

WHAT PREDICTS A SUCCESSFUL LIFE? A LIFE-COURSE MODEL OF WELLBEING

ANDREW E. CLARK

(Paris School of Economics - CNRS)

FRANCESCA CORNAGLIA

(Queen Mary University)

RICHARD LAYARD

(London School of Economics)

NATTAVUDH POWDTHAVEE

(London School of Economics)

JAMES VERNUIT

(London School of Economics)

**14/1/2016. HEIRS Economics, Health and
Happiness. Lugano.**

AIM

We wanted to try to understand the big
(well-being) picture

AIM

We estimate a model to try to answer the following

- (i) How important are the different adult outcomes (economic, social and personal) for well-being?
- (ii) What is the role of child development (intellectual performance, conduct and emotional health) and family background on adult life-satisfaction: both direct and via adult outcomes?
- (iii) How far can we predict adult life-satisfaction at different earlier points in a person's life? In other words, does the child “reveal” the adult? Or can we all be remade in adulthood?

British Cohort Study

- Over 17000 people born in England, Scotland and Wales in a single week in 1970.
- At age 34: 8,868 obs.
- **Aim:** Explain adult life-satisfaction (0-10) at age 34: “How dissatisfied or satisfied are you about the way your life has turned out so far?”
- We explain life-satisfaction by seven adult outcome variables (X_A), three sets of childhood characteristics (X_C), and family characteristics (F_0).

Adult outcomes (X_A)

Economic	Log income (equivalised) Educational achievement Employed (measured as not unemployed)	at 34 by 34 at 34
Social	Good conduct (= -no. of crimes) Has a partner	at 16-34 at 34
Personal	Self-perceived health Emotional health	at 26 at 26

British Cohort Study

- Education is a weighted sum of six education outcomes: weights from coefficients in a wage equation
- Has a partner is a weighted sum of four marital status outcomes: weights from coefficients in a life satisfaction equation
- Adult EH from 24 Yes/No questions relating to tiredness, depression, worry, irrational fear, rage, irritation, tension and psychosomatic symptoms

- We measure emotional health and self-perceived health at age 26 rather than at 34
- This avoids the charge that these are synonyms of life-satisfaction rather than predictors of it

- Distal variables include those from the child (X_C) and their parents (“family background”: F_0)
- We consider three main dimensions of child development – **intellectual performance, social behaviour and emotional health** (these are the three relevant childhood counterparts to the seven adult X_A 's described above)

- These three are distinct from each other
- **Social behaviour** relate to destroying things, fighting, stealing, disobedience, lying, bullying, being disliked and unsettled and impulsive behaviour.
- Questions on children's **emotional health** are more internal, and relate to worry, unhappiness, sleeplessness, eating disorder, bedwetting, fearfulness, school avoidance, tiredness, and psychosomatic pains.

- The BCS data provide us with measurements on the three child variables at ages 5, 10 and 16.
- We also have measurements on the family at different ages
- For simplicity we consolidate these into one overall measure for each of the X_C and F_0 variables (composite variables make the tables easier to read)

Childhood and Family Variables

	Age of child
Child characteristics	
Intellectual performance	5, 10, 16
Good conduct	5, 10, 16
Emotional health	5, 10, 16
Family background	
<i>Economic</i>	
Father's socio-economic group	10
Family income	10
Number of siblings	10
Father in work	0, 5, 10 average
Mother's and father's age on leaving full-time education	--
<i>Psycho-social</i>	
Mother's emotional health	5, 10 average
Child conceived within marriage	--
Both parents still together	10

- Analysis is by OLS
- Variables (except gender) are standardised throughout. Thus all coefficients are standardised regression coefficients (β -coefficients).
- The squared value of each coefficient shows how much the right-hand variable contributes on its own to the variance of the left-hand variable (ignoring its covariance with the other right-hand variables).

- There are many missing values for the variables that we want to use.
- Each regression is performed on all survey members for whom we have a non-missing value of the left-hand variable.
- When there are no data on a right-hand variable, we introduce a variable-specific dummy (Missing Indicator method).
- The alternative Multiple Imputation method produces very similar main results

Predictors of life-satisfaction at 34

LS on X_A : Partial correlation coefficients x100

	Using adult variables only
Log income	5.5
Educational achievement	3.5
Employed	8.5
Good conduct	6.6
Has a partner	11.6
Self-perceived health (26)	6.8
Emotional health (26)	20.4
(Female)	(6.8)

- Column 1 shows proximal correlations
- All adult outcomes important
- Emotional Health (at age 26) by far the most important; education the least important
- Can do a sort of panel analysis on the change in life satisfaction 26-34 on the change in “having a partner”, self-perceived health and emotional health; or introduce a lagged dependent variable.
- Ordering of RHS variable importance the same

Predictors of life-satisfaction at 34

LS on X_C and F_0 : Partial correlation coefficients x100

	Using childhood variables only
Intellectual performance (5, 10, 16)	4.5
Good conduct (5, 10, 16)	8.5
Emotional health (5, 10, 16)	17.4
Family economic	5.5
Family psychosocial	3.0
(Female)	(8.2)

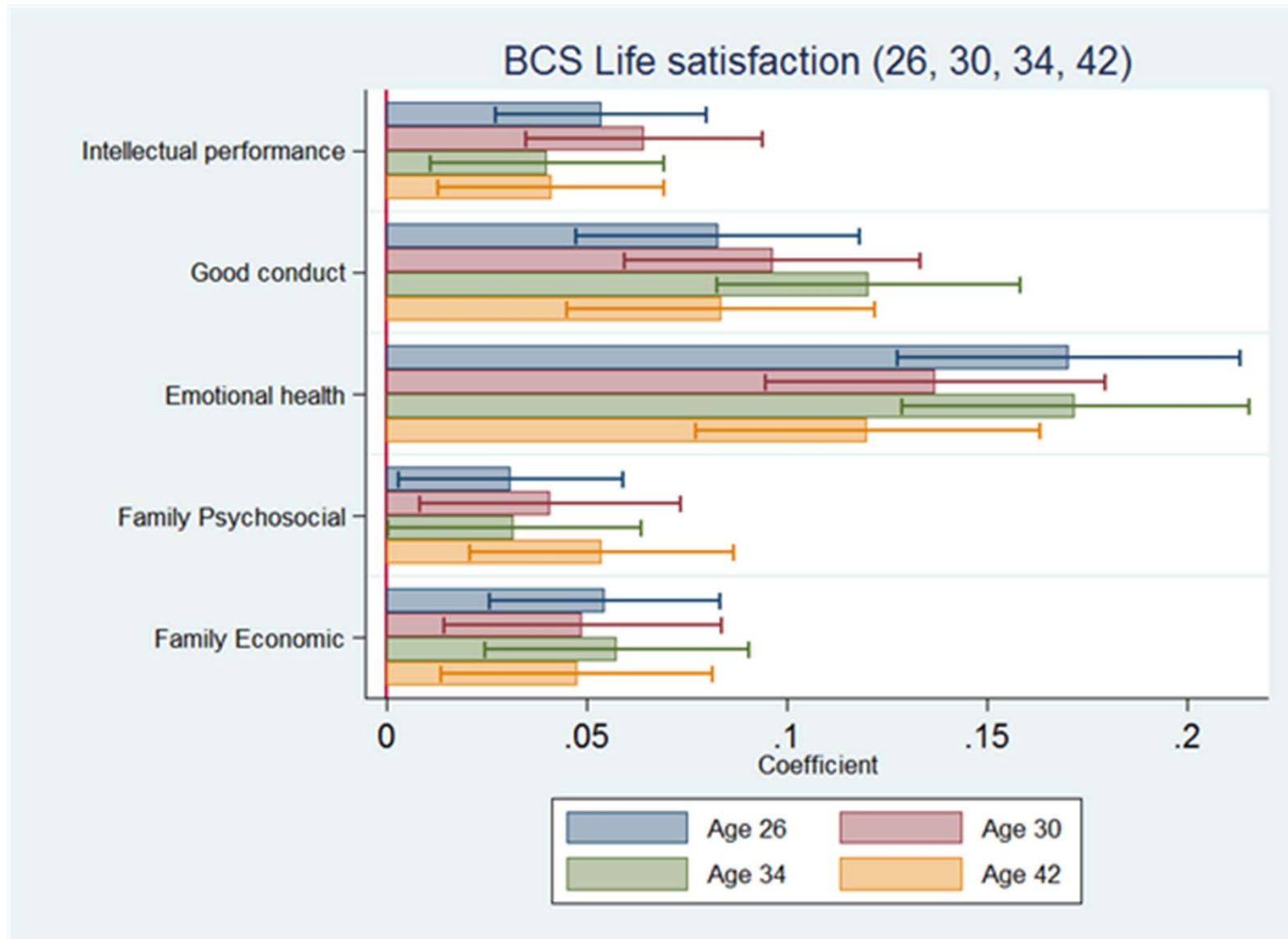
- Column 2 shows distal correlations
- Again emotional health emerges as the most important variable – in childhood as in adulthood.
- Next comes behaviour as a child.
- Intellectual development is the least important of the three dimensions
- This ranking is probably the inverse of that of most policy-makers.
- Family background continues to matter, even controlling for child characteristics

Predictors of life-satisfaction at 34

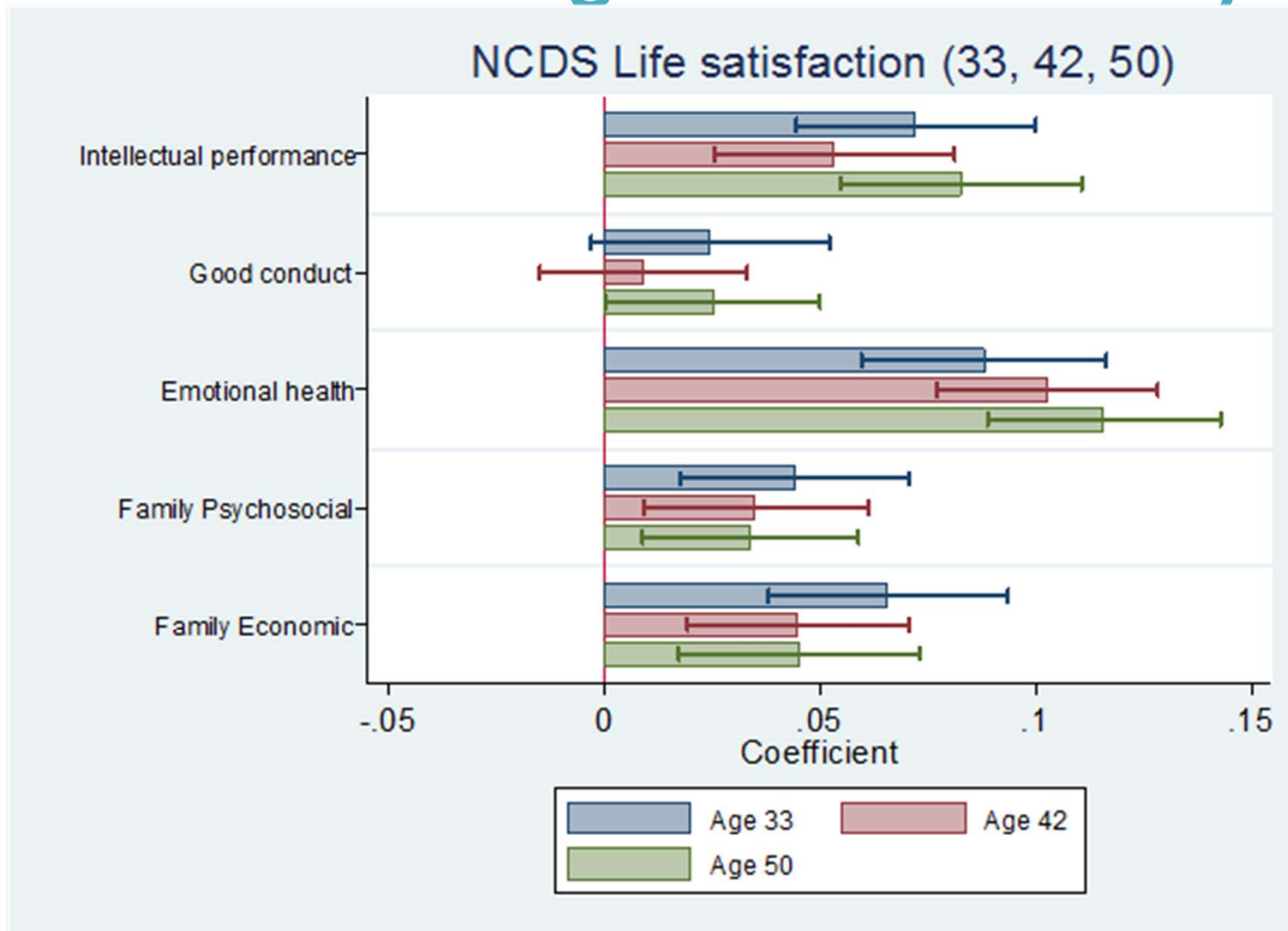
LS on X_A , X_C and F_0 : Partial correlation coefficients x100

	Using adult variables only	Using childhood variables only	Using both
Log income	5.5		5.2
Educational achievement	3.5		2.9
Employed	8.5		8.2
Good conduct	6.6		6.1
Has a partner	11.6		11.3
Self-perceived health (26)	6.8		6.5
Emotional health (26)	20.4		18.1
Intellectual performance (5 10 16)		4.5	-3.5
Good conduct (5 10 16)		8.5	5.2
Emotional health (5 10 16)		17.4	9.8
Family Economic		5.5	2.5
Family Psychosocial		3.0	2.4
Female	6.8	8.2	7.2
Observations	8,868	8,868	8,868

Childhood determinants of adult life-satisfaction are stable at different ages



National Child Development Study (17,000 people born in England, Scotland and Wales in a single week of 1958)



- Are adult outcomes entirely determined by early life?
- Column 3 shows that adult life still has an important impact on life-satisfaction even after we control for family and childhood, with coefficients on adult characteristics little reduced
- Those on child characteristics are mostly reduced by about a half.
- Half the effect of childhood on adult life-satisfaction is mediated through the effect of childhood on adult outcomes

Direct model of all adult outcomes

- We can directly examine the effect of childhood on the adult outcomes.
- The specification here is the same as that used to predict adult life-satisfaction in column 2 of Table 1

Structural equations for adult success

	(1) Log income	(2) Educational achievement	(3) Employed	(4) Good conduct	(5) Has a partner	(6) Self-perceived health (26)	(7) Emotional health (26)	(8) Life- satisfaction
Intellectual performance	0.136	0.437	0.028	0.074	0.095	0.086	0.097	0.045
(5 10 16)	(0.014)	(0.012)	(0.015)	(0.012)	(0.016)	(0.015)	(0.013)	(0.016)
Good conduct	0.031	0.078	0.008	0.169	0.089	0.054	0.078	0.085
(5 10 16)	(0.019)	(0.013)	(0.028)	(0.018)	(0.020)	(0.022)	(0.018)	(0.019)
Emotional health	0.069	0.036	0.017	-0.056	-0.023	0.158	0.328	0.174
(5 10 16)	(0.018)	(0.036)	(0.055)	(0.014)	(0.020)	(0.020)	(0.021)	(0.021)
Family Economic	0.081	0.188	0.020	0.087	0.038	0.056	0.075	0.055
	(0.015)	(0.015)	(0.031)	(0.088)	(0.063)	(0.019)	(0.029)	(0.018)
Family Psychosocial	-0.009	0.023	-0.027	0.038	0.030	0.043	0.066	0.030
	(0.064)	(0.013)	(0.015)	(0.015)	(0.028)	(0.016)	(0.018)	(0.016)
Female	0.175	-0.014	0.041	0.409	-0.061	-0.090	-0.306	0.082
	(0.022)	(0.018)	(0.020)	(0.018)	(0.025)	(0.023)	(0.021)	(0.022)

- When we consider the **economic outcomes** (income, unemployment and educational achievement), the most powerful influence is the intellectual development of the child and the child's socio-economic background.
- These are standard findings in labour economics.

- The pattern changes sharply for **social outcomes** (criminality and family formation)
- Here the key is how the person behaved as a child.
- For the ‘personal’ outcomes, **adult emotional health and self-perceived health**, by far the most important influence from childhood is the child’s emotional health.
- This echoes our earlier finding that adult life-satisfaction depends the most heavily on emotional health as a child.

Does the child reveal the adult?

- At what stage of an individual's development can we predict their adult outcomes?
- The proper test of predictability is the R^2 s: these appear in the following Table

Predicting adult outcomes from different ages of childhood

(Dependent variables are standardized at 24)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log income	Educational achievement	Employed	Good conduct	Has a partner	Self-perceived health (26)	Emotional health (26)	Life-satisfaction
<i>Information on:</i>								
Family only	0.021	0.176	0.007	0.028	0.009	0.022	0.051	0.018
Up to age 5	0.029	0.176	0.008	0.043	0.016	0.027	0.061	0.022
Up to age 10	0.035	0.247	0.009	0.051	0.019	0.029	0.071	0.027
Up to age 16	0.050	0.376	0.010	0.070	0.029	0.067	0.207	0.071

Source: See Meyer (2011)

- As Frijters *et al.* have pointed out, life-satisfaction is extremely difficult to predict even at age 10 and only slightly easier at age 16.
- The most predictable outcome is educational achievement.
- Family income is difficult to predict from information up to age 16, as is life-satisfaction.
- Almost all outcomes are much easier to predict at age 16 than at age 5.

What we don't know (yet)

- What should we maximise: life satisfaction at age 34, or the sum over the whole life?
- We need to know costs as well as benefits
- So how do we actually change any of the child variables?
- This is what we are looking at in our current work on ALSPAC (parental characteristics, conflict and separation, moving house, mother's work, child poverty, school variables)

Childhood Circumstances and Adulthood Outcomes: The Effects of Financial Insecurity

MARTA BARAZZETTA
Université du Luxembourg

ANDREW E. CLARK
Paris School of Economics - CNRS

CONCHITA D'AMBROSIO
Université du Luxembourg

Outline

- Introduction and research questions
- ALSPAC data
- Results
- Conclusions

Outline

- Introduction and research question
- ALSPAC data
- Results
- Conclusions

We consider the role of **income** and **financial insecurity** in child development.

The executive summary of the well-known **Shriver Report: A Woman's Nation Pushes Back from the Brink**. (Center for American Progress, 2014) opens with a sentence revealing that the most common shared story in today's America is **family financial insecurity**.

One in three women are facing financial difficulties: “Forty-two million women, and the 28 million children who depend on them, are living **one single incident—a doctor's bill, a late paycheck, or a broken-down car—away from economic ruin**. Women make up nearly two-thirds of minimum-wage workers, the vast majority of whom receive no paid sick days. This is at a time when women earn most of the college and advanced degrees in this country, make most of the consumer spending decisions by far, and are more than half of the nation's voters.”

Two main questions in the existing literature:

1. Whether income matters for future children's achievements
2. When it matters (timing)

This literature has mostly considered income as a measure of resources, and mainly cognitive outcomes:

We do better on both fronts

1. Whether income matters → Two main channels identified in the literature through which income is supposed to exert a positive effect on children well-being:

- **Investment-model channel:** income **directly** affects the parent's ability to purchase resources and services useful for child development → model of family as economic unit that decides how to allocate its resources (see Becker, 1981, Becker and Tomes, 1986,1994)
- **Family-process channel:** income affects family relationship and parent's behavior toward children reducing parental stress → income influences children's well-being **indirectly** through its effect on **mediating factors**, such as parent's psychological well-being and parent's activities with the child (see e.g. Guo and Harris, 2000, Yeung et al, 2002, Washbrook, 2014)
- We address the latter by considering **mother's mental health** as a mediating variable.

- Our point of departure was that income may capture only part of the story: financial insecurity also matters. And financial insecurity is not perfectly correlated with income (affects not only the poorest but also the wider middle class)
 - We use data from a very detailed cohort study
 - What is the effect of mothers reporting of **major financial problems** during childhood on child outcomes compared to that of **income**?
 - We consider the effect of financial insecurity and income on a **rich set of child outcomes**, both cognitive and non-cognitive
 - **Timing** of events is explored for all the outcomes

Outline

- Introduction and research questions
- **ALSPAC data**
- Results
- Conclusions

ALSPAC data

- Avon Longitudinal Study of Parents and Children (“Children of the 90s”): cohort studies that recruited over 14,000 pregnant women who were due to give birth between April 1991 and December 1992 in Bristol and surrounding areas
- Sample of 13,978 children alive at 12 months
- Designed to study the effect of environmental, genetic and socio-economic influences on children’s health and development
- Mostly used by epidemiologists
- Very detailed:
 - High-frequency reported measures on multiple outcomes
 - Multiple observers (parents, child, teachers, clinicians, etc.)
 - Data linkage with external sources (e.g. National Pupil Database)
 - Clinical data (cognitive and physical measures)
 - Bio resources (blood, placenta, saliva, etc. of both parents and children)
 - Different types of questionnaires (child-based, child-completed, carer-completed, partner-completed)

ALSPAC data



ALSPAC data



Carer questionnaires

Title	File	Timepoints	Collection Dates	Number	Download
Your Environment	A	8 to 42 wks gest	6/Sep/1990 - 7/Oct/1992	13548	Questionnaire
About Yourself	D	12 wks gest	5/Nov/1990 - 3/Aug/1993	12452	Questionnaire
Having a Baby	B	18 wks gest	21/Nov/1990 - 14/Sep/1992	13194	Questionnaire
Your Pregnancy	C	32 wks gest	4/Mar/1991 - 4/Jan/1993	12423	Questionnaire
Me and My Baby	E	8 weeks	11/May/1991 - 30/Apr/1993	11712	Questionnaire
Looking After The Baby	F	8 Months	Apr/1992 - Oct/1993	11213	Questionnaire
Caring for a Toddler	G	21 months	23/Sep/1992 - 5/Nov/1994	10313	Questionnaire
Your Health Events and Feelings	H	33 months	2/Oct/1993 - 18/Nov/1995	9641	Questionnaire
Mother's New Questionnaire	J	47 months	22/Nov/1994 - 14/Jan/1997	9504	Questionnaire
Study Mother's Questionnaire	K	61 months	31/Jan/1996 - 18/Mar/1998	9021	Questionnaire
Mother's Lifestyle	L	73 months	4/Feb/1997 - 16/Mar/1999	8531	Questionnaire
Mother and Home	M	85 months	3/Aug/1998 - 17/Mar/2000	8365	Questionnaire
Mother and Family	N	97 months	30/Sep/1999 - 24/May/2001	8011	Questionnaire
Mother of a 9 year old	P	110 months	9/Oct/2000 - 15/Apr/2002	7983	Questionnaire
You and your surroundings	Q	122 months	30/Aug/2001 - 17/Apr/2003	8155	Questionnaire
Lifestyle and Health of Mother	R	134 months	1/Jul/2002 - 26/May/2004	7679	Questionnaire
Twelve Years On	S	145 months	14/May/2003 - 5/May/2005	7099	Questionnaire
You & Your Life	T	18 years	May/2010 - Sep/2010	4175	Questionnaire
You & Your Study Young Person	U	20 years	Sep/2011 - Oct/2011		Questionnaire
Your Life in 2013	V	22 years	ongoing; piloted in May 2013		Questionnaire
Adult learning	XA		21/May/2004 - 22/Oct/2004	5378	Questionnaire
About Eating	XB		Jan/2010 - Feb/2010	5661	Questionnaire

Child based questionnaires

Title	File	Timepoints	Collection Dates	Number	Download
My Young Baby Girl/boy	KA	4 weeks	13/Apr/1991 - 2/Apr/1993	12353	Questionnaire
My Daughter/Son	KB	6 months	5/Jul/1991 - 16/Aug/1993	11490	Questionnaire
My Infant Daughter/Son	KC	15 months	12/Aug/1992 - 12/May/1994	11077	Questionnaire
Girl/Boy Toddler	KD	18 months	1/Oct/1992 - 11/Aug/1994	11130	Questionnaire
My Little Girl/Boy	KE	24 months	8/Jan/1993 - 20/Feb/1995	10432	Questionnaire
My Study Son/Daughter	KF	30 months	Jan/1994 - Aug/1995	10349	Questionnaire
My 3 Year old Boy/Girl	KG	38 months	3/Mar/1994 - 18/Apr/1996	10145	Questionnaire
My Son's /Daughter's Health & Behaviour	KJ	42 months	6/Jul/1994 - 2/Oct/1996	10063	Questionnaire
My Young 4 Year Old Boy/Girl	KK	54 months	1/Jul/1995 - 16/Aug/1997	9722	Questionnaire
Development and Health of My Son/Daughter	KL	57 months	25/Jan/1996 - 20/Nov/1997	9531	Questionnaire
My Five year old Son/Daughter	KM	65 months	7/Oct/1996 - 11/Jul/1998	9013	Questionnaire
My School Boy/Girl	KN	69 months	12/Feb/1997 - 11/Dec/1998	8698	Questionnaire
My Daughter/Son Growing Up	KP	77 months	12/Nov/1997 - 22/Jul/1999	8578	Questionnaire
My Son/Daughter At School	KQ	81 months	4/Mar/1998 - 10/Nov/1999	8515	Questionnaire
My Son's/Daughter's Well-Being	KR	91 months	30/Jul/1998 - 10/Oct/2000	8269	Questionnaire
My Son/Daughter's Health	KS	103 months	12/May/2000 - 14/Sep/2001	8339	Questionnaire
My Son/Daughter at Home & At School	KT	103 months	12/May/2000 - 14/Sep/2001	8304	Questionnaire
Your Son/Daughter at 9	KU	115 months	15/Feb/2001 - 4/Nov/2002	8227	Questionnaire
My Son's/Daughter's Health and Happiness	KV	128 months	4/Feb/2002 - 28/Nov/2003	7925	Questionnaire
Being a Girl/Boy	KW	140 months	3/Dec/2002 - 5/Nov/2004	7486	Questionnaire
My Teenage Son / Daughter	TA	157 months	28/May/2004 - 11/Apr/2006	7088	Questionnaire
Wellbeing of My Teenage Son/Daughter	TB	166 months	31/May/2005 - 18/Dec/2006	7084	Questionnaire
Year 11 questionnaire for parents and carers	TXA	192 months (approx. 16 years)	21/Mar/2007 - 20/Nov/2009	5967	Questionnaire

Child completed questionnaires

Title	File	Timepoints	Collection Dates	Number	Download
Your Own Questionnaire	CCA	65 months	7/Oct/1996 - 11/Jul/1998	7554	Questionnaire
My Second Questionnaire	CCA	69 months	12/Feb/1997 - 11/Dec/1998	7521	Questionnaire
Your Next Questionnaire	CCA	73 months	4/Feb/1997 - 16/Mar/1999	7348	Questionnaire
Growing Up	CCA	77 months	12/Nov/1997 - 22/Jul/1999	7751	Questionnaire
My Questionnaire	CCA	81 months	4/Mar/1998 - 10/Nov/1999	6277	Questionnaire
Things to do	CCA	85 months	3/Aug/1998 - 17/Mar/2000	7426	Questionnaire
My Teeth	CCB	91 months	30/Jul/1998 - 10/Oct/2000	7086	Questionnaire
Me and My School	CCC	97 months	30/Sep/1999 - 24/May/2001	7688	Questionnaire
Some more about me	CCD	103 months	10/May/2000 - 12/Sep/2001	8223	Questionnaire
My VWorld	CCE	110 months	9/Oct/2000 - 15/Apr/2002	8580	Questionnaire
My Hands, My Feet & Me	CCF	115 months	14/Feb/2001 - 4/Nov/2002	8084	Questionnaire
Rings & Things	CCG	122 months	8/Nov/2001 - 17/Apr/2003	8343	Questionnaire
Teeth and Things	CCH	128 months	4/Feb/2002 - 28/Nov/2003	7827	Questionnaire
School Life and Me	CCJ	134 months	1/Jul/2002 - 26/May/2004	7940	Questionnaire
Watches and Funny Feelings	CKK	140 months	3/Dec/2002 - 5/Nov/2004	7544	Questionnaire
All Around Me	CCL	145 months	14/May/2003 - 5/May/2005	7523	Questionnaire
Food and Things	CCM	157 months	28/May/2004 - 11/Apr/2006	7115	Questionnaire
Reading and Singing	CCN	157 months	28/May/2004 - 11/Apr/2006	7109	Questionnaire
Travelling, Leisure and School	CCP	166 months	6/Jul/2005 - 13/Dec/2006	6877	Questionnaire
Boys/Girls' Experiences, Thoughts and Behaviour	CCQ	167 months	27/Sep/2005 - 30/Jan/2007	6160	Questionnaire
Life of a Teenager	CCR	169 months	12/Jan/2006 - 13/Mar/2007	6005	Questionnaire
Life of a 16+ Teenager	CCS	198 months	Oct/2007 - Aug/2009	5131	Questionnaire
Your Changing Life	CCT	18 years	Sep/2010 - May/2011	3372	Questionnaire
It's all about you	CCU	21 years	Sep/2012 - Nov/2012		Questionnaire
Year 11 questionnaire for young people	CCXA*	192 months (approx. 16 years)	22/Mar/2007 - 20/Nov/2009	5439	Questionnaire
You and Your Friends	CCXB*		Apr/2008 - May/2008	3132	Questionnaire
Internet Use	CCXC*	17.5 years	May/2010 - July/2010	1584	Online Q.
DCSF	CCXD*	17.6 years	Dec/2008 - Dec/2010		Online Q.
Gambling	CCXE*	17.5 years	Dec/2008 - Dec/2010		Online Q.
You and Your Body	CCXF*	19.6 years	Sep/2011 - Oct/2011		Online Q.

Partner questionnaires

Title	File	Timepoints	Collection Dates	Number	Download
You and Your Environment	PA	12 wks gest.	5/Nov/1990 - 3/Aug/1993	8624	Questionnaire
Partners Questionnaire	PB	18 wks gest.	21/Nov/1990 - 14/Sep/1992	9960	Questionnaire
Being a Father	PC	8 weeks	11/May/1991 - 30/Apr/1993	8353	Questionnaire
The Baby and Me	PD	8 months	Apr/1992 - Oct/1993	7101	Questionnaire
A Toddler in the House	PE	21 months	23/Sep/1992 - 5/Nov/1994	6155	Questionnaire
Partner's Health Events and Feelings	PF	33 months	2/Oct/1993 - 18/Nov/1995	5462	Questionnaire
Partner's New Questionnaire	PG	47 months	22/Nov/1994 - 14/Jan/1997	5102	Questionnaire
Study Partner's Questionnaire	PH	61 months	31/Jan/1996 - 18/Mar/1998	4750	Questionnaire
Partners' Lifestyle	PJ	73 months	4/Feb/1997 - 16/Mar/1999	4688	Questionnaire
Partner and Home	PK	85 months	3/Aug/1998 - 17/Mar/2000	4230	Questionnaire
Father and Family	PL	97 months	30/Sep/1999 - 24/May/2001	3784	Questionnaire
Father of a 9 year old	PM	110 months	9/Oct/2000 - 15/Apr/2002	3837	Questionnaire
Father and Surroundings	PN	122 months	30/Aug/2001 - 17/Apr/2003	4313	Questionnaire
Lifestyle and Health of Partner	PP	134 months	1/Jul/2002 - 26/May/2004	3840	Questionnaire
About me	PQ	145 months	14/May/2003 - 5/May/2005	3486	Questionnaire
Adult learning - partner	PXA		21/May/2004 - 23/Oct/2004	2700	Questionnaire

Father questionnaires

Title	File	Timepoints	Collection Dates	Number	Download
Focusing on you	FA	21/22 years	24/Jun2013 - 14/Jul2013	TBD	

Puberty questionnaires

Title	File	Timepoints	Collection Dates	Number	Questionnaire (Female)	Questionnaire (Male)
Growing and Changing	PUB1	97 months	30/Sep/1999 - 24/May/2001	6255	Questionnaire	Questionnaire
Growing and Changing 2	PUB2	115 months	15/Feb/2001 - 4/Nov/2002	7017	Questionnaire	Questionnaire
Growing and Changing 3	PUB3	128 months	4/Feb/2002 - 28/Nov/2003	6629	Questionnaire	Questionnaire
Growing and Changing 4	PUB4	140 months	3/Dec/2002 - 5/Nov/2004	6293	Questionnaire	Questionnaire
Growing and Changing 5	PUB5	157 months	28/May/2004 - 11/Apr/2006	6075	Questionnaire	Questionnaire
Growing and Changing 6	PUB6	175 months	26/Apr/2006 - 27/Sep/2007	5163	Questionnaire	Questionnaire
Growing and Changing 7	PUB7		-	4867	Questionnaire	Questionnaire
Growing and Changing 8	PUB8	192 months	1/Mar/2007 - 13/Feb/2009	4760	Questionnaire	Questionnaire
Growing and Changing 9	PUB9	204 months	Jan/2008 - Feb/2010	4370	Questionnaire	Questionnaire

Schools questionnaires

Title	File	Timepoints	Collection Dates	Number	Download
Child's Behaviour and abilities	SA	Year 3	-	7085	Questionnaire
About Your Class	SB	Year 3	-	6808	Questionnaire
About Your School	SC	Year 3	-	5991	Questionnaire
Maths Assessment	SD	Year 4	-	6826	Questionnaire
The Developing Child	SE	Year 6	-	9717	Questionnaire
Questionnaire for Class Teacher	SF	Year 6	-	9334	Questionnaire
Questionnaire for Head Teacher	SG	Year 6	-	6344	Questionnaire
Maths Assessment	SH1	Year 6	-	NA	Questionnaire
Science Assessment	SH2	Year 6	-	NA	Questionnaire
Spelling Assessment	SH3	Year 6	-	NA	Questionnaire
Questionnaire for Maths Teacher 2002/3	SJ		-	NA	Questionnaire
Maths Assessment	SK	Year 8	-	NA	Questionnaire
Questionnaire for Maths Teacher 2004/5	SL		-	NA	Questionnaire

ALSPAC data

Representativeness

- Representativeness of Great Britain population

	Great Britain (%)	Avon (%)	ALSPAC (%)
Owner Occupier	63.4	68.7	79.1
Car in household	75.6	83.7	90.8
Married couple	71.8	71.7	79.4
Non-white mother	7.6	4.1	2.2

- Characteristics of ALSPAC children compared to rest of the UK

	Birth		1 year clinic		2 year clinic	
	ALSPAC	UK 1990	ALSPAC	UK 1990	ALSPAC	UK 1990
Male						
Weight (kg)	3.55	3.55	10.54	10.15	13.03	12.53
Length (cm)	51.26	51.09	76.53	76.23	87.54	87.82
Female						
Weight (kg)	3.42	3.41	9.84	9.73	12.42	12.29
Length (cm)	50.41	50.21	74.6	74.43	86.17	86.49

ALSPAC data: Summary stats

	Mean	Std. Dev.	Min.	Max.
Net weekly hh income (log)	5.9	0.42	4	7
No. years mother worked	4.8	3.79	0	11
No. children in the hh	1.4	0.97	0	10
Mother's age at birth	28.0	4.96	15	44
No. location moves	1.6	1.06	0	16
Gender (% males)	51.7	0.50	0	1
Child's ethnicity (% white)	82.1	0.20	0	1
First born (%)	31.0	0.46	0	1
Mother immigrant (% not born in Europe)	2.5	0.16	0	1
Single-adult hh (%)	21.4	0.41	0	1
Parents' divorced/separated (%)	18.6	0.38	0	1
Mother's highest qualification				
High school (%)	44.5			
Degree (%)	17.7			
Father's highest qualification				
High school (%)	39.0			
Degree (%)	17.0			

Aim

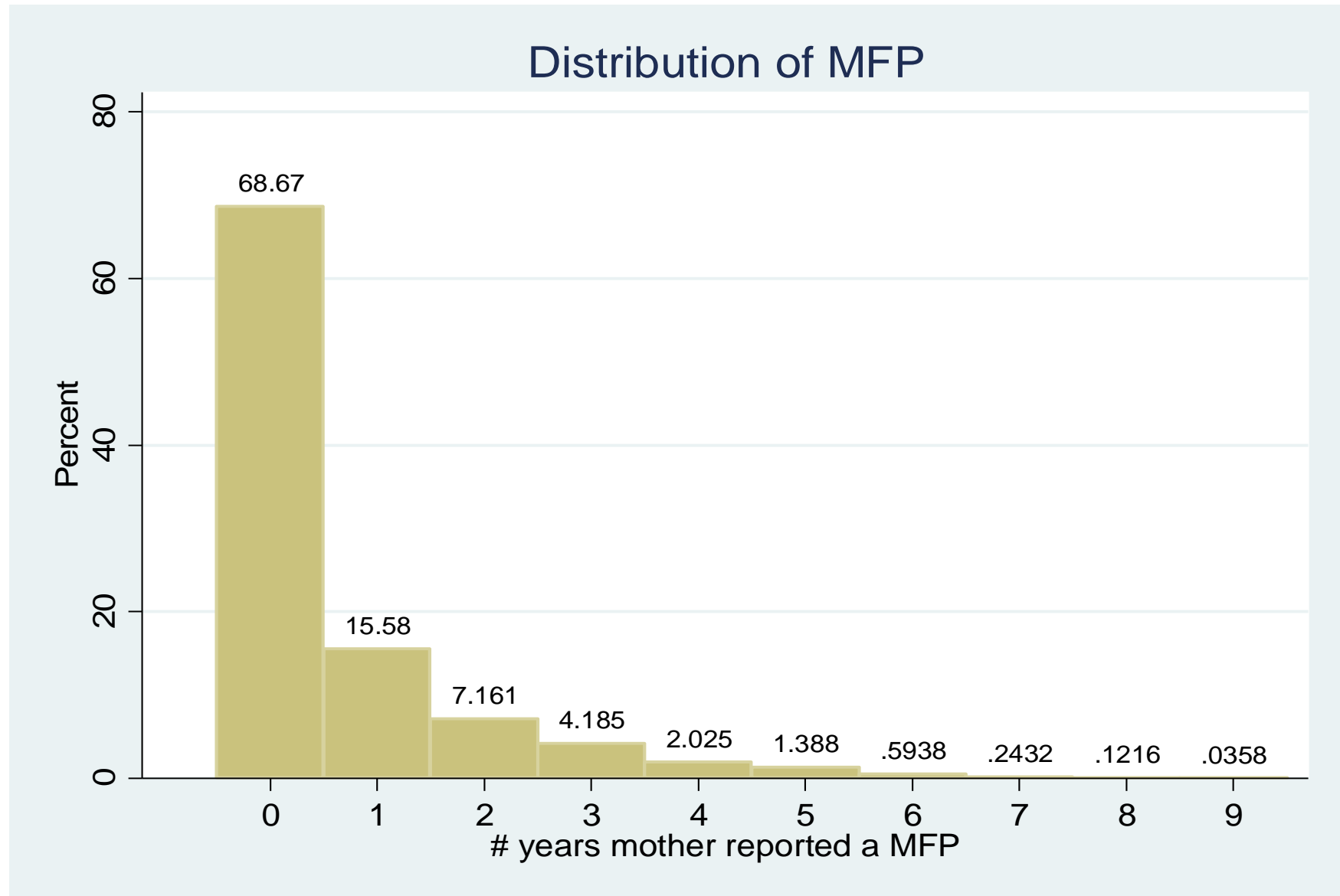
We use ALSPAC data to try to pick out the role of events on subjective well-being over the (young) life course.

In this paper, we consider economic resources, as measured by household income and a measure of financial insecurity

ALSPAC data: Financial insecurity

- Proxy of financial insecurity: mother had a major financial problem (MFP)
“Listed below are a number of events which may have brought changes in your life. Have any of these occurred since your study child’s XXX birthday?”
 - You had a major financial problem
- Measure of financial insecurity: # years mother reported to have a MFP from child’s birth to age 11
- 35% of mothers reported a MFP at least once from child’s birth to age 11
- MFP incidence (per year) very strongly correlated with the unemployment rate (correlation coefficient of 0.94).

ALSPAC data: Financial insecurity



ALSPAC data: Income

HH Income

Ages 3, 4, 7, 8 (mean)

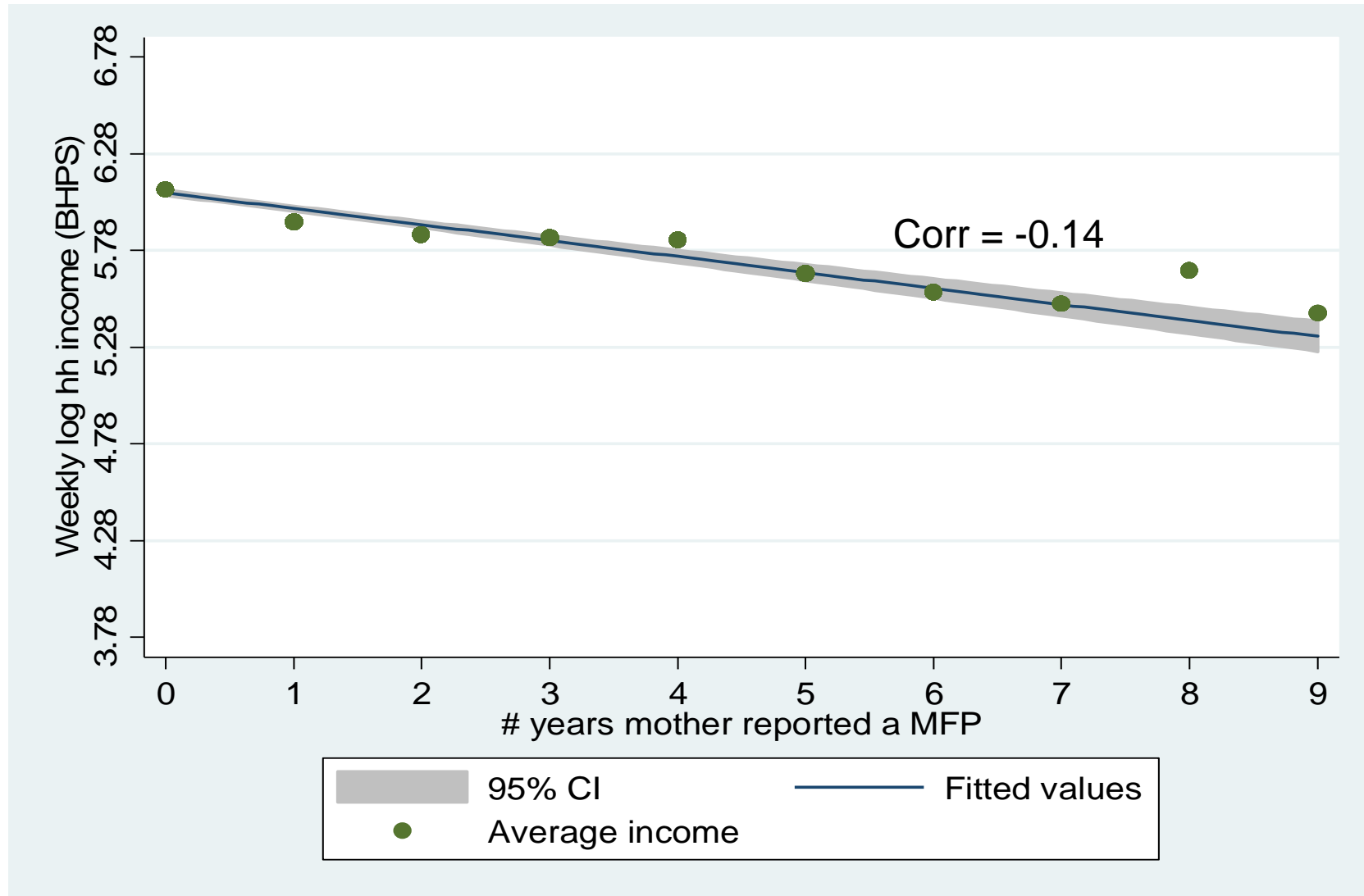
ALSPAC Band	Observed value from FRS
< £100	62.77
£100 - £199	153.38
£200 - £299	248.03
£300 - £399	347.74
£400+	679.48

Age 11

ALSPAC Band	Observed value from FRS
< £120	72.94
£120-189	156.51
£190 -239	215.69
£240 -289	265.64
£290 -359	324.25
£360 -429	394.95
£430 -479	453.94
£480 -559	520.91
£560 -799	667.22
£800+	1130.13

ALSPAC data: Financial insecurity

Correlation between income and financial insecurity



ALSPAC data: Children's achievements

We consider the following cognitive and non-cognitive achievements:

- Non-cognitive outcomes:
 - Subjective well-being (SWB) at age 16 and 18
 - Antisocial behaviours at age 16
 - Conduct (externalising SDQ) and emotional health (internalising SDQ) at age 11
 - BMI at ages 11, 13 and 16
- Cognitive outcomes:
 - Educational outcomes at age 16

- **SWB**: Short Moods and Feeling Questionnaire (SMFQ)
 - Composed of several items reflecting how the child felt over the past two weeks (e.g. feeling miserable or unhappy, crying a lot, feeling lonely)
 - It consists of 17 items at age 16 and 13 items at age 18. We use the 13 common items (scores standardized in analyses)
 - Child-reported at age 16 and 18
 - Carer-reported at age 16

- **Antisocial behaviours**: Development and Well-being Assessment (DAWBA)
 - Long questionnaire assessing common emotional, behavioural and hyperactivity disorders
 - Carer-reported
 - Focus on troublesome behaviours: carer is asked to report whether the child exhibited a certain type of behaviour over the last 12 months on a list of 15 behaviours (e.g. bullying people, stealing from shops, being physical cruel with someone)

- **Conduct and emotional health:** Strengths and Difficulties Questionnaire (SDQ)
 - Teacher-reported
 - Five components: emotional health, conduct problems, hyperactivity, peer-relations problems, prosocial behaviours
 - Focus on the sum of the emotional health and peer problems (internalising SDQ) and the sum of conduct problems and hyperactivity (externalising SDQ)

- **Physical Health:** BMI
 - BMI at age 11, 13 and 16, compared to the distribution of BMI in other children of the same age, by sex.
 - BMI is considered normal between the 5th and 85th percentiles.
 - We use a dummy variable for “normal” BMI (between the 5th and 85th percentiles), at ages 11, 13 and 16.

- **Educational outcomes:** GCSE qualification (Key Stage 4)
 - Exam taken in the UK at the end of compulsory school (age 16)
 - Results from National Pupil Database
 - Outcomes considered:
 - Dummy for achieving the highest qualification, i.e. Level 2 (at least five A*-C grades)
 - Average final points from all the subjects

ALSPAC data: Empirical strategy

For each outcome we estimate two models:

1) Overall childhood (age 0 to 11):

$$CO_i = \alpha + \beta MFP_i^{0-11} + \gamma \ln y_i^{0-11} + \delta X_i + \varepsilon_i$$

2) Early versus late childhood (age 0 to 5 versus 6 to 11):

$$CO_i = \alpha + \beta_1 MFP_i^{0-5} + \beta_2 MFP_i^{6-11} + \gamma_1 \ln y_i^{0-5} + \gamma_2 \ln y_i^{6-11} + \delta_1 X_i^{0-5} + \delta_2 X_i^{6-11} + \varepsilon_i$$

Where:

i denotes the child

MFP_i = # years mother reported to have a major financial problem

$\ln y_i$ = log hh income

X_i = controls (mother's age at birth, first born, parent's education, no. children, parents' divorced or separated, single-parent hh, child's ethnicity, mother from a non-EU country, no. house moves, no. years mother worked, parental childcare, private school, home ownership)

ALSPAC data: Empirical strategy

We use the same kinds of empirical tools as in the BCS/NCDS papers above.

- Missing indicator method for missing RHS variables.
- IPW weighting for attrition.
- All continuous variables normalised (estimated coefficients are beta scores)

Outline

- Introduction and research questions
- ALSPAC data
- **Results**
- Conclusions

Results – Overall childhood Subjective well-being

	SWB at age 16	SWB at age 18	SWB at age 16 (carer-reported)
No. years mother had a MFP	-0.078*** (0.0191)	-0.075*** (0.0202)	-0.094*** (0.0247)
Net hh income (ln)	0.010 (0.0242)	0.022 (0.0251)	0.025 (0.0256)
Controls	Yes	Yes	Yes
<i>N</i>	2220	2220	2220
R ²	0.08	0.07	0.06

Significance levels: * $p < 0.01$; ** $p < 0.05$; *** $p < 0.10$. Std. errors in parentheses. All variables are standardized.

Results – Overall childhood

Antisocial behaviours, Conduct and Emotional health (carer)

	Antisocial behaviours at age 16	Emotional health at age 11	Behavioural score at age 11
No. years mother had a MFP	0.078*** (0.0195)	-0.089*** (0.0164)	-0.077*** (0.0141)
Net hh income (ln)	-0.004 (0.0187)	0.062** (0.0205)	-0.014 (0.0194)
Controls	Yes	Yes	Yes
N	3829	3829	3829
R2	0.06	0.05	0.08

*Significance levels: *p<0.01; **p<0.05; ***p<0.10. Std. errors in parentheses. All the variables are standardized.*

Results – Overall childhood

Antisocial behaviours, Conduct and Emotional health (teacher)

	Antisocial behaviours at age 11	Emotional health at age 11	Behavioural score at age 11
No. years mother had a MFP	0.024** (0.0109)	-0.026** (0.0127)	-0.032*** (0.0112)
Net hh income (ln)	0.023 (0.0141)	0.039** (0.0155)	-0.015 (0.0137)
Controls	Yes	Yes	Yes
N	6290	6290	6290
R2	0.10	0.05	0.20

*Significance levels: *p<0.01; **p<0.05; ***p<0.10. Std. errors in parentheses. All the variables are standardized.*

Results – “Normal” BMI

	Normal BMI at age 11	Normal BMI at age 13	Normal BMI at age 16
No. years mother had a MFP	-0.039 (0.0261)	-0.055** (0.0257)	-0.058* (0.0276)
Net hh income (ln)	0.008 (0.0341)	0.011 (0.0328)	0.030 (0.0327)
Controls	Yes	Yes	Yes
<i>N</i>	1561	1561	1561
R2	0.03	0.04	0.04

*Significance levels: * $p < 0.01$; ** $p < 0.05$; *** $p < 0.10$. Std. errors in parentheses. All the variables are standardized.*

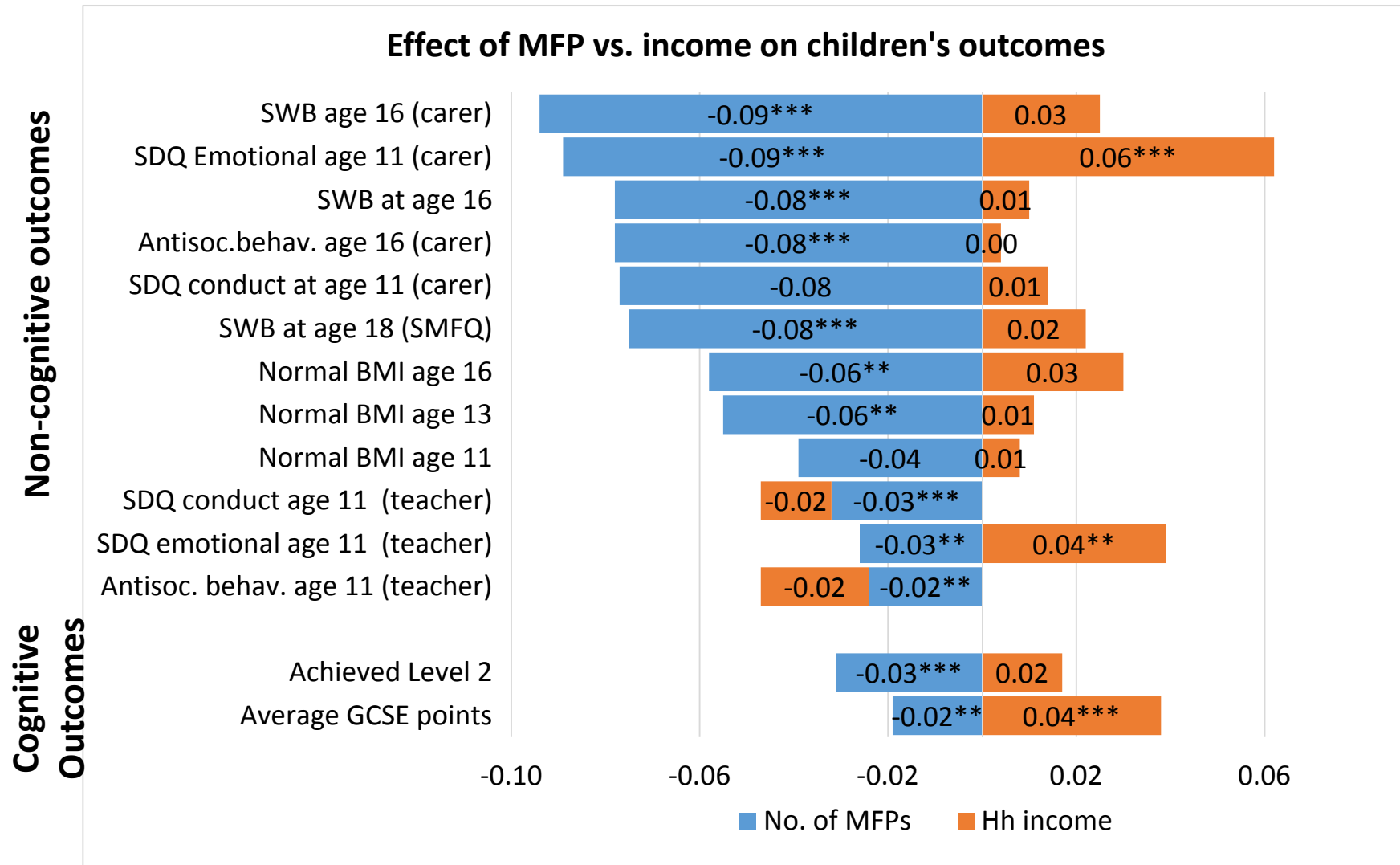
Results – Overall childhood Educational achievements

	Achieved highest level at GCSE	Average GCSE points
No. years mother had a MFP	-0.031*** (0.0093)	-0.019** (0.0078)
Net hh income (ln)	0.017 (0.0111)	0.038*** (0.0096)
Controls	Yes	Yes
N	9902	9902
R2	0.20	0.33

*Significance levels: *p<0.01; **p<0.05; ***p<0.10. Std. errors in parentheses. All the variables are standardized.*

- MFPs are significantly correlated with all four outcomes, independently of income
- MFP matters more than income for subjective well-being, conduct and BMI
- While income itself plays a larger role for cognitive outcomes (some of the effect of income is picked up by home ownership)

Summary



Results – The mediating effect of mother’s mental health

Child's outcome	No. years mother had MFP	Net hh income (ln)	No. years mother had MFP mother's MH	<i>Effect of mother's MH as mediator</i>
Non-cognitive outcomes				
SWB at age 16 (SMFQ)	-0.078 ^{***}	0.010	-0.052 ^{***}	33.3%
SWB at age 18 (SMFQ)	-0.075 ^{***}	0.022	-0.045 ^{**}	40.0%
SWB at age 16 (SMFQ, carer-reported)	-0.094 ^{***}	0.025	-0.038	59.6%
Antisocial behaviours at age 16	0.078 ^{***}	-0.004	0.060 ^{***}	23.1%
SDQ emotional at age 11	-0.089 ^{***}	0.062 ^{***}	-0.042 ^{**}	52.8%
SDQ conduct at age 11	-0.077 ^{***}	0.014	-0.037 ^{***}	51.9%
Antisocial behaviours at age 11 (teacher)	0.024 ^{**}	0.023	0.018	25.0%
SDQ emotional at age 11 (teacher)	-0.026 ^{**}	0.039 ^{**}	-0.014	46.2%
SDQ conduct at age 11 (teacher)	-0.032 ^{***}	-0.015	-0.024 ^{**}	25.0%
Normal BMI at age 11	-0.039	0.008	-0.037	5.1%
Normal BMI at age 13	-0.055 ^{**}	0.011	-0.059 ^{**}	-7.3%
Normal BMI at age 16	-0.058 ^{**}	0.03	-0.065 ^{**}	-12.1%
Cognitive outcomes				
Achieved Level 2	-0.031 ^{***}	0.017	-0.029 ^{***}	6.5%
Average GCSE points	-0.019 ^{**}	0.038 ^{***}	-0.016 ^{**}	15.8%

Results – Early vs. late childhood

Child's outcome	No. years mother had a MFP		Net hh income (ln)		No. years mother had a MFP mother's MH	
	Age 0-5	Age 6-11	Age 0-5	Age 6-11	Age 0-5	Age 6-11
<i>Non-cognitive outcomes</i>						
SWB at age 16 (SMFQ)	-0.070***	-0.022	-0.019	0.03	-0.051**	-0.008
SWB at age 18 (SMFQ)	-0.055**	-0.031	0.05	-0.008	-0.034	-0.015
SWB at age 16 (SMFQ, carer)	-0.047**	-0.071***	0.031	-0.004	-0.009	-0.041*
Antisoc. behav. age 16	0.053***	0.043**	-0.008	-0.006	0.041**	0.034
SDQ emotional age 11	0.018	-0.03	0.056**	0.009	0.021	-0.021
SDQ conduct age 11	-0.001	-0.018	0.034	-0.003	-0.004	-0.017
Antisoc. behav. age 11 (teacher)	0.009	0.026**	0.006	0.019	0.006	0.021*
SDQ emotional age 11 (teacher)	-0.02	-0.016	0.040**	0.023	-0.013	-0.01
SDQ conduct age 11 (teacher)	-0.028**	-0.015	0.000	-0.01	-0.023*	-0.009
Normal BMI age 11	-0.073**	0.045**	0.026	0.017	-0.071**	0.045**
Normal BMI age 13	-0.065**	0.012	0.058	-0.026	-0.068**	0.009
Normal BMI age 16	-0.088***	0.028	-0.015	0.036	-0.093***	0.024
<i>Cognitive outcomes</i>						
Achieved Level 2	-0.019*	-0.020**	0.006	0.014	-0.017*	-0.018*
Average GCSE points	-0.015*	-0.007	0.042***	0.036***	-0.012	-0.004

Outline

- Introduction and research questions
- ALSPAC data
- Results
- **Conclusions**

Conclusions

- We are correlating mother's reported financial insecurity with a number of child outcomes
- Could this just be a mood effect? We shouldn't correlate subjective with subjective.
- But...
- The outcomes are measured up to 17 years after the MFP
- Some of them are not reported by the mother, but by the child
- And some are not even subjective

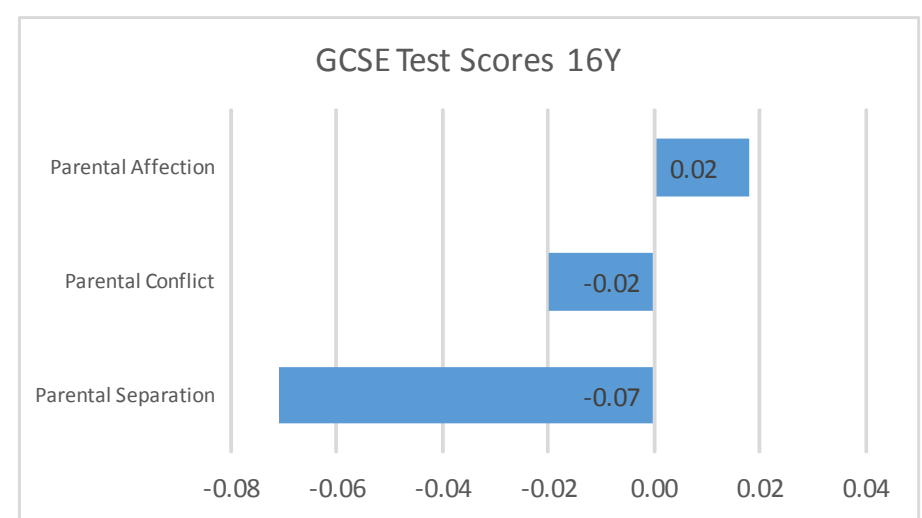
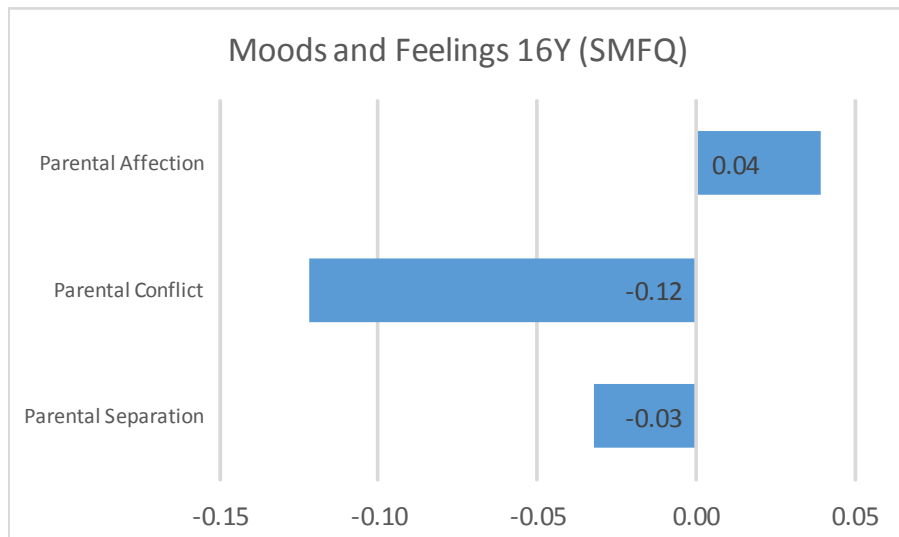
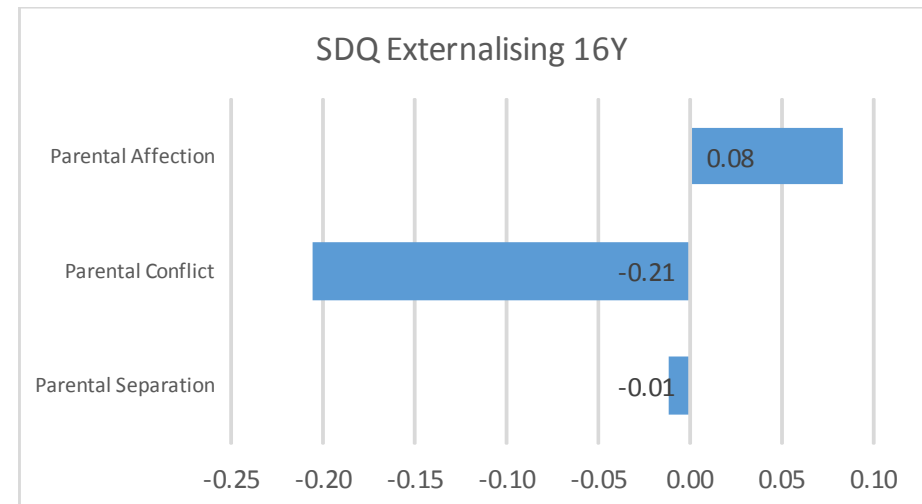
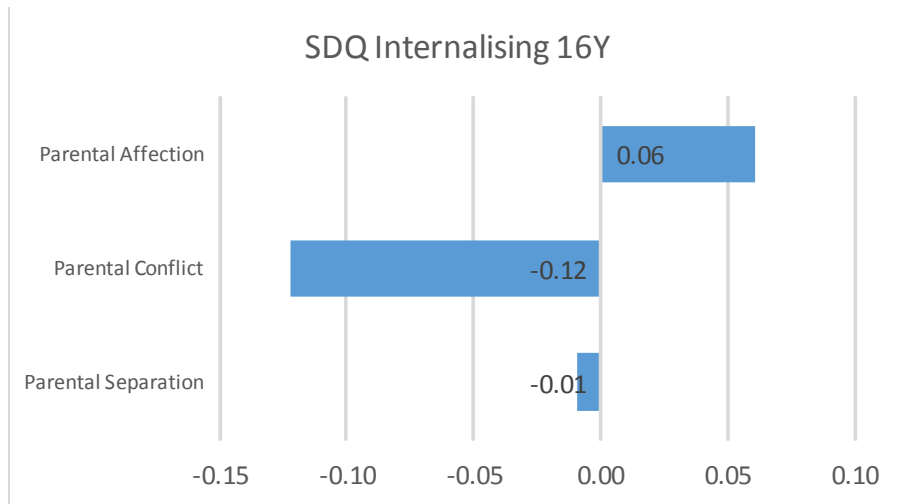
Conclusions

- **Financial insecurity has a negative significant effect** on both cognitive and non-cognitive child outcomes, conditional on income.
- Financial insecurity and income both matter: **financial insecurity** matters more than income for **non-cognitive achievements**: a one-standard deviation rise in MFP leads to an average 0.07 standard deviation fall in non-cognitive outcomes. **Income** matters more for **educational outcomes**
- **Timing**: some evidence that financial insecurity matters more for BMI in early childhood.

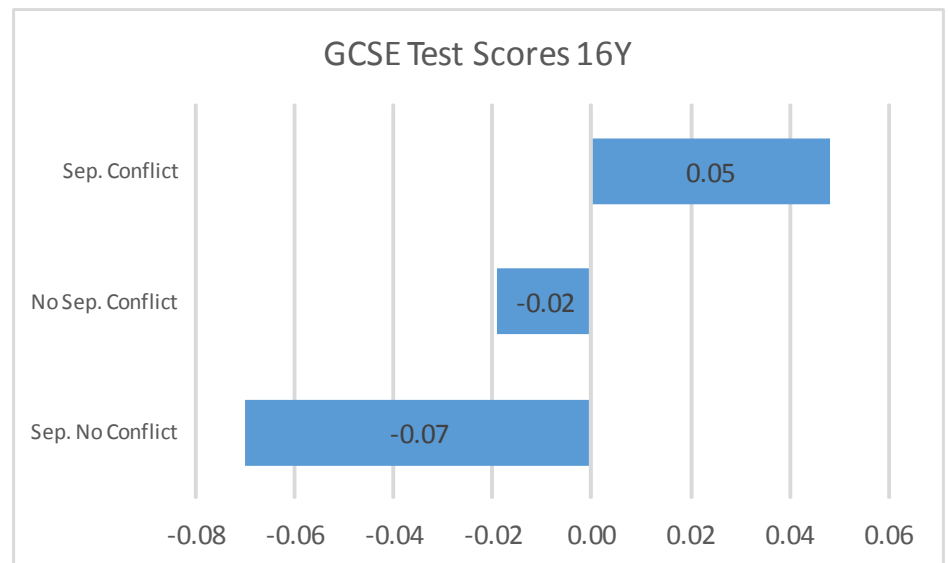
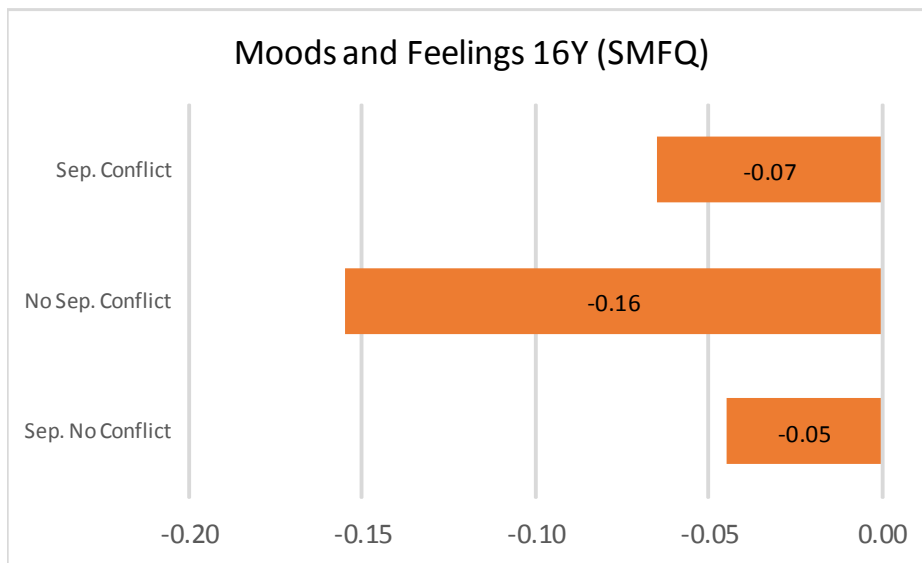
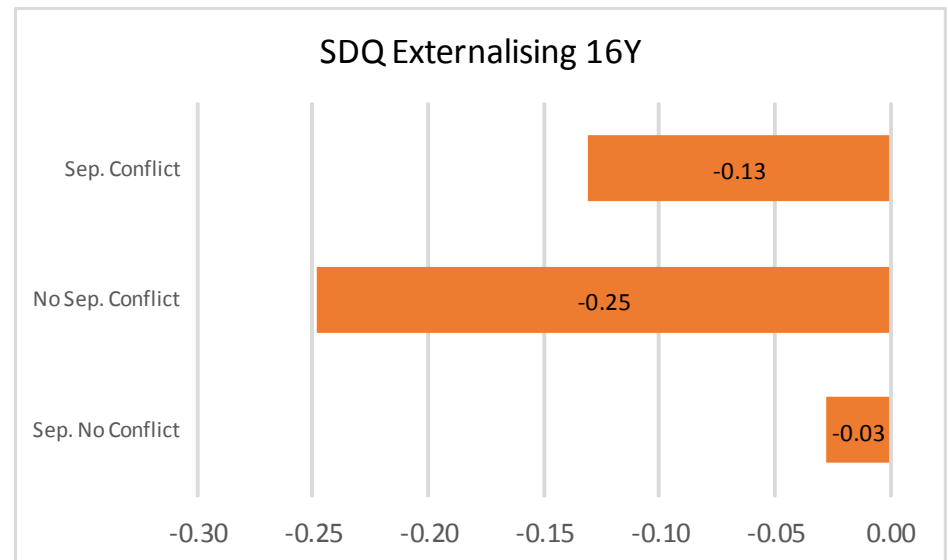
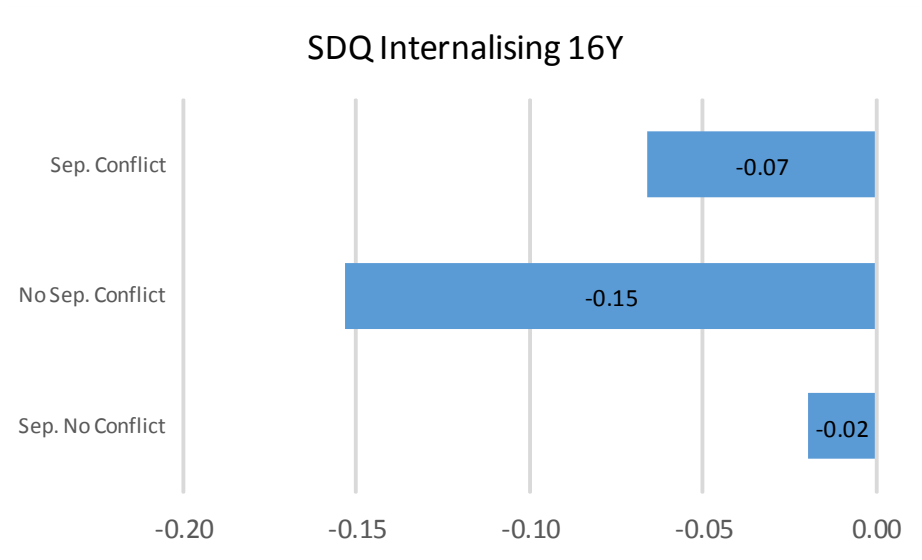
Conclusions

- This is the kind of structure that we would like to apply to any number of childhood “events”:
- Birth weight; parental characteristics (age, emotional health etc.); parenting style; conflict and separation
- Mother’s return to work
- Moving house
- Family income, poverty, housing, social class
- School size, type, teacher quality

Conflict, Separation and Affection



Conflict and Separation Interacted



Appendix

Short Moods and Feelings questionnaire

These questions are about how you may have been feeling or acting recently. For each question, please say how much you have felt or acted this way in the past two weeks.

In the past two weeks:	NOT TRUE	SOMETIMES	TRUE
1. I felt miserable or unhappy.	2	1	0
2. I have been having fun.*	0	1	2
3. I didn't enjoy anything at all.	2	1	0
4. I felt so tired I just sat around and did nothing.	2	1	0
5. I was very restless.	2	1	0
6. I felt I was no good anymore.	2	1	0
7. I cried a lot.	2	1	0
8. I felt happy.*	0	1	2
9. I found it hard to think properly or concentrate.	2	1	0
10. I hated myself.	2	1	0
11. I enjoyed doing lots of things.*	0	1	2
12. I was a bad person.	2	1	0
13. I felt lonely.	2	1	0
14. I thought nobody really loved me.	2	1	0
15. I thought I could never be as good as other kids.	2	1	0
16. I felt I did everything wrong.	2	1	0
17. I have had a good time.*	0	1	2
Total SMFQ score: 0-26 (0-34 if *included)			

** Only in the age 16 questionnaire*

Antisocial behaviors (DAWBA)

We're now going to ask about behaviour that sometimes gets children into trouble, including dangerous, aggressive or antisocial behaviour. Please answer according to how s/he has been over the last year.

As far as you know, over the last 12 months...	NO	PERHAPS	DEFINETELY
Has s/he often told lies in order to get things or favours from others, or to get out of having to do things s/he is supposed to do?	0	1	2
Has s/he often started fights? (Other than with brothers and sisters)	0	1	2
Has s/he often bullied or threatened people?	0	1	2
Has s/he often stayed out after dark much later than s/he was supposed to?	0	1	2
Has s/he stolen from the house, or from other people's houses, or from shops or school? (This doesn't include very minor thefts, e.g. stealing his/her brother's pencil or food from the fridge)	0	1	2
Has s/he run away from home more than once, or ever stayed away all night without your permission?	0	1	2
Has s/he often played truant (bunked off) from school?	0	1	2

We're now going to ask you about a list of less common but potentially more serious behaviours. We have to ask all people all questions even when they are not likely to apply.

As far as you know, over the last 12 months...	NO	YES
Has s/he used a weapon or anything that could seriously hurt someone? (e.g. a bat, brick, broken bottle, knife, gun)	0	1
Has s/he really hurt someone or been physically cruel to them? (e.g. has tied up, cut or burned someone)	0	1
Has s/he been really cruel on purpose to animals and birds?	0	1
Has s/he deliberately started a fire? (This is only if s/he intended to cause severe damage.)	0	1
Has s/he deliberately destroyed someone else's property?	0	1
Has s/he been involved in stealing on the streets, e.g. snatching a handbag or mugging?	0	1
Has s/he broken into a house, any other building or a car?	0	1
Has your teenager's ever been in trouble with the police?	0	1

Total Antisocial behaviours score: 0-22

Strengths and Difficulties Questionnaire (SDQ)

Please think about this child's behaviour over the last 6 months if you can:

This child:	NOT TRUE	SOMEWHAT TRUE	CERTAINLY TRUE
Emotional health:			
Often complains of headaches, stomachaches or sickness	0	1	2
Has many worries, often seems worried	0	1	2
Is often unhappy, down-hearted or tearful	0	1	2
Is nervous or clingy in new situations, easily loses confidence	0	1	2
Has many fears, is easily scared	0	1	2
Conduct problems:			
Has temper tantrums or hot tempers	0	1	2
Is generally obedient, usually does what adults request	2	1	0
Often fights with other children or bullies them	0	1	2
Often lies or cheats	0	1	2
Steals from home/school/elsewhere	0	1	2
Hyperactivity/Inattention:			
Is restless, overactive, cannot stay still for long	0	1	2
Constantly fidgets or squirms	0	1	2
Is easily distracted, concentration wandered	0	1	2
Thinks things out before acting	2	1	0
Sees tasks through to the end, good attention span	2	1	0
Peer relationship problems:			
Is rather solitary, tends to play alone	0	1	2
Has at least one good friend	2	1	0
Is generally liked by other children	2	1	0
Is picked on or bullied by other children	0	1	2
Gets on better with adults than with other children	0	1	2
Total Difficulties score ("Behavioural score") = emotional + conduct + hyperactivity + peer relationship scores (0-40)			