

Quality adjustment in Education: the role of wellbeing and bullying

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Outline

➤ Public service productivity

Definition of Public service productivity

Why do we need good Quality adjustments?

What makes a good quality adjustment?

➤ Education

Definition of quantity and quality output

Bullying and Wellbeing measures

Background

Public service productivity

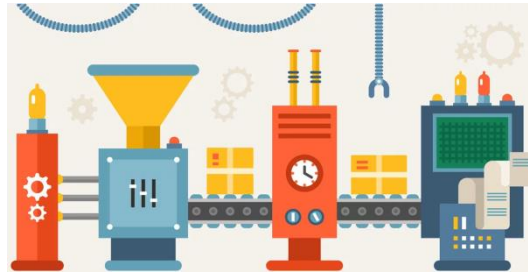
Inputs

Output

$$P_t = \frac{O_t}{I_t}$$



Labour



Capital



Intermediate
consumption

Quantity

Quality

Quantity output

Direct output

- Measures activities using a **cost weighted activity index**
- Cost used as a proxy for value – i.e. a more expensive service deemed to provide higher quantity output

Indirect output

- $\text{Output} = \text{Inputs}$
- Only used in instances where it is not possible to measure activities directly
- Productivity growth of indirectly measured activities will always equal 0

Quality adjustment

“The output of the government sector should in principle be measured in a way that is adjusted for quality, taking account of the attributable incremental contribution of the service to the outcome”

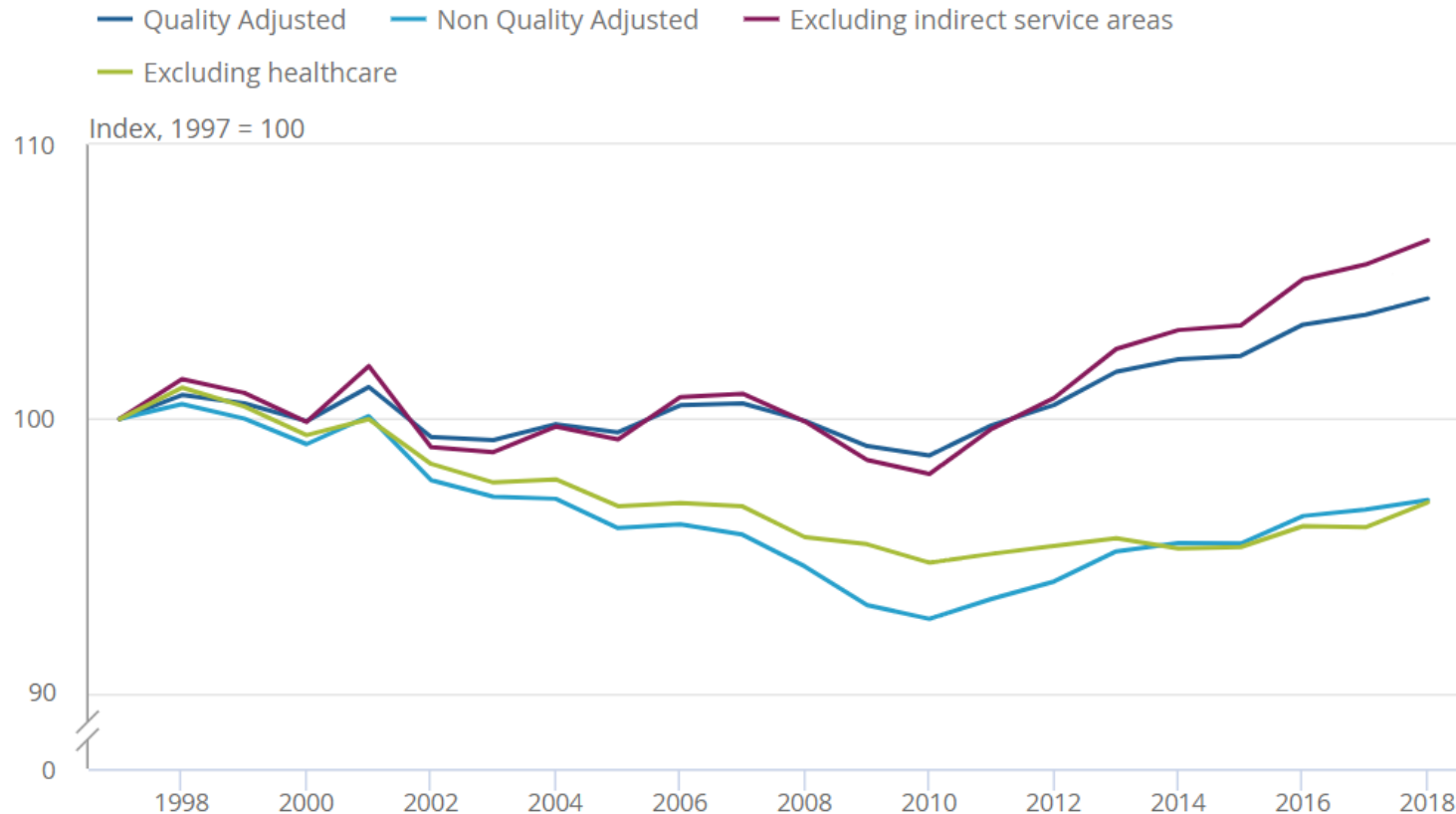
[Atkinson Review \(2005\) on the Measurement of Government Output and Productivity for the National Accounts \(PDF, 1.1MB\)](#)

What makes a good quality adjustment

- Use of multiple indicators: it is unlikely that any one indicator provides a full sense of quality for example.
Example: attainment data are the current best option, but combining these data with one or more additional indicators of education quality would help to develop a more holistic quality adjustment.
- Meeting the needs of stakeholders: good quality adjustment should also consider the needs of the statistic's users.
- **The quality adjustment's suitability should be monitored over time.**

Has quality adjustment made a difference?

Indices for headline productivity, NQA productivity, productivity when excluding indirectly measured service areas and productivity when excluding healthcare, UK, 1997 to 2018



Creating and implementing the quality adjustments has transformed our understanding of public service productivity.

Without quality adjustment we would see a 4% decline over 20 years.

With quality adjustment we see improvements of 3-5% over the same time period.

EDUCATION

How we measure education quantity output

The National Accounts measure education using cost-weighted activity indices.

- The activity captured is the **number of students in education** (from pre-school until further education) adjusted for **attendance rates**.

Why is a quality adjustment important for Education?

Using only attendance-adjusted pupil numbers (quantity definition):

(A) if the number of pupils in schools increase, the education system will look more productive (assuming inputs remain the same)

(B) if a pupil leaves school with no qualifications, it can be argued that the education sector is operating inefficiently as they have failed to raise the skill set of the pupil.



- Therefore a suitable quality adjustment for education needs to ensure attainment and other measures are captured (Atkinson Review, 2004).

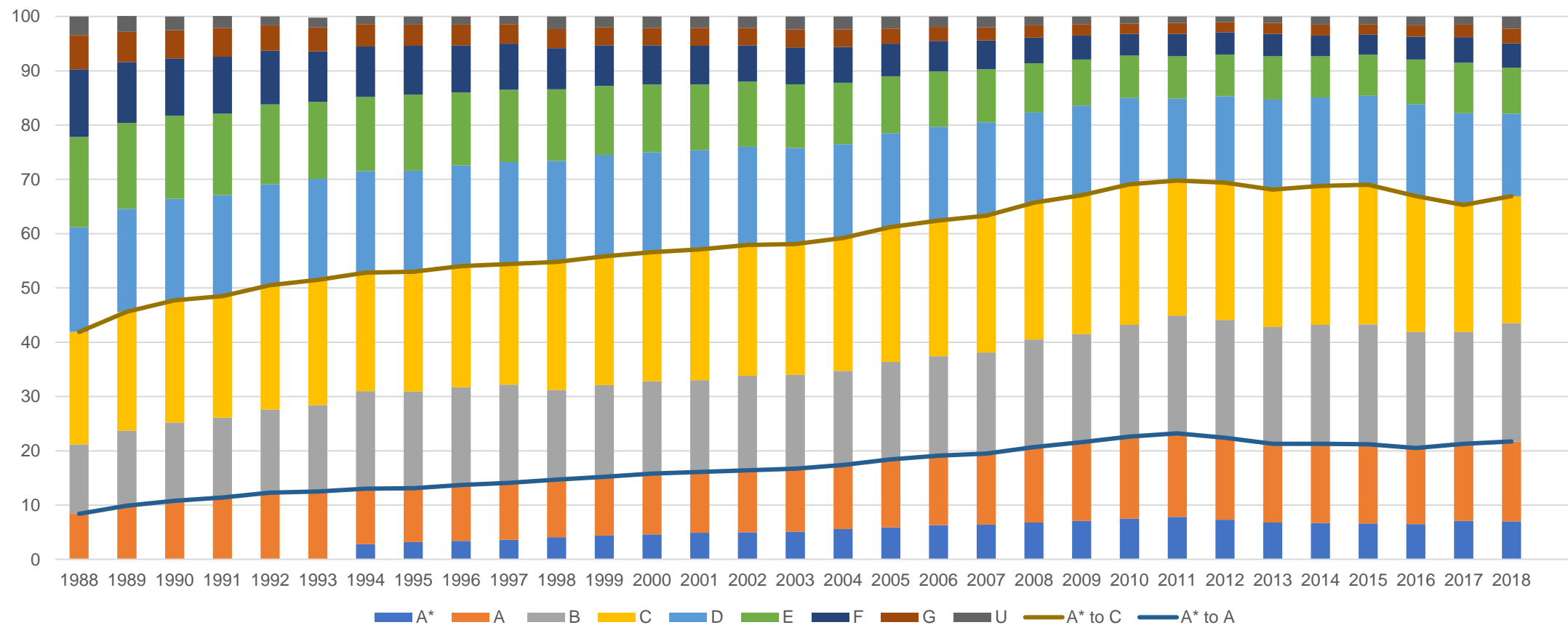
Measuring quality of education

Our quality index measures the attainment of secondary school students at GCSE or equivalent levels (published in the [Public service productivity: total, UK, 2017](#)):

- Attainment 8 for English students
- Level 5 Attainment Index for Scottish students
- Capped 9 for Welsh students
- 5 or more GCSEs at Grade C or above for NI students

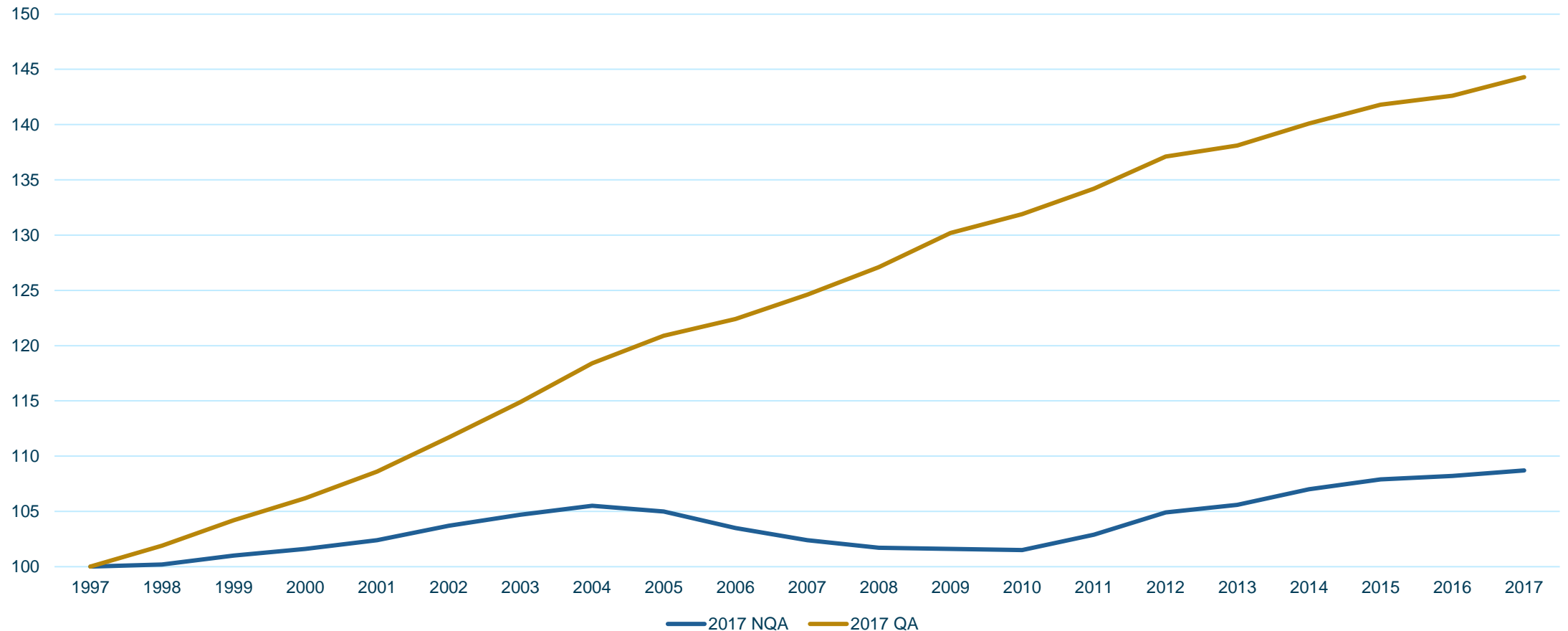
A 'cohort split' approach in order to attribute the contribution to attainment over the previous 11 years of education (published in the [Public service productivity: total, UK, 2018](#)).

Possible grade inflation



Source: Joint Council for Qualifications

Quality adjustment Education Output



Measuring quality in education is tricky...

- We would prefer to have multiple indicators of quality in education but we face issues of:
 - Data completeness (e.g. PISA/Ofsted)
 - Attributability (e.g. Children's wellbeing)
 - Endogeneity

Bullying and Wellbeing

Definition: what is bullying

- *The intent to harm and an imbalance of power between the aggressor and the victim, and it takes place repeatedly (Farrington, 1993; Olweus, 1993).*
- *Involves a dynamic interaction between the perpetrator and the victim*

The bully has power over the victim. As a result, it is difficult for the victim to respond or to cope with the problem (Menesini et al. 2012; Swearer & Hymel, 2015).

Framework

The impact of bullying (especially if left unaddressed) can have a devastating effect on individuals not only during their childhood but also later in life.

- poor school achievement
- higher loneliness
- poorer health
- depression in adulthood
- anxiety
- self-harm
- suicidal thoughts

Undheim & Sund (2010); Hymel, S., & Swearer, S. M. (2015); Klomek, A. B., Sourander, A., & Elonheimo, H. (2015), Ersilia Menesini & Christina Salmivalli (2017) Regine Ringdal, Geir Arild Espnes, Mary-Elizabeth Bradley Eilertsen, Hanne Nissen Bjørnsen & Unni Karin Moksnes (2020)

Framework

- Government's approach to bullying: legal obligations and the powers schools have to tackle bullying.
- Government's publications on preventing bullying:
 - Preventing and tracking bullying
 - Respect for All: national approach to anti-bullying
 - Rights, respect, equality: guidance for schools
 - Cyber bullying: advice for headteachers and school staffs
 - Advice for parents and carers on cyber bullying

What does the law say

- [The Education and Inspections Act 2006](#): *Section 89 of the Education and Inspections Act 2006 provides that maintained schools must have measures to encourage good behaviour and prevent all forms of bullying amongst pupils. These measures should be part of the school's behaviour policy which must be communicated to all pupils, school staff and parents*
- [The Equality Act 2010 - Public Sector Equality Duty \(PSED\) 2011](#):
 - eliminate unlawful discrimination, harassment, victimisation and any other conduct prohibited by the Act
 - advance equality of opportunity between people who share a protected characteristic and people who do not share it
 - foster good relations between people who share a protected characteristic and people who do not share it.
- [The Education \(Independent School Standards\) Regulations 2014](#): *ensures that bullying at the school is prevented in so far as reasonably practicable, by the drawing up and implementation of an effective anti-bullying strategy*

DATA AND METHOD

The Data

The BHPS is a longitudinal social survey of households and individuals living in the UK:

- Started in 1991 with 5000 UK households
- Additional samples of 1,500 households in each of Scotland and Wales were added to the main sample in 1999
- Became suitable for UK-wide research when 200 households from NI were added
- Many design features, instruments, and questions from the BHPS live on in Understanding Society

Understanding Society is a longitudinal survey of the members of approximately 40,000 households (at Wave 1) in the United Kingdom:

- Households recruited at the first round of data collection are visited each year to collect information on changes to their household and individual circumstances
- Young people aged 10-15 complete a youth questionnaire
- The purpose of Understanding Society is to provide high-quality longitudinal data on subjects such as health, work, education, income, family, and social life to help understand the long-term effects of social and economic change

Data: *Bullying at school*

BHPS (1994-2008) includes a question asking children “how much do you worry about being bullied (**at school**)?”. We group respondents who answer ‘**A lot**’ or ‘**A bit**’ as being bullied.

Q67 How much do you worry about being bullied at school? Is it . . .

A lot	<input type="text" value="1"/>	RYPBULL
A bit	<input type="text" value="2"/>	
or not at all	<input type="text" value="3"/>	

Understanding Society survey (2009-onwards) asks “how often are you physically bullied (**at school**)?” or “bullied in other ways (**at school**)?” every other Wave.

We have isolated the proportion of children who did not respond ‘**never**’ in each calendar year as being bullied.

Now some questions about bullying at school.

39 How often do you get physically bullied at school, for example getting hit, pushed around or threatened, or having belongings stolen?

Never	<input type="checkbox"/>
Not much (1–3 times in the last 6 months)	<input type="checkbox"/>
Quite a lot (more than 4 times in the last 6 months)	<input type="checkbox"/>
A lot (a few times every week)	<input type="checkbox"/>

40 How often do you get bullied in other ways at school such as getting called names, getting left out of games, or having nasty stories spread about you on purpose?








Never	<input type="checkbox"/>
Not much (1–3 times in the last 6 months)	<input type="checkbox"/>
Quite a lot (more than 4 times in the last 6 months)	<input type="checkbox"/>
A lot (a few times every week)	<input type="checkbox"/>

Data: *Life Satisfaction of Students*

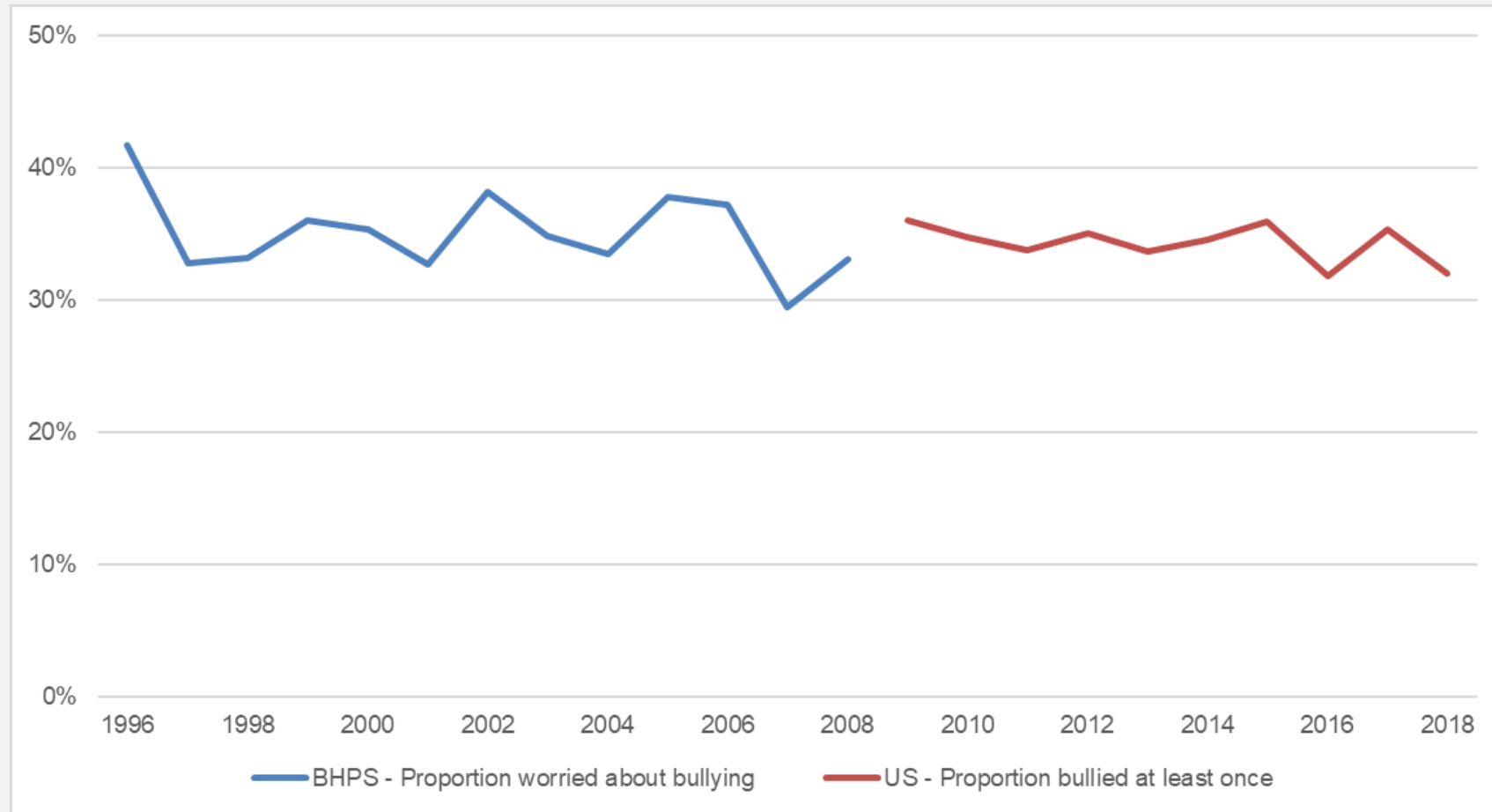
We measure the impact of bullying on children's life satisfaction by finding the:

- Mean life satisfaction of children who report 'at least some' bullying
- Mean life satisfaction of children who report 'no' bullying

F Which best describes how you feel about your life as a whole?

						
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

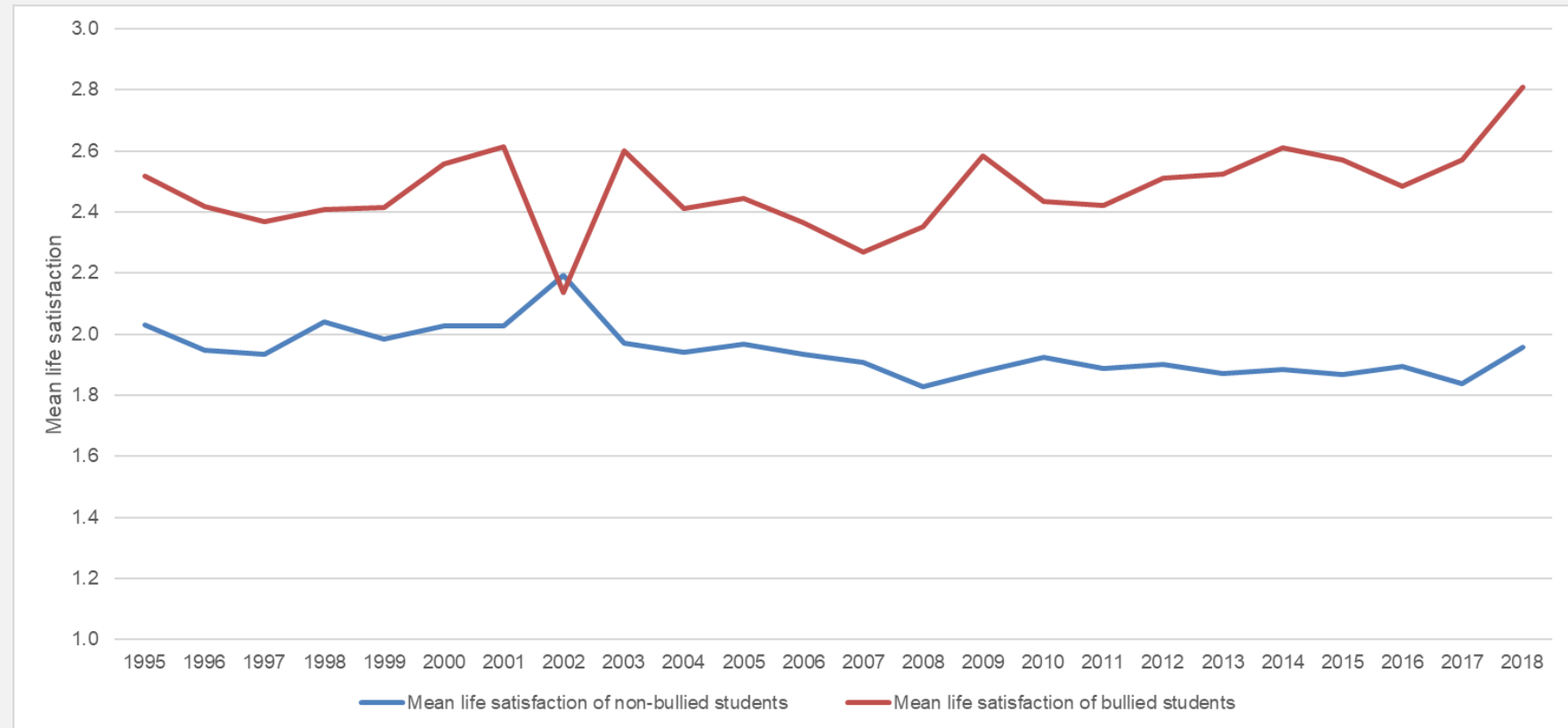
Data: Prevalence of Bullying in schools



Data: Mean life satisfaction of students

Notes:

1. Higher score implies a lower life satisfaction.
2. The inverted relationship in 2002 has been cleaned from the results in the following slides
3. We also considered measures of 'happiness at school' and 'happiness w/ school work'



A measure of bullying in schools: STEP 1

Mean life satisfaction of non – bullied = 1

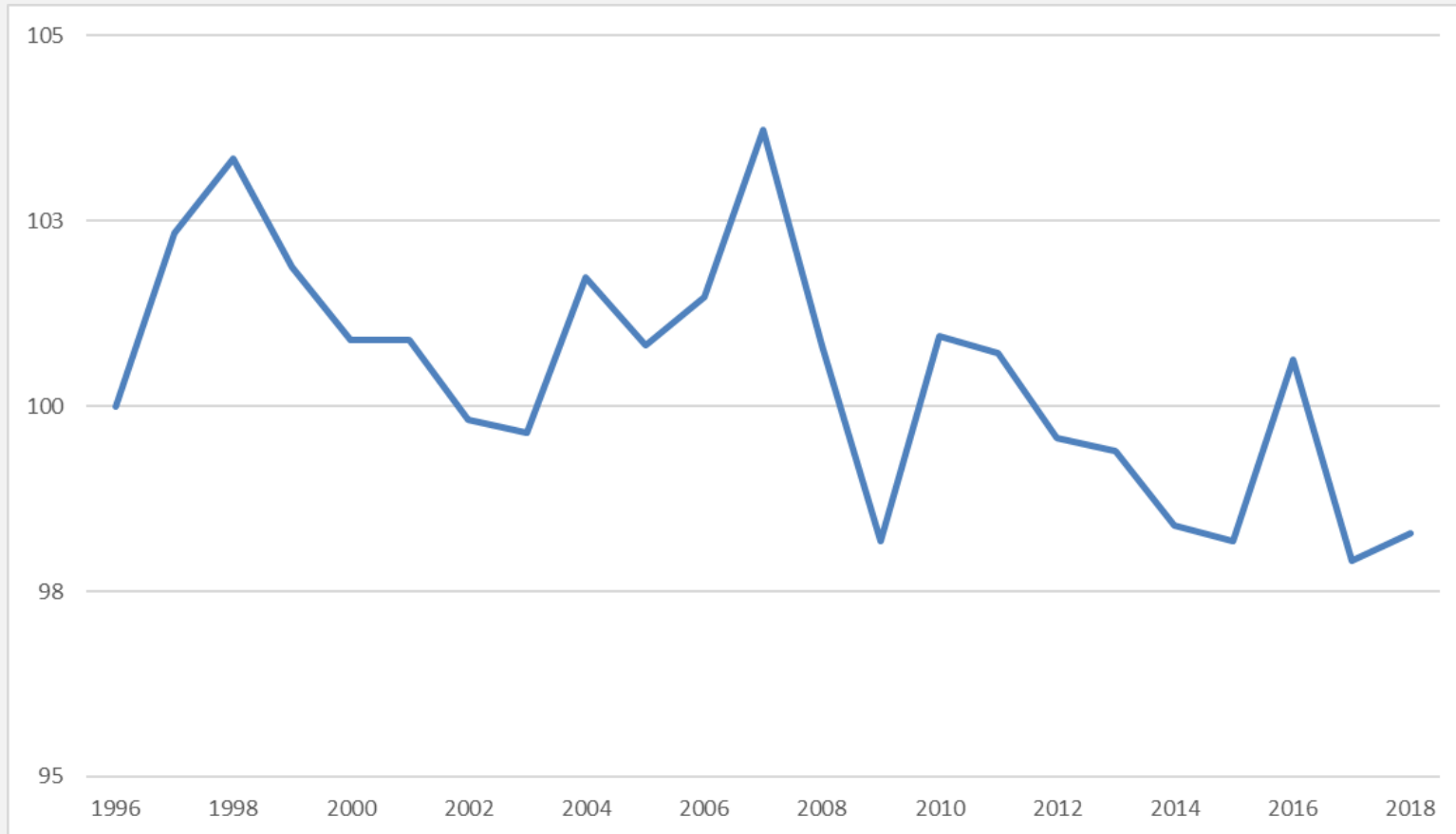
Mean life satisfaction of bullied = $ls < 1$

Severity – adjusted incidence rate_t = (% of children bullied_t × ls) + (% not bullied_t × 1)

$$Bullying\ Index_{current\ year} = \frac{Bullying\ incidence\ rate_{current\ year}}{Bullying\ incidence\ rate_{base\ year}} * 100$$

Our approaches surmises that a student who is bullied at school receives schooling that is of lower quality than a student who is not bullied.

Using BHPS and Understanding Society data to construct a bullying index, UK, 1996 to 2018



A measure of bullying in schools: STEP 2

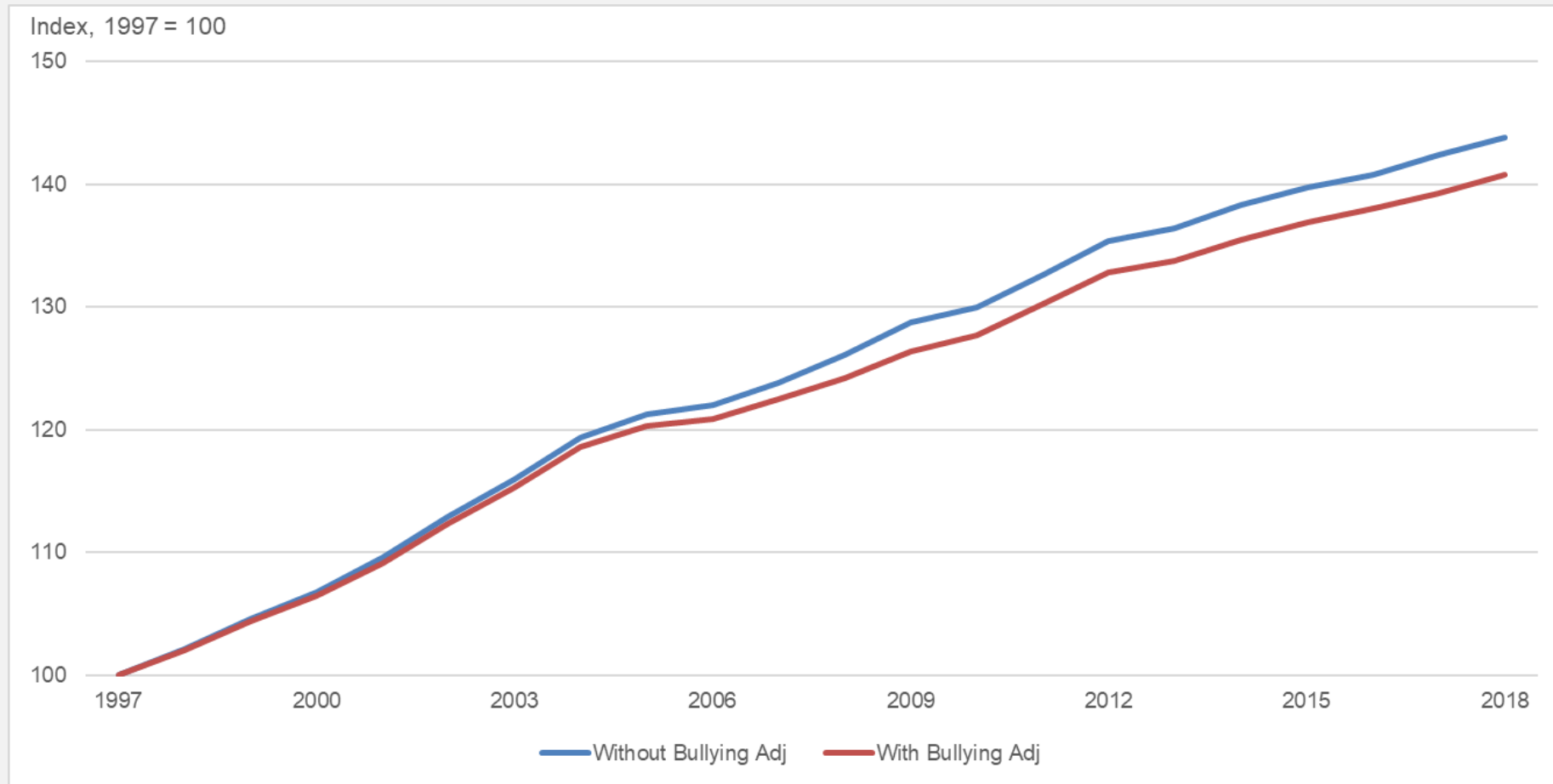
The bullying index is then incorporated into the current quality index by weighting the growth rate of the index with the growth rate of the current attainment index

$$\text{Quality Index}_t = \text{Quality Index}_{t-1} \times (1 + ((\text{weight}_{\text{attainment}} \times \Delta\% \text{ in attainment index}) + (\text{weight}_{\text{bullying}} \times \Delta\% \text{ in bullying index})))$$

Weight of the growth rate:

- From 1997 to 2005: attainment rate at 95% and bullying at 5%
- From 2006 onwards: attainment rate at 90% and bullying at 10%

Inclusion of bullying data reduces our measure of quality



Discussion

Including bullying in our quality adjustment is to widen our definition of quality in educational services away from being a pure measure of exam attainment



The reduction of bullying in schools as an explicit measure of quality in and of itself, particular given school's legal requirement to attempt to address this

Thank you

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