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Eating or meeting? The dubious case for free school breakfasts

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IEA Discussion Paper No.86

EATING OR MEETING?

The Dubious Case for Free School Breakfasts

Terence Kealey
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About the author

Terence Kealey trained in medicine at Barts Hospital Medical School London, and in biochemistry at Oxford, where he obtained his PhD. After a time at the University of Newcastle-upon-Tyne, he moved to Cambridge where he lectured in Clinical Biochemistry (1986-2001).

Between 2001 and 2014 he was vice chancellor at the University of Buckingham, and since then he has been an adjunct scholar at the Center for the Study of Science at the Cato Institute, Washington DC.

In his laboratory research he specialised in metabolism and cell physiology. In his wider research he worked on the economics and sociology of science. In 2007 Terence Kealey was the Hayek lecturer at the IEA. In 2016 he published *Breakfast is a Dangerous Meal* (4th Estate).

Summary

- The Conservative Party's manifesto for the June 2017 general election included a policy to replace free school lunches with free school breakfasts for all school children. After the election, the policy was abandoned.
- The Conservative manifesto justified the policy by appealing to research into the educational effects of free school breakfasts conducted by the Institute for Fiscal Studies in 2016.
- This research was conducted to a high standard. However, the widespread interpretation of the findings was incorrect. The research does not show that school breakfasts are required as a remedy for children arriving at school hungry. Nor did it show that the improved educational performance of the children involved in the study was the result of eating breakfast.
- The findings of this research, and previous studies, strongly suggest that it is the social element of these school clubs, not the nutritional element, that explains improved educational performance.
- Misrepresenting the findings as identifying nutritional rather than social factors in educational performance is likely to misdirect public policy, not only concerning education but concerning children's health. The main nutritional problem in children from poor British families is not hunger but over-eating and obesity.

Introduction

We are often told that many children arrive at school having been provided with no breakfast at home and that, as a consequence, they are too hungry to learn. To fix this problem, children should receive free breakfasts at school, funded from taxation – or so the campaigners say.

During the 2017 general election, these campaigners found the Conservatives on their side. On page 52 of its manifesto, the Conservative Party promised that,

Under a new Conservative government, schools in England will offer a free school breakfast to every child in every year of primary school.

This was because,

There is now good evidence that school breakfasts are at least as effective [as free school lunches] in helping children to make progress in school.

The alleged evidence comes from a study conducted by the Institute for Fiscal Studies (IFS) in 2014/15.

Alas, the findings of this study do not support the interpretation given to them by free school breakfast campaigners and the Conservative Party. The findings of this and previous studies strongly suggest that educational performance is helped by bringing children together in an enjoyable social gathering before lessons begin. But they also suggest that eating breakfast is immaterial. For all the IFS study shows, other, cheaper, ways of bringing children together before lessons begin would confer equal educational benefits. And the health effects of such alternatives would almost certainly be better. When so many British children are overweight or obese, the last thing they need is extra, tax-funded carbohydrates in the morning.

State interventions into what would otherwise be personal or parental decisions – such as whether and what children should eat before lessons begin – are typically claimed to be ‘evidence-based policies’. But a closer examination of the evidence often reveals that it does not justify the policy (see Whyte 2013). That is what this IEA Briefing Paper intends to show in the case of the free school breakfasts policy and the IFS research alleged to justify it.

The Study

Funding and execution

The study was funded by the Education Endowment Foundation (EEF) with a grant of £426,000 to the Institute for Fiscal Studies (IFS).¹ The EEF is a charity that has been supported by the government with £125 million over five years (EEF 2016). The study was designed by, and its findings analysed by, the IFS, which is a charity that specialises in economics research. The work in the schools was performed by Magic Breakfast, a charity committed to bringing free breakfasts to schools.

The work was done over the academic year 2014/15, and the IFS was committed by the terms of its grant from the EEF to releasing its findings in November 2016, which it did.

Design

106 primary schools from relatively disadvantaged areas in England were identified, and during the academic year 2014/2015 half (53) were supplied with free breakfasts.

At least three outcomes were measured. (1) Did the offer of free breakfasts stimulate schools into accepting the offer? (2) What were the academic effects on children of their schools offering free breakfasts? (3) What impact did the provision of free breakfasts have on children's attendance?

Outcome

Here are the three main outcomes:

1. Only 40 per cent of the 53 'control' schools provided, within the academic year 2014/15, breakfasts of one sort or another, but there was 100 per cent provision within the take-up schools.

¹ <https://educationendowmentfoundation.org.uk/our-work/projects/magic-breakfast/>

2. The academic performance of the children within the schools offering free school breakfasts increased by the equivalent of two extra months' learning.
3. Children's attendance figures improved.

These data suggest, therefore, that the provision of free school breakfasts stimulated schools to offer them, which impacted positively on their children's academic performance and attendance. However, these data are more difficult to interpret than might be expected. Here is the first set of major points:

- Before the trial began, at baseline, 91 per cent of the children already ate breakfast.
- Over the course of the academic year of the trial, that percentage did not change within the schools that offered free breakfasts.
- Over the course of the trial, though, the percentage of those eating breakfast in the schools that didn't offer free breakfasts fell from 91 per cent to 89 per cent.

Conclusion number 1: Offering free breakfasts had only a very modest effect on consumption of breakfast, as was confirmed by the body weight data: the body mass indices of the children in the two groups of schools did not diverge.

Here is the second set of major points:

Of the 91 per cent of children who already ate breakfast at the beginning of the trial, 10 per cent were eating it at school. In those schools that introduced free breakfasts, that rose to 22 per cent. But there was a concomitant fall in those eating it at home.

Conclusion number 2: The number of children taking advantage of the free school breakfasts was modest, and amongst them it had crowded out home breakfasts rather than increased the consumption of breakfast. Here is the third set of major points:

The greatest uptake in free breakfasts was seen in children from relatively deprived backgrounds. But the greatest improvements in academic performance were seen in children from relatively undeprived backgrounds.

Conclusion number 3: The beneficial effects of the breakfasts were not mediated by the consumption of the food itself. Indeed, as the authors of the study themselves wrote (Crawford et al. 2016):

Gains are likely to be the result of the content or context of the school breakfasts, rather than of increasing overall breakfast consumption.

It appears, therefore, that the provision of breakfast before the formal school day created an environment that encouraged a good atmosphere for learning and for cooperation, and which reduced disruptive behaviour.

Release

The IFS report was published on the EEF website on 4 November 2016, accompanied by a press release ('Breakfast Clubs Work Their Magic in Disadvantaged English Schools' (Crawford et al. 2017)). Highlights were presented to an economists' conference as a lecture on 10 April 2017 ('The Causal Impact of School Breakfast Clubs on Academic Attainment: Evaluating the Magic Breakfast Intervention'²). The IFS intends, moreover, to submit the work for publication in a peer-reviewed learned journal.

Reception

The IFS report was well received when it was released as a scientific study, because it was seen as a contribution to knowledge.³ The government was also impressed by the study. However, when it was translated into a Conservative Party manifesto commitment, it was badly received,⁴ and it was dropped from the Queen's Speech.⁵

2 An earlier draft was released on 4 November 2016 (Crawford et al. 2016).

3 Free school breakfast clubs boost maths and literacy results, study finds, *The Guardian*, 4 November 2016.

4 May's manifesto pledge on free school breakfasts 'undercosted', *The Guardian*, 24 May 2017.

5 Conservatives abandon manifesto plan for free school breakfasts, *The Independent*, 26 July 2017.

Commentary

Is this good science?

The study was a randomised trial. Epidemiology is a difficult area of research, and there is a widely-recognised 'hierarchy of evidence' by which to judge the credibility of a study, from the most credible methodology at the top, to the least at the bottom (Greenhalgh 1997):

1. Systematic reviews and meta-analyses
2. Randomised blinded controlled trials
3. Randomised controlled trials
4. Cohort studies
5. Case-control studies
6. Cross sectional surveys
7. Case reports

This was a randomised controlled trial. It was, therefore, a methodologically credible study. Moreover, it is compatible with the existing evidence. A 2004 survey by the Welsh Assembly Government reached similar conclusions, judging that school breakfasts mediate their benefits not nutritionally but socially. Thus the report concluded that 'many of the benefits of breakfast schemes can be extremely difficult to categorise' but they seem to reduce to generating 'happier children' (Health Promotion Division 2004).

Credible though it was, there were nonetheless methodological problems with the IFS study, in that only a third of schools in the study conformed to the IFS-prescribed breakfast provision. The IFS intended schools to offer (a) universal free breakfast, (b) before the beginning of the school day. But most schools either (i) charged some children or (ii) offered free breakfast to only certain children or (iii) provided free breakfast at the beginning of the school day (during registration, for example) rather than before it. These methodological problems must weaken the credibility of the study, yet they are hard to avoid in practice, and it is to the IFS's credit that it has been so open about the flaws, which do not negate the overall findings.

Interpretation

The way this study has been interpreted is worrying, however, because it has been presented as a story of hunger. The very first sentence of the IFS lecture read:

62% of UK school staff witness children arriving hungry at school on a weekly basis (Association for Public Excellence, 2014).⁶

Moreover, a further whole page (p. 7) of the IFS lecture is dedicated to research reports, sourced from the scientific literature, that chronicle the deleterious effects of malnutrition on the brain, and of hunger on learning.

Similarly, Magic Breakfast greeted the study with a banner on the front page of its website alongside another banner that read, 'Over half a million children arrive at school in the UK too hungry to learn'.

And Sir Kevan Collins, the CEO of the Education Endowment Foundation welcomed the study with (quoted in Dettmer 2016):

The fact that there are children that will go to school hungry today is a national scandal. Offering free breakfasts at school is a relatively cheap and straightforward way of alleviating this symptom of disadvantage.

These statements bear little or no relationship to the data within the IFS study. Indeed, the IFS study, by showing that the provision of free breakfasts did not increase food uptake significantly, confirmed that England is not a country of hungry schoolchildren. In the light of the 2004 Welsh Assembly Government literature review confirming that the benefits of school breakfast clubs seem to be mediated by behavioural, not nutritional routes, the presentation of this piece of science as a story of hunger is misleading, yet this is the story that entered into the public discourse and the mainstream media.⁷

There must, in the whole of the UK, be examples of individual children being underfed at home in the mornings. But this is not the children's nutrition story of our age. That, rather, is a story of childhood overweight (being

⁶ The IFS lecture did not list its references, and I could not find this reference, though it seems to have provided the basis of a pro-breakfast study published by Kellogg's (2014). The Association for Public Excellence is a charity that acts as a trade association for local authorities.

⁷ For example: School breakfast clubs can help children boost results, ITV News, 4 November 2016.

tubby) and obesity (being fat), yet it appears to have gone unconsidered in this study. Thus the IFS found that the greatest rate of free breakfast take-up was by children from deprived backgrounds. Yet we know that 26 per cent of children living in the most deprived areas of the country are obese compared with 12 per cent in the least deprived areas (National Statistics 2017).

Trade-offs

One of the great nutritional myths of our time is that breakfast is healthful because its consumption reduces – by satiety – overall consumption later in the day. This myth is based on bad science, and it has been comprehensively demolished: breakfast always increases the total number of calories eaten during the day (Kealey 2016). And since the great children's nutritional problem of our time is over-eating, this study might surely have addressed how free school breakfast clubs might impact it. If a trade-off needs to be made between educational achievement and facilitating childhood obesity, that needs careful evaluation.

Nutrition

Another problem was the statements by the IFS, EEF and Magic Breakfast that the breakfasts they supplied were, in their words, 'nutritious'. Yet they consisted of porridge (apparently supplied free by Quaker Oats), corn flakes (apparently supplied free by Tesco), bagels (apparently supplied by Bagel Nash at cost), and orange juice (apparently supplied free by Tropicana.)

These are not the constituents of a nutritious breakfast. Indeed, they would appear to be the opposite: namely, the bases of carbohydrate-fests. Moreover, the schools were then expected to offer jam, marmalade, honey and other toppings and spreads to help the children eat their breakfasts (the internet is stuffed with Magic Breakfast photographs of children eating bagels covered in jam). The schools were also encouraged to offer fresh fruit, but the other toppings and spreads were not excluded. Magic Breakfast did not supply sugar – that was another topping left to the schools to provide – and indeed it asked the schools to minimise the amounts they offered, just as the Welsh Assembly Government in their school breakfast report advised that children should be encouraged to add 'fewer spoonfuls of added sugar' to their cereals (Health Promotion Division 2004). But, inevitably, the children were adding sugar in one form or another to their breakfasts. Indeed, the government's National Healthy Schools Programme has even encouraged schools to 'try mixing sugar-coated cereal with plain cereals' to reduce the amount of sugar the children add to their breakfasts (Healthy Schools 2005). So Frosties and Sugar Puffs are now government-endorsed health foods!

Therefore, when the IFS authors (Crawford et al. 2016) wrote that ‘Gains are likely to be the result of the content or context of the school breakfasts, rather than of increasing overall breakfast consumption’ (*italics added*), we can dismiss the idea that the content of these breakfasts was healthful. Rather, they must have brought about their good effects by context: by encouraging attendance and a healthy school culture by improving the behaviour and the interrelationships of the children.

Carbohydrates and sugars at breakfast may even lower academic achievement. The most recent scientific review of the field suggested that ‘a lower postprandial glycemic response is beneficial to cognitive performance’: that is, if you must give children breakfast, the least good breakfast would be a carbohydrate-fest (Edefonti et al. 2014). And carbohydrates and sugars at breakfast may even damage the social context at school: thus high-carbohydrate breakfasts cause subjects to be more vindictive in their behaviour (‘increased social punishment behaviour in response to norm violations’ in so-called ultimatum games) than if they ate high-protein breakfasts (Strang et al. 2017).

And high-carbohydrate breakfasts (perhaps because of the peaks and troughs in blood glucose levels they generate) stimulate the greatest appetite later in the day. Carbohydrates, therefore, promote obesity (Taubes 2007).

It is encouraging that there is now increasing awareness that the sort of breakfast provided in this study is unhealthy. The World Health Organization (WHO) advises that ‘increasing consumption of sugar-sweetened beverages is associated with overweight and obesity in children’. And, even though fruit juices, honey and syrups are, in the WHO’s words, ‘naturally’ sweet, they too, it recommends, should be avoided (World Health Organization 2017).

Independent peer review

Although independent peer-review is not a guarantor of excellence, it nonetheless represents a minimal benchmark of credibility. Yet this work has not yet been submitted to a journal for independent peer-review. It was peer-reviewed for the IFS by scholars approached by the IFS, but that must represent a lower bar for credibility.

Economists seem comfortable with releasing publicly the results of their research before submitting it to independent peer-review by an academic

journal. Biologists generally are not. The IFS seems to have treated this study as a piece of economics research. Yet it was a nutritional study that employed epidemiological tools, and some of the problems of interpretation raised here might have been pre-empted by peer review by a biological journal.

Reception

Although the IFS report of November 2016 was well received, the manifesto commitment was badly received, for two reasons. First, the costings were mistrusted, and the Education Datalab think tank suggested that instead of costing the claimed £60 million a year, the provision of universal free breakfasts would cost at least £170 million, rising potentially up to £400 million, depending on how many children took up the breakfasts.⁸

Second, there was resentment over the Party's motive, which was to save money by withdrawing the free lunches that are currently offered. The idea of swapping free breakfasts for the free lunches was endorsed by the IFS in 2017:

A 2012 pilot study by IFS researchers and others found that Year 6 students ... offered free school lunches, made around two months' additional progress [but] offering free breakfast clubs might be a cheaper and more effective way.

(Deardon and Farquharson 2017)

This suggestion raises scientific questions. Why in 2017 are we still talking about pilot studies from 2012 (i.e. why have those studies not moved beyond the pilot stage into the peer-reviewed published phase)? And isn't it premature to be talking of withdrawing lunch? How, for example, do we know that the effects of free lunches and free breakfasts are not additive? That is, if offered both meals free, would pupils enjoy four months' acceleration of outcomes? Surely we should know before someone suggests withdrawing one of the meals.

The IFS was happy to sacrifice free school lunches because:

... while the pilot study found that universal free school meals [i.e. lunches] improved test scores, it wasn't able to pinpoint how these improvements came about. [*Italics in original*]
(Ibid.)

⁸ May's manifesto pledge on free school breakfasts 'undercosted', *The Guardian*, 24 May 2017.

This is a peculiar argument, since what we know about free school breakfasts is that their educational results are the result of social rather than nutritional effects. Combined with the goal of saving taxpayers' money, this creates a *prima facie* case for getting children to socialise before lessons begin without feeding them.

Discussion

There have been the three reviews (published in 1998, 2009 and 2014) of the peer-reviewed literature on the academic effects of children's breakfast, and respectively they concluded that:

No definitive conclusions can be drawn from existing data on either the long- and short-term benefits of breakfast on cognition and school learning ... At the very least, breakfast consumption improves school attendance.
(Pollitt and Mathews 1998)

And:

Studies of school breakfast programmes suggest that such interventions can have positive effects on academic performance, but this may be in part explained by increased school attendance.
(Hoyland et al. 2009)

And:

There was insufficient quantity and consistency among studies to draw firm conclusions ... the hypothesis of a better and more sustained performance with breakfast ... still needs substantiation.
(Edefonti et al. 2014)

The peer-reviewed literature, therefore, does not support the suggestion that taxpayers' money should be spent on free breakfast programmes. The IFS study, however, challenges that conclusion, and it fits into a niche within that literature in suggesting that free school breakfast – rather than breakfast per se – may be beneficial. Which may well be true, but if it is true, it's not mediated by the mechanism of hunger but, rather, by socialisation. School is a stressful place, and a fun interlude on the school's premises

beforehand might well alleviate some of that stress.⁹ In which case, an interesting discovery has been confirmed, and it should be interpreted in that light – namely as a pedagogical and psychological and sociological discovery, not primarily as a nutritional one.

Such a discovery, moreover, should be interpreted within the context of trade-offs: of recognising that the mantras ‘breakfast is the most important meal of the day’, and ‘eat breakfast like a king, lunch like a prince and dinner like a pauper,’ have been shown to have been based on poor or even absurd science, and that the world of nutrition is moving away from them in the direction of breakfast-scepticism (Levitsky 2014).

Science and politics make uneasy bedfellows. Science is tentative, rational and exhaustive; but politics marches to different drums. It is always tempting to interpret scientific findings in a way that suits a prior political goal, be it saving money on providing school lunches or shifting more parental responsibilities onto the state. Take a close look at the foundations of ‘evidence based policies’ and they often turn out to be dangerously flimsy.

9 As one headmaster said, the breakfast club hour ‘before school is stress-free [so the children] start with a smile on their faces, ready for learning’. Breakfast Clubs: Much More Than Toast and Cereal, Teaching Times, www.teachingtimes.com/articles/break-fast-clubs.htm

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