# Tracking and Tackling Rising Inequality

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My discussion:

Our session: Tracking and Tackling Rising Inequality

“The session will investigate what can be learnt from the existing distributional data, potential new approaches to collecting and using distributional data, and strategies for improving the availability and quality of distributional data.“

Build on Sabina’s  and OPHI’s MPI

I present as an example of use and as a suggestion for improvement collection of data some results of my ongoing research joint with Marta Barazzetta and Andrew Clark on the effects of economic resources on various aspects of children's wellbeing during adolescence

**Aim**: tackle rising inequality – what we pass on to the next generation

**Strategy for improvement availability and quality of data**: open our **registries and match** them with survey data while **enriching the questionnaires** of the latter to subjective perceptions of economic resources, as it will become clearer in what follows.

**Focus**: less on developing countries for availability of distributional data

We focus on the joint effects of income, some items of consumption and wealth together with major financial problems as perceived by the mother.

We show that they are all independently related to adolescent outcomes, but not in the same way.

We need them all.

# ‘Novelty’ of the current recession: Relevance of these variables for many

The recent economic crisis has put many families at risk of **poverty, material deprivation and social exclusion**, worsening their material conditions and overall standard of living.

And not only that…

The number of families who have experienced **financial distress**, i.e. the need to draw on savings or run into debt in order to cover current expenditure, remains high.

The percentage of European families reporting **financial problems** is currently about 15% of the population, a figure far above that of a decade earlier, and has receded only gradually from 17%, its highest value at the end of 2013.

This rise in financial distress has been experienced not only in the bottom quartile of the income **distribution, but also in the second and third quartiles**, namely the wider middle-class.

Source: Quarterly report on the employment and social situation, EC June 2016.

# Children and Adolescent

A large body of research has documented the general negative economic conditions that many families and children currently face and these findings have also been followed closely outside academic circles.

The consequences of economic distress on children's development and **future achievements in adulthood** have received less attention in the public debate, as they will become apparent only a number of years later.

Children from disadvantaged families are of course hit the hardest by the crisis. Nonetheless, the widespread nature of the current financial distress will likely mean that **children from across the income distribution will be affected, and not only those in the poorest families.**

## Children and Adolescent

Our research goes further is this direction and looks at the long-lasting effects of **financial distress on children**, as has been suggested in work on the Great Depression of the 1930s (Elder, 1999).

We are interested in both cognitive and non-cognitive child outcomes both in their own right, and because they predict adult outcomes.

## Distribution of Income, Consumption (Saving) and Wealth

There has been a rise in the number of children at risk of **income poverty** in many countries, including EU member states.

The poverty concept adopted in the EU is based on income relative to that of others in the same country.

# Consumption: Material Deprivation

To include an absolute perspective, special emphasis is given to the quality of and access to the consumption goods considered by most people to be necessary to lead an adequate life.

The enforced lack of these is material deprivation, and a consistent finding from research is that the overlap between the income poor and the materially deprived is only modest.

Hence material deprivation may have an independent effect on children's wellbeing.

# Wealth

Income is an indicator of the individual ability to consume commodities in a given time period.

Wealth plays a different role:

- it generates income, such as capital income and imputed rents;
- it confers economic security, allowing the individual to be prepared for emergencies and to consume out of wealth in case of illness or any other bad situation caused by uninsurable risks;
- and it enables individuals to take care of their offspring and of themselves when retired.

# Wealth

As far as child development is concerned, many contributions have shown that growing up in an owned rather than rented home has a positive effect on a wide range of outcomes.

# Data

- Avon Longitudinal Study of Parents and Children (ALSPAC): cohort study that recruited over 14,000 pregnant women who were due to give birth between April 1991 and December 1992 in Bristol and surrounding areas (UK)

- Mothers and children have been followed from pregnancy to nowadays

- Designed to study the effect of environmental, genetic and socio-economic influences on child health and development

- Very detailed:
  - High-frequency reported measures on multiple outcomes
  - Multiple observers (parents, child, teachers, clinicians)
  - Data linkage with external sources (e.g. National Pupil Database)
  - Clinical data

# Data

BRISTOL
HEBRIDES
Ben Nevis
SCOTLAND
Dundee
Cupar
Stirling
Loch Katrine
Loch Lomond
Glasgow
Tweed
NORTH
238 m
NORTHUMBERLAND N.P.
THE BORDER FOREST PARK
BRITISH ISLES
Newcastle upon Tyne
NORTHERN IRELAND
Belfast
Cross Fell
Middlesbrough
LAKE DISTRICT N.P.
GREAT BRITAIN
YORKSHIRE DALES N.P.
ISLE OF MAN
York
Bradford
Leeds
Kingston upon Hull
Preston
Manchester
Oldham
Sheffield
Dublin
Liverpool
Caernarfon
Stoke on Trent
Nottingham
UNITED KINGDOM
Norwich
Dudley
Birmingham
Coventry
Waveney
ENGLAND
WALES
Gloucester
Luton
BRECON BEACONS N.P.
Oxford
Thames
London
Cardiff
Bristol
Reading
EXMOOR N.P.
Calais
Portsmouth
Brighton
Poole
Bournemouth
DARTMOOR N.P.
Plymouth
English Channel

# Data
# Household Income

- Income measured at child's age 3, 4, 7, 8, 11

*"On average, about how much is the take home family income each week (include social benedits etc)?"*

- Categorical variable of 5 or 10 bands

- We convert income bands at each wave to income figures using data on net household income distribution from the Family Resource Survey (FRS), South West region, deflated to 2008 prices

- Income is then averaged over childhood and log transformed

- Missing values

# Data
# Financial problems

- 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

  → Count no. of years mother reported to have a MFP from child's birth to age 11

- 43% of mothers reported a MFP at least once from child's birth to age 11

- Missing values

# Data
# Financial problems and income

- Correlation between income and MFP: -0.17

| **Income quartile** | **Average no. of MFP** | **Std. Dev.** |
|---|---|---|
| First | 1.65 | 2.19 |
| Second | 1.02 | 1.66 |
| Third | 0.85 | 1.54 |
| Fourth | 0.50 | 1.14 |

# Data
# Material Deprivation

Information on material deprivation is available when the child is aged 2, 3, 5, 7, and 10.

We have information on 8 items: indoor toilet, bath/shower at sole use of the household, damp, living room/child room adequately warm, working telephone, noise from streets/other homes, vandalism in the neighborhood, rubbish in the neighborhood.

As for income, we consider the average scores over the years.

# Data
# Child outcomes (non-cognitive)

- **Subjective well-being: Short Moods and Feeling Questionnaire**
  - Composed of 13 items reflecting how the child felt over the past two weeks (e.g. feeling miserable or unhappy, crying a lot, feeling lonely)
  - Child-reported at age 16
  - Carer-reported at age 16

- **Antisocial behaviours: Development and Well-being Assessment**
  - Long questionnaire assessing common emotional, behavioural and hyperactivity disorders
  - Focus on troublesome behaviours: 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)
  - Carer-reported at age 16

# Data
# Child outcomes (non-cognitive)

- **Physical Health: BMI**
  - Clinical measures at age 16
  - We use a dummy variable for “normal” BMI, i.e. between the 5th and 85th percentiles of the specific age-sex distribution

# Data
# Child outcomes (cognitive)

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

# Data
# Empirical strategy

- For each child outcome we estimate linear models with standardized coefficients:

$$CO_i = \alpha + \beta MFP_i^{0-11} + \gamma lny_i^{0-11} + kMD_i^{0-11} + \delta X_i + \theta Flag_i + \varepsilon_i$$

- Where:
  - $CO_i$ = outcome of child *i*
  - $MFP_i$= no. years mother reported a major financial problem
  - $lnyi$ = net hh income (ln)
  - $MD_i$ = material deprivation score
  - $X_i$ = controls (mother's age at birth, gender, 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)
  - $Flag_i$ = set of missing values flag
- All estimates corrected for attrition using inverse probability weights
  - IPWs generated from predicted values of probit models which estimate the probability of attrition using pre-birth characteristics (IPWs=1/*p)*

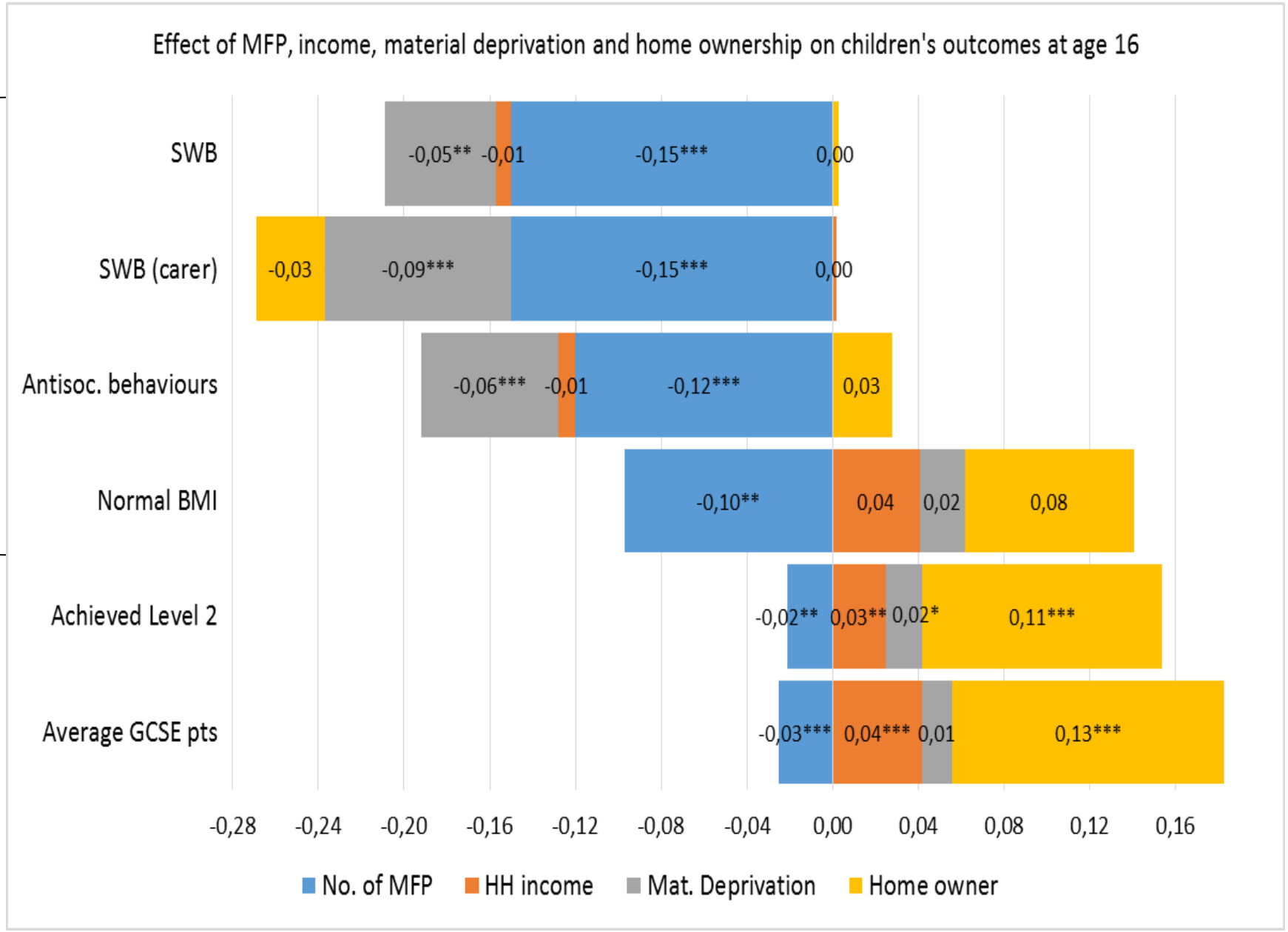
# Data
# Empirical strategy

- To make the results easier to compare across equations, all variables, both dependent and explanatory, are standardised.

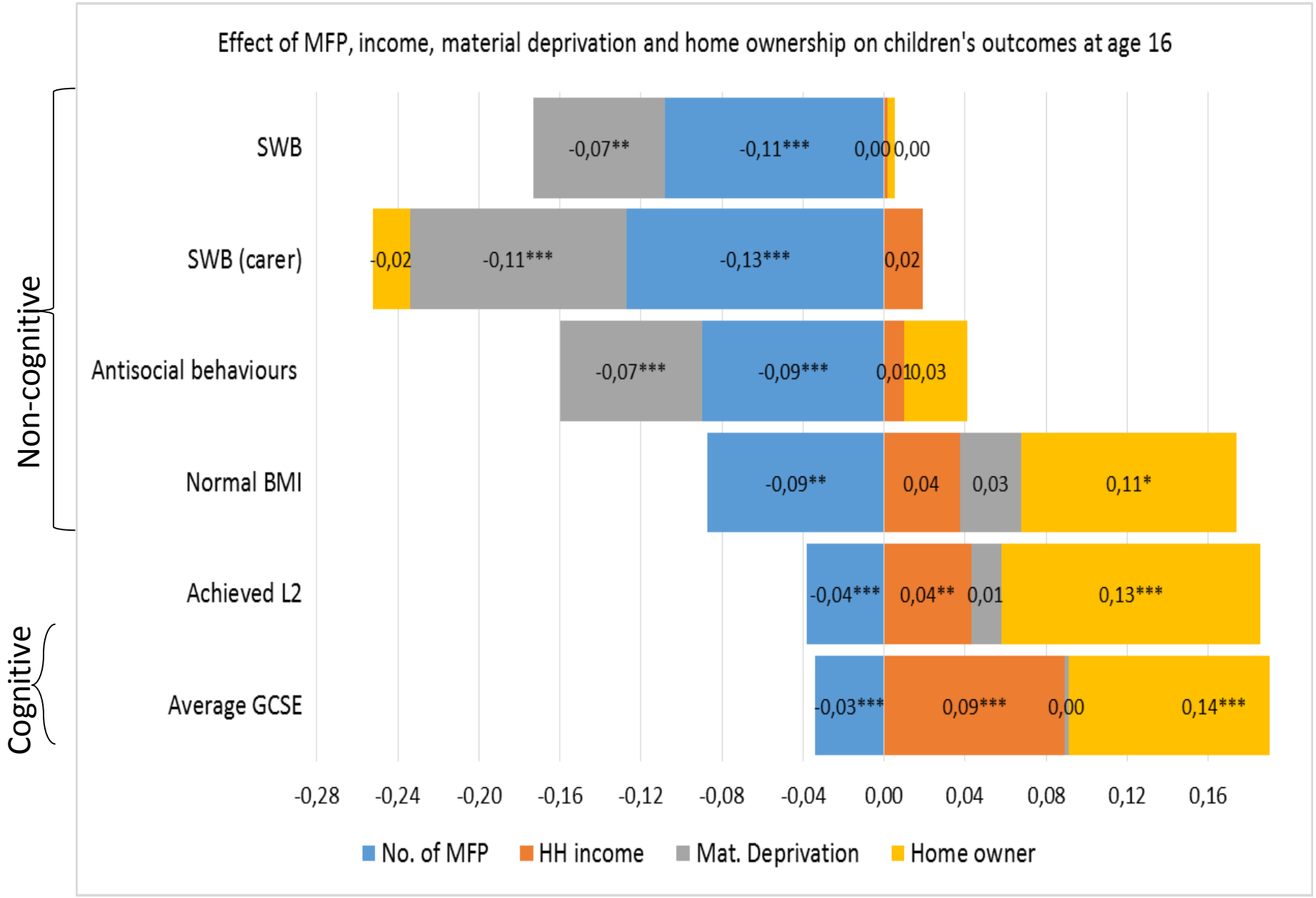
- Within each child-outcome table we also balance the sample so that the estimated coefficients refer to the same children.

- All equations are estimated linearly.

# Main results



# Main results: multiple imputation



# Conclusions

- Help us to gain access to **registrer data and match** them with survey data while **enriching the questionnaires.**

- It would have obviously been more desirable to know the actual income of the ALSPAC households.

- Income, consumption and wealth are determinants of well-being.

- At the same time subjective perceptions, such as MFP, play a key role. But this is obvious, and we are all already aware of it by simple introspection.

Thank you!

# Missing values

Missing indicator method for missing RHS variables.

When information in some waves for MFP is missing, we replace it by the mother's MFP count in the available waves, multiplied by the ratio of the total number of waves to the observed number of waves. With ten waves of MFP information, someone who reports eight values (of 0 or 1), will then have their count over these eight years multiplied by 10/8

When the information on MFP is not available in any wave, we replace the missing value with the total sample mean and introduce a missing-value flag as a right-hand side variable

About 37% of mothers answer the MFP question in all ten waves. Another 30% have missing values for one to five waves, 21% have missing values for six to nine waves, while 12% of mothers never replied to this question

# Missing values

Household income is calculated as a household-level mean over all of the childhood waves in which income information is reported. When all income observations are missing for a given child, we replace the value with the overall sample mean and insert a missing-value flag

About 30% of mothers reported income information in all five waves, while 23% have missing information in all waves

When the dependent variable is missing, the case is dropped

# Missing values

Alternative strategy:

**Multiple imputation** performed by chained equations with ten imputations, assuming that missing observations are missing at random (MAR) given the known characteristics of the individuals for which observations are missing.

The estimates from the ten imputed datasets are then combined using Rubin's rule.

# Appendix

# Summary stats – child outcomes

| | N | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|---|
| ***Non-cognitive outcomes*** | | | | | |
| SWB at age 16 | 4784 | 20.11 | 5.62 | 0 | 26 |
| SWB at age 18 | 3193 | 19.21 | 5.90 | 0 | 26 |
| SWB at age 16 (carer) | 5238 | 23.88 | 3.40 | 0 | 26 |
| Antisocial behaviour at age 16 (carer) | 4516 | 0.71 | 1.57 | 0 | 16 |
| Conduct at age 11 (carer) | 7013 | 16.04 | 3.16 | 0 | 20 |
| Emotional health at age 11 (carer) | 7019 | 17.43 | 2.73 | 3 | 20 |
| Antisocial behaviour at age 11(teacher) | 7202 | 0.58 | 1.79 | 0 | 22 |
| Conduct at age 11 (teacher) | 7202 | 16.75 | 3.95 | 0 | 20 |
| Emotional health at age 11 (teacher) | 7206 | 16.43 | 3.25 | 0 | 19 |
| Normal BMI at age 11 (%) | 4152 | 79.87 | 0.40 | 0 | 1 |
| Normal BMI at age 13 (%) | 4143 | 79.56 | 0.40 | 0 | 1 |
| Normal BMI at age 16 (%) | 3686 | 79.65 | 0.40 | 0 | 1 |
| ***Cognitive outcomes*** | | | | | |
| Achieved Level 2 (%) | 11543 | 53.05 | 0.50 | 0 | 1 |
| Average GCSE points | 11393 | 38.40 | 9.98 | 0 | 64 |

# Summary stats – control variables

| | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| No. years mother had a MFP | 1.17 | 2.02 | 0 | 10 |
| Net household income | 424.37 | 149.63 | 60 | 896 |
| Net household income (log) | 5.92 | 0.41 | 4 | 7 |
| Male | 0.52 | 0.50 | 0 | 1 |
| Child ethnicity (White) | 0.95 | 0.20 | 0 | 1 |
| Mother not born in Europe | 0.03 | 0.16 | 0 | 1 |
| First born | 0.33 | 0.46 | 0 | 1 |
| Mother's age at birth | 28.00 | 4.96 | 15 | 44 |
| Mother's education | 2.97 | 1.22 | 1 | 5 |
| Father's education | 3.02 | 1.34 | 1 | 5 |
| Ever in single adult household | 0.10 | 0.22 | 0 | 1 |
| No. children | 2.14 | 0.81 | 0 | 12 |
| No. location moves | 1.95 | 2.58 | 0 | 63 |
| Parents divorced/separated | 0.24 | 0.40 | 0 | 1 |
| Early childcare | 12.86 | 1.65 | 1 | 18 |
| Pre-school childcare | 15.64 | 2.81 | 4 | 26 |
| In-school childcare | 22.93 | 3.38 | 2 | 37 |
| No. years mother worked | 6.34 | 3.71 | 0 | 11 |
| Private school KS1 | 0.39 | 0.30 | 0 | 1 |
| Private school KS2 | 0.37 | 0.28 | 0 | 1 |
| Private school KS3 | 0.21 | 0.36 | 0 | 1 |
| Home owner | 0.77 | 0.36 | 0 | 1 |
| Mother's mental health | 23.0 | 4.09 | 0 | 30 |

# 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 didn't enjoy anything at all. | 2 | 1 | 0 |
| 3. I felt so tired I just sat around and did nothing. | 2 | 1 | 0 |
| 4. I was very restless. | 2 | 1 | 0 |
| 5. I felt I was no good anymore. | 2 | 1 | 0 |
| 6. I cried a lot. | 2 | 1 | 0 |
| 7. I found it hard to think properly or concentrate. | 2 | 1 | 0 |
| 8. I hated myself. | 2 | 1 | 0 |
| 9. I was a bad person. | 2 | 1 | 0 |
| 10. I felt lonely. | 2 | 1 | 0 |
| 11. I thought nobody really loved me. | 2 | 1 | 0 |
| 12. I thought I could never be as good as other kids. | 2 | 1 | 0 |
| 13. I felt I did everything wrong. | 2 | 1 | 0 |
| **Total Subjective well-being score: 0-26** | | | |

# Antisocial behaviours (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 12 months if you can:*

| **This child:** | **NOT TRUE** | **SOME WHAT 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 |
| **Internalizing component = emotional + peer relationship (0-20)** | | | |
| **Externalizing component = conduct + hyperactivity (0-20)** | | | |