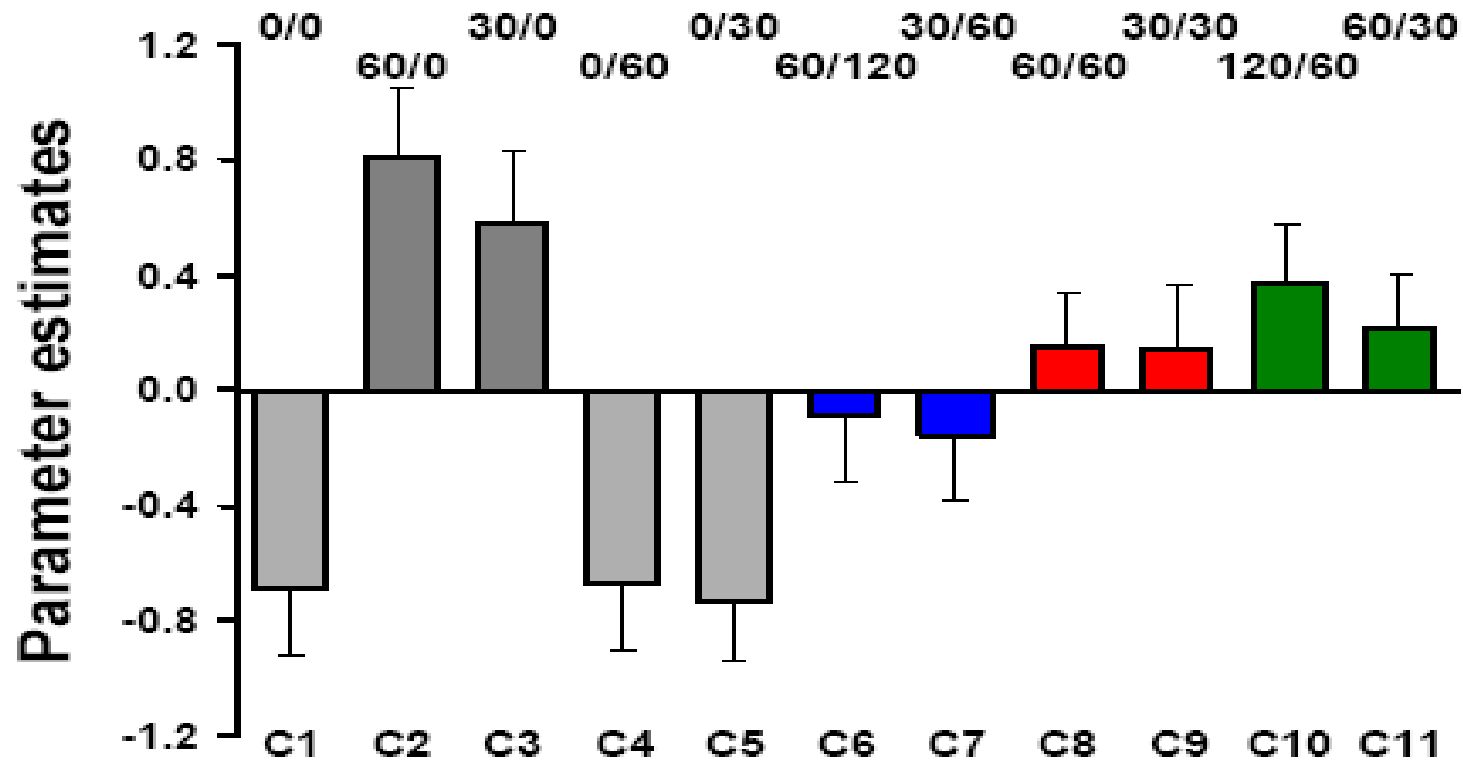
Second question: If income doesn't work, what does?

As a result of the Easterlin Paradox:
"*Money/possessions aren't making us any happier: we should spend our time concentrating on X instead*"

Candidates for X:

➢ A (good) job
➢ Marriage/Family
➢ Social Activities
➢ Freedom/Democracy
➢ Health
➢ Religion

But what if we found the same phenomena of adaptation and comparisons there too? This is only rarely tested.

Well-being and the Labour Market
They're right! Unemployment really is important.....
ECHP: Satisfaction Scale 1-6. 500 000 individuals.

ECHP: Labour Force Status and Life Satisfaction
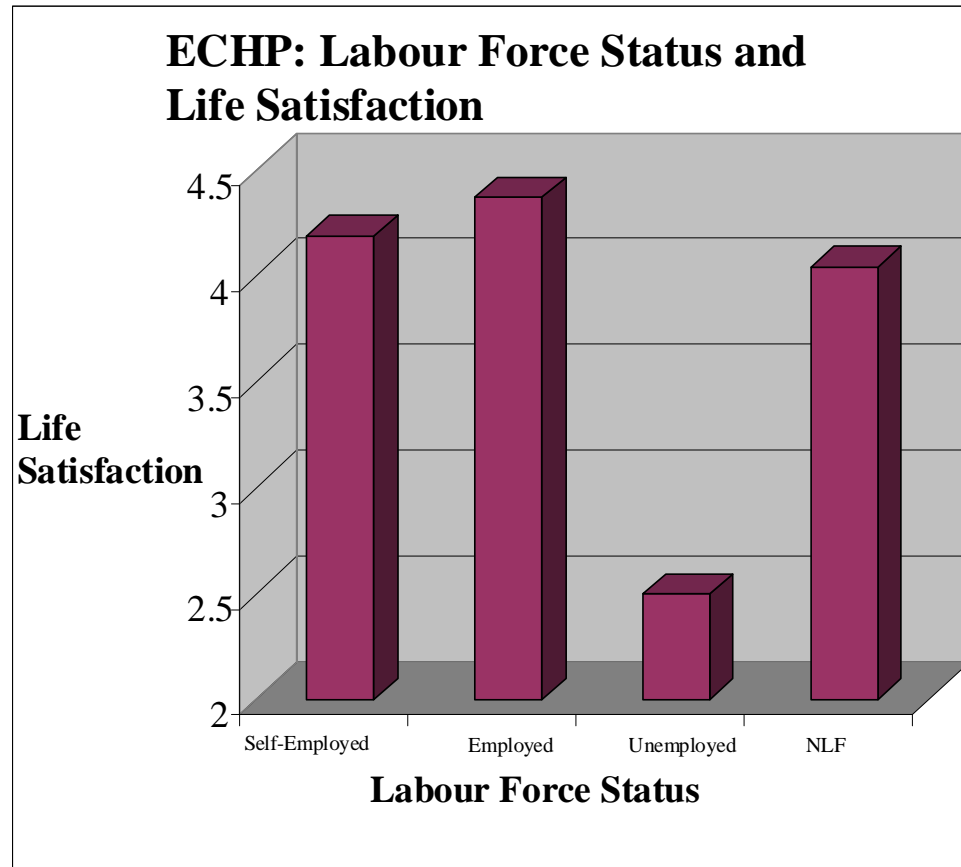
But do you adapt to it, and is it relative?

Main results:

The psychological impact of unemployment is lower

➢ When the regional unemployment rate is higher (estimated: no impact for regional unemployment of 20-25%).
➢ When there is more unemployment in the household (estimated: no impact if all other adults in the household are unemployed too).
➢ When the individual's past unemployment is greater (estimated: no impact if the individual has been unemployed for 2 out of the past 3 years).

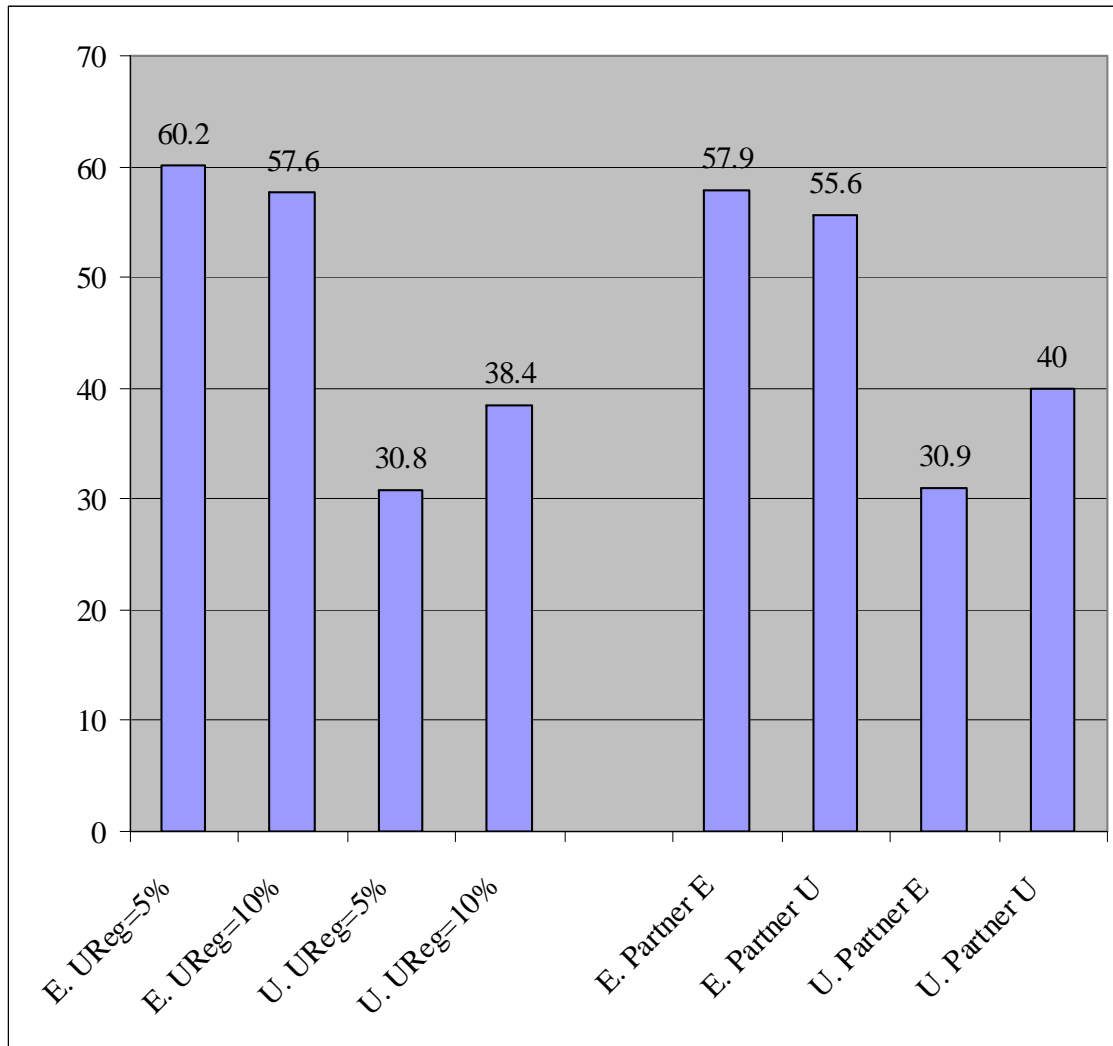All of these effects are far stronger for men, especially prime-age men (16-50), than for women.

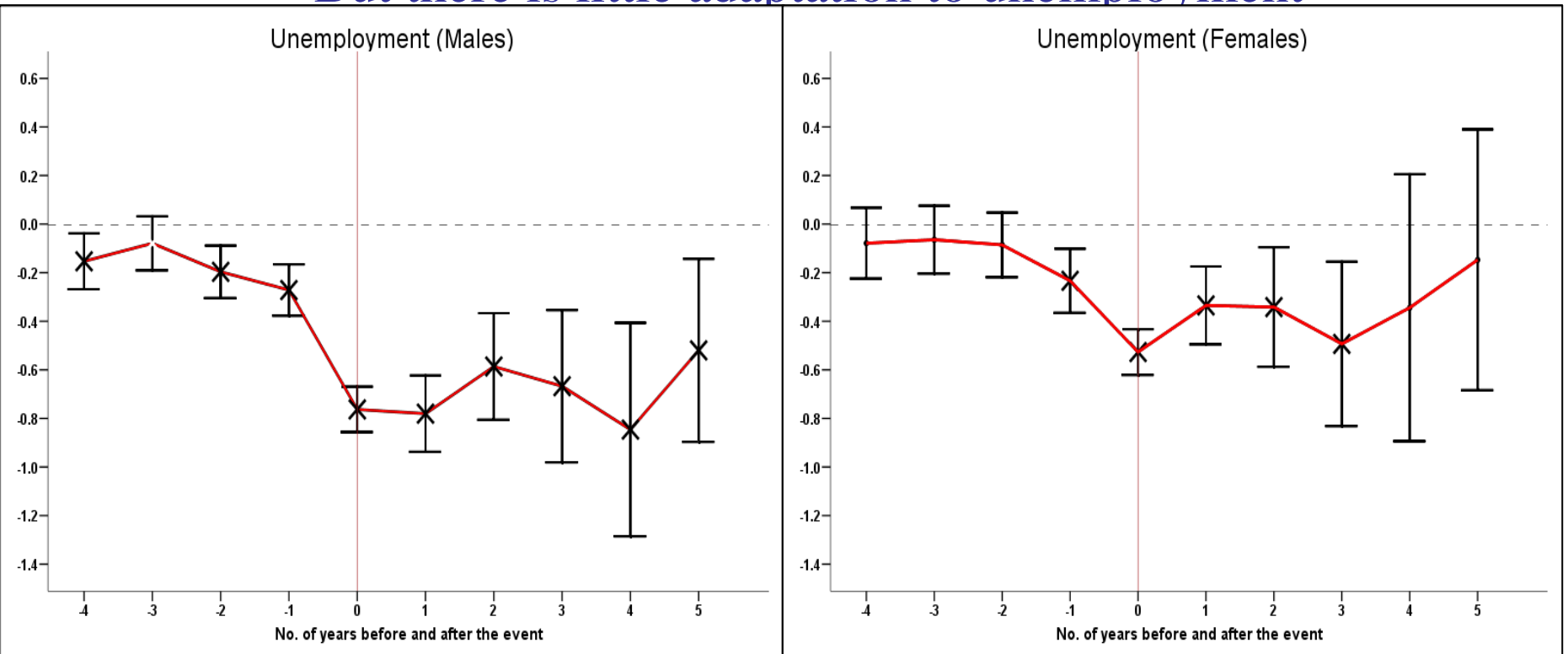# Social Comparisons with respect to Unemployment?
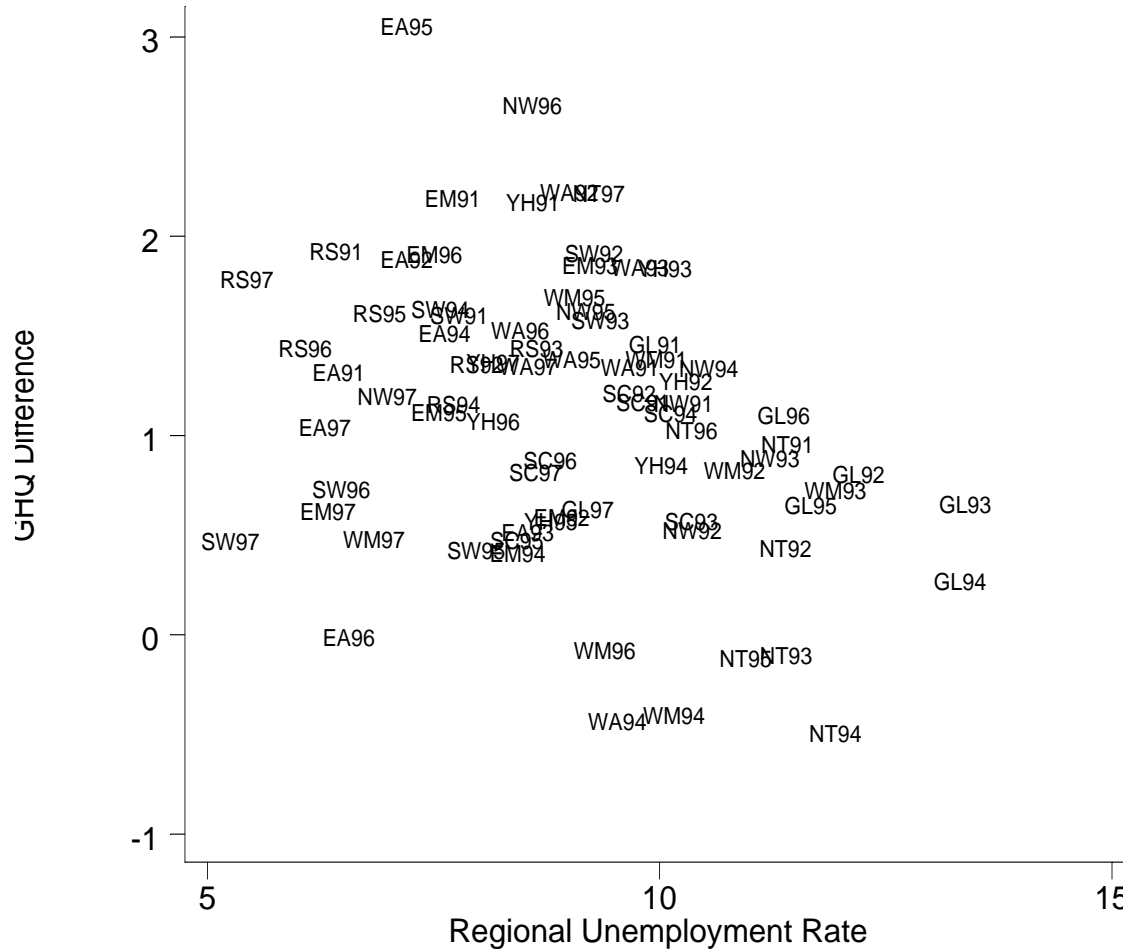
The well-being gap between employees and the unemployed is smaller in regions with greater unemployment.
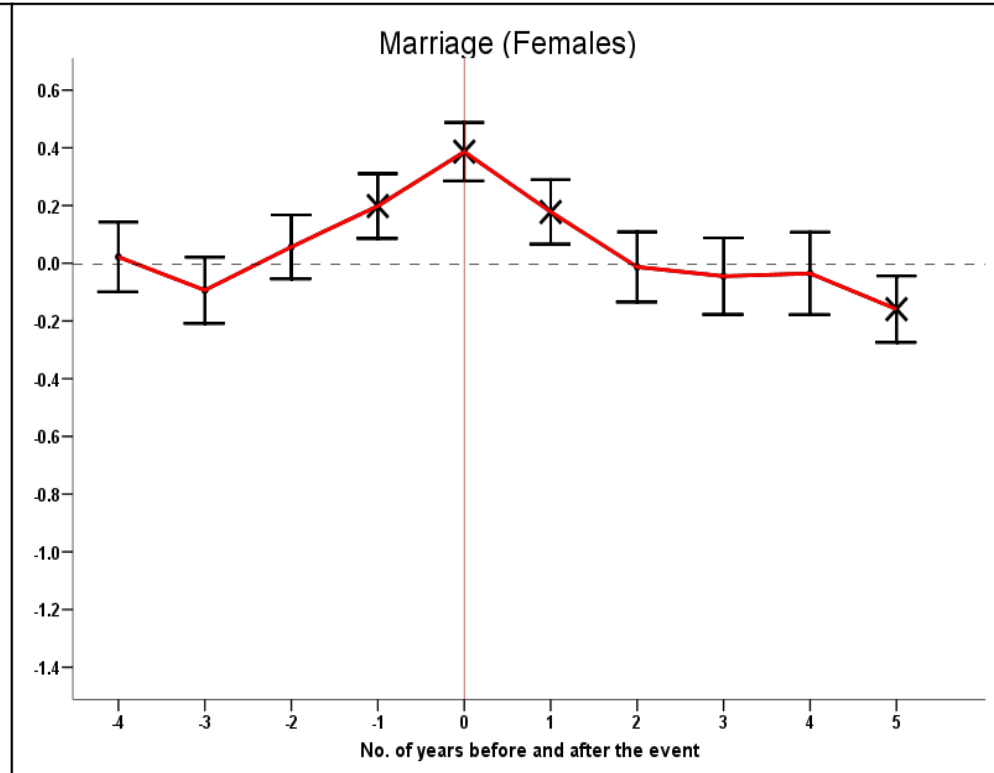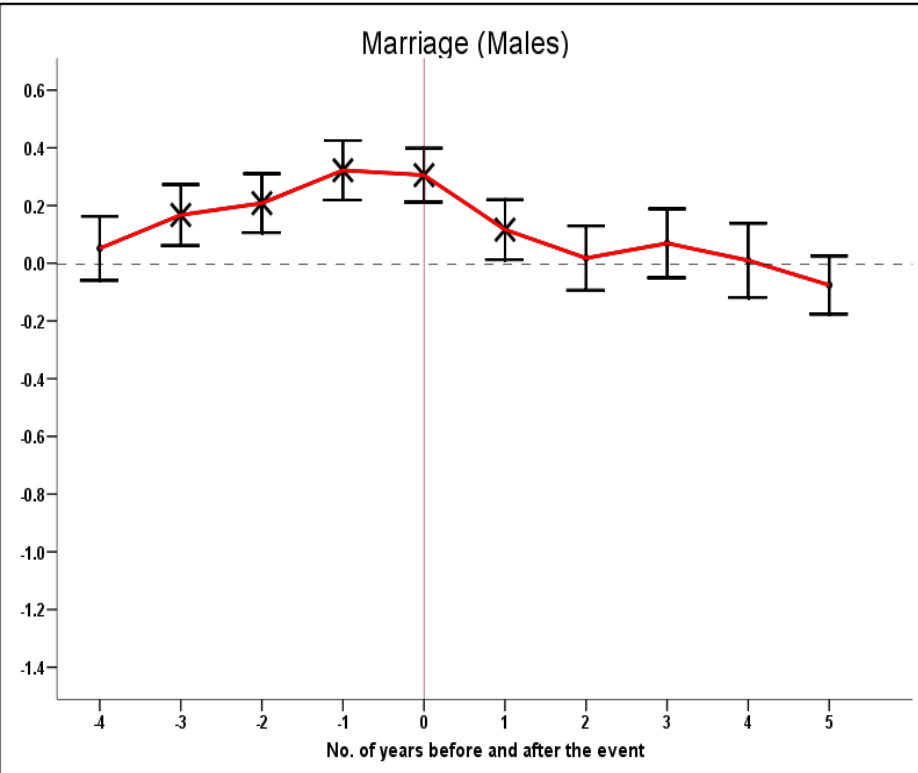
Social Comparisons with respect to Unemployment?

Unemployment hurts less when I share it with other household members

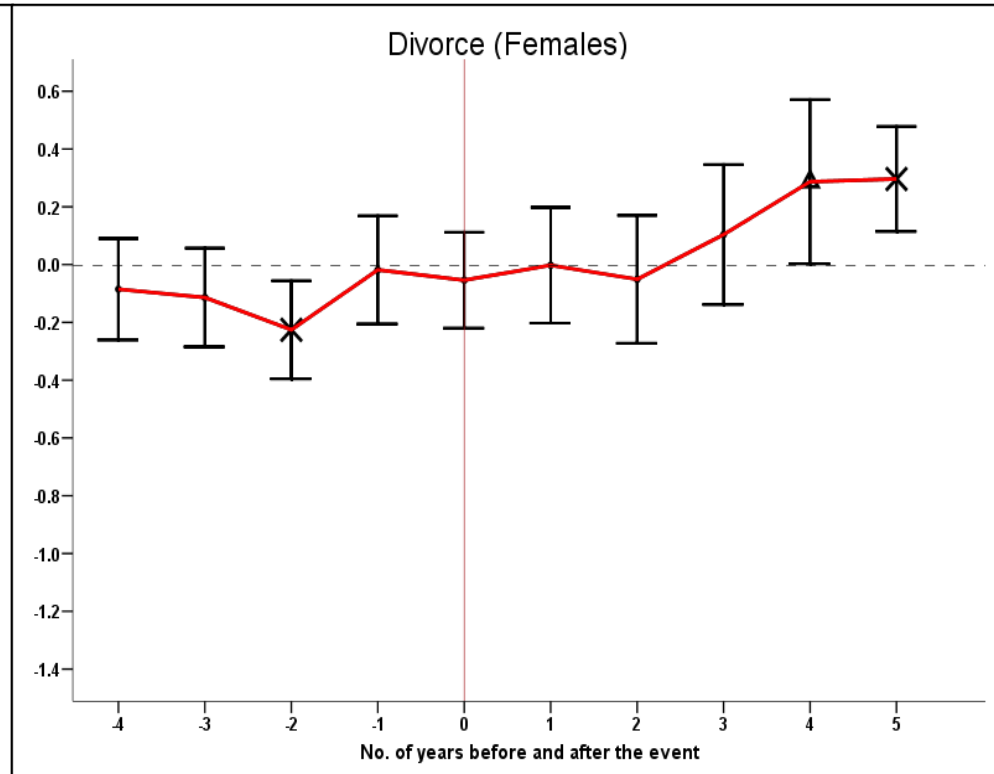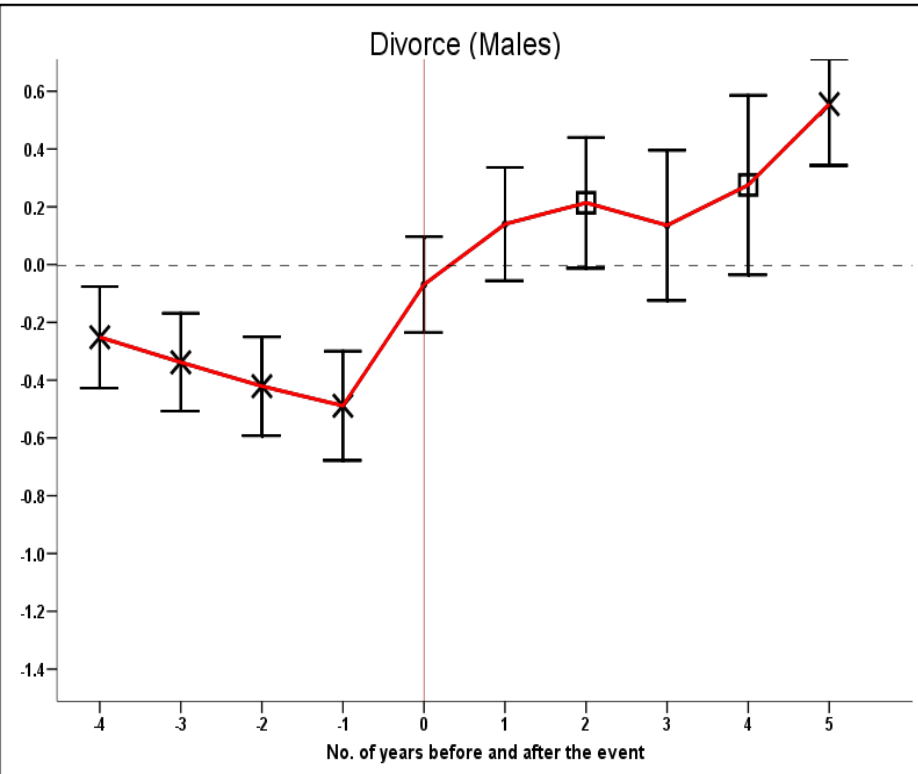# But there is little adaptation to unemployment

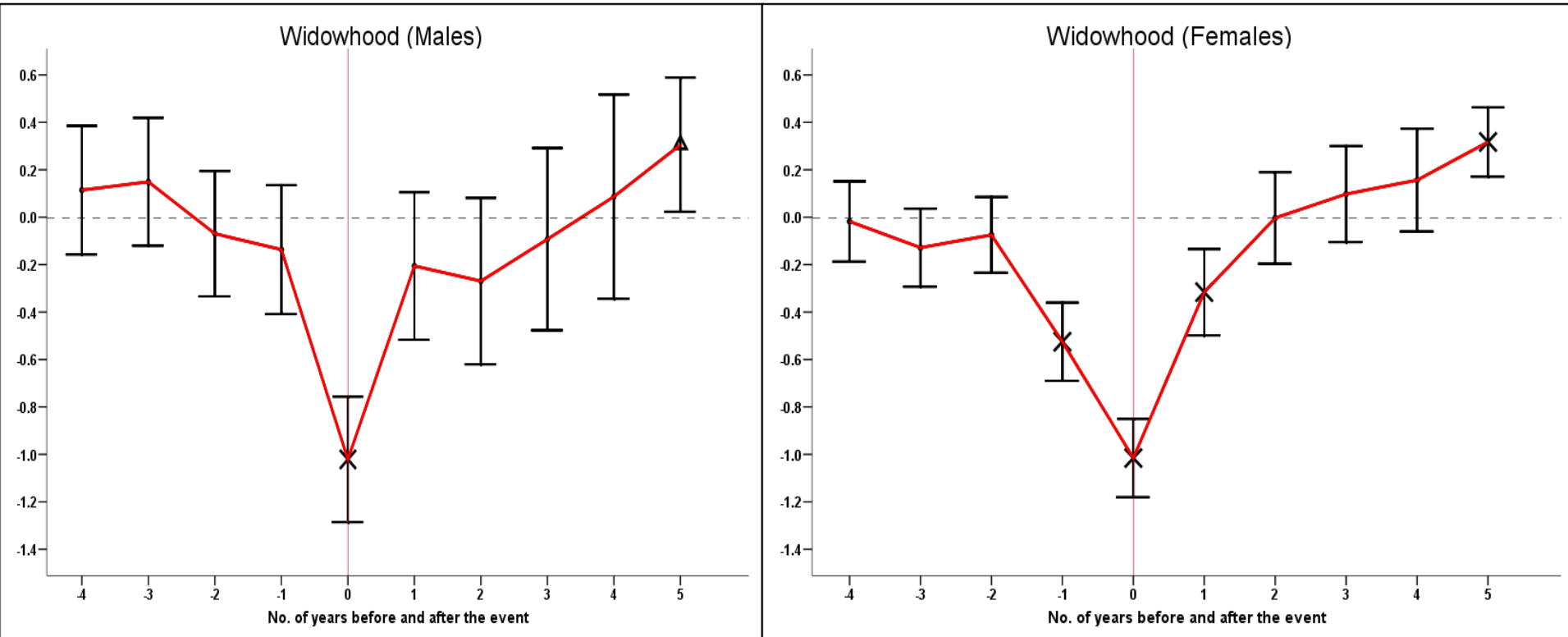Unemployment starts bad, and stays bad

We get used to marriage

And we get used to divorce

Even widowhood is worse at the beginning than afterwards

And we can't even count on our children
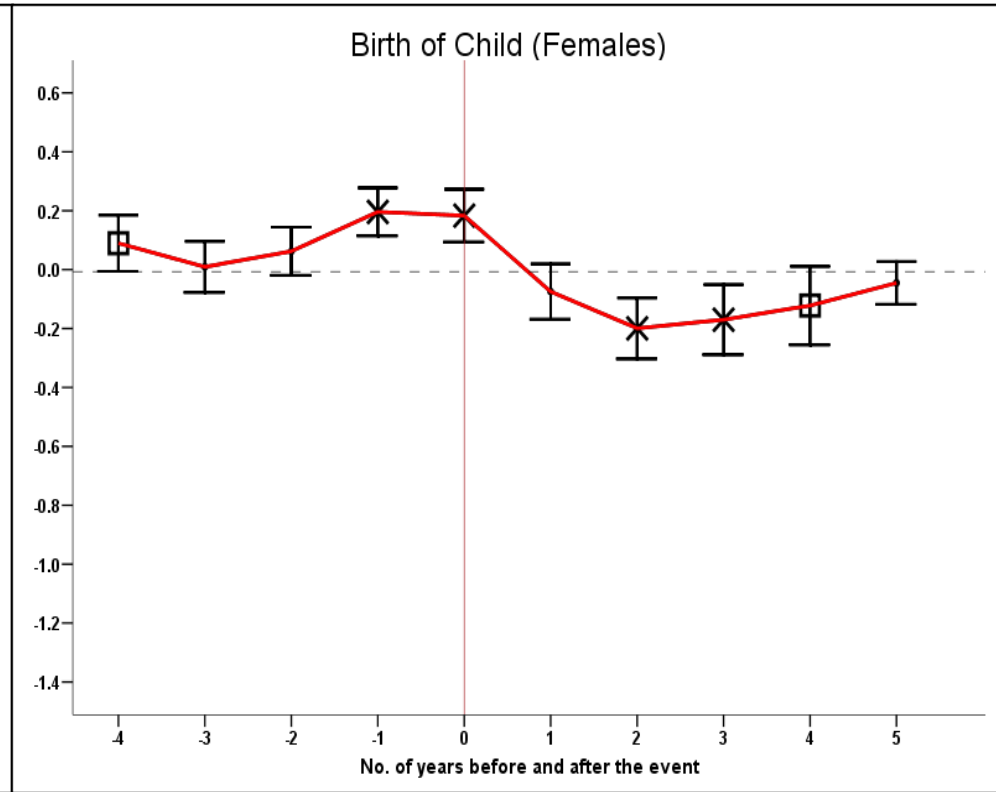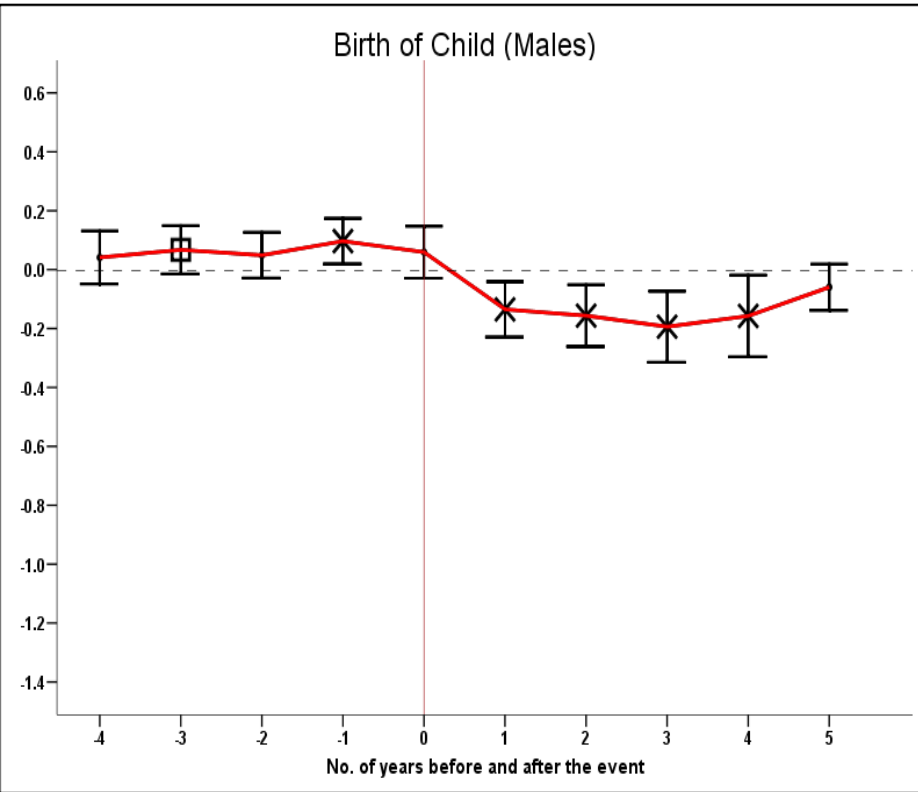
Social Comparisons and Social Capital?

Research on BHPS data shows that:

Individuals are happier when their levels of social capital (measured by social activities) are higher (but beware of causality)

1) Individuals are also happier when they live with other household members who are active socially

2) But, given own social capital and others' social capital, there is a happiness boost from being the most active individual in the household.

Well-Being and Others' Social Capital: WVS Evidence

Spillovers are defined at the regional (NUTS2) level. We drop regions with fewer than 50 observations. Others' social capital measured by the regional median level

Own SK Activity	0.075**
	(.011)
Regional SK Activity (median)	-0.098+
	(.059)

It is still good to be active oneself: but well-being is higher when others' social activity is lower, as if there were comparisons in social capital. This can be seen in the coefficient on the continuous measure of others' median social capital above.

Social Comparisons and Health?

Work on European data has shown that :

1) My own health problems have less effect on my own well-being when the problems are shared by others in the same household.

2) Individuals feel less overweight as the average weight in the region rises

3) Within the household, couples where both are obese have similar mental stress levels to couples where neither is obese

Well-Being and BMI: Household Results.
BHPS Wave 14

GHQ

Obese	-0.101**	-0.092*	-0.162**
	(0.031)	(0.039)	(0.045)
Spouse Obese		-0.035	-0.104*
		(0.039)	(0.045)
Both Obese			0.263**
			(0.099)
Observations	10648	6035	6035

Note: Plus controls for Age, Sex, Education, Marital Status, Labour Force Status, and Income.

Social Comparisons and Religion?

Recent work on European Social Survey Data shows that:

Religious individuals are happier when they live in religious regions

1) But atheists are happier when they live in religious regions too

2) Catholics get a happiness boost from being in a Catholic majority region

The religious "spillovers" are mostly positive

Spillover effects of specific religious denominations: Life satisfaction regressions

	Roman Catholics			Protestants		
Roman Catholics Region	0.610** (0.220)			0.168 (0.563)		
Protestants Region		-0.440 (0.423)			1.459** (0.322)	
No Religion Region			-0.843** (0.300)			-1.243** (0.343)
Observations	9801	9801	9801	5440	5440	5440

	Other Religion			No Religion		
Roman Catholics Region	0.275 (0.678)			0.663** (0.212)		
Protestants Region		0.913 (0.614)			0.712** (0.235)	
No Religion Region			-0.782 (0.779)			-1.085** (0.212)
Observations	2841	2841	2841	11226	11226	11226

A Summary

	Horizontal Comparisons (Status)	*Intertemporal Comparisons (Adaptation)*
Income	Yes	Yes
Unemployment	Yes	No
Marriage/Divorce	?	Yes
Health	Perhaps?	Partial?
Social Activities	Perhaps?	No?
Freedom	?	?
Religion	Perhaps?	?