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Evaluating the Department of Health school breakfast clubs initiative – where does economics fit in?

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Review of evolution of breakfast clubs, evidence of effects and economic studies

A school breakfast club is a form of before school provision serving breakfast to children who arrive early. The concept originated in USA in the 1960s and services have become increasingly widespread there since the School Breakfast Program (US Department of Agriculture) was established in 1966 to provide categorical federal funding to assist schools serving breakfast to “nutritionally needy” children in poor areas. By 1997, the number of schools participating in the breakfast programme exceeded 68,000 with clubs attracting 6 million children each day (USDA, 1999).

The introduction of breakfast clubs into UK schools has been a much more recent phenomenon and their increased provision is likely to initially have traced the expansion of school based ‘out-of-school’ childcare during the late 1990s (Smith and Barker, 1997). Also, the allocation of Education Action Zone (EAZ) resources to both school and community based breakfast clubs over the same period represented a more wide-ranging and rapid process of development (Street and Kenway, 1999). The Acheson Report into inequalities in health (1998) and the Health Survey for England 1994 (Colhoun and Prescott-Clarke, 1996) highlighted that differences in children’s dietary intake reflect differences on socio-economic factors such as income and social class and research evidence has also indicated that 6% of all children aged 8-16 years miss breakfast, with the experience more prevalent amongst socio-economic grades D and E¹ (Gardner Merchant, 1998).

¹ Socio-economic classes iv and v.

Within this context, the momentum for development of school breakfast clubs in the UK has encompassed strategies to address the diverse local childcare, education and health (resource) needs of different school communities. As such, the emphasis of different clubs may vary considerably: school breakfast clubs are an extremely heterogeneous form of provision. For example, some may integrate study or welfare support, or play activities whilst others may focus on providing breakfast and a space for informal interaction amongst children, between children and school staff and perhaps involving parents.

Research evidence has highlighted a range of potential benefits associated with children's participation in breakfast clubs, including improved nutrition (Nicklas *et al.*, 1993, Hanes *et al.*, 1984); psychosocial and educational performance (Ani and McGregor, 1999; Murphy *et al.*, 1998; Meyers *et al.*, 1989) and behavioural outcomes (Bro *et al.*, 1994). Other researchers have argued that breakfast clubs may have a wider role to play in supporting the family unit both economically and socially (Walker, 1999). However, we have not yet found any research incorporating formal economic evaluation methods into the study of the effectiveness of school breakfast clubs, for example, by exploring the relationships between resource inputs and associated costs, resource consequences and outcomes. In spring 1999, the UK Department of Health announced a new £800,000 pilot initiative to support the development of new and existing breakfast club provision in schools serving areas of deprivation in England together with a national evaluation project, including a call for bids to evaluate the initiative. The evaluation contract was granted to an interdisciplinary team for a multi-methods approach including an economic component. A final evaluation report has been prepared (University of East Anglia, 2001) and further analyses are in progress. This paper will describe the economic aspects of the evaluation, discuss the role and relevance of formal health economic evaluation in a complicated and changing policy arena, and attempt to develop some suggestions for other evaluators of complex social health interventions.

The DH initiative and its evaluation

The specified aims of the Department of Health pilot scheme were:

- to provide breakfast for children who might otherwise start the school day without having eaten;
- to establish a positive relationship at the start of the school day, helping to reduce lateness or poor attendance and improving attitude, behaviour and motivation to learn and;

- to offer healthy eating choices, providing the opportunity for children to sample and hopefully develop preferences for healthy options.

In addition to these specific aims, the Department of Health provided criteria to guide Regional NHS Executive Offices and Local Health Authorities- in partnership with Local Education Authorities- in the allocation of funding to clubs and their subsequent development. These were that:

- priority should be given to schools in more deprived areas such as those located in Health Action Zones, Education Action Zones or Sure Start areas;
- funding should be used to provide a free breakfast for all children who attend;
- partnerships should be sought with organisations outside the public sector.

Between September 1999 and July 2000, just over 250 breakfast clubs were identified as having been allocated funding under the scheme. 64% of clubs were based in primary schools, 28% of clubs were based in secondary schools and 8% of clubs were based in nursery schools, special schools or community centres. Data on attendance at the clubs can be used to estimate that if all clubs had been implemented concurrently, the initiative may have been capable of serving over 30,000 breakfasts to school-aged children each week. In late summer 2000, the initiative was extended in order to provide further support for clubs funded during the initial round.

Although the main aims of the scheme were to improve children's health and learning (potential nutrition, health, social and educational outcomes), they also included the objective to target resources to poor children and areas, to minimise stigma (free breakfast for all), and to build potentially sustainable funding arrangements (partnerships). This signalled an implicit understanding at policy level that clubs could potentially have economic impacts on several levels. The 1999 government white paper 'Saving Lives: Our Healthier Nation' placed the expansion of the provision of school breakfast clubs within an integrated policy to tackle the wider determinants of health inequalities. This acknowledged the influence of complex personal, social, economic and environmental factors known to be related to health inequality (poverty, low wages, occupational stress, unemployment and poor housing) and highlighted the potential of schools as 'healthy settings' within which to address them effectively. (Department of Health, 1999). Overall, this broad context established the potential for the economic consequences of introducing school breakfast clubs to be realised on several different levels: individual (children, parents, staff), institutional (school, family, service provider) and societal (community, employers).

The national evaluation used four main lines of enquiry to examine the characteristics of the scheme, the experiences of participants and families and the effectiveness of the scheme in terms of key outcome measures and economic issues. These were:

- A survey of breakfast club provision and the structures put in place to implement the scheme conducted at the beginning of the evaluation period but with a two further ‘sweeps’ to complete missing data and to collect further data relating to the period of extension.
- A cluster randomised controlled trial (RCT) to collect measures relating to potential nutritional, social, psychological and educational outcomes of breakfast clubs for children with follow up of outcomes at approximately 4 and 12 months after implementation of the initiative.
- Case studies constructed from field-notes, records from direct observation, analysis of documentary evidence and interviews with key participants to generate detailed information about the processes and structures underpinning provision of clubs and the experiences of those involved.
- A child and family study using questionnaires and semi-structured interviews to collect information from parents about socio-economic circumstances, the impacts of the scheme on families, and parents’ and children’s satisfaction with and views about breakfast clubs.

Economics input to the evaluation

The economic component of the evaluation aimed to assess the resource consequences of introducing breakfast clubs into schools and to explore cost effectiveness and cost benefit in different circumstances. This needed to take account of variation in objectives for and potential benefits of school breakfast clubs and considers, for example, the different agencies involved in their organisation, the diversity of facilities and services provided by clubs and various types and levels of staffing within clubs. More than one concept of cost effectiveness (and cost benefit) can be applied to the research context. At one level, cost-effectiveness assesses the technical accounting efficiency of the funds provided for the intervention in terms of the outputs achieved per unit of funding (for example: number of breakfasts served using the funding provided for schemes). At another level, cost effectiveness is concerned with the costs of achieving specified aims. Crucially, the latter assumes that the aims achieved are understood (and that the range of outcomes measured reflect the full range of potential short and long-term benefits and disbenefits) in advance of an attempt at comprehensive quantification of this relationship. This concept of cost effectiveness is one which

may help policy makers choose between options for achieving key outcomes, for example nutrition, but does not address the potential trade-offs between the range of outcomes which have been described. To meet this requirement, the concept of cost effectiveness of relevance is concerned with societal cost benefit.

It is important that the costs of providing breakfast clubs alongside current services are justified by the benefits, and indeed that the incremental benefit is worth the additional cost. Both cost and benefit require definition within the context of breakfast club provision and are seen differently from different perspectives within the economy, depending on who owns the resources, pays the costs or experiences the benefits. As such, the evaluation undertook to assess some of the economic consequences of the intervention for those who provide the service, for those who use the service and from the societal viewpoint but did not set out to quantify cost effectiveness or cost benefit within the scope of the funded evaluation. A question at the outset was whether the quantification of cost effectiveness or cost benefit was feasible, or even necessary.

The economic content of the evaluation had several stages: description of financial structures and costs; description of resource inputs and estimation of associated costs; estimation of cost-consequences that may result from the effects of clubs on schools, children, their families and communities; and finally analysis of relationships between the net costs of implementing the clubs and the social welfare benefits. Data collection and reporting for the economic components therefore ran through all four main elements of its design. Analyses were based on key items of data collected at each stage of the project.

Methods

The survey of breakfast club provision under the scheme was designed to allow a description of the financial and organisational arrangements underlying their implementation and operation (including any bids for funding or business plans). The survey requested information from schools about funding levels and the resource inputs and costs for providing the intervention during school year 1999/ 2000. All these data were followed up after approximately one year and schools returned further information about funding, resource inputs and costs relating to school year 2000/ 2001. The data provided allowed estimation of the direct costs of providing the service compared to overall funding levels.

The cluster randomised controlled trial (RCT) was concerned with measuring the potential social, psychological, nutritional and educational outcomes of clubs to provide an understanding of the nature of benefits associated with the introduction of school breakfast clubs. However, rather than attempting a full ‘traditional’ cost benefit approach, which would have required comprehensive valuations of costs and outcomes in money terms, the overall strategy was to assess and compare changes in resource use and related costs with changes in outcomes that would affect social welfare. The trial instruments therefore included data items which might provide an indication of changes in resource use resulting from the introduction of a club, such as any impact on use of health related services, use of after school clubs, or parents’ employment patterns. These indicators of resource use were selected after a ‘resource use matrix’ was formulated to map the potential relationships between: the resource inputs and associated costs required to implement and operate clubs; knock-on costs and changes in resource use potentially precipitated by the implementation and operation of clubs and the potential benefits in terms of a range of outcomes (see Appendix B, page 22). This followed a balance sheet approach, adapting a model developed by McIntosh *et al* (Pharmacoeconomics, 1999;4: 357-367) and reflecting both a review of relevant literature and theories of change evident in schools’ responses to the survey of provision. This methodology meant that the economic component of the evaluation was heavily dependent on the generation of conclusive results from RCT analysis. A successful trial would have allowed the presentation of some illustrative examples of cost/ benefit. However, there was gross contamination between the intervention and control groups and generally patchy implementation of the intervention that meant no conclusive understanding of the benefits could be generated to inform conventional measurement of costs and benefits. This is discussed in more detail in the results section.

Both case study work and the child and family study helped to clarify the nature of the different perspectives of various stakeholders under a range of conditions. All available documentary evidence held at school, health authority and catering services level relating to the costs of breakfast clubs were collected in each case study. Also, the case studies were selected to reflect the broad range of provision evident from early responses to surveys across several dimensions and as such, the detail and context has served to illustrate the economic data gathered within other elements of the evaluation. The child and family study included exploratory questions on costs to families and other possible economic effects or constraints at the level of the family.

Results

As was mentioned briefly at the outset, an important feature to highlight about school breakfast clubs is the heterogeneity of provision implemented under the Department of Health initiative. Differences between the features of funded clubs will have affected both their operation and economics. Key differences were identified across all main elements of the evaluation between clubs based in primary schools and those based in secondary schools. The evaluation also generated the hypothesis that there were likely to be key economic differences between clubs that were newly formed under the initiative and those that had existed prior to its implementation. Both of these dimensions were brought into sharp focus by findings emerging from the economic component. Additionally, the development of forms of school breakfast club provision was a dynamic process; clubs and the experiences of those involved have changed over time. In no sense can school breakfast clubs be regarded as a uniform type of technology.

Funding allocated under the Department of Health pilot initiative

The Department of Health allocated £100,000 to each of the eight NHS Executive Regional Offices to be devolved to support school breakfast clubs during school year 1999/2000. Funding was distributed differently within regions with the result that the number of schemes funded in each region varied between twenty-one and forty-four. Analysis of 1999/2000 funding levels revealed, unsurprisingly, an inverse relationship between the numbers of clubs funded in each region and the median level of DH funding per school.

There was wide variation in levels of 1999/2000 Department of Health funding allocated to individual clubs, with a range between £250 and £12,000 and a median level of £2500 per scheme. Department of Health funding provided to clubs during school year 2000/2001 (in order to extend the pilot initiative) fell to a median level of £2000. Most usually, this funding was allocated to the same clubs again, although in some areas, additional schemes were identified for support. The latter occurred in areas where resources had been freed because clubs allocated funding during 1999/2000 had either delayed implementation (so had used only a proportion of their initial allocation), were no longer operating, or were now able to sustain their club from other sources of income. It is important to state that, within the context of comparable UK Department of Health supported initiatives, the amounts of funding devolved to the pilot schemes were fairly small.

The mean level of Department of Health funding for clubs based in secondary schools was 11% higher than for clubs based in primary schools during 1999/2000, and 24% higher during 2000/2001. Mean attendances at secondary clubs was 29% higher than that for primary clubs and patterns of

funding observed for the two categories of provision may have partly reflected this factor; as well as reflecting differences in the respective resource inputs required and associated cost structures (to be discussed below).

Existing clubs were likely to have had more of the resource inputs required to provide a service in place than new clubs at the outset of the initiative. This hypothesis is supported by data showing new clubs needed greater funding for equipment and other start up items.

Partnerships and sources of additional funding

Clubs had modest success in forming partnerships with local business or community or charitable organisations that had resulted in the receipt of payments in kind. 14% of clubs reported receipt of non-financial support that had been secured in this way. Food from supermarkets or local food retailers was the most frequently reported form of non-financial contribution. Where equipment had been donated, the items reported were most usually related to food preparation or service, such as toasters or microwaves. Donations of games, play equipment or audio-visual equipment were also reported but were much less common.

Over two years of the initiative, 45% of the breakfast clubs involved had used a source of additional funding beyond the Department of Health pilot scheme. Other government initiatives were the most frequently reported source of additional funding for clubs, with the New Opportunities Fund, Education Action Zones, Single Regeneration Budget, Health Action Zones (or more than one of these) comprising 30% of sources referred to by schools responding to the survey of provision. Other reported sources included local councils, charitable or community organisations, school funds and local business. It was estimated that additional funding for all clubs may have represented one third of the total Department of Health funding investment during school year 1999/2000, falling to one fifth of the total Department of Health investment during 2000/2001.

Overall, although clubs based in secondary schools were more likely to have secured additional funding than clubs based in primary schools, levels of additional funding secured by clubs in primary schools were, on average, much higher than those for clubs in secondary schools.

Additional funding was reported more frequently by existing clubs than new clubs also. A comparison of 1999/2000 and 2000/2001 data for breakfast clubs newly formed under the initiative suggest that there was a year-on-year decrease of 9% in the proportion of new clubs reporting receipt

of additional funding. The mean level of additional funding reported for new clubs also fell year-on-year. However, the amounts of residual funding carried forward into 2000/2001 from the previous year are unknown and this factor, together with comparatively lower costs in clubs newly formed at the outset of the initiative (as start-up costs had already been met), may have had an impact on the extent to which additional funding was sought during 2000/2001. The hypothesis that residual funding and changes in resource needs impacted on patterns of additional funding secured for clubs gains support from the finding that although levels of reported additional funding fell year-on-year for existing clubs as well as for new clubs from 1999/2000 to 2000/2001, the decrease was (proportionately) much less marked for existing clubs.

The processes of generating funding for schemes or developing useful partnerships was likely to involve some cost to schools that may frequently have remained unaccounted for. It was highlighted during case studies that these processes could require a significant time commitment on the part of school staff that often incurred an opportunity cost in terms of time allocated to other duties that may often be absorbed in unpaid overtime at evenings or weekends:

"I don't know how long this bid took for John...What happens in schools is...we do it in our own time...so instead of marking his work, he would be doing the bid. But he will mark his work during his weekends, evenings and holidays." - Headteacher.

Resource inputs and associated costs

The resource inputs required to implement and run breakfast clubs can be divided into inputs with associated direct costs- equipment, food and staffing- and inputs with associated indirect costs or overheads, such as buildings, heat and light. Equipment expenditure was likely to represent only a small proportion of direct costs. Clubs based in primary schools reported this use of 1999/2000 Department of Health funding more frequently than clubs based in secondary schools and equipment expenditure, as a proportion of 1999/2000 Department of Health funding was, on average, much higher for primary based clubs. There was also some evidence that primary based clubs purchased a wider range of equipment than secondary based clubs. Survey data also showed that newly formed clubs were more likely to report this use of 1999/ 2000 Department of Health funding than clubs existing prior to implementation of the initiative, although levels of equipment expenditure were very similar for both categories of provision.

These considerations provide a strong indication that the capital resource needs of primary based clubs may have been greater and more wide ranging than those of secondary based clubs and that

resource inputs of equipment may at least have been more frequently required for new clubs than for existing clubs. The finding here concurs with qualitative data from case studies which suggested that those involved with primary based clubs in particular sometimes felt that a limited availability of funding to provide games or play equipment had meant it could be difficult to keep children occupied constructively in the time after they had eaten breakfast at the clubs and it was felt that this could diminish the quality of the experience of attending the club:

“The thing we need to resource is what they do when they finish their breakfast, because we haven’t got a great deal of games around. They’ve got a sell by date haven’t they.” - Headteacher.

For all breakfast clubs reporting use of 2000/ 2001 Department of Health funding to purchase equipment, this investment in capital resources was likely to represent a cost of maintaining and/ or developing the clubs. The proportion of 2000/ 2001 Department of Health funding allocated to this type of expenditure fell, on average, on the previous year by approximately 90% but information provided only includes expenditure on items to the end of Spring Term 2001- that is over up to two terms only- and so the magnitude of the decrease is likely to have been overestimated.

Based on seventeen schools in the Cluster Randomised Controlled Trial intervention arm (and with some fairly heroic assumptions about the club’s operation) it was estimated that the Department of Health funded amount per breakfast club session provided varied between £10 and £88 with a mean value of approximately £32. In a subset of 8 schools with data on attendance at clubs, the cost per breakfast provided had a mean value of £1.19 and varied between fifteen pence and £2.74. These estimates are to be regarded with great caution.

Recent New Policy Institute research suggested that a club serving hot food may be able to provide breakfast at a cost of sixty pence per child and that for a club serving no hot food the cost may be around thirty-five pence (Kellogg’s, 2000). Applying NPI figures to available attendance data from the UEA study, weekly food costs per club would have been around 40% higher for secondary school clubs compared those in primary schools, both because of larger number of pupils attending and greater provision of hot food at secondary school clubs.

Estimated weekly staffing costs at breakfast clubs based in primary schools were, on average, higher than for secondary based clubs and represented a much higher proportion of the total direct costs of primary based clubs (see Appendix A, page 21). This largely reflected the higher supervision

requirements for primary-aged children compared to secondary-aged children, as illustrated by this example from case study data:

“For starters, from my point of view, you need more supervision, whereas here [secondary school] you don’t need as much supervision in a Junior Mixed and Infants (JMI). In a JMI, if you had one hundred children come in for breakfast, you would have to have at least four or five adults on duty. It doesn’t always suit.” – Catering services manager.

Staff costs were based on estimated wage rates, and did not include the additional on-costs that could typically represent an additional 15%-20% of the cost of paid staff.

Estimated weekly staffing costs for school year 2000/2001 increased markedly on the previous year for all categories of provision (with estimated wage rates held constant for the comparison). The increase was greatest for primary based clubs, where the staffing resource inputs reported for clubs increased, on average, by over 100%. It is possible that one factor contributing to this was that clubs may have increased in size and scope over time. This factor remains unknown for large numbers of clubs, since survey data on attendance of clubs relating to school year 2000/2001 was not available. However, some indication of increasing attendance at clubs was provided by schools participating in the Cluster Randomised Controlled Trial that were operating a club at both baseline and second follow-up- one year later (and returned data on average estimated weekly attendance for both of these periods (n=11)). Attendances at those clubs increased, on average, by approximately 13%. This factor would therefore account for only a proportion of the reported increase in staffing resources required for clubs.

Overall data relating to both school years 1999/2000 and 2000/2001 suggest that between 35% and 45% of breakfast clubs were at least partially staffed by volunteers during that time. Volunteers were reported to be involved in all three staffing functions included in this analysis: food preparation or service, supervision or club activities and management or administration. Most frequently, volunteers were involved in a supervisory capacity. The estimates presented for staffing costs related only to the money costs which had to be paid for by clubs and therefore did not include the time of volunteers as a cost. That is to say, these estimates were made from the perspective of the service provider and therefore did not include valuation of the social opportunity costs of volunteer inputs. Analysis showed that a third of those breakfast clubs providing information on levels of volunteer input into staffing functions reported zero weekly staffing costs, indicating that the

involvement of volunteers could at least reduce the direct costs of staffing clubs significantly if not eliminate them altogether. Qualitative data from case studies suggested that the use of volunteers had worked well in many cases but may not always have been sustainable in the long term. Some clubs reported a need to pay in order to retain 'voluntary' staff, as illustrated by this case:

"I said 'this is more than you ever took on as a volunteer, it's now becoming a job'...If they don't turn up we really are in trouble...it does mean it's gone beyond being a volunteer when you actually don't have a choice about turning up." - Lead teacher.

If school breakfast clubs were required to replace volunteer time with paid staff, then financial costs relating to paid staff would have increased. In comparing year-on-year data, it was found that those clubs reporting any voluntary staffing input during 1999/ 2000 reported, on average, a reduction of just over four hours of voluntary input across all three staffing functions during 2000/2001. Assuming that the voluntary resources were indeed replaced by paid staff and that levels of paid staff remained the same, this would nevertheless have accounted for only a proportion of the marked increase in estimated levels and associated costs of paid staff compared to the previous year. It could therefore be hypothesised that there were further relevant factors at play, such as an awareness of an increased need for staffing resources in order to sustain the operation of clubs that may have emerged as the initiative progressed and the level of the required input became more clear; or an increasing propensity to account formally for staffing resources such as management or administration that may previously have been unaccounted for in terms of financial costs.

Survey data and case studies suggested that it was rare for breakfast clubs funded under the Department of Health scheme to have incurred any financial costs relating to premises. Where clubs were based in school premises, this was likely to have been because the timing of clubs usually fell within the time period when the school would have been open in preparation for the school day anyway, so that the use of buildings was not regarded as an additional resource incurring additional costs to the school. Nevertheless, the same was found to be the case for clubs based in facilities run by local community or charitable organisations. Nor in general were overheads relating to food preparation and service (such as water or electricity) accounted for by schools explicitly. However, in many cases these costs may have been hard for schools to identify; for example, where incurred directly by catering service providers who may have charged them back to breakfast club budgets without dissociating them from the costs of the food itself.

Overall, although the estimated total costs of implementing and running breakfast clubs based in primary schools were, on average, similar to those based in secondary schools, higher levels of attendance at secondary school clubs suggest that the cost per child is likely to have been greater for clubs based in primary schools. Also, the findings identified differences between the respective cost structures of clubs at primary and secondary level.

Knock on resource/ cost consequences of the introduction and use of clubs for schools, children, families, communities and society

The mapping of the potential knock-on resource and cost consequences of introducing and attendance of school breakfast clubs identified several indicators of potential change in resource use that were being measured as part of the Cluster Randomised Controlled Trial. These were determined through both theories of potential change highlighted by schools in survey data and a review of relevant literature. Economic evaluation attempts to compare distinctly different and constant technologies within a defined population. It was therefore hoped that statistical evidence of differences between the intervention and control arms of the trial in respect of the indicators selected would provide a robust measurement of resource and cost consequences. Indicators of changes in rates of truancy from school, the working patterns of parents, use of health related services and use of after school clubs were included. The impact on rates of individual attendance and punctuality, rates of detention and exclusion and revenue taken at tuck shops and local shops were also considered, although no indicators were available for these variables within the trial. (See resource use matrix – Appendix C, page 2#).

In respect of the initiative in practice, there was a variable rate of implementation, a lack of continuity of breakfast club operation, variable duration of operation and heterogeneity of forms of provision, all leading to a considerable degree of contamination or ‘cross-over’ between the intervention and control groups of the trial. This complicated the analysis: a uniform application (or absence) of the new technology within a defined population could not be assumed. Although it was intended to maintain the cluster RCT through baseline and two sets of outcome measures, it was not possible to avoid the introduction of clubs in the control schools after the first follow-up (after eleven potential weeks of breakfast club operation within the intervention group beyond baseline). At second follow-up (one school year after baseline), nine of twelve ‘control’ schools had established breakfast clubs whilst five of eighteen intervention schools were not operating clubs. Overall, intervention schools achieved a higher and longer exposure to clubs over the period than the control schools. An ‘intention to treat’ analysis on final outcomes is still being conducted but given

the degree of contamination, this is unlikely to yield more conclusive evidence in relation to the effects of school breakfast clubs.

In the light of these complexities, an alternative analysis involved abandoning the distinction between intervention and control schools and instead investigating the effects of, first, whether or not a breakfast club was operating at the time data were collected and, second, whether each individual child had ever attended a breakfast club. Both levels of analysis involved statistical modelling of each key outcome separately, using an appropriate parametric model (depending on the nature of each outcome variable). For example: for count variables, a poisson regression model was assumed whereas, for ordinal variables, the appropriate model was the ordered probit model. However, because existence and period of operation of clubs varied, it has not been possible to compare two consistent, homogenous groups. Therefore the analysis provided rather limited evidence of the potential resource and cost consequences of introducing and attending clubs. Further statistical analyses are currently being undertaken that may clarify provisional findings around both indicators of change in resource use and the potential benefits associated with breakfast clubs.

Overall, findings from statistical analysis of data collected to measure potential social, nutritional, educational and psychological outcomes of school breakfast clubs showed modest statistical evidence in support of clubs. Based on analyses to date, evidence of beneficial effects has been strongest in respect of primary-aged children. Despite the lack of stable operation of clubs, which meant the analysis produced sometimes contradictory or counter intuitive findings, we can nevertheless be fairly confident that the introduction of a breakfast club was successful in encouraging primary-aged children to eat breakfast in the morning, including many who might not otherwise have eaten.

Qualitative data were more conclusive (although arguably more limited in strength) and presented evidence of resource consequences and associated costs (and opportunity costs) of introducing a breakfast club at the level of the school such as the reallocation of management, administrative and supervisory resources to the running and development of clubs from other activities. Also, improvements in attendance or punctuality that were highlighted by several schools as an outcome attributable to the presence of a club are likely to have improved the marginal efficiency of teaching and learning resources.

Qualitative data also suggested that the introduction and use of breakfast clubs had an impact at the level of the family economy. There was some evidence that use of a club could reduce food costs for families where breakfast was provided free at school rather than at a cost within the home. Parents felt that this potential could be realised for families with several children in particular. Parents also highlighted the potential cost consequences of using a club to the family economy with respect to childcare, as illustrated below:

“For me to have a childminder, it’s going to cost £50 a week; so I’m looking at, what, breakfast club and play centre at £15? So I’m going to save money in the long run...I think it would encourage people to go to work because they’re not looking at childcare fees.” - Parent.

It was found that some parents had based employment decisions around the availability of a breakfast club at the school. More generally, it was highlighted that access to a breakfast club provided a useful service towards empowering non-working parents to consider opportunities to work or study. As such, the provision of clubs may have the potential to impact on rates of welfare and employment over time.

Sustainability

It was found that overall, the estimated direct costs of implementing and running clubs were likely to have been greater than the total income from the Department of Health initiative for clubs based in both primary and secondary schools but that additional funding from other sources made it more likely that clubs based in primary schools would meet all direct costs. Whilst many schools may have bridged the gap between Department of Health funding and total direct costs by securing and using additional funding, data suggests that over half did not secure or use any additional funding.

Despite this, 89% of clubs involved in the initiative were reported to still be operating by April 2001, with no statistically significant difference on this indicator between primary and secondary based clubs. However, almost 9 out of 10 breakfast clubs reported to have exhausted 1999/ 2000 Department of Health funding before the end that school year had been implemented within six months of the intended start of the initiative. Further, there was strong statistical evidence that clubs reported to have exhausted 1999/ 2000 Department of Health funding before the end of that school year were more likely to have reported no breakfast club operating by April 2001 ($p < 0.001$). These data suggest that the timing of implementation relative to the timing and use of Department of Health (and additional) funding was likely to have impacted on the sustainability of breakfast clubs

involved in the initiative. Although a higher proportion of secondary based than primary based clubs had exhausted this funding before the end of the school year, there was again no statistical evidence of a difference between the two categories of provision. However, there was evidence from case studies, from observed patterns of operation of clubs amongst those schools taking part in the Cluster Randomised Controlled Trial (see Appendix B) and from the survey of provision that many clubs that were still operating by April 2001 had either not operated continuously since implementing the initiative or had introduced charges in order to be able to continue to provide the service.

Sustainability was an implicit objective set by the Department of Health initiative and was found to have been a key concern for all stakeholders from the outset. A crucial question was whether free breakfast clubs would be sustainable once the pilot funding ran out. This concern was reflected in the following comment from a health authority lead involved in implementing the initiative:

“If you’re serious about doing this- serious about doing something about the health of these children long term- then do something that’s sustainable from the start.” – Health Authority Lead.

Schools who anticipated potential problems with the sustainability of free breakfast clubs were found to have either negotiated for clubs to use funding to subsidise charges for food, or to have targeted the free breakfast to a specified group of children (such as those eligible for free school meals or younger age groups, whose dependency needs were assessed to be greatest) alongside a service involving charges. The latter strategy is illustrated by an example from case studies:

“We were presented with a dilemma because what we did not want was to offer a free breakfast...for a very short space of time and then be left in the air with nothing happening. We have to jump through so many hoops in education that basically you’re given a very small piece of bait and then when you bite, you very often find that you’re caught on a hook and you can’t keep going through lack of funding.” - Lead Teacher.

Some clubs may have introduced charges primarily because it was felt that this would encourage children and families to value the service. However, the weight of evidence suggested that even nominal charges may have provided a barrier to attendance for some children and families:

“I don’t think it’s expensive, I don’t always have the money...to like give to both of them. It sounds petty, but sometimes I haven’t got sixty pence a child in my purse.” - Parent.

“There is a child in my class who started to go to breakfast club and who was coming in on time and was far more able to concentrate, but has decided not to go to breakfast club now [because of the cost] and is coming in late again and distracted.” - Teacher.

The sustainability of breakfast clubs was a key concern for parents also, particularly those who had based employment decisions around the availability of a club:

“I think it should continue so that when people get a job, they can rely on breakfast club.” - Parent

The demand for breakfast clubs was found to have been highly sustainable. It was found to be extremely rare for school breakfast clubs involved in the Department of Health initiative to have reported the closure of a club due to a lack of take-up or low levels of attendance.

Linking data collected within the evaluation for cost benefit comparisons

As highlighted throughout, identification and measurement of costs and benefits needed to take place before cost benefit analysis could begin. A clearer view of what outcomes were important and relevant was needed, as was the nature of and distinction between short and long term outcomes and potential individual, institutional and societal benefits. Difficulty in obtaining the detailed cost data for a large number of cases that would have been required for a full cost benefit analysis was encountered throughout the evaluation process. Schools consistently found it difficult to answer questions about the resources required for the operation of breakfast clubs and associated costs. The reason for this may have been partly because school accounting systems rarely isolated cost and revenue streams specific to breakfast club and partly because some resource inputs and costs were not readily apparent within the context of a complex, multi-agency initiative that required joint working between schools, service providers, health and education agencies and other partners. Additionally, it was clear that details relating to costs were rarely a priority for schools. Also, one potentially useful source- school accounts data- would not become available until the end of the relevant accounting period, which was beyond the deadline for the evaluation.

It was nevertheless possible to make an assessment of the overall costs of achieving outcomes by estimating the effects of the resource measures associated with the setting up and maintenance of clubs on the mean of each key outcome at the level of the whole school. This analysis used a linear regression model; the dependent variable was the mean over the sampled individual pupils on each indicator of outcome and the explanatory variables were (cumulative) Department of Health funding

and (cumulative) additional funding. The results showed that whilst the level of Department of Health funding appeared to have no effect, the level of additional funding did appear to have a positive effect on all of the nutritional, social, psychological, and educational outcomes measured. This may have reflected difficulties related to maintaining the quality of breakfast clubs where no additional funding was secured. However, it is also reasonable, given the time commitment that was found to have been required of school staff in the pursuit of funding, that those schools who were successful in securing additional funding may have been those schools most committed to the quality of clubs and most enthusiastic about continuing provision of the facility.

Discussion

The evaluation of the DH school breakfast clubs initiative was an exercise in interdisciplinary working, which aimed to provide evidence for the implementation of the scheme on a wider basis in a timely manner. The design and conduct of a well found economic evaluation which would inform policy makers at government level of the incremental cost effectiveness or cost benefit would have required additional knowledge about the effects of breakfast clubs on key outcomes at the outset of the study which was only collected within the evaluation, and then not successfully. A full cost benefit analysis would also require some valuation of short-term outcomes (if they are indeed relevant), and some way of predicting quantity and value of long-term effects (if any). As it has turned out, although there are some clear advantages and positive qualitative findings, there is not a dramatic effect of breakfast clubs on health or educational outcomes which shines through in the analysis of the data collected. There are strong hints of economic benefits for families, but also some potential disbenefits.

It is clear that this was not a case for a simple ‘pharmacoeconomic analysis’ of incremental cost effectiveness. A balance sheet approach to economic evaluation was adopted, but at the end of the evaluation it was not possible to draw a simple conclusion. At least it has been possible from the evaluation to say that more children get breakfast with the DH funding than without, that schools, children and parents are very positive about this; how much it costs to provide a breakfast club; and some hypotheses about sustainability, but we are still not able to say that this was the best way to use the funds.

To answer that question would require estimation of the value of the outcomes which have been demonstrated, and comparative data about other ways for achieving these outcomes. It would also strengthen this and other evaluations to find a way to monitor and value resource costs of new

initiatives in a better way. It is clear from this and previous work (Wordsworth, S. and Ludbooke, A. 1999; O'Neill *et al*, 2000) that asking key providers about costs in simple questionnaire format does not generally yield good responses. It is also clear that enthusiasm and volunteer time are a key factor in successful breakfast clubs and that this needs to be included as a valued and potentially depletable resource.

We would be grateful to cover the following points in discussion at the HESG meeting:

- Is this work publishable? If so, where?
- How could we have designed the economic input to the evaluation differently?
- How could the economic evaluation be developed further and should it be?

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Appendix A

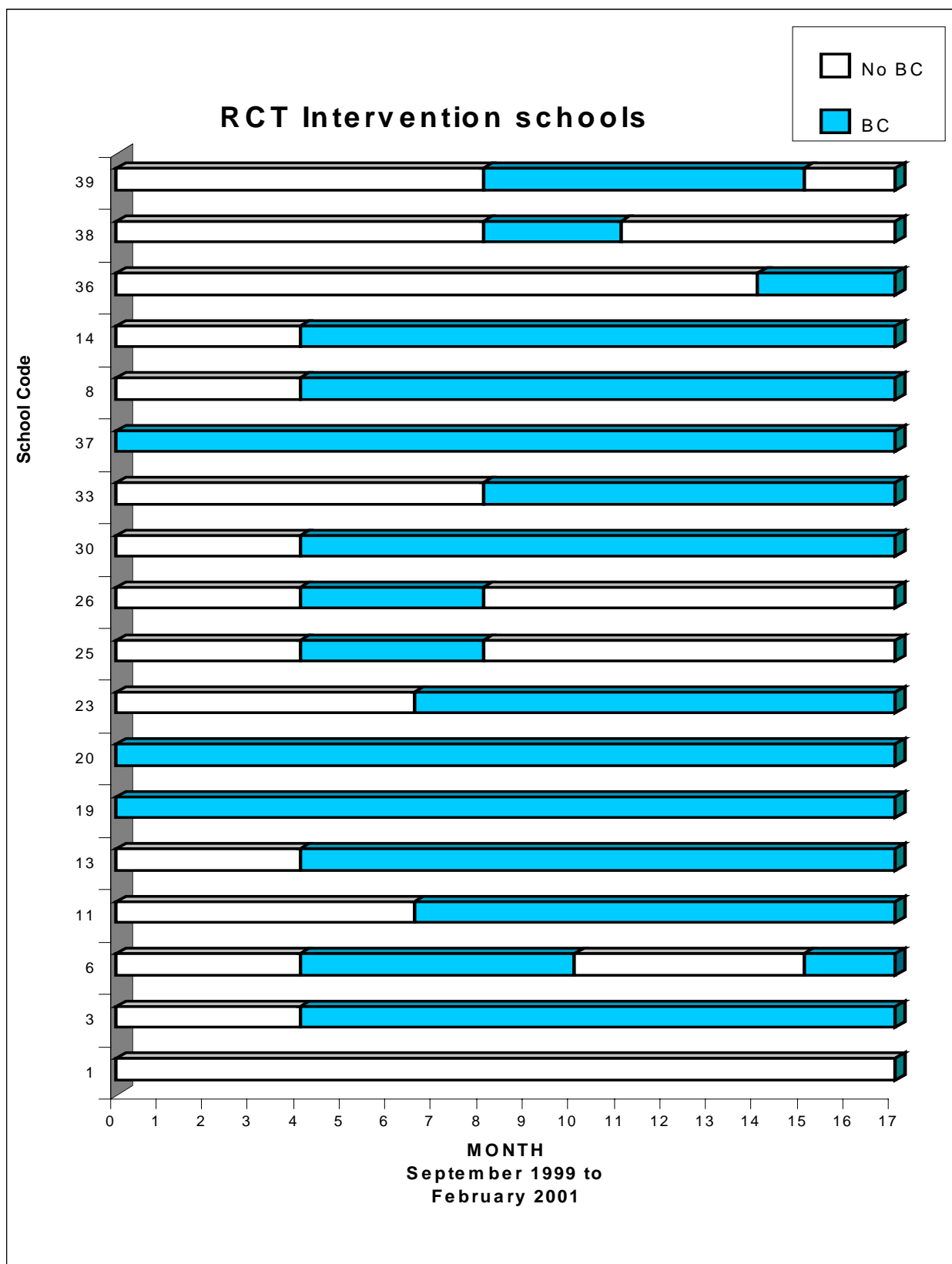
Estimated weekly staffing costs: Primary Based Clubs

Staffing function	Mean number of hours per week 1999/2000	Mean number of hours per week 2000/2001	Estimated hourly rate (£)	Mean estimated cost per week (£) 1999/2000	Mean estimated cost per week (£) 2000/2001
Food preparation & service	3 hrs 52 minutes	6 hrs 44 minutes	5.27	20.34	35.50
Supervision & club activities	2 hrs 41 minutes	5 hrs 56 minutes	6.41	17.24	38.08
Management & administration	0 hrs 28 minutes	1 hr 23 minutes	8.46	4.04	11.77
Total	7 hrs 01 minutes	14 hrs 03 minutes	-	41.62	85.36

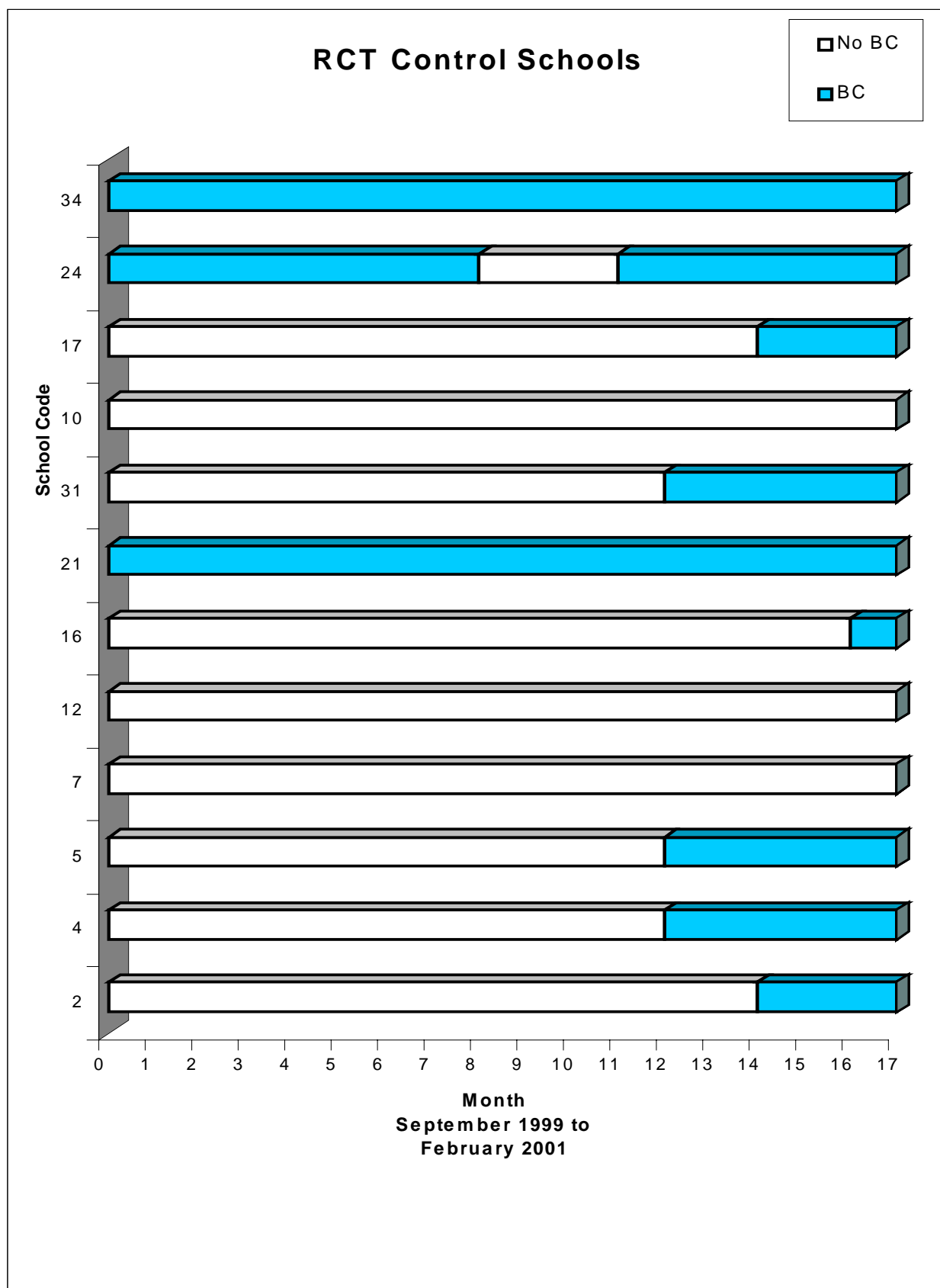
Estimated weekly staffing costs: Secondary Based Clubs

Staffing function	Mean number of hours per week 1999/2000	Mean number of hours per week 2000/2001	Estimated hourly rate (£)	Mean estimated cost per week (£) 1999/2000	Mean estimated cost per week (£) 2000/2001
Food preparation & service	3 hrs 49 minutes	4 hrs 47 minutes	5.27	20.16	25.28
Supervision & club activities	1 hr 57 minutes	4 hrs 01 minutes	6.41	12.49	25.88
Management & administration	0 hrs 25 minutes	0 hrs 38 minutes	8.46	3.57	5.41
Total	6 hrs 11 minutes	9 hrs 26 minutes	-	36.22	56.27

Appendix B (1): Patterns of breakfast club operation amongst schools taking part in the Cluster Randomised Controlled Trial



Appendix B (2): Patterns of breakfast club operation amongst schools taking part in the Cluster Randomised Controlled Trial



Appendix C: Resource use matrix for the introduction and use of school breakfast clubs implemented under the Department of Health pilot initiative

Introduction of breakfast club into the school	Indicator variable(s)	Initial resource and cost consequences: (Breakfast club start-up and operating costs):	Indicator variable(s)	Knock-on resource and cost consequences: (Hypothesised changes in resource use that are potentially affected by attendance at the breakfast club)	Indicator variable(s)	Potential Benefits:	Indicator variable(s)
DH funding allocation(s)	Value of DH funding allocations for 1999/2000 and/or 2000/2001	Number of children attending	Reported estimated average attendance at breakfast club per week	Use of 'after school clubs'	Child attending after school club	Psychological [Improved]: Concentration; attention. (Mental alertness, cognitive ability.)	Outcome measured Not measured
Additional funding	Number of other sources of funding and their value	Staff Costs	Reported number of hours worked by paid staff involved in food preparation and service; supervision and club activities; management and administration	Food expenditure	Child's weekly expenditure on food	Social [Improved]: Conduct; Prosocial behaviour; perception of school. [Reduced]: Hyperactivity; Childhood difficulties. ([Reduced]: Crime)	Outcomes measured Outcomes measured Not measured
Availability of a breakfast club at the school	Breakfast club in operation at the time measures were taken	Food costs	Estimated	Parental working patterns	Number of hours worked by responding parent in the last week	Health [Improved]: Diet & dietary behaviour; Health; Parental malaise. (Nutrition; Health behaviour.)	Outcomes measured Not measured
Duration of the breakfast club	% of school term time within an 18 month period (Sep '99- Feb '01) that the breakfast club was operational	Purchase of breakfast club equipment	Reported expenditure	Detentions; Exclusion; Pupil level attendance; Punctuality	Not measured	Educational [Improved]: Enrolled time; Allocated time; Attainment, Health awareness.	Not measured
				Tuck shop takings and revenue at local shops	Not measured		