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# Policy in Perspective

## Assessing the relationship between malnourishment in children and school meal legislation since the early 20th Century

*by*

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2015

*Thesis submitted for the degree of Doctor of Philosophy*

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Policy in Perspective:

Assessing the relationship between malnourishment in children and school meal legislation since the early 20th Century

Victoria Jaime McGowan

## Abstract

Malnourishment in children has been a cause of governmental concern for over a century. However, the nature of malnourishment has shifted during the 20th Century. Around the time of the Boer War there were concerns that children were not receiving sufficient nutrition which caused under-nourishment whereas today the concern is related to the opposite end of the malnourishment spectrum with increasing numbers of children suffering from over-nourishment. In the early 20th Century the government introduced legislation to allow Local Education Authorities to provide school meals to under-nourished children in order to prevent associated malaise and allow them to benefit from the education they were receiving. School meal legislation has been altered and amended over the course of a century to shape our children's bodies and minds.

This thesis analyses whether government policies for school meals have, since their introduction in 1906 in England, had a genuine impact (either positive or negative) on observed, longitudinal changes in childhood nutrition. The thesis assesses a series of cross-sectional data for children's height and weight collected in the UK from 1908 to the present in order to estimate changes in malnutrition (including underweight, overweight, and obesity) for UK children. This quantitative analysis is contextualised with qualitative data on the development of legislation relating to school meals and interviews/focus groups with school cooks in an attempt to identify potential relationships. The thesis discusses observed fluctuations in the nutritional status of children in relation to the changes in government legislation on school meals and contextualises the findings with the wider literature.

The findings suggest that fluctuations in child malnourishment are not easily attributed to changes in one category of government legislation. However, when placed into the context of wider sociological changes the increasing prevalence of childhood obesity seen from the mid-1980s appears to be strongly associated with changes in government welfare provision, of which the school meal forms a small part.

Moreover, this thesis suggests that contemporary associations between low socio-economic status and overweight and obesity prevalence may not have manifested until after 1994. Children who received a free school meal between 1972 and 1994 had, on average, a lower body mass index (BMI) Z-score than children who had a paid school meal, had a packed lunch or went home. Additionally, there were strong relationships between low BMI Z-score and parent's social class. Overweight and obesity in children rose sharply from the mid-1980s onwards during a period of legislative changes which, according to school cooks, significantly affected the quality of school meals. However, it was not possible to directly attribute these rises to the changes in school meal legislation.

Although the school meal has been used as a tool for governing child malnourishment it is not possible to untangle rises in obesity and overweight from wider sociological phenomena which may have also influenced these increases. This thesis suggests that while legislation for school meals may be protective against under-nourishment in children it is currently unclear to what extent this affects childhood obesity.

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# Abbreviations

| | |
|---|---|
| BCS70 | British Cohort Study 1970 |
| BMI | Body Mass Index |
| CCT | Compulsory Competitive Tendering |
| CFT | Children's Food Trust (Formerly School Food Trust) |
| EIE | Education in England |
| ESDS | Economic and Social Data Service |
| ESRC | Economic and Social Research Council |
| HC | House of Commons |
| HCPP | House of Commons Parliamentary Papers |
| HL | House of Lords |
| IOTF | International Obesity Task Force |
| LACA | Local Authority Caterers Association |
| LEA | Local Education Authority |
| NCDS | National Child Development Study |
| NCMP | National Child Measurement Programme |
| NCOD | National Child Obesity Database |
| NHS | National Health Service |
| NOO | National Obesity Observatory |
| NSHG | National Study of Health and Growth |
| MPs | Ministers of Parliament |
| MRC NSHD | Medical Research Council National Study of Health and Development |
| OFSTED | Office for Standards in Education |
| OYR | One Year Review |
| PCT | Primary Care Trust |
| PP | Parliamentary Papers |
| SFT | School Food Trust (Now CFT) |
| SIG. | Significance |
| SPSS | Statistics Package for the Social Sciences |
| UK | United Kingdom |
| WHO | World Health Organisation |

## Declaration

I declare that this thesis is the result of my own work and that, to the best of my knowledge, it contains no material previously published or written by another person, except where due acknowledgement has been made in the text. I confirm that no part of the material presented in this thesis has been previously submitted by me or another person for a degree in this or any other institution. The thesis is approximately 100,000 words in length.

## Statement of Copyright

The copyright of this thesis rests with the author. No quotation from it should be published without the author's prior written consent and information derived from it should be acknowledged.

Signed:

Date: 6th July 2015

# Dedication

I would like to dedicate this thesis to my Nana, Margaret Harrison, who sadly passed away in 2011 before she could see me finish. I'm sorry it took me too long, Nana, I desperately wish you could be there to see me graduate. I know you'll never see this, I know you're gone, but your steely determination lives on.

"We'll show 'em, Vic"

We sure did, Nana xx

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Saying thank you to all those that have helped me get to the stage where I need to write a list of acknowledgements feels just as arduous as actually completing a PhD. This project has been a long journey which began when I was an undergraduate student, but thankfully I wasn't alone. This thesis has been in production for six years and I therefore have many people to thank for their time, advice, and support during this journey down the rabbit hole, or maybe I should use food metaphors, this period of slow cooking (using only the finest ingredients, of course).

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Scott, *thank you* doesn't seem enough. You know I'm too determined and independent to say I couldn't have done this without you, I know I could and so do you. But, you've made this process so much easier than having to go it alone and frankly, I *wouldn't* have wanted to do it without you. You have looked out for me during this whole time, stopped me from becoming a teamster (they're so lazy and surly), encouraged me, supported me, and more than anything else provided the cups of tea, glasses of wine, and chocolate to give me the energy to keep going. I promise I'll make up for it soon, I will get a job… I hope ☺ Update: I got the job!

# Preface

On 23rd February, 2005, a four-part television documentary began on Channel 4 in the UK presented by the celebrity chef, Jamie Oliver. The series followed Jamie as he took over the kitchen of Kidbrooke School in Greenwich and attempted to change the diets of the school children. According to Jamie, the food those children ate mainly consisted of chips and processed meats; therefore, he aimed to remove this 'junk' and replace it with healthy, nutritious meals cooked from scratch (Oliver, 2005). This series brought vast media attention to the perceived poor quality of schools meals which were seen as a potential factor involved in the rise of childhood obesity which had been steadily increasing since the mid-1980s (Stamatakis *et al.,* 2005). As a result of his television series, Jamie began his "Feed Me Better" campaign which aimed to ensure good food was served in all school kitchens. This campaign led him to the government and he took a petition to the Prime Minister which called for the 're-introduction' of mandatory nutritional standards for school meals (the inverted commas here represent a problematising of that word which becomes apparent in Chapter 2).

Prior to Jamie's involvement there had been previous groups which had also lobbied government to 're-introduce' mandatory nutritional standards, The Caroline Walker Trust recommended a review and a return to standards in 1992 (The Caroline Walker Trust, 1992). Additionally, they described how nutritional standards had been a mandatory component of school meals from 1941 to 1980. According to the Trust, nutritional standards were in place and updated periodically for all meals served in schools until the 1980 Education Act "removed the obligation on LEAs to provide school meals. . . and for them to meet any nutritional standards" (The Caroline Walker Trust, 1992:23). Jamie's series and the idea that nutritional standards were removed in the 1980s led to the initial question related to this project: Did the change to school meal legislation in the 1980s influence the rising prevalence of childhood obesity from the mid-1980s? However, in pursuit of tracing the legislative history of school meals I decided to start this story earlier than the 1980s.

This thesis, therefore, chooses historical scope as opposed to detailed depth as I wanted to understand how and why the school meal seemed to have become a silver bullet in reversing obesity prevalence among children. The level of media attention focused on the poor quality of school meals in the UK did not seem commensurate with the ability of one meal to influence rising childhood obesity prevalence. If the energy balance hypothesis for obesity is to be believed, then physical activity or lack thereof surely should receive some attention. As a result of this disproportionate attention I wondered whether the history of the school meal might offer some insight into why this one meal would be perceived to have such transformative powers. Additionally, is there any evidence that the school meal has the potential to reverse the increasing obesity trends? These initial thoughts led me to develop the thesis you have before you:- a historical perspective into the concern over child malnourishment over a period in excess of 100 years, and the efficacy of the resulting school meal legislation as a response to these concerns.

The thesis is a synthesis of knowledge and research conducted and developed over the course of five years and two dissertations. The project began as a result of my undergraduate dissertation which assessed the changes to the nutritional content of the school meal. This dissertation described how the nutritional content of the school meal was perceived to be altered by the introduction of the 1980 Education Act, shortly after which point studies began to identify the rise in childhood obesity. This PhD thesis is a development of the ideas which began as a result of that undergraduate dissertation and were planned out as part of my Master's thesis. My PhD takes a mixed methods approach combining qualitative and quantitative analyses to assess the governance of child health through the school meal. It attempts to contextualise the legislation relating to school meals to and understand whether these have had any measureable impact on child health.

## Research aims and Expectations

The overall aim of this thesis is to explore the development of school meals legislation and assess whether changes in these policies have had any measureable impact on child malnourishment (both under and over) since the early 20th Century. In addition to this aim the thesis will contextualise the legislative history with a perceived reality of policy change as provided by school cooks. Specifically, the thesis aims to answer the question: Can legislation relating to school meals be seen to have any measurable impact on child malnourishment since the early 20th Century? Changes in legislation have the ability to greatly alter the wellbeing of the population. The Health Act 2006 provides a clear example of the impact of legislation on population health. This Act made various provisions related to health but is well known for its ban on smoking in enclosed public places. A study in 2010 by Sims *et al.* demonstrated a significant reduction in the number of admissions for heart attacks after the implementation of the Health Act 2006. Moreover, a recent systematic review and meta-analysis by Been *et al.* (2014:1549) also showed the benefits of smoke-free legislation with substantial reductions in preterm births and hospital admissions for asthma. These examples help frame the rationale for examining the effects of school meal legislation on malnourishment, however, achieving a result as clear as that seen for the impact of smoke-free legislation is not expected for this thesis. It is widely accepted, and discussed in Chapter 1, that malnourishment is multi-faceted and the mere absence or over-abundance of food is too simplistic an explanation. However, the Black Report published in 1980 recommended that school meals should be nutritionally adequate as the consequence of children consuming low nutrient energy dense foods would likely lead to an increase in obesity and dental caries (Townsend and Davidson, 1992). Moreover, Fox *et al.* (2009) found that the availability of low nutrient, energy dense foods at school was associated with a higher child body mass index (BMI) z-score compared to children in schools who provided better quality meals. School meal legislation was first introduced in 1906 with one of its aims being to ameliorate malnourishment in children. Therefore, this thesis intends to assess whether this aim of school meal legislation was achieved and whether changes to this legislation through time can be seen to affect changes in

child height, weight, and BMI. In addition to this evaluation the thesis questions the rationale for maintaining this legislation and uses Foucault's theory of *governmentality,* outlined below.

## Theoretical Framework

This thesis will evaluate the efficacy of school meal legislation in ameliorating child malnourishment and adopts Foucault's governmentality theory to help explore the rationale behind this legislation. Michel Foucault developed the concept of governmentality in his lectures at the Collège de France during his later years between 1970 and 1984 (Gordon, 1991). These lectures were given in French and later translated by various scholars, Gordon (1991) presents his translation of Foucault's governmentality lecture and whilst this is referenced as Foucault (1991) it is worth noting this is a translation as opposed to the original French text. In this lecture Foucault outlined a definition of governmentality:

> "1. The ensemble formed by the institutions, procedures, analyses, and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge political economy, and as its essential means apparatuses of security.
> 2. The tendency which, over a long period and throughout the West, has steadily led towards the pre-eminence over all other forms (sovereignty, discipline, etc.) of this type of power which may be termed government, resulting, on the one hand, in the formation of a whole series of specific governmental apparatuses, and on the other, in the development of a whole complex of *savoirs.* [sic: my interpretation of this word is: knowledges]
> 3. The process, or rather the result of the process, through which the state of justice in the Middle Ages, transformed into the administrative state during the fifteenth and sixteenth centuries, gradually becomes 'governmentalized'."
> (Foucault, 1991:102-103).

It was through this broad definition that, according to Gordon (1991) Foucault suggested we can analyse modern societies through reconstructing the technologies of power which are 'designed to observe, monitor, shape and control the behaviour of individuals situated within a range of social and economic institutions such as the school, the factory, and the prison' (p. 3-4).

Foucault also described how modern subjects are created through these technologies of power but also through technologies of the self whereby individuals take on and practise the technologies of power as a form of self-regulation (Foucault, 1988; Coveney, 1998). The idea of governmentality is not an oppressive force coercing subjects into submission, on the contrary Foucault argued it worked through developing expert knowledge and governing at a distance (Coveney, 1998). In this respect it is possible to see how this framework applies to this thesis. The school meal can be viewed as a tool to shape healthy citizens, not only in providing nutrition but also shaping the minds of the children through guiding their conduct as future citizens. The legislation relating to school meals has been a tool for ensuring a healthy population through adequate nutrition, but also by providing a framework for the food they should consume and how they should consume it. Gordon (1991) described how Foucault discussed the way in which the individual self regulates its behaviour in light of the institutions within which it is situated. This perspective is furthered by Rose (1999) who argues that governments have developed policies, bureaucracies and promoted initiatives in order to regulate the conduct of citizens (p.2). Nowhere is this idea more obvious than within the school. According to Dean (2010) Foucault saw the school as a site through which power could be exercised over and through individuals as a way of regulating and shaping them.

Using this framework it is possible to understand the rationale behind the introduction of school meal legislation in that its aim was to produce healthy citizens through their bodies and minds. However, the extent to which this was achieved is not presently understood. Therefore, this thesis will present a variety of results aimed at evaluating the efficacy of school meals legislation in relation to child malnourishment and offer some concluding thoughts on the school meal as a tool of governing child health.

## Thesis Structure

The thesis is split into three parts. Part I provides the historical and chronological background which frames this thesis in two chapters:- Chapter 1 discusses the development of childhood obesity and how concern over child malnourishment has shifted from under- to over-nourishment over the course of a century. Chapter 2 provides the history of school meals and discusses the relevant legislative changes from the late 19th Century to 2014.

Part II is split into three chapters presenting different results and incorporating the various methods used:- Chapter 3 explores how school cooks experienced the policy changes to school meals. Chapter 4 describes how child height, weight, and BMI have changed over 102 years and how this visually relates to school meal policy change. Chapter 5 assesses the statistical relationship between school meals legislation and child health. Each of these Chapters includes a specific methods section to allow the mixed approach to be fully understood. Part III is the final section in the thesis consisting of Chapter 6 which discusses whether it has been possible to attribute fluctuations in child malnourishment to changes in school meal legislation. It also offers an analytic lens on the governance of child health through the school meal and discusses whether this thesis has been able to demonstrate the efficacy of this tool of governance before finalising with a Conclusion.

# Part I - Background

*This section aims to provide the historical background and chronological framework for this thesis. Firstly Chapter 1 discusses the history of childhood obesity in an attempt to understand when this phenomenon first became a concern for government. Secondly, Chapter 2 describes the development of school meal legislation as a response to concerns over child malnourishment and charts the amendments to this policy throughout the course of 145 years.*

# Chapter 1
## The History of Childhood Obesity

Obesity is currently defined as a condition which negatively affects health and function due to excessive or abnormal accumulations of body fat (Ulijaszek and Lofink, 2006). The World Health Organisation (WHO) states that, in 2008, more than 1.4 billion adults worldwide were overweight (BMI ≥ 25 kg/m$^2$), of whom 500 million were obese (BMI ≥ 30 kg/m$^2$). Moreover, the phenomenon is not confined to the adult population. In 2010 there were over 40 million children under the age of five who were classified as overweight (WHO, 2012). In the year 2000, for the first time in human history, it was estimated there were more people globally who were overweight than underweight (Brewis, 2011; Mendez, Monteiro, and Popkin, 2005). Moreover, Ng *et al.* (2014) reported that, from 1980 to 2013, prevalence of overweight and obesity increased from 28.8% to 36.9% in men, from 29.8% to 38% in women, while for children in developed countries the prevalence in 2013 was 23.8% for boys and 22.6% for girls (Ng *et al.,* 2014:1). Obesity has become a major public health issue due to the health risks associated with excessive body fat. It is widely accepted that overweight and obesity put humans at an elevated risk from co-morbidities such as high blood pressure (hypertension), type 2 diabetes, cardiovascular disease, osteoarthritis, high cholesterol (dyslipidaemia), stroke, sleep apnoea, gallbladder disease, asthma, and some cancers (Brewis, 2011; Gluckman *et al.,* 2012; Ulijaszek and Lofink, 2006; Pollard, 2008). Additionally, obesity has been shown to reduce life expectancy by 2-4 years with morbid obesity (BMI ≥ 40 kg/m$^2$) showing a reduction of up to 10 years which is equivalent to that of smoking (Whitlock *et al.,* 2009). The issue of childhood obesity causes great concern:- in addition to the potential health risks, malnourishment in childhood has long been recognised as an indicator of social inequalities within a society (Eveleth and Tanner, 1990; Floud, 1994; Bielicki, 1998). Not only does this phenomenon highlight wider sociological issues, but at an individual level, it also causes great suffering in terms of physical and psychosocial health consequences during childhood which may continue alongside metabolic disorders throughout their life (Pollard, 2008; Stamatakis *et al.,* 2009).

Childhood obesity is a major concern for the UK government as prevalence rates have increased quite dramatically since the mid-1980s (Reilly *et al.*, 2005). Although prevalence rates for children have showed some levelling off in recent years, the levels are still very high and UK government has set a target for sustained downward trends in childhood overweight and obesity by 2020 (Department of Health, 2011). Obese children are at greater risk of becoming obese adults, suffer serious physical and psychosocial health consequences during youth, and may continue to suffer from associated metabolic disorders throughout their life course (Pollard, 2008; Stamatakis *et al.*, 2009). According to Livingstone *et al.* (2006), one in five obese five-year-olds will become obese adults while this figure rises to four in five by adolescence. Adult diseases associated with obesity such as hypertension, dyslipidaemia, hypercholesterolaemia, hyperinsulinaemia, type 2 diabetes and impaired glucose tolerance are increasing in frequency among children, some as young as five years old (Livingstone *et al.*, 2006). Moreover, adults who were obese as children have an increased risk of morbidity and mortality irrespective of their adult weight status (Livingstone *et al.*, 2006). As well as physical health, childhood obesity can have serious effects on mental health. Overweight/obesity in children and adolescents can result in negative stereotyping, such as assumptions of being lazy and greedy, as well as the individual suffering from low self-esteem and self-image (Livingstone *et al.*, 2006). Obesity is a difficult condition to treat as eating and physical activity behaviours are learned in early life within the family context. This then may track into adulthood and enculturate future generations of children (Livingston *et al.,* 2006; de Vries, 2007). Moreover, there is a wide array of prevention programmes aimed at reducing the increasing prevalence of childhood obesity. However, as Livingstone *et al.* (2006:1122) point out, these programmes differ so greatly in terms of study design, sample size, selection criteria, intervention components and duration that it makes evaluation of them very difficult. These authors argue that very few prevention studies have engaged directly with communities and offered programmes which meet their needs, which they refer to as being 'rooted in the population' (Livingstone *et al.,* 2006:1122).

Additionally, Waters *et al.* (2011) conducted a systematic review to identify successful interventions aimed at preventing childhood obesity and while there were beneficial effects from some interventions, they concluded more work was needed to embed these strategies into health, education, and care systems to ensure long term sustainability (p. 2). The development of the condition is multi-faceted and certain risk factors may affect sectors of the population in different ways. Therefore, obesity prevention requires a multi-strategic approach to counter the adverse effects of environmental pressures on diet and physical activity behaviours (Livingstone *et al.,* 2006). Alongside problems with effective prevention strategies, there are also issues with the consistency of prevalence data. According to de Vries (2007), there are no consistent data which have monitored the long-term development of childhood obesity over a sufficient time period, making adult health predictions difficult to validate. De Vries (2007) also points out that data of this kind have only been collected since the beginning of the 1990s; therefore, it becomes increasingly problematic to make assessments of individuals over a large number of years (p.59). Maintaining a healthy child population has been a public health issue for over a century. However, concern has not always been focused on overweight and obesity. At the turn of the 20th century, concern was focused on underweight and associated growth faltering. In 1903, an Inter-Departmental Committee on Physical Deterioration was set up to investigate allegations that large numbers of potential army recruits were rejected due to poor health (HL Deb vol. 124 cc1324-56; HC Deb 09 vol. 125 cc165-235). The report from this investigation acknowledged that undernourishment, specifically among the poorer members of society, had resulted in the rejection of many army recruits. Although, the report also highlighted how army recruits were not representative of the wider population, this could indicate that malnourishment was specific to certain population subgroups. One of the recommendations of this report was to develop a systematic method of feeding children within school presumably with the aim that they would grow into healthy adults. The aim of this Chapter is to present a review of the literature to identify the changes in child growth from the turn of the 20th Century when many children were undernourished to the present day when many children are overnourished.

It will begin by briefly discussing how some authors claim our evolutionary heritage predisposes us to obesity in the modern environment. The idea that our evolutionary history predisposes us to specific disorders today has been discussed widely (Williams and Nesse, 1991; Nesse and Williams, 1999; Eaton *et al.*, 2002; Pollard, 2008). This chapter will touch on the ultimate evolutionary explanations for increases in obesity and then move to the late 19th Century to describe how child undernourishment was receiving widespread concern. As we move through the decades, this concern shifted to the opposite end of the malnourishment spectrum, overweight and obesity. The Chapter will then move through to present day and attempt to provide proximate explanations of obesogenic environments which appear to be linked to the rises in childhood obesity and intrinsically linked with our capitalist economy (Albritton, 2009; Wells, 2012). Although this thesis is exploring whether changes to the school meal have influenced childhood obesity, this Chapter presents an overview of the phenomenon as it is acknowledged that overweight and obesity are multi-faceted and cannot merely be explained by changes to school meals. This may suggest that relationships between school meals and obesity identified in this thesis could be driven by wider sociological factors.

## Exceeding our Evolved Capacity

Obesity is a relatively novel disorder in human evolutionary history, although throughout history members of privileged groups have been able to display wealth through a greater than average body size. The discovery of several so-called Venus figurines dated to Palaeolithic times suggest that early *Homo sapiens* may have had some familiarity with obesity given that many of these statuettes portray rather rotund women (Berlant, 1999; Brewis, 2011). However, for most of human history, the occurrence of obesity has been generally limited to those in positions of power with the necessary resources to access a greater variety of food and in greater quantities (Pollard, 2008; Brewis, 2011). In addition to wealthy members of society, there are ethnographic examples which provide evidence just that fatness is not a recent occurrence. In parts of West Africa girls often resided in 'fattening huts' in the weeks leading up to their wedding where they would be fed large quantities of food and kept physically inactive in order to reach a desired plumpness (Sarlio-Läteenkorva,

2003:493). Fatness was once limited to elite groups and was highly valued, not only because it outwardly displayed wealth, but it also provided calorie stores in times of famine and was somewhat protective against infectious disease (Sobal, 1995). It has only been in recent years, however, that obesity has spread globally and has begun to affect those at the opposite end of the economic spectrum. This has become possible due to increased food security as well as social, economical, and technological changes which have affected life patterns across the globe (Ulijaszek and Lofink, 2006). Alongside these transitions, changes in human diet and activity patterns have greatly increased the prevalence of overweight and obesity among many populations around the world, including developing countries (Ulijaszek and Lofink, 2006). Associated metabolic diseases such as cardiovascular disease and type 2 diabetes make obesity a very serious condition (Gluckman *et al.,* 2012; Ulijaszek and Lofink, 2006). Essentially, current human biology is the product of hundreds of thousands of years of primate evolution. Our early ancestors adapted to a seasonal environment where selection would have favoured a thrifty energy store due to fluctuations in food availability (Wells, 2006). In addition to such thrift, large energy costs associated with increased brain size in the *Homo* genus would have also selected for greater energy stores in females and during infant life (Wells, 2006). We now live in an environment which greatly exceeds our evolved capacity to regulate metabolism, appetite, and food preferences efficiently (Gluckman *et al.,* 2012). The nutrition transition that has occurred over the last 100 years in Western countries has led to humans living in environments that differ markedly from that of our ancestors. The Palaeolithic foragers from whom we are descended subsisted on an omnivorous diet rather than on limited agricultural staples (Gluckman *et al.,* 2012). Therefore, selection acted to match our physiology to environments which were generally characterised by low intake of fats and sugar and a relatively high intake of protein (Gluckman *et al.,* 2012). Moreover, during this period of human evolution, physical activity levels were much greater than today; it has been estimated that, during the Palaeolithic, humans expended up to 2500 kcal in the daily gathering of food (Gluckman *et al.,* 2012). The advent of agriculture brought additional stresses such as exposure to regular famines, population-

specific adaptations to local niches, and social hierarchies which led to differential exposure to environmental pressures (Wells, 2006:183). Therefore, throughout human evolution our species has encountered a variety of nutritional stressors which have resulted in the accumulation of fat being advantageous for the vast majority of our history (Wells, 2006). However, more recently due to the industrial and technological revolutions there have been accelerated declines in the physical activity associated with acquiring food alongside the development of highly refined foods which makes our previous fat accumulation adaptation maladaptive in the current environment. (Gluckman *et al.,* 2012; Floud *et al.,* 2011). Wells (2004) describes eight of the main mechanisms which influence the phenomenon; energy balance, genetic factors, dietary composition, physical activity, feeding behaviour, endocrine factors, inflammation, psychological factors, and social and environmental factors (p.183). Although in the last 30-50 years we have seen declines in energy intake in England, changes to the macronutrient content of foods consumed have led to over-consumption especially of energy-dense foods and drinks high in fat and sugar which has led to an increase in associated metabolic disorders (Pollard, 2008). According to Cordain *et al.* (2005), prior to the advent of agriculture and the domestication of animals, early human dietary choices would have been limited to wild plant and animal foods and these would have been minimally processed. These authors argue that the introduction of animal husbandry and agriculture around 10,000 years ago is too recent on an evolutionary timescale for the human genome to adjust to the nutritional changes that occurred following this changing life pattern (Cordain *et al.,* 2005:342). As a result of these changes, modern humans are now consuming foods that would have been unavailable to our ancestors and are unknown to our evolutionary genome. Cordain *et al.* (2005) point to seven nutritional characteristics that have been altered through changes in food staples and processing procedures: 1) glycaemic load, 2) fatty acid composition, 3) macronutrient composition, 4) micronutrient density, 5) acid-base balance, 6) sodium-potassium ratio, and 7) fibre content, which have resulted in the chronic metabolic diseases currently seen in the Western world (p.350).

## Childhood Obesity and the School Environment

This section will focus on the school environment and wider sociological factors which may have influenced the rise in childhood obesity. The school system was never just to provide basic literacy and numeracy education to children, but is central to constructing society (Hendrick, 2001). The importance placed on specific subjects differs cross-culturally and reflects dominant ideologies and cultural practices present within each society. It is not surprising that, in the late 19th Century, children were educated through regimented schedules, drill and corporal punishment, taught to take orders and know their place (Hendrick, 2004:73). Children at that time were being enculturated in becoming obedient adults who would work in factories, as labourers, and enter the army among other occupations. Aspects of this education system can still be seen in schools today, with children ordered by the school bell and, in primary schools, lining up in almost military precision. The school environment provides an opportunity to shape children's ideology around food and physical activity (Procter *et al.,* 2008). It has the potential to influence children over the long-term and provides an opportunity to promote healthy behaviours in addition to providing nutritious meals and physical activity (Ells *et al.,* 2005). However, Williams *et al.* (2012) found that there is limited research assessing the effect of the school built environment on child weight status. Fox *et al.* (2009) described how the evidence base for associations between school environment and children's weight status is limited but expanding; they found that the availability of low nutrient, energy dense foods at school was associated with a higher child BMI z-score compared to children who attended schools that provided better quality meals. Moreover, the Black Report published 1980 argued that if children were free to choose low nutrient energy dense foods at school it would likely lead to obesity and dental caries (Townsend, Davidson, and Whitehead, 1992:180). However, a systematic review by Brown and Summerbell (2009) found that there was insufficient evidence to suggest school-based dietary programmes can consistently and sustainably reduce obesity rates, although they are thought to be beneficial if combined with physical activity programmes. Therefore, the current evidence base shows mixed results for the efficacy of school meals in ameliorating malnourishment in children. During the 1980s,

when we began to see these increases, there were some shifts occurring in the school environment which may have exacerbated the problem. The 1972 Local Government Act, Section 123(1) allowed local councils to "dispose of land held by them in any manner they wish" (1972 Chapter 70). This Act enabled councils to sell school fields leaving children with limited space for physical activity during the school day. According to Jefferys (2012), 5,000 school playing fields were sold to developers during the 1980s at the same time as teacher disputes over pay and conditions resulted in a decline in extra-curricular physical activity. The situation has improved in recent years due to increased government funding specifically aimed at sport in schools. In addition to changes to physical education, home economics was not included as a core or foundation subject in the new National Curriculum introduced with the 1988 Education Reform Act (1988 Chapter 40). Thenceforth, schools may have concentrated resources on core subjects and omitted home economics from their teaching altogether. Although lack of space for physical activity and the dearth of lessons about cooking may have influenced increases in overweight and obesity, both home economics and physical education have gained more prominence and legislative protection in recent years.

## Wider Sociological Factors

The 1980s was a decade of vast technological and sociological changes which, in hindsight, have the potential to be associated gaining excess weight. The use of convenience foods in the home increased during the 1980s as many women had the dual burden of employment and domestic duties (Court, 1995; Winterman, 2013). The increase in packaged and frozen foods during this time reduced the length of time needed to prepare food from scratch at home. New technologies, such as microwave ovens, food processors, and freezers, made the preparation and cooking of food at home much quicker and easier (Mennell, Murcott, van Otterloo, 1992). Working mothers faced the dual burden of entering employment while still having primary responsibility for feeding the family. Therefore, the rise in convenience foods reduced this dual burden for working women as it provided the opportunity to provide meals without lengthy preparation (Ulijaszek, 2007). However, mass produced foods are often calorie

dense and loaded with salt, fat, and sugar linked to the pleasure centres in our brains; they have the potential to increase overweight and obesity levels if consumed in excess (James, Jackson-Leach, and Rigby, 2010). In addition to technological changes in food production there has been an increase in sedentary behaviours among children. Video games gained popularity in the 1980s which led to children spending more time indoors rather than engaging in physical activities outside. Hawes (2013) has argued that modern society created the 'captive child' through a criminalisation of natural play and exaggerated fears over child abductions, paedophilia, traffic, and outdoor accidents which led to a general trend for parents to favour indoor activities (Hawes, 2013:89). Moreover, this indoor migration has created greater opportunities for food marketing companies to target children directly (Lobstein, 2013). Although food marketing has increased dramatically in recent years, it was not completely absent during the beginning of the rise in childhood obesity. According to Lobstein (2013), a campaign in the 1980s to remove sweets from the check-out counters of supermarkets showed how companies were already wise to the pester power of children and actively placed attractive items near the check-out to encourage impulse purchases (p.53). Junk food marketing has been actively targeted at children for some time and when teamed with time poor parents who are fearful of the outdoors it can create a dangerously obesogenic environment. Moreover, children today are more likely to be taken to activities and school by car rather than walking reducing the possibility for physical activity (Lobstein, Baur, and Uauy, 2004). Additional environmental changes since the 1980s which have heavily influenced the rise in childhood obesity include increased television viewing and dedicated children's TV channels available 24 hours a day, increased snacking, availability of high sugar soft drinks and energy dense foods, increase in portion sizes, and a perceived decline in 'safe' play environments (Lobstein, Baur, and Uauy, 2004). Although these brief explanations of wider sociological issues may have influenced and continue to contribute to the prevalence of childhood obesity, the over-riding explanation for this phenomenon may be rooted in our capitalist economy.

## Capitalism = Obesity?

In order to understand how capitalism affects human health we need to comprehend its basic premise. Essentially, capitalism works to produce profit. In order to do this a capitalist needs to buy all the necessary commodities required for a given production process such as machinery, labour, raw materials and then sell the resulting product for more than the cost of production (Marx, 1991; Albritton, 2009). The effects of this system on human health are widely known and not a recent occurrence. In the UK the industrial revolution saw the proletariat sell their only material value, their labour power, in return for a wage (Wells, 2012). The cost of this group of workers was minimised as a result of poor diet and squalid living conditions which was beneficial to the capitalist but detrimental to the proletariat (Wells, 2012). The effect to human health of this rise in capitalism was seen in the initial decline in adult stature during the industrial revolution (Wells, 2012; Komlos, 2008). Although stature did improve in the 19th Century, new aspects of capitalism set in motion the transition of individuals from producers to consumers (Wells, 2012).

Essentially, capitalism detached individuals from producing food for themselves and converted them into mass consumers (Wells, 2012). Moreover, this economy has not only resulted in widespread obesity but it also produces chronic undernourishment (Albritton, 2009). Capitalism entered the food economy and sought to produce profit by driving down the costs associated with production and resulted in reducing the quality of the items (Albritton, 2009). Current food production is able to provide sufficient nutrition for every individual on earth; however, the capitalist ideology is so prevalent that profit motives encourage some individuals to over-consume while others are unable to purchase sufficient food (Wells, 2012; Abritton, 2009). Moreover, individual agency has succumbed to the power of capitalist profiteering through active manipulation from corporations through marketing, price manipulations, choice restriction, and enhancing addictive qualities of foods (Wells, 2012; Fortuna, 2010).

Although this idea offers some explanation to the rise in obesity of countries undergoing the nutrition transition from recent global economic developments, it does not directly explain how childhood obesity began to rise in the 1980s in the UK if the country's capitalist domination was in the late 18th century. However, in the UK during the 1970s and 1980s, the government introduced a variety of policies to increase capitalist profits. This restructuring was a result of the economic crisis during the 1970s which effectively ended the welfare expansion that took place in the previous era (Bambra, 2011). Financial deregulation, trade liberalisation, and privatisation of public goods and services during this time led to considerable increases in health inequalities (Scott-Samuel *et al.,* 2014). According to Scott-Samuel *et al.* (2014) the government's rationale for these reforms was a result of "the crisis of British capitalism. . . of the welfare state, high wages, and low productivity" (p.54). Essentially, the proletariat were taking too great a share of the profits and large scale reforms were necessary to rebalance the capitalist equation. During this period of neoliberal reform in the UK there were increases in unemployment, decreases in wages, welfare reductions, and poverty rates almost doubled from 6.7 per cent in 1975 to 12.0 per cent in 1985 (Scott-Samuel *et al.,* 2014:59).

This shift from the welfare state to neoliberalism is characterised as a movement away from government intervention, or the nanny-state, to operating on principles of individualism through free markets and deregulation and making individuals active health consumers as opposed to passive patients (Warin, 2011:34). Offer (2012) argues that reductions in government expenditure on welfare have coincided with the rise of obesity (p.6). Moreover, welfare states protect individuals from insecurity related stress which can cause obesity while lower obesity rates can be seen in countries with high welfare spending such as the Scandinavian countries (Offer, 2012:7). Offer also describes how inequality and unemployment rose dramatically in the UK during the 1980s at which point obesity began to rise. However, almost the opposite happened in countries where welfare had priority over markets (Offer, 2012:7).

Offer, Pechey, and Ulijaszek (2012) argued that English-speaking countries have exceeded the unregulated market liberalism of other affluent countries which has led to greater levels of economic inequality and insecurity resulting in greater prevalence of obesity (p.199). Moreover, they refer to the 'fast-food shock' as an explanation for how free markets and decreased welfare link to rises in obesity (p.217). In market liberal countries it is possible for fast-food to be cheap as wages and taxation are low, additionally, these countries also have lower levels of physical transportation, such as walking and cycling. Therefore, countries with stronger affinity to liberal markets and low welfare spending have a tendency to be much more obesogenic. Furthermore, Offer, Pechey, and Ulijaszek (2012) argue that there is a clear cultural element within the welfare regimes, due to striking similarities among the English-speaking countries, and it is necessary to understand where these welfare regimes originated if they are so intrinsically linked to obesity (p.219). They describe that different qualities such as disposition for excess or moderation, for risk-taking or security, may be embedded in particular cultures. For example Norway and Sweden, sharing similar language and culture, had high levels of welfare security and low levels of obesity, whereas English-speaking countries, again sharing culture and language, had the opposite (p.219). Therefore, these similarities between cultures may highlight a deeper reasoning behind the propensity to favour particular market economies and could offer a strategy for overcoming and turning the tide on the obesity epidemic within market liberal economies.

This Chapter has offered some brief ultimate and proximate explanations for the rise in childhood overweight and obesity and will now present a historical perspective on child malnourishment documenting the shift from undernourishment to overnourishment during the course of a century.

## 19th Century - Anxieties over the Future of the Empire

At the end of the 19th Century obesity among children was far from the minds of government and academics. Humanitarians had raised concerns over the health conditions of poor children in the early 19th Century which led to an increase in growth studies (Tanner, 1998). A tradition for using children's height and weight to assess their well-being can be dated as far back as 1833 in the UK when Cowell and Stanway measured boys and girls working in textile factories to ascertain whether there were differences in the heights of similarly aged children brought up, and those who were not, in factories (Tanner, 2010:148). Comparative studies soon highlighted the disparity in growth between children from differing socioeconomic backgrounds. In 1870 Roberts and Galton compared the heights of working boys with those of privately educated boys and, unsurprisingly based on modern understandings of growth, the latter were taller than the former (Tanner, 1998:5). Investigations into the differences in growth between social classes have been ongoing ever since. These early growth studies highlighted a distinct difference in the heights of children from poorer backgrounds and concern began to increase over this disparity throughout the 19th Century. As this Century drew to a close there were growing anxieties over the future of the British Empire due to the country's declining military and commercial power (Dwork, 1987:9). In addition to studies on growth showing disparities between the classes, reports by the office of the Registrar-General indicated increases in infant mortality rates (Dwork, 1987). These reports exacerbated anxieties especially when viewed alongside Charles Darwin's *On the Origin of Species* published in 1859. This seminal work was being adopted by many, and perhaps being amalgamated with the Lamarckian view that traits could be transmitted from one generation to another, and led to a campaign for national efficiency (Dwork, 1987; Harris, 1995). Other countries had begun increasing their gross domestic production which led to fears that Britain would lose its commercial power and international supremacy (Dwork, 1987; Harris, 1995). This combination of mortality rates among British infants, disparities in growth between the classes, and fears over the continuation of the British Empire created great unease among the governing forces. Those fears were jolted into action as news spread

of the humiliation of the British Army during the Boer War from 1889 to 1902 (Tanner, 2010; Dwork, 1987; Harris, 1995). Action came in the form of a Physical Deterioration Committee which was set up to investigate the alleged deterioration of certain classes of the population (PP 1904 Cd. 2175)

## 20th Century - Monitoring Child Growth

The Report of the Inter-Departmental Committee on Physical Deterioration was published in 1904 and, as a result of the recommendations, two key pieces of legislation were introduced:- the Education (Provision of Meals) Act published in 1906 and the 1907 Education (Administrative Provisions) Act[1]. These Acts have been described as the origin of the British welfare state and their purpose was to feed and monitor the child population to ensure the future success of the Empire (Harris, 2004; Atkins, 2007). Although there were other campaigns which can also be attributed to the growth of the welfare state such as pensions, combating unemployment, trade unions, and abolishing the Poor Law (Hay, 1975; Harris, 2004), the 1906 and 1907 Acts were mainly concerned with children. The 1907 Education (Administrative Provisions) Act placed a duty on all Local Education Authorities (LEA) to inspect medically all children in public elementary schools around the time of admission (1907 7 Edw. 7. c. 43). As a result of this Act data were routinely collected on the growth of school children which allowed for the mass monitoring of fluctuations in child height and weight. These medical inspections were not aimed at just collecting height and weight data, they were also intended to provide individual medical treatments to children who needed them (See Harris, 1995 for an in-depth history of the beginnings and development of the school medical service). However, height and weight measurements also provided an opportunity to study child growth and to develop 'normal' growth standards which could be used to identify children who were faltering from the 'normal' range. Although there had been several investigations into child height and weight prior to 1907 (See Tanner, 2010 for an in-depth history of human growth studies), there had been few which accumulated data on a national scale.

[1] The development and enactment of these Acts will be discussed further in Chapter 2

For the majority of the 20th Century, the focus appeared to be on identifying and treating children who were undernourished, and developing systematic methods for understanding child growth patterns. An early study by Tuxford and Glegg (1911) collated data from children inspected in schools during 1909 and 1910 and identified that children in rural areas were, on average, taller and heavier than their urban peers. Additionally, there was a similar, albeit less marked, difference between children living in the South and North of England, the former being taller and heavier. These disparities indicated there were clear environmental aspects which affected child growth. Subsequent studies appeared to focus on developing 'normal' growth standards which could be compared to individual children and identify growth faltering. This was an important development as the effects of social class on child body size were apparent, as previously established by Roberts and Galton (Tanner, 1998); therefore, it was necessary to have a 'normal' growth standard with which to compare children to. According to Tanner (1952) early growth standards (the Baldwin-Wood tables published in 1910, revised in 1923) were poorly understood by parents who often complained to doctors that their children were a few pounds over- or underweight for their height and age (Tanner, 1952:10). Tanner argues that, at this time, it was thought beneficial for children to grow quickly, especially in terms of weight gain, and so "an era of stuffing babies and children. . . began" (1952:10).

The school medical service essentially became the first national monitoring and treatment service aimed solely at children, although it was hoped the hygiene and public health messages being relayed to children would infiltrate the home and mould the child into a healthy adult (Dwork, 1987; Harris, 1995). Many authors since the early 20th Century have used school medical data to establish standards of child height and weight to describe secular changes in the pattern of child growth (Karn, 1936; Weir, 1952; Boyne, Aitken, and Leitch, 1957). These studies greatly contributed to contemporary understandings of child growth patterns and highlighted the difference in stature between affluent and poor children. Additionally, these studies provided a framework for identifying the 'abnormal'.

The early 20th Century was dominated by concerns about undernourished children and there was little mention over the more recent issue of childhood obesity. Ellis and Tallerman (1934) attempted to assess the aetiology of obesity in 50 clinical cases of children aged between 5 and 14 years and described the disorder as relatively common. However, it is unclear to what extent obesity was present in the wider society given that these children were being treated in a hospital setting. In America, in 1948, Reynolds and Asakawa described how there was a plethora of literature on the subject of obesity, but childhood obesity had received little attention (p. 475). Incidentally, their 1948 paper was not attempting to describe any increases in childhood obesity, but was merely discussing rigorous methods of individual assessments. In 1955, James M. Tanner published his seminal work, *Growth at Adolescence,* which was among the first to present a comprehensive biological view of normal human growth and development. Childhood obesity received only one mention on page 102 (Tanner, 1962 2nd Edition). This omission could be because Tanner was describing 'normal' human growth and development and therefore disregarded any abnormalities. However, had childhood obesity prevalence been much more significant in the early 1950s, it would have potentially received much more attention in Tanner's work (as it did in later texts such as Eveleth and Tanner, 1976). Although there were limited early studies on the phenomenon, Mullins (1957) like Ellis and Tallerman (1934) also described it as a common disorder. Mullins aimed to assess whether obese adults who "had been known as 'fatty' at school" (p.308) were different to those whose obesity developed later. Mullins described how obesity which persisted from childhood into adulthood was more severe than those who developed the condition as an adult (p.313). However, childhood obesity was not regarded as a serious health issue by medical practitioners at that time, it was not believed to be associated with mortality or morbidity when present in children (p. 307). Although obesity in adults was described as "one of the greatest medical problems in the western world" (Mullins, 1957:307), the condition in childhood was thought to be "a benign if unsightly condition. . . with tendencies both to improve and to persist" (p.307). Therefore, it is unsurprising that there was little investigation into this phenomenon during the early 20th Century.

Despite the limited literature on childhood overweight/obesity in the first half of the twentieth century, there appears to have been increasing concern in the latter half of the Century. In 1950, a specialist clinic opened in Birmingham's Children's Hospital solely aimed at the treatment of overweight children. (Lloyd, Wolff, and Whelen, 1961). These authors examined the first 98 patients on admission in 1950 and then again in 1951, 1956, and 1959. At the end of their nine-year prospective study Lloyd, Wolff, and Whelen found that very few of the children who entered for treatment returned to a normal weight. For example 12 out of 13 children were still deemed as grossly overweight at the end of the study period (p.147). Lloyd, Wolff, and Whelen concluded that childhood obesity was very likely to persist into adulthood and, even where there was initial weight loss following treatment, there was a strong tendency for obesity to reoccur in young adulthood (p.147).

Although the idea that childhood obesity tracked into adulthood was well established by the late 1950s, there was still some uncertainty over whether excessive weight in childhood had serious health consequences. In 1962, Wolff described how medical students at that time were taught about the dangers of under- and over-feeding infants, but there was little information that the latter presented any major issues. The early 20th Century was instead characterised by far more concern for undernourished children, Tanner (1952) argued children were stuffed to ensure they gained weight quickly. Indeed, it was believed that a fat child was a healthy child as they would be likely to survive times of infection and undernourishment (Ebbeling, Pawlak, and Ludwig, 2002).

Although studies up until the 1950s appeared to focus on the obese child as a rarity, the ideology of the time may have influenced the waistline by enculturating a generation into fattening up their infants but not so much as to warrant medical attention. Up until the late 1970s the academic literature on child growth had a tendency to focus on developing growth standards and changes in secular growth as a result of better standards of living and nutrition (de V. Weir, 1952; Howe and Schiller, 1952; Tanner, 1951; Clements, 1953; Boyne, Aitken, and Leitch, 1957; Tanner, Whitehouse, and Takaishi, 1966).

Where research was conducted with obese children it had focused on long-term consequences and tracking into adulthood. However, there were signs by the early 1970s concerns were growing over the mortality and morbidity of children suffering from obesity (Newens and Goldstein, 1972; Colley, 1974). Hutchinson-Smith (1970) and Tracey, De, and Harper (1971) began assessing the immediate effects and found obese infants were more likely to suffer from respiratory infections potentially resulting from early introduction of solid foods and cessation of breastfeeding. By 1974, obesity in children was being described as "an increasing problem" (Colley, 1974:221); however, there was little evidence to evaluate this idea efficiently due to a lack of longitudinal surveys (Colley, 1974). Moreover, there was increasing debate over the most suitable method for assessing obesity in children, not to mention controlling for pubertal growth spurts (Newens and Goldstein, 1972). By 1976 obesity had begun to attract governmental attention which resulted in the Department of Health and Social Security and the Medical Research Council setting up a Working Group to investigate the issue. A report called *Research on Obesity* was published in 1976 which assessed the causes of obesity, implications for health services and the effect on individuals. This report described how research on obesity had been neglected in the UK and deemed the condition common enough to be designated as "one of the most important medical and public health problems of our time" (Department of Health and Social Security, 1976:1). However, the report noted that studies into adult and child obesity were not comparable due to the lack of uniformity in classifying the phenomenon. In terms of childhood obesity the report concluded that it was necessary to establish agreed diagnostic criteria in order to assess its prevalence (p.12). It described that "current infant feeding practices are associated with a high prevalence of obesity in babies" (p.12) which may indicate the practice of over-feeding babies as described by Tanner in 1952 may have prevailed into the late 1970s. By the late 1970s there had been at least four nationally representative longitudinal studies conducted or ongoing including the National Survey of Health and Development in 1946, National Child Development Study in 1958, the British Birth Cohort Study, 1970, and the National Study of Health and Growth in 1972.

However, it was not until the early 1980s that these studies began exploring their data to assess the prevalence of obesity in children. Stark *et al.* (1981) were among one of the first to use data gathered from the National Survey of Health and Development (NSHD) to assess childhood obesity prevalence and whether the obese child became an obese adult (Stark *et al.,* 1981:13). At that time, overweight was defined as weight in excess of 10-20 per cent above the average weight for age, height, and sex as derived from the NSHD (Stark *et al.,* 1981:14). According to their assessment, Stark *et al.* reported that the prevalence of overweight among 6 year olds was 2% for boys and 3% in girls. By the ages of 11 this prevalence had increased to 6% in boys and 11% in girls and were similar at age 14 (1981:14). Although Stark *et al.* concluded that there was no optimal age for preventing the obese child becoming an obese adult, there was some indication that children who were overweight at age 14 had a greater risk of being overweight in adulthood. They reported that 28% of men and 45% of women who were overweight at age 26 were also overweight at age 14. However, these figures may be underrepresented due to the self-reporting of weight at age 20 and 26 (Stark *et al.,* 1981:17).

Peckham *et al.* (1983) built on the work of Stark and colleagues and assessed the prevalence of overweight among children aged 7 and 11 from the NSHD in 1946 and the National Child Development Study (NCDS) in 1958. They found that the prevalence of overweight in children aged 7 in 1958 was almost double that in 1946 (Peckham *et al.,* 1983:1237). However, despite the prevalence increasing by age 11 the difference between the two cohorts had disappeared, 9% of girls and 7% of boys were overweight at age 11. They described several factors which may have influenced the difference seen in the age 7 cohorts such as changes to infant feeding practices, food supply, and levels of physical activity (p.1237). Additionally, they assessed whether there was a significant relationship between prevalence of overweight and socioeconomic status. There was no significant association reported for boys, but there was a higher prevalence of overweight among girls from lower socioeconomic groups (Peckham *et al.,* 1983:1241). The authors described how previous studies had failed to find associations between energy intake and social class and therefore

concluded that the prevalence of overweight in girls from lower socioeconomic groups might be attributed to physical activity patterns and attitudes to body image (p.1241).

Power and Moynihan (1988) also found that children from low socioeconomic backgrounds were more likely to become overweight in comparison with children from more affluent backgrounds. Additionally, these children were also at an increased risk of remaining overweight or obese through to adulthood (p.445). By 1999 the health consequences of adult obesity had become widely documented, but it was unclear whether these consequences were similar for children (Parsons *et al.,* 1999). Moreover, it was not known whether there were identifiable childhood risk factors which influenced the development of adult obesity (Parsons *et al.,* 1999:1). A systematic review by Parsons *et al.* identified several factors in childhood which were found to influence the development of obesity in adulthood. These included parental fatness, social factors, birth weight, timing of maturation, physical activity, dietary and other behavioural factors (p.1). Although the authors found no clear relationship between socioeconomic factors and childhood obesity, they did identify that a lower socioeconomic status in early life was strongly linked to overweight and obesity in adulthood (Parsons *et al.,* 1999).

As the 20$^{th}$ Century was coming to an end it was clear that obesity in childhood was gaining widespread attention and concern was building over the phenomenon reaching epidemic proportions. Although there had been methodological issues in measuring fatness in children, Reilly and Dorosty (1999) argued using body mass index (BMI: weight/height$^2$) interpreted using population reference data allowed definitions of overweight and obesity in children to be identified as above the 85$^{th}$ and 95$^{th}$ centiles of the UK growth charts used at that time. Using this measurement, the authors described how the obesity problem was no longer confined to the adult population as the frequency of overweight in 6 year old children was 25% and 31% by age 15 while obesity ranged from 10% to 17% in age 6 and 15 children respectively (p.1874).

## 21st Century – Obesity reaches Epidemic Proportions?

At the start of the 21st Century, the phenomenon of childhood obesity was being termed an epidemic, increasing in line with the prevalence of adult overweight and obesity (Livingstone, 2001). However, as the 21st Century progressed many authors published retrospective papers which charted the rise of this epidemic back to the mid-1980s. By accessing decades old datasets, authors were able to present a more accurate perspective on the changes to childhood overweight and obesity and how this had increased over time. A study by Stamatakis *et al.* (2005) showed that obesity in boys aged 5-10 years had increased from 1.8 to 6% from 1974 to 2003 while overweight increased from 11.3 to 22.6%. In girls, during the same time period, obesity increased from 1.3 to 6.6% while overweight increased from 9.6 to 23.7%. These data show the dramatic increase from 1984 which many authors state was the beginning of the childhood obesity 'epidemic' in the UK (Stamatakis *et al.*, 2005; Reilly *et al.*, 2005). In 2005 Reilly *et al.* conducted a study assessing the early life risk factors for childhood obesity. They described how the systematic review by Parsons *et al.* (1999) found that previous studies had been unable to control for a variety of confounding variables (p. 1). It was now accepted that childhood obesity had been increasing since the 1980s, therefore, in the late 20th and 21st Century the literature changed from documenting and assessing the prevalence of the phenomenon to now identifying ways of preventing it. Reilly *et al.* (2005) identified 8 putative risk factors for childhood obesity: birth weight, weight gain within first year of life, a standard deviation score for weight of 3.13 (range 1.43 to 6.85) at age 8 months and 2.65 (range 1.25 to 5.59) by 18 months of age, an excess of 8 hours watching television per week and a short sleep duration at age 3, and BMI or adiposity rebound by 43 months of age. Additionally, they argued that prevention strategies should target *in utero*, infancy, or early childhood since any modification to lifestyle factors in later childhood and adolescence had so far been unsuccessful (Reilly *et al.,* 2005:6). Concern over the increase in childhood obesity had not been absent within government. On 27th May, 2004, the House of Commons Health Committee published a report on obesity (House of Commons Health Committee, 2004).

This report estimated the economic cost of overweight and obesity to be a conservative figure of £6.6-7.4 billion per year (p. 3). Additionally, it described how the present generation of children would be the first in over a century to suffer a drop in life-expectancy as a result of overweight and obesity (p.3). The report made a multitude of recommendations for both children and adults; however, two recommendations relevant here included ensuring healthy meals are served to children in schools (p.69) and that an annual measurement programme in schools should be established to monitor fluctuations in childhood overweight and obesity (p.95).

In 2005, the National Childhood Obesity Database (NCOD) was established which collected height and weight measurements of primary school children in Reception and Year 6 (Crowther *et al.,* 2006). Although Crowther *et al.* noted the first year of measurement was hampered by practical difficulties, and the potential for heavier children to opt out of the programme, their figures were commensurate with patterns with the data collected from the Health Survey for England. Despite the limitations and potential data bias, Crowther *et al.* (2006:7) reported of the 145,200 Reception girls measured in 2005 12.3% were overweight and 9.2% were obese while of the 152,400 Reception boys 13.4% were overweight and 10.0% were obese. For the children measured in Year 6, 13.8% girls were overweight and 15.4% were obese out of a total of 115,400 girls measured while 13.8% of boys were overweight and 18.9% were obese out of 125,400 boys measured. Although the NCOD data reported were described as unreliable, due to methodological errors in collection, poor response rates, selection bias, and data entry issues, Crowther *et al.* (2006) argued that the data were a valuable tool for monitoring the prevalence of obesity due to the scale and consistency of the NCOD in collating data. The following year the NCOD was modified and became known as the National Child Measurement Programme (NCMP) and continued to collect height and weight data from primary school children in Reception and Year 6 under this new moniker. The first report from the NCMP for the year 2006/07, showed a greater response rate than that seen for the NCOD as 876,416 valid measurements were obtained (The NHS Information Centre, 2008:3).

Although the participation rate for this year was much higher (80%) than that reported from the NCOD, there was still concern that the results may under-report the prevalence due to the possibility that heavier children may have opted out of the programme. Nevertheless, the figures provided from the first year of NCMP showed that the prevalence of overweight and obesity was significantly higher in boys than girls:- 13.6% of boys in Reception were overweight and 10.7% obese, compared to 12.4% and 9.0% in girls. For the children in Year 6, the pattern of boys being heavier remained:- 14.2% overweight and 19.0% obese, whereas for girls the prevalence was slightly less with 14.1% overweight and 15.8% obese (The NHS Information Centre, 2008:3). In addition to collecting national height and weight data, the NCMP was able to assess differences in prevalence in overweight and obesity between Primary Care Trusts (PCT – these were abolished in March 2013 but they commissioned health services based on local needs). There was a clear difference between urban and rural populations, with obesity prevalence being higher in the former, and the reports described a positive relationship between deprivation and obesity prevalence for both Reception and Year 6 children (p. 4).

Although the NCMP was collecting data to show the fluctuations in childhood obesity prevalence it was not designed to be a tool for reducing weight in children. The NCMP offered no direct intervention into the lifestyle of children or their parents and at the time it was unclear what the most effective option was for turning the tide on the childhood obesity 'epidemic'. In order to develop a sustainable response to the increasing obesity prevalence in both the adult and child populations the government's Foresight Programme (part of the Government Office for Science) was asked to identify risk factors and effective interventions (Butland *et al.,* 2007). The Tackling Obesities report published by Foresight described that over half the adult population of the UK could be obese by 2050 with wider societal and business costs estimated at £49.9 billion per year (Butland *et al.,* 2007:5).

Additionally, the report recognised that obesity was not merely a disorder caused by gluttony, but one which was being driven by technological advances outstripping human evolution and causing involuntary weight gain in vast numbers of people (p. 5). The report also described overweight and obesity as biologically and sociologically complex, making interventions at the individual level far from simple (p. 7). The report highlighted the complexity of factors which influence overweight and obesity using an obesity system map. The map highlights that the issue of obesity is so complex it almost renders the map useless and illegible at small resolutions (For a complete version of the map see https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296290/obesity-map-full-hi-res.pdf).

As a result of the Foresight report the government published *Healthy Weight, Healthy Lives: A Cross-Government Strategy for England.* In this report the government pledged to "reverse the rising tide of obesity and overweight. . . our initial focus will be on children: by 2020, we aim to reduce the proportion of overweight and obese children to 2000 levels" (Cross-Government Obesity Unit, 2008:v). In order to meet its target, the Report pledged to implement immediately several strategies targeted towards children in schools such as making cookery classes compulsory by 2011 for all 11 to 14 year olds, asking schools to develop healthy packed lunch policies and to develop programmes aimed at increasing participation in physical education classes by overweight or obese children (p. xii). Developing such policies and programmes would reduce the direct intervention in family life and utilise the school as a site for governing the health of children. According to the One Year Review (OYR) by the Foresight Tackling Obesities Programme, the government made £372 million available to help implement the strategies outlined in their *Healthy Lives* report, which included £75 million for the Change4Life social media campaign aimed at parents to encourage them to make healthier choices for their children (Government Office for Science, 2008). Despite this huge push towards ending the obesity 'epidemic', the prevalence of obesity and overweight was not showing any signs of slowing down among children, although the NCMP data for 2008/09 may have been too early to identify any effects of these recent

government interventions. Over 1 million children were measured in the 2008/09 NCMP collection which equated to approximately 90% of eligible children, an increase of 10% from 2006/07, and up 2% from 88% in 2007/08 (The NHS Information Centre, 2009). There were slight increases in overweight and obesity prevalence in this round of measurements; however, the NCMP report indicated these changes were not statistically significant (Reception: boys, 13.8% overweight and 10.2% obese, girls, 12.6% overweight and 8.9% obese. Year 6: boys, 14.4% overweight and 20.0% obese, girls, 14.2% overweight and 16.5% obese). As in previous years, the positive relationship between deprivation and obesity remained. Figure 1 indicates the prevalence of overweight has only recently begun to stabilise and it is currently unclear if this is a true plateau and whether it will be a sustained downward trend into the next round of measurement (Figures 1 and 2 reproduced with permission from Public Health England, 2014). The graph below indicates the increasing trend for overweight in both boys and girls in Year 6. For the children in Reception the pattern is less clear, girls have appeared to plateau with minor fluctuations year on year, whereas the prevalence in boys appears to have declined ever so slightly.

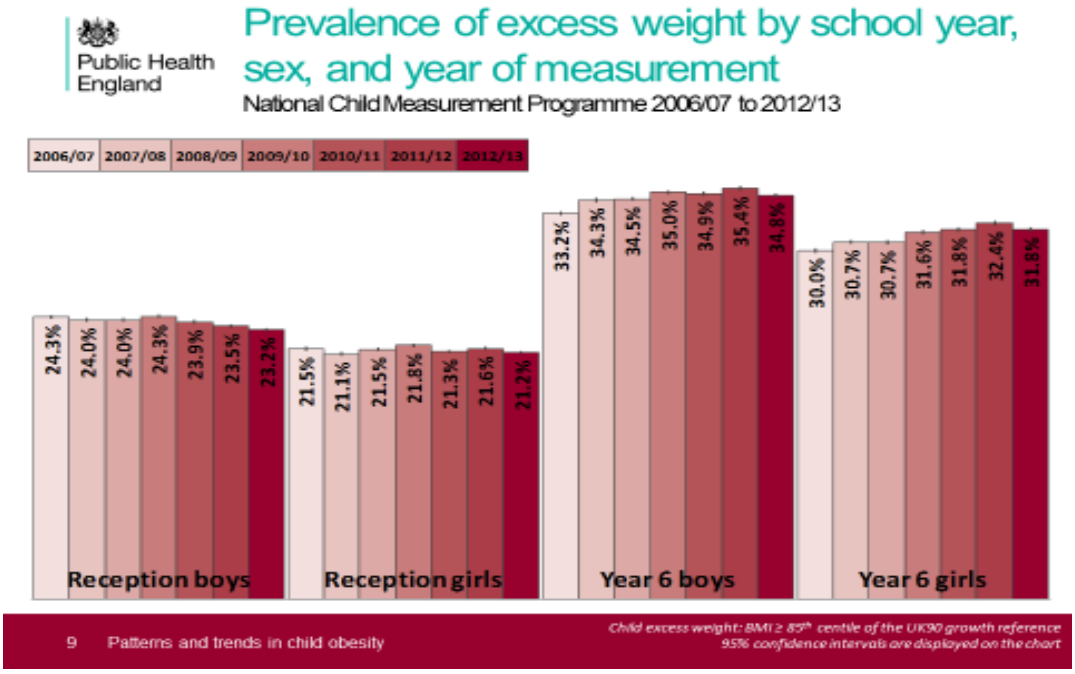


Figure 1 - Prevalence of excess weight in children from 2006 to 2013

Figure 2 shows the prevalence of obesity in boys and girls since 2006. In Reception children it appears as though the prevalence is slightly declining, but this pattern is not replicated in the Year 6 children. The obesity graph follows a similar pattern to that seen in the overweight graph above with minor fluctuations year on year which has a tendency to plateau or slightly decline for Reception children and increase for Year 6.

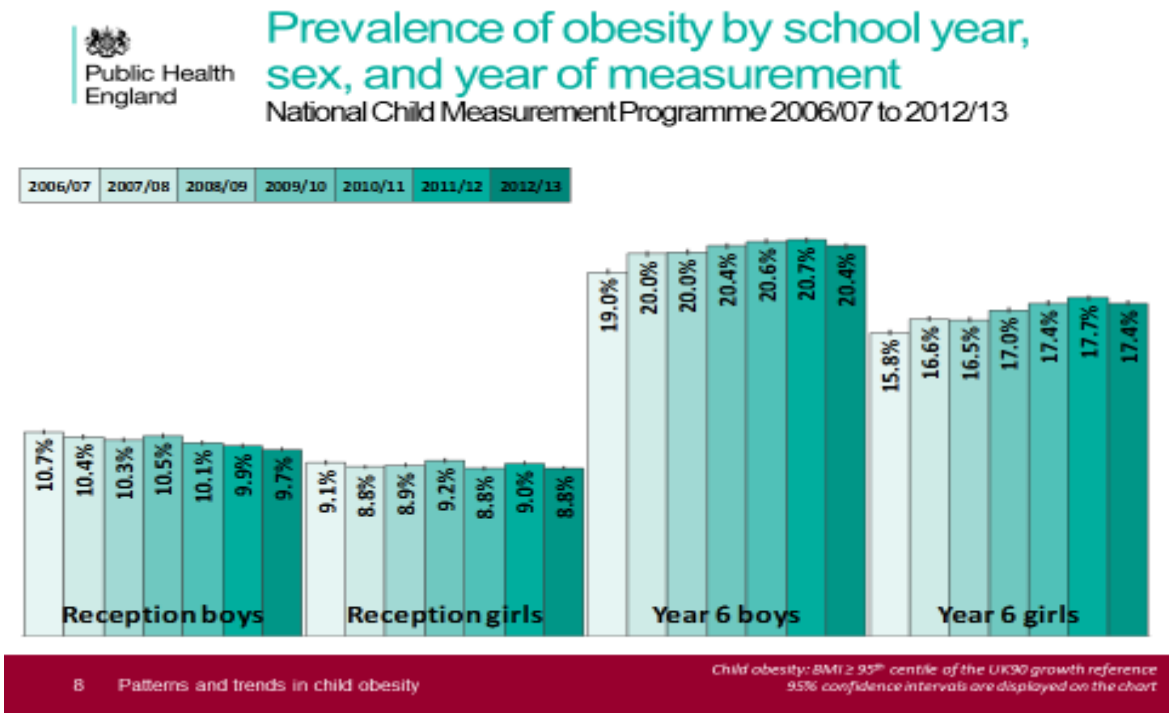


Figure 2 - Prevalence of obesity in children from 2006 to 2013

Despite these minor fluctuations there has been a clear shift in concern over the nutritional health of children since the 19th Century. Alarmingly, there appears to have been an increase in inequalities with obesity prevalence stabilising in children from affluent backgrounds; however, the prevalence among poorer children continues to rise (Public Health England, 2014). Additionally, this dramatic rise in childhood obesity has not been matched by a reduction in undernourishment (Wells, 2012).

## Summary

This Chapter has provided a brief introduction to the issue of childhood obesity, how the phenomenon developed since the mid-1980s and offered some evolutionary ultimate explanations as well as more sociological proximate explanations for the rise in prevalence. Additionally, the Chapter presented a historical element which showed how initial governmental concerns for child health focused on undernutrition which then shifted to overnutrition in more recent times. The Chapter also offered some explanations for why this shift occurred, identifying technological changes and increased sedentary behaviours as possible causes together with wider political shifts which occurred concurrently with the rise in childhood obesity. The next Chapter in this thesis will present a historical perspective of the school meals service and show how this has developed since the late 19th Century.

# Chapter 2
## The Development of School Meals, 1870 - 2014

This Chapter is a review of the origins, development, and implementation of school meals policy since the late 19th Century. The history of school meals has been documented to varying degrees in several publications (Rona, Chinn, & Smith, 1983; Murcott, 1987; Berger, 1990; Cole-Hamilton, Dibbs, & O'Rourke, 1991; Ivatts, 1992; The Caroline Walker Trust, 1992; Harris, 1995; Welshman, 1997; Gustafsson, 2002; Gillard, 2003; Passmore & Harris, 2004; Evans & Harper, 2009; Morgan & Sonnino, 2010; Daniel & Gustafsson, 2010; Pike, 2012; Spence *et al,* 2014). This Chapter used the previous literature to identify the key pieces of legislation relating to school meals (The documents underlined in Table 56, Appendix 1 – this details all references for this chapter). This legislation was then used as a framework to source other supplementary government documentation (Statutory Instruments, Working Party Reports, and Minute Papers) from online resources such as House of Commons Parliamentary Papers (HCPP) and Education in England (EIE), in addition to visits to the Parliamentary and National Archives. Information was also gained from the Hansard Debates which document the original discussions in the House of Parliament and the House of Lords. Although the history of school meals has been described in previous publications, this review highlighted a discrepancy between literature and legislation. There appears to be a common misconception that nutritional standards for school meals were 'mandated' by the 1944 Education Act, to provide meals in accordance with various government Circulars and Statutory Instruments, and later 'removed' by the 1980 Education Act (See Appendix 2, p.297) (Berger, 1990; The Caroline Walker Trust, 1992; Passmore and Harris, 2004; Evans and Harper, 2009; Gustafsson, 2010; Morgan and Sonnino, 2010; Pike, 2012; Dimbleby and Vincent, 2013; Spence *et al.,* 2014). However, this review identified legal discrepancies which render any Statutory Instruments relating to nutritional standards for school meals from 1944 to 1980 without power. Therefore, this Chapter offers new insight into the common conception that the 1980 Education Act removed nutritional standards for school meals.

## 19th Century – The Birth of School Meals

The history of the school meals service begins in the late 19th Century around the time when compulsory education was enshrined in law. The 1870 Education Act was the first piece of legislation which dealt with education in Britain on a national scale. Although there had been debates in parliament to have the 1870 Act make education compulsory it was not until the 1880 Education Act that this became law. Mr. Henry Austin Bruce, Liberal MP, had argued for compulsory education in 1868 when the Elementary Education Bill was making its way through the policy process.[1] Mr. Bruce argued that while educating children was the primary duty of the parents a permissive Bill (which does not allow enforcement) would not meet the State obligations to ensuring this duty was met. However, the 1870 Elementary Education Act remained permissive and allowed voluntary bodies providing education to remain unchanged; compulsory education did not become law until the Elementary Education Act 1880.[1,2,3,4,5] According to Berger (1990:13) in 1879 the Manchester School Board began providing meals to necessitous children and by 1892, a further 45 school boards had followed suit. However, there was little discussion of these voluntary services in the Hansard Debates until around 1884. Mr Ellis Ashmead-Bartlett, Conservative MP, posed the question to the Vice President of the Committee of Council, Mr. Anthony Mundella, of whether he was aware of the Children's Penny Dinners being served to the children of Rousden School in Devon, and whether the Education Department would be willing to recommend similar services to all school boards due to concerns over children from the poorer classes being undernourished. Mr. Mundella was aware of this "*excellent experiment*" and advised many areas throughout the "*Kingdom*" had adopted similar "*experiments"*. However, as School Boards had no power at that time to spend money on feeding children, Mr. Mundella advised that he was confident the actions of voluntary agencies would suffice. Although Mr. Mundella advised 13 centres were in operation in London and more were to be added, it is unclear how many children were benefitting from these Penny Dinners.[6]

At this point in time, it appears that that government showed some concern over the welfare and educational attainment of poor children and recommended the adoption of voluntary feeding. However, this concern was not great enough to warrant legislative attention.

## The Boer War raises Concern for School Children

The Second Boer War which occurred between 1899 and 1902 brought government attention to the physique of the working classes. On the 6th July 1903 the Earl of Meath drew attention to the Report of the Royal Commission on Physical Training in Scotland which stated that "*the one subject, which causes anxiety in the future as regards recruiting, is the gradual deterioration of the physique of the working classes from winch* [sic] *the bulk of the recruits must always be drawn*." The Earl of Meath then posed the question to the government, whether they would issue a Committee of Inquiry to ascertain whether poorer populations in the rest of the United Kingdom were suffering a similar deterioration in their physical health. He argued that if this was the case it would "*constitute a grave national peril*." Figures supplied to the Earl of Meath by Colonel Leathern concerning potential recruits to the Army during the early days of the Boer War in 1899 highlighted the need for attention. According to the Colonel, "*In Manchester. . . some 11,000 men offered their services to the Army; of these only 3,000 could be accepted, and eventually it was found that out of these 3,000 only 1,072 were fit for service in the Regular Army. . . so that in round numbers, out of 11,000 men from Manchester, 8,000 were rejected, whilst only 1,000 were found fit to fight the battles of their country*." Children were the focus of attention in ensuring the security of the "*Empire*." In his closing statement, the Earl of Meath stated;

> "*I firmly believe in the capabilities and energy of the Anglo-Saxon, and have confidence that, with the ancient pluck of their race, the future of the Empire will be made by its sons and daughters even more glorious that its memorable past, if only we, the fathers of the rising generation, do not neglect our duties, in founding the mightiest Empire the world has ever known, we do not, by our indifference and carelessness, hinder nature in her efforts to people that Empire with an Imperial race.*"[8]

Three days later on 9th July 1903, similar discussions took place in the House of Commons where Sir William Anson interjected on a debate about finances relating to the Board of Education referencing the conversations which had taken place in the House of Lords. He argued that there were "*more than 60,000 children in London who are physically inferior, and who cannot get the benefit of the teaching in schools.*"[9] Sir John Gorst furthered this discussion by stating that, in areas where teachers were aware that children were underfed, the local authority should be encouraged to provide them with meals. It was believed that there was great waste within elementary education as a result of children being physically unfit to receive instruction.

Sir John Gorst believed it was not enough to leave it to philanthropists to deal with this issue, hinting at previous debates which argued that voluntary bodies were sufficient to feed hungry children. The question was posed again to the government of whether they would instruct an inquiry into the physical condition of the population and, if there were areas in England with conditions like that reported by the Royal Commission in Scotland remedial action should be taken.[9] In response to these requests for an inquiry, the Board of Education announced on 2nd September 1903 the appointment of the Physical Deterioration Committee.[10,11] The original terms of reference for the Committee were:

> "*To make a preliminary enquiry into the allegations concerning the deterioration of certain classes of the population as shown by the large percentage of rejections for physical causes of recruits for the Army and by other evidence, especially the Report of the Royal Commission on Physical Training (Scotland), and to consider in what manner the medical profession can best be consulted on the subject with a view to the appointment of a Royal Commission, and the terms of reference to such a Commission, if appointed"*[10]

The Report of the Inter-Departmental Committee on Physical Deterioration was published in 1904 and confirmed that there was physical malaise among certain classes of the population. The Committee made 53 recommendations to ameliorate this issue with feeding children in schools among them.

Although there were some concerns over the potential to reduce parental responsibility for feeding their children, the Committee advised there were some areas in which the "*evils*" of underfeeding were so widespread that immediate authoritative intervention was required (Section 330).[10] The Committee argued that:

> *". . . there was a general consensus of opinion that the time had come when the State should realise the necessity of ensuring adequate nourishment to children in attendance at school; it was said to be the height of cruelty to subject half-starved children to the processes of education, besides being a short-sighted policy, in that the progress of such children is inadequate and disappointing"* (Section 348)[10]

The Committee requested State intervention into the poor physical condition of school children at that time and advised that voluntary organisations were not capable of dealing with the "*full extent of the evil*" that was child malnourishment.[10] There were mixed opinions on how this school feeding should take place. The Bishop of Ross disapproved of any steps to ameliorate the issue of undernourished children "*on the grounds that it would weaken the sense of self-respect and self-reliance both of the parent and the child*" (Section 348).[10] While all other witnesses to the report strongly recommended feeding necessitous children, there remained concern over diminishing parental responsibility.

Those who argued school feeding was an immediate necessity also described how parents should be charged for the meals served (Section 351)[10]. Therefore, it was agreed, in the main, that parents be charged for meals provided apart from in exceptional circumstances (Section 354).[10] Although many of the witnesses to the report recommended only feeding those children who were malnourished, there were those who advised widespread school feeding would be advantageous (Section 356 (v)).[10] One of the witnesses, Dr Thomas Macnamara Liberal MP, advised meals should be available to all children and there should be no visible distinction between children whose parents do and do not pay for the meals.

However, the Committee concluded that free meals were not concomitant with free education and advised that it was beyond the realms of the parent to provide sufficient education to their children but the provision of meals was within their personal duties (Section 365). Therefore, it was imperative that parents were charged for meals to ensure they remained mindful of their responsibilities to provide food, or in the case of meals provided at school, the finances to cover the cost of foods. In the final recommendations the Committee advised (Section 423 (42)):

> "*definite provision should be made by the various Local Authorities for dealing with the question of underfed children in accordance with the methods indicated in paragraphs 358-365 of the Report. The Committee, it will be seen, do not contemplate any one uniform method of procedure, but think that regard should be had to the varying circumstances of different localities. They also suggest safeguards against economic abuse"*[10]

The Report clearly pointed to the feeding of children being a necessity for those suffering from malnourishment and recommended the flexibility of provision in local authorities. This flexibility would accommodate those areas where there was less urgency to feed children due to differing levels of poverty around the United Kingdom. The final point regarding safeguarding against economic abuse appears to reflect the concerns over providing meals to children and diminishing parental responsibility. Therefore, this final point ensures finances are a priority for sociological as well as economical reasons.

## Early 20th Century Legislation

By 1905 the evidence linking poor nourishment in children and their inability to benefit from education had been established. The Report into Physical Deterioration had clearly identified these links and made recommendations to ameliorate them. However, the issue of feeding children in school was still being debated in the House of Commons with members of the Committee and those who provided evidence becoming frustrated at the government's request for further inquiry. On 22nd March 1905, Dr. Macnamara brought the subject back to the House of Commons and decried the lack of action by the government:

> "*What was going to be done about this? This thing could not be permitted to go on any longer. There was abundant evidence, including testimony of Dr Eichholz, as to the lamentable lack of proper food ascertained among the school children of the poorer disctricts"*[11]

Sir John Gorst also added to this debate and argued there was sufficient evidence available for the government to take action:

> *"The time for inquiry was past; the time for action had come; and it was most discreditable to our powers of administration and legislation that after so exhaustive an inquiry into so important a subject the Departments concerned had not yet declared what recommendation they intended to adopt and why they refused others"*[11]

The Parliament Secretary to the Board of Education Sir William Anson answered these comments and described how the Board was powerless to provide meals to children in elementary schools and there were further inquiries to be made by another Committee on the medical inspection and feeding of children to ensure the issues were fully understood and remedied.

> *"throughout the autumn he had been inquiring of persons with a practical acquaintance of the life of the poor as to how this question – which became the more difficult the nearer it was approached – could be dealt with. . . the evil lay deeper than the coming to school occasionally underfed children. . . they desired to know what was the precise extent and nature of the evil complained of. It was a*

*question of the physical condition of children varying very much in character. There were children who had been ill-fed or ill-cared for from infancy, and who were so backward in development, as to require a different course of study. Then there were the cases in which children were occasionally left without food because of illness or want of employment of the parents. These cases needed different treatment."*[11]

However, Sir William Anson appeared to be most concerned with the effects on parental responsibility if children were fed in school:

*". . .where meals were supplied on the school premises the immediate result was that the parents relied wholly on charitable effort. This administration of meals ought to be conducted with greatest care. To take away from the parents the duty of supplying meals for their children, and to break up family life by inducing the children to have their meals regularly at school, might have disastrous results socially."*[11]

There were clearly some contentious debates over whether the State should provide meals to children who were suffering from malnutrition and not benefitting from compulsory education. The government in power felt it was beyond the realm of the State to interfere in family relations and the provision of food was not within the power of government. It was fear of dependence on State provided foods that prevented the government from taking immediate action on the recommendations of the Committee into Physical Deterioration. However, the persistence of various members of parliament succeeded in securing a Bill to make provisions for the feeding of school children. The Elementary Education (Feeding of Children) Bill[12] was presented before the House of Commons on 27th March 1905 for its Second Reading.[13] At this reading Mr Keir Hardie argued that the feeding of children in schools was based on two main points, that of humanity and economy.

*"With regard to the humanitarian argument, he anticipated that there would not be any difference of opinion in any section of the House. They would all agree it was criminal, let the cause be what it might, that children should be allowed to go improperly fed and uncared for. On the ground of economy it stood to reason that, having provided a great system of educational machinery, they should be prepared to make the most of it by not merely equipping*

> *the schools so as to enable them to give the best education, but by properly feeding the children so as to enable them to receive the education provided for them. That was the respect in which this question was so important. . . Upon the proper feeding of children depended the future stamina and morale of the race. The money spent upon feeding of children would return to the nation tenfold in days to come, whereas if they starved now they would have incompetent men in the future. As a matter of economy, he submitted the nation would be well advised if it insisted that the children attending our elementary schools should be properly fed as a primary condition to endeavouring to educate them efficiently."* (Mr Keir Hardie)[13]

In this reading objections were again raised with regards to diminishing parental responsibility. However, Sir John Gorst argued that charging the parents for meals would maintain parental responsibility. Additionally, Dr. Macnamara argued that, in his experience, where feeding had occurred it not only elevated the welfare of the child but it also elevated the parental obligation to the children.[13] It is clear from the arguments for feeding school children are three-fold; not only is this an issue of humanity and economy but there is also the potential to alter parental behaviour towards children through the gaze of the school meal. The school meal at this point was focused on feeding necessitous children, and as a result, many parents of children being fed in school may have been ashamed by the poverty label, akin to that of the workhouse, and attempted to improve their family circumstances. The additional recommendation by the Committee on Physical Deterioration for medical inspections in schools furthers this idea. The monitoring and recording of a child's health status would identify parents who were not fulfilling their obligations to the child. Although at the end of this debate the House was divided by a majority of Ayes (215) to Noes (159) there were still obstacles in the way of achieving Royal Assent for the Bill and legislative power for school meals[13].

## Achieving Royal Assent and Legislative Power

Although the Bill was supported by many and had a sufficient body of evidence to warrant legislation, the government in 1905 requested evidence from the Committee into the Medical Inspection and Feeding of School Children which was tasked with not only assessing the voluntary efforts of providing school meals, but also to investigate whether medical inspections were being conducted in schools. The specific terms of reference for this Committee were:

> *"(1) To ascertain and report on what is now being done and with what result in respect of Medical Inspection of Children in Public Elementary Schools.*
> *(2) And further, to inquire into the methods employed, the sums expended, and the relief given by various voluntary agencies for the provision of meals for children at Public Elementary Schools, and to report whether relief of this character could be better organised, without any charge upon public funds, both generally and with special regard to children who, though not defective, are from malnutrition below the normal standard"*[15]

The Committee were tasked with seeking further evidence on the voluntary agencies which provided meals to school children as the previous Committee into Physical Deterioration had only received evidence from four witnesses. The Medical Inspection and Feeding of School Children Committee gathered evidence from 35 witnesses from various agencies dealing with feeding children and received correspondence from all LEAs.[15,16] The Committee essentially made the same recommendations as was seen in the report into Physical Deterioration, that meals should be served to underfed children, there should be no uniform service, that provision should vary depending on the different circumstances of the location, and the meals should be protected against economic abuse. However, the Committee's Report on Medical Inspection and Feeding of Children Attending Elementary School went further than its predecessor and made recommendations to LEAs on how to deliver the service. In the main, if there was a voluntary service in place the Committee felt it would be satisfactory with support and assistance from the LEAs. However, they strongly discouraged "*direct municipal assistance."*

The costs of the meal was to be paid by the parents and the report requested that the School Board be given powers to prosecute parents who, through *"neglect, drunkenness or other gross misconduct"* were unable to pay for their child's meals. In cases where children were sent to school underfed, through causes outside of the parents control such as temporary unemployment or illness, the Committee recommended it should be a duty by law for the LEAs to provide meals. Additionally, medical inspections should be conducted to identify children who were unable to benefit from compulsory education through malnourishment.[15] It appears the Report on Medical Inspection and Feeding of Children Attending Elementary School gave much needed weight to addressing the plight of many children suffering from malnourishment. Subsequent debates in the House of Commons strongly supported the recommendations to give LEAs powers to provide meals to all children. As a result, the Education (Provision of Meals) Bill was given its Second Reading on 2nd March 1906 and was allowed to progress to the next stage in the policy process where it was committed to a Select Committee.[17] The Special Report from the Select Committee on Education (Provision of Meals) Bill 1906 was published on 17th July 1906[18] and it recommended that LEAs be empowered to provide meals to children in school. It also addressed the issue of diminishing parental responsibility by recommending LEAs have powers to prosecute parents who neglect their responsibility to pay for meals provided.

Only in exceptional cases would the LEAs be able to apply to the Board of Education to request authorisation to spend out of the rates in order to pay for meals provided to children when their parents were unable to do so. Although the Select Committee recommended LEAs provide meals it also stated they should work with, and support, the voluntary agencies already in place. It could be assumed this was to allow the philanthropic effort to continue which would reduce government expenditure. The next stage in the life of this Bill was to be read in the House of Lords. On 19th December 1906 the Education (Provision of Meals) Bill was given its Second Reading in the House of Lords. The Earl of Crewe offered the opening statement in which he allayed the fears of the House by stating that the Bill gave powers to recover the costs of the food to maintain

parental responsibilities. Moreover, he provided evidence that there were already cases where parents had paid for meals provided by voluntary agencies despite there being no legal case for these costs to be recovered. It was therefore the requirement of the House that this Bill be passed in order for there to be a legal framework within which to charge parents for meals provided to ensure their parental responsibilities and also to prosecute those who neglected them. There appeared to be agreement on all points within the Bill at this stage as it passed through its Second Reading in the House of Lords with minimal debate and committed to the whole House the next day.[19] After several years of debates, Select Committees, and one failed Bill, the Education (Provision of Meals) Act 1906 was given Royal Assent on 21st December 1906 and became an Act of Parliament.

As described previously this Act was permissive, it did not lay a duty on LEAs to provide meals to school children. It also allowed LEAs to create a committee with the purpose of creating facilities to serve meals and gave them powers to utilise local government rates to cover the expenditure of creating canteens. However, the Act stipulated that LEAs should not incur expenses for purchasing the food as this was to be charged to the parent, and gave them powers to prosecute in the event of non-payment. However, in cases where the parent could not pay by reasons beyond their control the Act allowed LEAs to apply to the Board of Education for permission to spend out of the rates.[20] Previous discussions before this Act received Royal Assent had requested children be medically examined to ascertain whether they were malnourished and in need of feeding.

Therefore, it is unclear from the documents relating to 1906-7 whether the permissive Act resulted in provision of meals for all children (where LEAs utilised the powers) or whether it was only malnourished children who were fed. It is also unclear whether medical examinations were commonplace and who conducted them, as it was not until 1907 when the Education (Administrative Provisions) Act was given Royal Assent that LEAs were required by duty to ensure all children were given medical inspections upon admission to school.

## School Meals enshrined in Law: Were they Working?

In 1909 the Board of Education reported on the Working of the Education (Provision of Meals) Act, 1906.[22] The report stated that sufficient time had elapsed -two financial years since the Act came into operation- to be able to summarise information gathered from LEAs. This was not an evaluation of the Act; it was merely a presentation of information gleaned from LEAs who had exercised their powers within this legislation. The report described how many children were badly nourished due to unsuitable food as opposed to receiving enough. And, it was believed that if parents could be encouraged to spend their food money in a more *"enlightened and sensible manner"* it would have a greater effect than feeding children intermittently out of the LEAs rates (page 5).[22] An attempt at how parents could be educated in sensible food purchasing was described on page 6 of the report where it highlights the idea of the school meal as a tool for governing individuals. As well as the meal being able to deal with issues of malnourishment the idea that the meal could serve as an educational tool for girls was described as a *"valuable object-lesson."*

> *"And as regards the children who will be the mothers and housekeepers of the future, the school dinner may itself be made to serve as a valuable object-lesson and used to re-inforce* [sic] *the practical instruction in hygiene, cookery, and domestic economy which is one of the best features of the curriculum of a good public elementary school"* (page 6)[22].

The report highlights how at this time the school meal was mainly focused on feeding needy children and discusses the various methods by which LEAs identified children to be fed. According to the report the main selection procedures were conducted by the Canteen Committee or School Attendance officers. However, teachers, parents, medical officers, and nurses also selected children in need of feeding (page 12). In Brighton teachers recommended certain children be fed, these children were then medically examined and around half were rejected *"as not requiring the benefit of the meals on medical grounds"* (page 14). In the cases of children who received meals there was some description of the improvement in their physical wellbeing.

In Northampton height and weight measurements were taken weekly for 14 weeks from 44 children who received breakfast and lunch and from 40 children who were not fed. The average weight difference between these two groups of children at the start of the feeding programme was 1.71kgs. By the second week of measurements the supplemented children had gained more weight than their peers who were not being fed. However, during the Easter holidays when no meals were supplied the children in the supplemented group lost weight and their peers gained weight (page 15). This result highlights there were obvious differences in food provision at home for the two groups. At the close of this survey it was noted that the children who had been supplemented weighed, on average, 1.02kgs less than their peers, an overall improvement of 0.69kgs during the 14 week survey.

A similar experiment was conducted in Bradford from 17th April to 24th July, 1907.[23] The Report on A Course of Meals given to Necessitous Children from April to July, 1907 by the Medical Superintendent and the Superintendent of Domestic Subjects in described how 30 children from the poorest area in the city and 10 children from an adjacent school were given breakfast and lunch for 3 months. Figure 1 below is a graph taken from this report and depicts the average weight gain of the children being fed in the experiment and the average of a control group (69 children) who were not receiving "*the special meals".* It is not clear if this control group were having a different meal or being fed at all as the report does not provide any further information on that point.

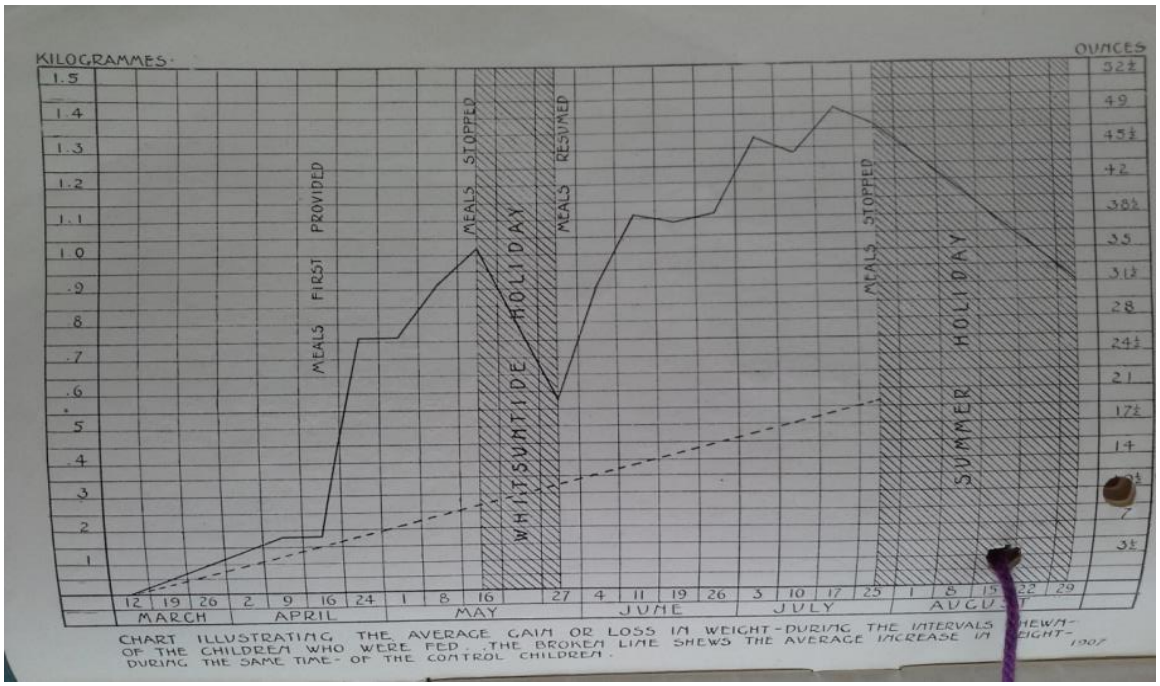


Figure 3 - Graph depicting weight change during feeding programme in Bradford, 1907

Figure 3 clearly depicts the immediate effect breakfast and lunch had on the children taking part in this experiment and, similarly to the effect seen in Northampton, children in Bradford also lost weight during the holiday periods. In addition to physical measures, the Board of Education Report on the Working of the Education (Provision of Meals) Act, 1906 assessed whether the meals served affected the mental capacity of the children. However, there appeared to be mixed responses as to whether the meals affected ability to learn. Eight LEAs provided views from teaching staff as to whether they felt the feeding of needy children had impacted their ability in class. Many teachers in each of these LEAs remarked on the great improvement in the intellectual ability of the children being fed. However, there were some who argued the service merely maintained the child's normal standard as opposed to improving it. The report only gives the main theme of comments given by the many teachers who responded to this question; generally each of the eight LEAs reported improvements. However, it is not possible to fully appreciate the differences of opinion as there is no raw data provided. The report goes on to discuss how the school meal was an ideal opportunity to teach civilised behaviour.

According to the report a well-ordered meal presented on clean tablecloths, using clean cutlery, and adopting appropriate behaviours was almost unknown to the poorer children (p.17). It was thought the school meal would work efficiently to transform the eating behaviours of these children. However, the report describes how some LEAs made no attempts to regulate behaviour and merely distributed food which was eaten in the street or school yard (p.18). There were also concerns over staff, voluntary or otherwise, as *"subsequent batches of children use the same unwashed plates and spoons and there are not enough mugs to go round, with the result that the food is consumed in a dirty, untidy, and scrambling manner"* (p.18). Although this scenario was not replicated throughout the majority of LEAs providing meals, the report advised it would seek improvements to those not offering a "civilised" service. This report clearly depicts the sporadic provision of meals throughout England and Wales between 1907 and 1909. Where meals were provided there was no mention of whether these were given to all children in the school and the report focuses on the feeding of malnourished children.

It also highlights how these children were identified and that it is possible that only in the extreme cases of malnutrition were children fed. Although the report describes that 44,106 children were fed in 1907-8 and 116,840 in 1908-9 in England and Wales it is not possible to understand what proportion of children this represents without identifying data on the number of children in attendance at public elementary schools at that time. The findings of this report resulted in the Education (Administrative Provisions) Bill being presented in the House of Commons on 23rd April 1909 which would change the permissive nature of the 1906 Act into a duty.[24] Mr. A.E. Dunn, Labour MP, requested the Bill be read a second time and opened the debate describing how, although there were many LEAs going to great lengths to feed needy children, there were areas where nothing was being done to relieve children from malnourishment. Therefore, Mr Dunn brought the Education (Administrative Provisions) Bill to the House for its Second Reading on 23rd April 1909 with the intention of making it the duty of LEAs to feed children who had been identified by the School Medical Officers as underfed.[24]

The Bill was debated at length with concerns being raised, again, that a duty on LEAs would diminish parental responsibilities. It was argued that voluntary organisations were sufficient and it was not necessary to burden rate payers with the cost of feeding neglected children. However, Mr Crooks, Labour MP, argued that the assumption that parents would neglect their responsibilities to their children if they were fed at school was inaccurate. He argued that it was also possible for voluntary agencies to have the same theoretical effect; if parents could have their children fed for nothing there would be no incentive provide food themselves. However, Mr Crooks believed this was incorrect and presented a personal example to validate his point:

> *"What we have always argued from the earliest days if that if you fit people properly, if you give a man an opportunity or children an opportunity of living a decent life, they live it. If the argument was true that the feeding of children at the public expense was demoralising and degrading, then I have to say, as a striking example, that I myself was obliged to be reared until I was a fair age at the public expense. My mother was a fair specimen of the Englishwoman, and the moment we children could get out and earn our daily bread we – and we are a large family – did so, and we have never returned to that way of life. . . After all, everybody does not become degraded because they eat a little food in infancy. Hon. Members are always arguing that if we increase the rates we necessarily increase the burden on ratepayers. It may sound paradoxical, but it is not so. My argument is that if you take the child an* [sic] *the proper moment and give it food you save the rates, because that child will grow up to become a useful man, and not to be a burden on the rates. The men and women you see in you asylums are the men and women who were neglected in their childhood, and who are a permanent instead of a temporary burden in consequence."*

However, Mr Crooks' argument was met with opposition. Mr Harold Cox, Liberal MP, argued to impose a duty on LEAs was *"absolute tyranny"* and if any amendments were to be made it should be to give more powers to enforce parental responsibility. Mr Cox argued there were too few cases where parents had been prosecuted for not paying for meals provided to their children when they are able to do so.

> *"If any amendment was needed it would be to strengthen the provisions for prosecuting parents. The whole compulsion of the Bill is not to put compulsion on the parent to pay, but to put compulsion on the ratepayer to pay for the parent who will not. I remember the Hon. Gentleman who is now Secretary to the Admiralty drawing many cheers from the House by saying that the parent who would not pay ought to be flogged at the cart-tail. It was an effective phrase, but what effect has been given to it? The only prosecution I have come across was one which took place in the West London Police Court on 16th September, 1908. It was proved the man who was prosecuted, and who was neglecting his children, was earning from £3 to £4 per week. What was the result? He had to pay 4s. 11d. and 3. costs* [sic]*. Was that flogging the man at the cart-tail for refusing to pay when he could do it? That prosecution was ridiculous"*[24]

These two excerpts from the debate give some indication of the division throughout the House on transforming the 1906 Act from permissive to duty. However, after many cases were presented supporting each argument the request for a second reading was put to the house. There were 82 Ayes and 206 Noes, the majority of the House refused to allow this Bill to progress to the next stage towards achieving Royal Assent.[24] Therefore, school meals remained optional for LEAs. However, despite the continuation of a permissive Act by 1910 the number of LEAs providing meals had increased. The Board of Education produced a second Report of the Working of the Education (Provision of Meals) Act, 1906 on 31st March 1910.[25] The Report described, of the 327 LEAs in existence 107 of these had permanent School Canteen Committees and 21 had intermittent Committees. This was an increase from year previously with 99 and 14 respectively. However, despite more LEAs setting up Committees to facilitate the provision of meals to children, there appeared to be a slight decline in the number of children being fed during the financial year 1909-10. The previous report described how 116,840 children were fed during 1908-09; however, this declined to 114,925 during 1909-10 (Page 2). But, it is unclear what proportion of the child population this relates to, it is possible there were fewer children in school at this time as opposed to fewer children taking meals. However, there are reports that indicate the number of children taking a school meal was very small in relation to the number of children in

attendance. The Chief Medical Officer's Annual Report for 1911 provided information on the proportion of children who were being fed from each LEA and indicates the population of children receiving meals was rather small.[149] For example, the average number of children attending schools in Acton during the school year 1910/11 was 8099, however, the number of children being fed in 1911 was 257.[149]

The environment in which children were fed was also discussed in the 1910 Board of Education Report[25] and showed how this varied greatly, from meals taken on the knee in the caretaker's shed to meals at a table with cutlery and tablecloths (p.10). The behaviour of children was again remarked upon, with similar variation, some had supervisors to maintain a quiet atmosphere and others had children rushing in, eating quickly, and rushing out (p.9). The Report concludes that there was still inadequate provision and it would be more useful to "*supply warnings than models*" and they had presented some of the worst examples of school feeding to highlight the effect of poorly organised administrations (p.10). By 1914 there appeared to be a renewed effort to amend the 1906 Act as a result of the two Reports discussed above. Mr Frederick Jowett, Labour MP, requested a Second Reading for the Education (Administrative Provisions) Bill on 27th March 1914.[27] This Bill aimed to legalise the provision of meals during vacation periods, remove restrictions on the halfpenny limit that LEAs could spend on meals, and to enable underfed children to receive meals where an LEA has not applied the 1906 Act. Mr Jowett, Labour MP for Bradford, highlighted the work being done in his constituency and described the results seen in Figure 3 above whereby malnourished children lost weight during the school vacations. As the 1906 Act stated that LEAs may provide meals to children in attendance at school this essentially rendered the provision of meals during vacation, children being out of attendance, illegal. And, according to the Education (Provision of Meals) Act (1906) Amendment Bill, some LEAs had been surcharged as a result of providing meals out of school term times.[26] Therefore, Mr Jowett requested his Bill be read a second time to allow the continuation of the work being done in his constituency and elsewhere to alleviate malnourishment in children.

Despite some arguments against the abolition of the halfpenny rate and, again, some concern over diminished parental responsibility, the Bill was read a second time and committed to a Standing Committee where it would be given closer scrutiny.[27] The Bill succeeded in its transition through to Royal Assent and became the Education (Provision of Meals) Act 1914 on 7th August 1914[28]. The Act successfully repealed the limit of the halfpenny rate and allowed LEAs to *"spend out of the rates such sums as may be necessary to meet the cost of the provision of food"* and it dealt with the illegality of serving meals during vacation periods. However, there was no mention of Mr Jowett's third point of the Bill, to enable underfed children to receive meals where LEAs had not applied the 1906 Act. Although, the debate he provided when the Bill achieved its Second Reading failed to elaborate on this point and it is unclear who Mr Jowett expected to feed these children. Therefore, the ambiguity of the statement may have resulted in its removal by the Standing Committee and omission in the final Act.

Legislation relating to school meals fell silent from 1914 to 1921, potentially as the government will have been preoccupied with the First World War taking place from 1914 to 1918. However, the Education (Provision of Meals) Act 1906 was entirely repealed by the publication of the Education Act, 1921.[29] Provision of meals under this Act still remained permissive and no duty was placed on LEAs to require them to provide meals to children. This Act was introduced to consolidate 31 pieces of legislation relating to education and therefore changed little with regards to school meals. The only noticeable difference was a statement which advised LEAs should not incur any expense with regards to the purchase of food supplied in schools and all costs should be defrayed to the parent. Only in exceptional circumstances when the LEAs had ascertained there were not any other funds to pay for a child's meal were they authorised to spend out of the rates to cover such costs.

## World War II, Food Rationing, and Concerns over Nutrition

Until the late 1930s the government's main concern regarding school meals related to expenditure. However, in 1938 there were indications that the government was becoming concerned over the quality of the meals provided. Discussions in 1939 revealed how, in 1938, the Board of Education had appointed a dietician to visit feeding centres and schools to assess the quality of meals and make suggestions for improvement where necessary.[30] It was also at this time point where documents described inspectors visiting schools, not only to assess teaching, but specifically mentioning an inspector of school meal provision. It is easy to assume, that with the introduction of a dietician and discussions of meal inspectors, there was some assessment of dietary or nutritional quality of meals provided. However, later discussions suggest that may not be the case. On 3rd May 1939 the Parliamentary Secretary of the Board of Education was asked how many times inspectors had visited schools and whether their reports indicated a satisfactory system. He advised that due to a lack of uniformed feeding service the arrangements for provision varied from satisfactory to unsatisfactory.[31] However, it appears as though these visits were not assessing meal quality as there is no description of how these were unsatisfactory, the Parliamentary Secretary merely describes whether the system of feeding is satisfactory or not as opposed to giving details on the quality of meals. By 1940 the government was keen to develop the system of school meal inspections due to their view that the school meals service was of great importance. On the 27th December 1940, the Board of Education issued a memo to all inspectors detailing a set of instructions to ensure a thorough investigation of the provision of school meals.[32] This memo was the first identified in this review which removed the term feeding centres. Previously there had been two variants of the school meals service which indicated a level of discrimination between those who paid for meals and those entitled to a free meal. It appears as though those who received a free meal were required to attend a feeding centre and those who paid attended a school canteen. This memo advised all types of provision would now be referred to as school canteens, although it does not describe whether there would still be the segregation of those who paid and those who received a free meal.

With regards to nutrition Section 10 of the memo advises the inspectors on how to assess the dietary quality of the meal. It describes how Her Majesty's Inspectors could approve dietaries where a "*good two-course meal is provided. The diet should not only be adequate but well-balanced each day as regards protein, energy and protective foods.*"[32] Additionally, there was the option for LEAs, after consulting with their meal organisers or domestic subject teachers and approved by the school medical officer, to submit a general dietary to the Board of Education who would then advise inspectors whether it was approved. Therefore, it appears the Board of Education took the matter of school feeding seriously enough to warrant approving dietaries for schools providing meals. Although this work was not mandatory, no legislation had been introduced to impose any dietary information on meals served in school. However, due to food rationing in 1940, as a result of World War II, there appeared to be an increased concern within government over the level of nutrition children received not only as a result of the war, but also for the poorer children who were badly nourished during peacetime. On the 21st October 1941 the Earl of Listowel asked the government what it would do to alleviate this issue of malnourishment.[33] He praised the work that had already been done in this area, however, with regards to school meals he argued more could be done. According to the Earl, in 1941 only 300,000 out of 5,000,000 children were taking school meals and that it was time to expand the service beyond its original remit of feeding necessitous children. The Earl described how the methods deployed for relieving poverty and malnutrition had the potential to affect social reform and bring lasting benefit to many generations of children. In response to the Earl's comments, The Minister of Food Lord Woolton announced that the Ministry had arranged for priority supplies of food to be sent to schools in order for children to receive a balanced meal which had been recommended by medical and scientific advisors. At this time the government provided LEAs with a grant to cover the expenditure of the school meal where necessary. LEAs could receive a minimum of 70 and a maximum of 95 per cent of the cost of the service from the government to ensure the financial implication of running the service was greatly reduced.

Two days later the President of the Board of Education, Mr Butler, announced several reform proposals in relation to education.[34] Mr Butler advised the Board were proposing whether to introduce an obligation on LEAs to provide milk and meals to necessitous school children in order for them to benefit from education. This proposal was aligned with the school medical service in an attempt to ensure the service was effective.

## The First Nutritional Standards

By November 1941 there appeared to be sufficient concern that school meal quality and provision was too sporadic. As a result the government was keen for the meals service to expand to eradicate issues of malnourishment. One step towards this aim came through the introduction of guidelines to LEAs on the content of the meal. The Board of Education issued Circular No. 1571 to all LEAs on 12th November 1941 and advised the school meal should provide 1000 calories, 20-25 grams of first class protein, and 30 grams of fat in all forms.[34] This Circular was the first to offer guidance on the form and content of the meals provided and advised that a two course meal of "*meat and pudding"* should be offered. Where schools had registered as Priority Establishments their ration allowances for meat, sugar, and preserves were doubled and given special allowances of milk for cooking. In addition to the calories, fat, and protein quantities above, the Circular also advised a list of foods all of which should be used in the meals (see Table 1 below).

The Circular noted that providing meals of this quality would not be cheap; however, the nutritional value should be of paramount importance. It described how parents saw the school meal as providing their children the main meal of the day and advised this expectation could only be achieved if the meal was nutritionally balanced. Additionally it recommended that skilled organising and catering staff should be employed and sufficient wages offered to attract skilled professionals as "*Good food must not be spoiled by bad cooking."*[34] This Circular was not imposed on LEAs by legislation; however, it was an attempt by the government to create a more uniform service and increase provision and uptake across the country during a time of food rationing as a result of World War II.

Table 1 - Quantities for school meals advised by Circular No. 1571[34]

| Food | Per Meal | Per 100 Meals |
|---|---|---|
| Meat (including Offals, especially Liver) | 2d. worth | 16/8d. worth |
| Milk (dried) | 1 oz. | 6 ½ lbs. |
| Milk (liquid) | 1/5th pint | 20 pints |
| Cheese | 1/10th oz. | 10 ozs. |
| Canned Meats, Fish or Beans | 1/6th to 1/3rd | 1 to 2 lbs. |
| Butter/Margarine/Cooking Fat | ½ oz. | 3 lbs. 2 ozs. |
| Suet | 1/6th oz. | 1lb |
| Sugar | 2/5th oz. | 2 ½ lbs. |
| Preserves (Jam etc.) | 1/5th oz. | 1 ¼ lbs. |
| Dried Fruits | 1/3rd oz. | 2 lbs. |
| Rice | 1/3rd oz. | 2 lbs. |
| Oatmeal | 1/6th oz. | 1 lb. |
| Barley | 1/10th oz. | 10ozs. |
| Starch Food Powders | 1/12th oz. | 8ozs. |
| Cocoa Powder | 1/33rd oz. | 3ozs. |
| Flour (Wheatmeal and White) | 1 oz. | 6 ½ lbs. |
| Bread (Wheatmeal) | ½ oz. | 3 lbs. |
| Potatoes | ½ lb. | 50 lbs. |
| Greens (Cabbage and Salad Vegetables) | 2 ozs. | 12 ½ lbs. |
| Roots | 1 ½ ozs. | 9 ½ lbs. |
| Pulses | 3/5th oz. | 3 ½ lbs. |
| Fruit (fresh) | as available | |

Memos to school Inspectors reinforced the government's efforts to expand the meals service through quantity of meals served but also by improving the quality of the food provided. The Board of Education updated the guidance given to Inspectors to include more specific requirements pertaining to school meals. In December 1941 Memo 504/7 was circulated to all District Inspectors and advised them to seek assistance from women colleagues who had either domestic science knowledge/qualifications or sufficient knowledge of the school meal service.[36] The Memo advised that the quality of meals was important not only for the expansion of the service but also to ensure that the meals provided were up to the expected standards. Therefore, despite the 1941 Circular lacking legislative powers and imposing the nutritional standards on LEAs, it appears the government was keen to ensure they were being implemented through the instructions given to school Inspectors.

By February 1943 it appears as though the government's initiatives to increase school meal take up had achieved some success. The President of the Board of Education, Mr Butler, announced in the House of Commons on 25th February 1943 that the number of children taking meals in schools had almost quadrupled since 1942.[37] On the 11 March 1943 Mr Butler advised the number of children taking school meals in October 1942, the last point at which they received data from LEAs, had reached 896,236.[38] There also appeared to be some success in the government's attempt to ensure school children were receiving a nutritional meal. On the 10th June 1943 Mr Butler received a request in the House of Commons to investigate children's reluctance to eat vegetables and whether the standard of cooking vegetables was acceptable.[39] He responded by advising the House that great progress had been made in the social training of children and the cooking of vegetables. According to Mr Butler, children were reluctant to eat vegetables due to lack of familiarity, however, he assured the House vegetables were given just as much attention as the other dishes served in schools.

## The Education Act 1944

In July 1943 the Board of Education issued a report on Educational Reconstruction which attempted to reform many outdated policies relating to education.[40] The report included school meals and described how, up until the war, meals were mainly provided for under-nourished children and for those who found it difficult to go home at lunch time. It describes how the service was expanded during the war to ensure that the health and nutrition of children was maintained despite food rationing.

Additionally, feeding children at school also freed women from domestic duties and allowed them to engage in war related employment. As a result of these beneficial attributes the report stated that school meal provision would be imposed as a duty on all LEAS. By 1944 these reforms became reality and Section 49 of the Education Act brought the legal requirement for LEAs to provide meals to all children in attendance at school:

> *"49. Regulations made by the Minister shall impose upon local education authorities the duty of providing milk, meals and other refreshment for pupils in attendance at schools and county colleges maintained by them; and such regulations shall make provision as to the manner in which and the persons by whom the expense of providing such milk, meals or refreshment is to be defrayed, as to the facilities to be afforded (including any buildings or equipment to be provided) and as to the services to be rendered by managers governors and teachers with respect to the provision of such milk, meals or refreshment, and as to such other consequential matters as the Minister considers expedient, so, however, that such regulations shall not impose upon teachers at any school or college duties upon days on which the school or college is not open for instruction, or duties in respect of meals other than the supervision of pupils, and shall not require the managers or governors of a voluntary school to incur expenditure.*[41]

This legislation allowed the Minister of Education to produce further Regulations relating to school meals. These related to imposing the duty of meal provision on LEAs, the cost of meals, the facilities, and the services rendered by managers, governors, and teachers. However, in subsequent regulations the Ministry of Education goes beyond the powers allocated in Section 49 and includes details on the form of the school meal. The Draft Provision of Milk and Meals Regulations Circular No.34[42] published on 27th March 1945 gave advance notice to LEAs of the specifics of these regulations. Section 4 of this draft described that Section 8 of the regulations would relate to the quality of the school meal and should be implemented as fully as possible.

On 6th June 1945 the first Statutory Rules and Orders relating to school meals were published.[43] The Provision of Milk and Meals Statutory Rules and Orders No. 698 stipulated regulations relating to the duty now imposed on LEAs to provide meals, the cost of meals and who these should be deferred to, the services rendered by managers, governors, and teachers, and beyond the powers provided to the Minister by the legislation it provided regulations relating to the content of the meal. Section 8 of these regulations stated that:

> *"8 (1) Every dinner shall be adequate in quantity and quality so as to be suitable as the main meal of the day for the pupil, shall be well prepared and cooked, and shall be served decently and in good condition.*
>
> *(2) The dietary for dinners shall be suitably varied and planned in order to secure nutritionally-balanced meals appropriate to the ages of the pupils and suitable records shall be kept of the amounts of the ingredients used.*
>
> *(3) Where the Minister so requires, the Authority shall provide dinners in accordance with an approved dietary which shall specify the ingredients and the amounts thereof to be used.*"

Although these regulations come under the power provided to the Minister under Section 49 of the Education Act 1944, the specific points on the quality of the meal appear to lie outside Ministerial power. Section 49 of the Act did not allow the Minister to impose regulations on the form and content of the meal. Therefore, it is questionable as to whether Section 8 could be interpreted as mandatory nutritional standards. Despite this discrepancy between legislation and regulations, the school meal service had now become a vital ingredient in the workings of the education system.

## The 'Legislative' Years

After the introduction of the first regulations under Section 49 of the 1944 Education Act slight amendments were made to various different aspects, mainly relating to the cost of the meal and the free provision of milk (for more details on the development of school milk see Atkins, 2007). Additionally, although a duty had been placed on LEAs to provide meals, provision was still sporadic or none existent in some areas. The Minister of Education explained in the House of Commons on 5th October 1944 that they had envisaged a three year plan in which they anticipated the service would cover 75 per cent of the children in school but in light of the reconstruction efforts arising from the war he noted this may be delayed. Despite this sporadic provision in the immediate months and years after the 1944 Education Act it was clear that the government encouraged LEAs to provide a nutritionally balanced meal to children.

Although at that time it appears as though nutritional standards were bound by legislation and mandatory it is questionable whether these were within power or in fact *ultra vires* (outside the power of legislation due to the Minister now being bestowed with authority to impose nutritional standards). However, between 1944 and 1955 there were no amendments to the Statutory Orders relating to nutrition. In 1946 Statutory Rules and Orders No. 1293 advised milk provided to children in maintained schools shall be free of charge,[45] 1949 Statutory Instruments (new name for Statutory Rules and Orders) No. 2280 amended the previous regulations to substitute the varying charges for meals to a uniform charge,[47] 1951 No. 340 raised the charge for school meals to 7d, 1953 Circular No. 262 raised the charge for school meals to 9d (the corresponding Statutory Instrument was not located),[50] 1954 Statutory Instrument No. 910 regulations allowing the Minister to request, if necessary, pasteurised or tuberculin-tested milk to be supplied for drinking in preference of other milk,[51] 1955 Statutory Instrument No. 320 allowing the Minister to approve provision of milk tablets where supplies of fresh milk were not available,[52] 1956 Statutory Instrument No. 575 amending the previous regulations on milk tablets and clarifying the authority of the Minister to approve the use where fresh milk cannot be provided at a reasonable cost.[53]

In 1956 the Ministry of Education published a Report of an Inquiry into the Working of the School Meals Service which assessed the arrangements for dining, remission of charges, factors affecting demand for the service, and alternatives to the school meal. Although there was no assessment of the quality of the meals served there were indications that quality affected uptake. Some head teachers reported poor quality meals as affecting uptake and also dining conditions. Despite the government guidance on the form of the meal it appears there was no uniform service in place at this time. Although this report failed to assess school meal quality the Minister of Education was pressed in the House of Commons to give assurance school Inspectors were qualified to assess meal quality. However, the Minister could only advise that some of the Inspectors had specialised knowledge in dietetics suggesting that assessment of meal quality will not have been rigorously monitored in some areas.[55]

As a result of the 1956 report the Ministry of Education issued Circular No. 308 advising all LEAs of several amendments to be made. These advised new regulations would be issued in due course and mainly covered issues relating to reducing government expenditure.[56] There was no mention of the quality of school meals; however, the first Statutory Instrument No. 1320 to address these amendments altered Section 8 of the original regulations relating to school meal quality.[57] From 1st September 1956 Section 8 of the regulations stated:

> *"8 – (1) On every day on which a school maintained by an Authority is open for instruction the Authority shall provide mid-day dinners for day pupils attending the school; and they shall be adequate in quantity and quality so as to be suitable for the main meal of the day, well prepared and cooked, and served decently and in good condition.*
>
> *(2) The dietary shall be varied and planned so as to be appropriate for the nutritional needs of the pupils; and records shall be kept of the. . .* [document damaged] *of the ingredients used.*
>
> *(3) An Authority may in accordance with approved arrangements. . .* [document damaged] *dinners on other days, and other meals and refreshments (including milk, other than that provided under the preceding regulation) on any day.*

This was only a minor amendment to the previous regulations issued in 1946, it removed the requirement, if requested by the Minister, for meals to be provided in accordance with an approved dietary. It also allowed LEAs to serve meals on days when the school was not open for instruction. However, where LEAs were serving meals on non-school days the government required justification to ensure the benefits were commensurate with the cost. As noted in Circular 308 the government advised that feeding children on non-school days should be discontinued unless LEAs could justify the expenditure. The Statutory Instruments were again updated in 1959, No.409[59] Section 8 was amended slightly, from that above in 1956, to include an extra sub-section regarding the charges for meals to parents of day pupils at special schools. By 1965 the government felt it was necessary to convene a Working Group to assess the nutritional standards of the school meal.

According to the Report of Departmental Working Party on the Nutritional Standard of the School Dinner and the Type of Meal[61], Circular No. 290 issued in 1955 updated the nutritional standard recommendations which were originally described in Circular No. 1571 from 1941 as described above. Despite extensive searches through the literature on school meals, the National Archives, and the Parliamentary Archives Circular 290 evades this review. However, a copy appears in the appendix of the 1965 report and states:

> *"1. Under the Provision of Milk and Meals Regulations, 1945, school dinners must be adequate in quantity and quality to serve as the main meal of the day for the pupils; and the dietary must be so varied and planned as to secure nutritionally-balanced meals appropriate to the pupils' ages. Previously, in particular in Circular 1571, the Board of Education had given more detailed advice to local education authorities on the nutritional standard to be expected under wartime conditions. The general food situation is very different to-day and food rationing came to an end a year ago; this is, therefore, an appropriate time to define the standard that school dinners should reach.*
>
> *2. If it is to be the main meal of the day, the school dinner must provide a substantial proportion of a child's energy requirements. These requirements will vary according to the age and sex of the child; the needs of older children, for example, are greater than those of younger ones and older boys in general require more than girls of the same age. The school dinner should have an energy value of between 650 and 1,000 calories depending on the age and sex of the children. The calorie value can be varied by adjusting the quantities of energy-producing foods such as potato, flour, cereals and fats.*
>
> *3. The school dinner must also provide a sound diet for growing children and must take into account the possibility of deficiencies in a child's home diet. It should supply an average of 20 grammes of protein of animal origin and 25-30 grammes of fat in all forms. The table in the Appendix shows the types and quantities of food required to balanced meals. Menus based on these quantities will contain suitable amounts of the principal food factors including vitamins and mineral salts.*

While it is questionable whether these guidelines were mandatory and this Circular does not make it explicit that these standards are mandatory, it could be assumed that LEAs will have adopted this guidance and provided meals to this standard.

The 1965 Working Party Report[61] stressed the importance of ensuring children received a nutritionally balanced meal and stated that the standards laid down in the 1955 Circular No. 290 should be maintained. Additionally, it noted that the meals service generally conformed to the nutritional standards from the 1955 Circular and in areas where nutritional achievement was low this was attributed to poor management. Therefore, it appears as though these standards were being adopted by many LEAs and implemented as a mandatory component of the school meals service. Aside from the questionable legality of mandatory standards it is clear the government felt it was important for children to receive a decent meal during the school day. However, the issue of expenditure to maintain this service was an issue that raised questions in the House time and time again. In 1966 the Secretary of State for Education and Science was asked for the costs of the service on public funds.[62] The Secretary advised the estimated costs from 1966 to 1967 for school meals was £81 million and £14 million for school milk and when asked what proposals he will make to reduce public expenditure he advised there was no immediate change proposed. This discussion highlights the tensions between those who sought to maintain and improve the meals service and those who placed economics over child welfare.

However, a Mr Rose interjected on this debate and advised the Secretary that there would be strong opposition should the government attempt to lower subsidies for school meals and milk. The issue of expenditure appeared to dominate discussions on school meals in the House although in 1971 Mrs Thatcher the Secretary of Education and Science advised that despite proposals for increasing the charge for school meals this would result in no changes to the nutritional content of meals provided.[64] However, she acknowledged that raising the cost of school meals may result in a drop in the number of children receiving meals but advised that the government had taken measures to allow more children to receive free school meals. The number of children receiving free meals at that time was 635,000 and it was expected that due to governmental changes to entitlement this would rise to 800,000. At this time there was great concern over increasing public expenditure and the government

was keen to reduce these costs. Although school meals avoided major cuts to expenditure at this time, the provision of milk at school was in the process of being removed to children of certain ages. As the Education (Milk) Act 1971 was passing through parliament and on the road to achieving Royal Assent the Statutory Instruments No. 169 The Provision of Milk and Meals (Amendment) Regulations 1971 were published which updated the charge for school meals to decimal currency and advised the cost would now be 12p for every meal.[65] Although there may have been concerns over public expenditure, the price increase for school meals may also reflect general price inflation at the time. On the 5th August 1971 the Education (Milk) Act had achieved Royal Assent which restricted the duty placed on LEAs to provide milk to children over the age of seven unless they are in attendance at a special school or are in possession of a medical certificate which states their health requires that they be provided with milk at school.[67] This change in legislation received much attention at the time and remains as one of the more iconic aspects of the school meals and milks service due to the catchy moniker, *Thatcher the milk snatcher,* given to Mrs Thatcher as a result of this Act. However, the previous Labour government had already removed school milk for children over the age of 11 in 1968. Although school milk dominated the discussions in the House around this time, school meals were not completely forgotten. By 1974 another Working Party was tasked with assessing the nutritional content of the school meal and it was noted in the House on 24th May 1974 that they would report and any recommendations for updating the standards would be considered.[73] At this time the Provision of Milk and Meals (Amendment) Regulations No.1125 were updated to reflect changes the calculation of a parent's income to determine a child's entitlement to free school meals. In addition this regulation also removed the requirement for LEAs to appoint an organiser of school meals as this provision ceased to have effect as a result of the Local Government Act 1972.[75] Further amendments to these regulations were made in 1975 which increased the charge for school meals to 15p.[77] In the proceeding letters to LEAs giving forewarning of the increased charge the government requested that more attention was given to prevent children from embarrassment when accepting free school meals. There had been much discussion over the fact that

there were many children entitled to free school meals but due to the methods employed by schools and LEAs children were often identified and sometimes segregated from those who paid for their meals leading to children rejecting the free meal for fear of embarrassment.[76] The Report of the Working Party on the Nutritional Aspect of School Meals was published in 1975 and gave the following recommendations:

1. *The 1965 standards for the energy and protein content of the school dinner should remain unchanged; the edible portion of the food purchased should provide as before 880 kilocalories (3.68 MJ) of energy and 29 grams of protein for the average meal.*
2. *No standards for animal protein or fat should be set for the school dinner but fresh meat should continue to be served on three days. Unfortified texturised vegetable protein products should not be used to replace meat, but may be used in addition.*
3. *The average school dinner on the plate should aim to provide at minimum one third of the recommended daily intake of energy and between one third and one half of the recommended daily intake of protein.*
4. *Margarine fortified with vitamin D should be used for school catering.*
5. *The use of milk and cheese should be encouraged in the school dinner.*
6. *Where meals are cooked centrally and distributed in insulated containers fresh fruit or salads should be served frequently.*
7. *Drinking water should always be available during school meals.*
8. *The nutritional value of dinners as served should be monitored by analysis. Further consideration should be given to the procedures for carrying out these analyses.*
9. *In the á la carte menu, foods and combinations of foods which allow pupils to obtain adequate proportions of their recommended daily intakes of all nutrients should, as far as possible, be provided.*
10. *The Ready Reckoner of Food Values should be revised to take account of the recent knowledge of food composition and to cover all foods now likely to be used in school meals. It should indicate not only the amounts of energy and protein provided by the foods purchased but also on the content of the foods in terms of selected minerals and vitamins.*
11. *Authorities should ensure that school tuckshop arrangements do not involve a health hazard.*
12. *Specifications for the ingredients and nutritional value of convenience foods used frequently by schools should be set and checked.*
13. *All schools should keep records of the amount of plate waste.*[78]

The Report advises that the previous nutritional standards set out in Circular 3/66 in 1965 by the Department of Education and Science should remain in place. This Circular was not identified in the Archives during this review. Although these standards remain questionable from a legal perspective due to no amendments being made to Section 49 of the 1944 Education Act at this time, there is sufficient discussion in this report and in the House of Commons to believe that the school meals service adopted these standards as mandatory. In 1976 this idea was confirmed by the Secretary of State for Education and Science, Miss Margaret Jackson. When asked if she would authorise a national survey to assess whether catering providers were meeting the protein and calorie targets she advised it was not necessary at that time. Miss Jackson advised that the advice provided by the Department on nutritional standards was intended to assist LEAs in carrying out their duty to provide meals to school children equivalent to their main meal of the day and that she believed the vast majority of LEAs were carrying out this duty satisfactorily.[79] In 1978 Miss Jackson received further questions regarding changes to financial arrangements for school meals and was asked to reassure the House that these amendments would not affect the nutritional quality of the meal. Miss Jackson replied as follows:

> *"No, my Department's Circular 3/78 'The School Meals Service' made clear the Government's intention that savings should not be made at the expense of the nationally recommended nutritional standards. Economy measures mentioned in the Circular do not affect the nutritional standard of the school dinner"*[80]

The Circular quoted could not be located for this review, however, it appears that more financial constraints were being placed upon the school meals service with opposition in the House becoming concerned this would affect the recommended nutritional standards. Minute papers and memos identified from the National Archives highlight that towards the end of the 1970s the government was beginning to assess consolidating the many amendments made to the 1944 Education Act. It was at this time that the legality of the Provision of Milk and Meals Regulations were being questioned.

## Regulations: ultra or intra vires?

In June 1978 a minute paper was circulated within the Department of Education and Science entitled *Legislative Programme: 1978-79.*[80] The paper begins by highlighting that the Provision of Milk and Meals Regulations were *ultra vires:*

> *"1. Mr Harvey has advised that our Provision of Milk and Meals Regulations are ultra vires in one or two respects, and that an early opportunity should be taken to put that right. Current Regulations made under section 49 confer certain powers, as opposed to imposing duties, with respect to meals and other refreshment. But section 49 only envisages Regulations which impose duties, so the Secretary of State has no authority to confer such powers. Nevertheless, the provisions are not ones that we would wish to abandon and Mr Harvey therefore considers that there is a strong case for amending section 49.*

Section 49 of the 1944 Education Act only allowed the Secretary of State to issue Regulations which imposed a duty upon LEAs to provide milk, meals, and other refreshments. Therefore, Regulations which stated anything other than this were deemed *ultra vires.* The Minute advised that these Regulations were ripe for consolidation as they had been amended almost every year since their inception. However, because they were *ultra vires* the task of consolidating them was not straight forward. Although the government had the option of amending or replacing Section 49 of the 1944 Education Act and resolving the issue of the *ultra vires*, there was political resistance due to the highly publicised issue of removing the duty to supply free milk to children aged 7-11. There was the potential for resistance from the opposing party should the government seek to include a clause in an Education Bill to rectify the *ultra vires.* There would be scope for the opposition to amend a Bill at the Committee stage and reimpose the duty on LEAs to provide free milk to children. However, it appeared the best solution was to introduce new legislation due to the large body of related policies that were ripe for consolidation. By August 1978 the government drafted new legislation and the Education (Miscellaneous Provisions) Bill was circulated for comments on the 8th August.[82] The draft Bill described the *vires* problem of the Provision of Milk and Meals Regulations and because of this it was not possible to simply drop the Regulations.

The solution was to make technical amendments within the Bill which would enable the Regulations to be consolidated and it was hoped this would be possible without *"high-lighting the questionable vires of the present Regulations".*[82] Although this draft does not mention the nutritional quality of school meals it shows these Regulations were *"highly suspect"*[82] and it raises the question of whether nutritional standards were mandatory. Section 49 stated that Regulations made by the Minister would impose a duty on LEAs to provide milk, meals and other refreshment; however, it did not specify that Regulations would specify meal content. Therefore, it is questionable whether the Provision of Milk and Meals Regulations were *intra vires* in stating that meals should be sufficient as the main meal of the day and whether nutritional standards laid down in Circulars were mandatory. As Section 49 only allowed Regulations to impose a duty on LEAs to serve meals it is possible that nutritional standards were also *ultra vires* and the minutes addressing this issue in the late 1970s missed this point. However, there was much public interest in the issue of removing the duty on LEAs to provide free milk to children aged 7-11, therefore, the main discussions in the correspondence relating to the Education (Miscellaneous Provisions) were centred around milk with little attention paid to the quality of meals. By 1979 school meals began receiving more attention, specifically the increasing expenditure to the public purse. The School Meals Service Working Group convened in March 1979 and they provided information dating back to 1977 where potential savings on expenditure were identified by the School Meals Savings group.[85] The previously secret report issued to the Department of Education and Science titled: The Education School Meal Service, described how the expenditure for the service was expected to reach £400 million by the end of 1977. This amount was made up of £115 million for providing free school meals to children and staff entitled to them and £285 million was the subsidy for those who paid for meals at the then charge of 15p which only covered about one-third of the cost of the service. The report advised that to reduce expenditure in this area the charges for meals should be raised progressively so that by 1980 the subsidy would be halved and net expenditure for the service would be reduced to around £250 million. However, it also advised other ways to help reduce costs.

If the hot meal service was replaced with a pre-packed cold meal with milk it was estimated £75 million could be saved. The note states that a cold meal service would increase food costs but would require fewer staff members. Therefore, it advised that should LEAs adopt the service, money could be saved by reducing the number of kitchen staff in addition to cutting down the number of free meals provided for staff. However, the School Meals Service Working Group reported these measures were not implemented by legislation as it was believed the political repercussions of imposing these changes would be disastrous.[86] Instead, it was advised that these savings could be brought to the attention of LEAs via a Circular recommending the cold meal as an option. However, the potential *"violent reaction"* from Ministers, the Trade Union Congress, individual unions, LEAs, pressure groups and food suppliers resulted in the cold meals option being shelved. In addition to the concern with expenditure the School Meals Service Working Group also discussed the form of the meal. Although their report describes the nutritional standards recommended in the 1975 Report of the Working Party on the Nutritional Aspects of School Meals, it highlights that also Circulars give specific details on the form of the meal Regulations made under Section 49 define meals as the main meal of the day.

However, it was these Regulations which were under scrutiny for being *ultra vires.* Therefore, it points to the nutritional standards as recommendations as opposed to being mandatory as the previous literature on school meals suggests. The School Meals Service Working Group convened again in June 1979 and their minutes discussed the issue of the recent change in Administration and the definite impact this would have on their work.[87] The minutes described how their previous options for charging policies may have to be revised in light of the new Administration's views. However, the Working Group continued with their attempts to find ways to reduce public expenditure and discussed the potential increases to charges for school meals as to reduce the level of subsidy paid by the government. It appears as though the previous Administration were keen to delay the increase in charges for school meals and focus on changing the form of the meal to reduce expenditure.

The minutes from June 1979 described how for nutritional value the traditional two course meal should remain for pupils in primary schools, however, the introduction of choice should be offered for older pupils to attract custom and reduce waste. It described the successful increase in up-take among secondary pupils in Sheffield where this method of serving had been introduced. However, the issue of *ultra vires* and consolidating the questionable Provision of Milk and Meals Regulations came up again. If these Regulations were *intra vires* they prevented schools from adopting the cash cafeteria as the minute describes how this would not be classified as a mid-day meal equivalent to the main meal of the day. Therefore, it is highly likely that the next stage in the history of school meals came about due to a combination of legislation being restrictive on the types of meals LEAs could serve, questionable legality of the Regulations, and increasing pressure to reduce public expenditure, reduce food wastage, and encourage take-up.

## The Education Act, 1980 – Section 22

On the 3rd April 1980 a new Education Act[89] received Royal Assent and became law. This Act is often described in school meals literature as the piece of legislation which abolished nutritional standards. However, due to the questionable legality of the standards prior to this Act it is not necessarily the case. This Act repealed Section 49 of the 1944 Education Act with Section 22 and advised:

*School Meals*

*22. (1) A local education authority –*

*(a) may provide registered pupils at any school maintained by them with milk, meals or other refreshment; and*

*(b) shall provide such facilities as the authority consider appropriate for the consumption of any meals or other refreshment brought to the school by such pupils.*

*(2) A local education authority shall exercise their power under subsection (1)(a) above in relation to any pupil whose parents are in receipt of supplementary benefit or family income supplement so as to ensure that such provision is made for him in the middle of the day as appears to the authority to be requisite.*

*(3) A local education authority -*

*(a) may make such charges as they think fit for anything provided by them under subsection (1)(a) above, except where it is provided by subsection (2) above;*

*(b) shall remit the whole or part of any charge that would otherwise be made if, having regard to the particular circumstances of any pupil or class or description of pupils, they consider it appropriate to do so.*

*(4) The governors of a school maintained by a local education authority shall –*

*(a) afford the authority such facilities as they require to enable them to exercise their functions under this section; and*

*(b) allow the authority to make such use of the premises and equipment of the school and such alterations to the school buildings as the authority consider necessary for that purpose;*

*but nothing in this subsection shall require the governors of a voluntary school to incur any expenditure.*

*(5) The power under section 78(2)(a) of the Education Act 1944 to make arrangements as to the provision of milk for pupils in attendance at non-maintained schools shall apply in relation to all such pupils; and accordingly section 1(3) of the Education (Milk) Act 1971 (which restricts the power to provision for children under the age of eight and children at special schools) shall cease to have effect.*

Section 22 empowered, but did not impose, LEAs to provide meals to the majority of school children and required them to use the powers to provide meals to children whose parents were in receipt of certain benefits. It also released LEAs from fixed pricing except in cases of free school meals. Removing the duty and the power of the Minister to impose Regulations devolved the power to LEAs who were now free from restrictions on the type of meal, how much to charge, and whether to serve meals to the majority at all. The Act does not refer to any subsequent Regulations which may provide further information on the form of the meal and this may be interpreted as the removal of nutritional standards as described by other authors writing on this subject. However, this review surmises that the 1980 Act did not abolish nutritional standards; it merely dusted under the carpet a messy issue of *ultra vires* and in the process released LEAs from a restrictive traditional two course menu which was becoming unpopular with children. Perhaps the crucial decision was to remove the obligation and the 'removal' of nutritional standards was merely a by-product of this change. However, despite the discrepancies between the literature and the legislation it is clear that until the late 1970s the government provided Regulations and advice on nutritional content and the LEAs most

likely served meals accordingly. Therefore, it is understandable that until this review the literature on school meals has included mandatory or required nutritional standards until the 1980 Education Act. Considering it is unclear whether the issue of *ultra vires* was common knowledge within the House it is hardly surprising the academic literature followed suit. After the introduction of the 1980 Act the Prime Minister was asked if she would set up an inquiry into the nutritional quality of school meals[90], the Secretary of State for Education and Science was asked whether he would establish minimum nutritional requirements[91] and whether he would instigate a pilot study to monitor nutritional standards.[92] In short, no was the response to all of these questions. The Secretary of State for Education and Science advised that the nutritional standard of the school meal was at the discretion of individual LEAs and there was sufficient up-to-date guidance in the Nutrition for Schools report published by the Department in 1975. It appears that the government felt LEAs were able to use their new powers to create a suitable school meals service and there was sufficient government advice to enable meals to be of good nutritional quality. The concerns were being raised as the legislation freed LEAs from any restrictions on the type of meal as enshrined by the questionable Regulations.

However, there were some concerns being voiced in the House which did not relate to nutritional standards. As the legislation only required LEAs to provide meals to children who were entitled to receive them free there were concerns this would result in a similar service that was common at the turn of the 20th Century feeding centres. The opposition party feared LEAs would resort to only feeding those children entitled to free meals and deepen the associated stigma.[93] This fear was not unfounded as debates in the House gave examples of LEAs which had ceased their school meal provision and although there was still a duty to provide free meals to those entitled the debate did not give details on how this was conducted.[94] Additionally there were concerns being raised over the quality of the meals being served. By February 1981 discussions in the House described media reports highlighting how school meals were worse than those being served in prison.[95]

As meal provision was no longer under governmental control and the school meals census had ceased MPs began pressing the government for an examination into the state of the meals service. By April 1981 the government had responded to the concerns being raised and instructed a Select Committee to inquiry into the state of the school meals service. Documents retrieved from the Parliamentary Archives show the correspondence between members of the Select Committee and various LEAs who agreed to provide information on their service. [96] Lincolnshire County Education Officer responded to the request for information and advised the Committee that their County had ceased provision of the traditional two course meal in primary and secondary schools in April 1981. It did not describe whether they had taken advice on the nutritional content of the meal; however, the sample menus provided showed the average calorie content of each meal to be 832, just short of the recommended 880 in the 1975 Nutrition in Schools report. In the background information provided to the House of Commons by the Select Committee the Specialist Advisor, Martin Lightfoot, wrote:

> "*Prior to the 1980 Education Act, LEAs were obliged to provide school meals for those pupils who wanted them, and the regulations issued under Section 49 of the 1944 Act stated that these should be 'suitable in all respects as the main meal of the day'. Precise nutritional standards were not required, but the DES endorsed the recommendations contained in the 1975 report of the Working Party on Nutritional Standards of School Meals"*[96]

Although this information may confirm nutritional standards were not mandatory, considering the level of attention nutritional standards were receiving in the House it is quite clear that the vast majority of those involved in, or concerned with, school meals saw these standards as mandatory. They also viewed the 1980 Act as removing these standards despite this not being the case within the legislation. However, from 1981-82 the Select Committee conducted their inquiry into the school meals service and the results were published on 30th July 1982.

The report recommended that the Department of Education and Science should convene a working party to update nutritional standards and issue them as advice to LEAs; however, if the standards were not being implemented legislation should be amended to impose minimum nutritional standards. Other recommendations related to free school meal provision and whether it was counter-productive to create elaborate systems to avoid identifying children entitled to free meals. Although, it described that children were less embarrassed by receiving a free meal than parents and teachers; therefore, take-up of free meals could potentially increase if, as the report recommended there was communication between Social Services and Education Departments to identify those entitled to free meals automatically as opposed to parents having to approach the school. In November 1982 the Government published its response to the Select Committee report.[98] The response begins by justifying the changes to legislation included in Section 22 of the 1980 Education Act by stating that they were required to free the LEAs of restrictions to innovation and also to reduce the net cost to public funds. These concerns teamed with children rejecting the traditional school meal resulted in the government releasing LEAs from the duty to provide meals. In response to the Select Committee recommendation relating to nutritional standards the government described how LEAs were now responsible for the form and content of the meal and they were able to seek guidance from the Department of Education's Catering Advisers or consult material published by the Department for Health and Social Security Committee on Medical Aspects of Food Policy. Additionally, the government argued that there was no guarantee that recommending standards would result in children eating the food and considering pupils were rejecting the traditional meal in favour of a choice menu it was believed much of the food would be wasted should standards be implemented. The government's main point was that it was not acceptable for public funds to be used on a service where much of the food was wasted and rejected by children. The aim of removing the duty to provide school meals was to allow LEAs to tailor their service to the needs and requirements of their consumers, the children. However, it would have been possible to give LEAs freedom whilst maintaining the duty of provision for all children.

The regulations were of dubious power so LEAs were technically free from having to provide a main meal of the day and could have opted for the choice menu without having the duty removed. However, the messy situation of *ultra vires* teamed with concerns over the expense to the public purse probably resulted in the government preferring to devolve all power to LEAs and remove as many sanctions as possible. Some Members of Parliament were "*disgusted"* that the government had rejected the recommendations made by the Select Committee to update nutritional standards and impose them if necessary.[99] Additionally, debates in the House described that not only had the government ignored the Select Committee but also the recommendations of *The Black Report* in 1980 (Townsend and Davidson, 1992:180) which stated:

> *"It should be regarded as a matter of importance – on education and health grounds – to ensure that all children receive a school meal or an adequate substitute at least during term time. To leave school children, especially young school children, to make their own free choices of what food is to be purchased would be wrong. Children will frequently prefer to consume foods high only in sugar and other sources of energy. As an adequate substitute for a nutritious meal, this is likely to lead to increases in obesity and in dental caries. . . We accordingly recommend:*
>
> *i. That the provision of nutritionally adequate meals at all schools should be required of local authorities and that the service should be extended in areas where there is under-provision;*
>
> *ii. That there should be regular consultations between local authority representatives, community dieticians, and parents and teachers from each school in turn, over the provision of quality of school meals;*
>
> *iii. That meals be provided in schools without charge.*

Despite these recommendations the government made no attempts to reverse its decision to remove the duty on LEAs to provide meals to paying pupils. Ministers continued to ask the government whether they would introduce minimum nutritional standards throughout the early 1980s and the response was consistently no. It was believed there was sufficient guidance available to LEAs for them to be able to provide nutritionally balanced meals and it was no longer the responsibility of the government to ensure this was maintained. In 1985 the question was raised again by Labour MP Derek Fatchett which received the same response as before, no.

However, Mr Fatchett questioned whether the government should attempt to ensure children from low income families received a *"proper and decent meal as part of their daily diet."*[100] The Secretary of State for Education and Science argued that it was not the responsibility of the State to ensure children are well fed *"the responsibility for a balanced diet for children rests with parents. It is parents, not the state, who bear children."*[100] This notion harks back to the original arguments against school meals in that it was the parents' responsibility to ensure children are well fed. The government in the 1980s was making it clear that they had devolved all responsibility, for school meals and providing adequate nutrition to children, on LEAs and parents. However, the opposition to this stance on devolved responsibility sought to introduce new legislation which would require all meals provided in schools to meet set nutritional standards. On 20th February 1987 the Education (Nutritional Requirements) Bill was placed before the House and requested a second reading.[101] The Bill was debated in the House with arguments stressing the importance of nutritionally balanced meals and the subsequent health benefits. Despite support from many Ministers of Parliament (MPs) who presented evidence on the links between poor quality food and poor health the debate was adjourned to Friday 27th February without being granted a second reading. It is unclear whether this Bill ever made it to that stage as there were no further discussions in the Hansard debates on this topic. No entries were available for Friday 27th February 1987 and there were no further entries under the title of this Bill. Additionally, there was no legislation under this title throughout the late 1980s; therefore, it appears the Bill was not taken any further as opposed to omissions in the Hansard records.

## Compulsory Competitive Tendering

In 1988 the Local Government Act achieved Royal Assent and became law. Although the 1980 Education Act was seen to deregulate the school meals service, it was the Local Government Act which proved the most detrimental. This Act required all Local Authorities to ensure certain activities undertaken by them were done so competitively. School meal catering was specified as such an activity and from the passing of this law all contracts relating to school food were required to be put out for tender and the lowest bid would secure the

contract.[102] This was referred to as Compulsory Competitive Tendering (CCT) and essentially placed more emphasis on the economics of school catering as opposed to securing quality. The 1980 Act, and its perceived deregulation, paved the way for CCT as there were no mandatory nutritional standards; therefore, potential tenders could be submitted with reduced expenditure as there was freedom to supply lower quality produce at a cheaper price. This Act had the potential to drive food quality down as well as reduce wage labour as the technological advances in food production required minimal input from the staff working in the school kitchens (the effects of which are discussed by school cooks in Chapter 3). During the 1980s the legislation which had been passed highlights the government's drive to reduce public expenditure. Concerns were constantly being raised in the House with regards to introducing nutritional standards; however, these were usually met with a firm, no. In 1989 a debate in the House of Lords revealed that changes to the Social Security Act in 1986[103] resulted in a 31 per cent decline in school meal take up.[104] The Act removed the eligibility for free school meals of children whose parents received Family Credit, instead providing them with the money to pay for the meals within their benefit.[104] The debate in the House of Lords described how an increase of £2.55 per week to Family Credit was too low to provide families with the means to pay for school meals and resulted in children opting for cheaper '*junk food'.*[104] At the time it was believed the school meal was a healthier option for children, despite the lack of nutritional standards, and this change in entitlement for free school meals caused concern that those most in need of a decent meal would be consuming foods high in fat, sugar, and salt. In 1990 the concern over nutritional content and reduced entitlement to free meals was still lingering. Questions were put forward to the Secretary of State for Education and Science asking whether he would introduce nutritional standards, again no was the response.[105] When questioned whether he could provide the cost of restoring the right to free meals it was argued it was not possible to provide those figures. The stance on school meals remained firm, devolved responsibility for nutritional content, competitive tendering, and reduced eligibility for free meals; all attempts to keep public expenditure at a minimum.

However, it is unclear to what extent these fiscal measures worked. There were no discussions during this time as to how much had actually been saved. The government provided expected reductions in the build-up to their legislative change; however, there are no discussions in the debates as to whether they evaluated this. Therefore, the savings may not have been made and these policies may have had negative impacts on child health.

## The Health of the Nation

In 1991 the Secretary of State for Health published the Green Paper "*The Health of the Nation"*[106] which laid out a strategy for the future health of the UK population. However, this came with criticism from the opposing party as the government had failed to acknowledge the importance of good quality food in schools and again refused to legislate for nutritional standards. However, later debates in the House of Lords described how the Health of the Nation White Paper, the follow up to the Green Paper, would possibly consider issuing nutritional guidelines to ensure children received a healthy meal at school.[107] This ray of light was quickly extinguished by November 1992 as the Secretary of State for Education again refused to engage with a debate on the introduction of nutritional standards and repeated the mantra that it was the responsibility of the LEAs to decide on the content of the meals they provide.[108]

The question was asked almost yearly with the same answer being provided. By 1996 the government published the Education Act which aimed to consolidate the 1944 Act and various other enactments to provide an updated single Act. This would have provided the government with the opportunity to amend Section 22 of the 1980 Education Act and include powers to set nutritional standards. However, this was not the case. Section 512 of the 1996 Act remained permissive, no duty for school meal provision was placed on LEAs nor any mention of the form or content of the meals provided.[109]

## New Labour, New Meals?

In 1997 a general election resulted in a change of administration with Labour replacing the Conservative government. Labour had requested the Conservative government introduce mandatory nutritional standards for almost the entire 18 year period they were in power. So, it was unsurprising that a change in administration resulted in almost immediate attention being focused on school meals.

In July 1997 the new administration published a White Paper "*Excellence in Schools"*[111] in which they stated they would introduce mandatory nutritional standards in schools by May 2002. As a result of the White Paper, the School Standards and Framework Act was given Royal Assent in 1998[110] which allowed new provisions to be made in relation to school education. Section 114 of this Act introduced nutritional standards for school lunches; however, the Act itself did not make standards mandatory. The Act allowed regulations to be prescribed which were to be complied with once they were in place:

> *"114 Nutritional standards for school lunches*
>
> *(1) Regulations may prescribe nutritional standards, or other nutritional requirements, which (subject to such exceptions as may be provided for by or under the regulations) are to be complied with in connection with the provision of school lunches for registered pupils at schools maintained by local education authorities.*
>
> *(2) Where a local education authority or the governing body provide school lunches for registered pupils at such a school, they shall secure that any applicable provisions of regulations under this section are complied with.*
>
> *(3) Subsection (2) applies –*
>
> *a. Whether the lunches are provided on school premises or at any other place where education is being provided; and*
> *b. Whether they are being provided in pursuance of any statutory requirement or otherwise.*
>
> *(4) Regulations under this section may –*
>
> *a. Make different provision for pupils of different ages;*
> *b. Authorise the Secretary of State to determine the time as from which any provisions of the*

*regulations are to apply to a particular local education authority or school.*

*(5) In this section "school lunch", in relation to a pupil, means food made available for consumption by the pupil as his midday meal on a school day, whether involved a set meal or the selection of items by him or otherwise."* [110]

This Act provided the legal framework for the new administration to set compulsory nutritional standards and was the first time in the history of school meals that legislation specifically stated that regulations may prescribe standards which required LEA compliance. As part of this campaign for standards the Secretary of State for Education and Employment, Mr David Blunkett, published "*Ingredients for Success*" a consultation paper inviting responses from all those with an interest in school food to provide their views on, the standards, how they should be introduced, and the content of the guidance supplementing the standards.[111]

This invitation was part of the government's larger campaign on improving the health of the nation as well as attempting to reduce health inequalities. The consultation paper described the school lunch as an important part of the school day which helps lay the foundations in childhood to ensure healthy adults in the future. The consultation paper received a wide variety of responses ranging from nutritionists to parents. The Parliamentary Archives held a vast number of these responses, although it may not have been an exhaustive collection. The majority of responses seen as part of this review came from LEAs and described their own version of nutritional standards which they had adopted after the perceived mandatory standards were removed in the 1980 Education Act. During this consultation period the government made preparations for the impending mandatory nutritional standards and appeared to be amending all necessary legislation and subsequent regulations. By 1st September 1999 the Education (Non-maintained Special Schools) (England) Regulations came into force which included a section requiring school lunches to comply with prescribed nutritional standards.[116]

Although these standards had not yet been documented it was clear, from the number of regulatory changes, that the government was committed to ensure these were prescribed. In addition to the consultation and the legislative amendments the government requested the Education Sub-committee to carry out an inquiry into school meals. The First Report on School Meals was published on 7th December 1999 and concluded:

> *"There has been widespread support for the Government's intention announced in July 1997 to introduce compulsory minimum nutritional standards for school lunches. The Summary of Responses to the Ingredients for Success consultation paper reported that none of the responses had expressed outright opposition to the Government setting nutritional standards for school lunches. . . We prefer a nutrient-based approach to one using food groups as the basis for legally enforceable minimum nutritional standards. A carefully-monitored school meals service is not an optional extra. This approach is a vital ingredient in promoting alertness, ability to learn and participation of children in the whole of school life as part of an overall effort to promote a healthier nation and to combat social exclusion and disadvantage in schools."*[117]

Although the government had agreed nutritional standards would become mandatory there was little evidence they took the advice expressed in this report that standards should be carefully monitored. In February 2000 the Secretary of State for Education was asked what plans were being put into place to enforce the nutritional standards.[118] The Secretary advised that LEAs would be under a duty to comply with the standards once implemented and investigations would be carried out where it was believed standards were not being adhered to. There was no clear plan to ensure nutritional standards were closely monitored or evaluated for efficacy or what the consequences would be for non-compliance. Although the government saw nutritional standards as vital for child health there was little attention given, during the early days of legislative change, to ensure the law was followed. During a debate in the House on 22nd June the lack of monitoring and the government's rejection of nutrient-based in favour of food-based standards was heavily criticised.[119] The First Report on School Meals recommended standards should be nutrient-based and that these were monitored to ensure compliance.

The Minister for School Standards, Jacqui Smith, responded to these criticisms and argued that flexible food-based standards would be easier for caterers to understand when planning menus. The Minister also argued that the standards were designed as minimum requirements which LEAs were free to exceed should they wish, she described the change in legislation and any monitoring as a *"light-touch"* and it was the job of LEAs to ensure caterers met or exceeded the standards. Although there were concerns raised over the efficacy of the light touch the introduction of compulsory standards heralded a new era for school meals, this was the first time since school meals began that mandatory legislation gave clear instructions on what could be served in schools.

## The Beginning of the Legislative Years

On the 6th July 2000 the Education (Nutritional Standards for School Lunches) (England) Regulations[120] were published. These regulations came into force on the 1st April 2001 and required all maintained, community, foundation, voluntary, and special schools to comply with them as enshrined in the 1998 School Standards and Framework Act. The regulations specified specific food groups which should be complied with and foods within each group served either daily or at least once a week (see Table 2 below).

Table 2 - Table showing food groups listed in 2001 regulations[120]

| Food Group | Food Type | Specifics |
|---|---|---|
| A. | Fruits and vegetables | Includes fruit and vegetables in all forms (whether fresh, frozen, canned, dried or in the form of juice. |
| B. | Starchy foods | Includes bread, chapatis, pasta, noodles, rice, potatoes, sweet potatoes, yams, millet and cornmeal. |
| C. | Meat, fish and other non-dairy sources of protein | Includes meat and fish in all forms (whether fresh, frozen, canned or dried) including meat or fish products, eggs, nuts, pulses and beans, other than green beans. |
| D. | Milk and dairy foods | Includes milk, cheese, yoghurt (including frozen yoghurt and drinking yoghurt), fromage frais, milkshakes and custard but not butter or cream. |
| E. | Foods containing fat and foods containing sugar | Includes margarine, butter, other spreading fats, cooking oils and fats, oil based salad dressings, |

| | |
|---|---|
| | mayonnaise, salad cream, cream, chocolate, crisps, biscuits, pastries, cakes, puddings, ice cream, rich sauces, gravies, jam, sugary soft drinks, sweets, sugar and jelly but not any foods falling within any other group. |

However, it is unclear when, and if, any foods from group E should be served. After inclusion in the food group section there is no further mention of foods from group E. However, due to the nature of group E foods, being high in fat and sugar the omission of it in the regulations may be to allow such items to be later restricted in subsequent policies. The regulations specify the following, omitting food group E:

> *"Nutritional requirements for children who attend nursery schools or nursery units in primary schools*
>
> *3. Each day food from each of the groups A, B, C and D shall be available as part of school lunches for registered pupils at nursery schools or nursery units in primary schools.*
>
> *Nutritional requirements for pupils at primary schools*
>
> *4. (1) The requirements specified in paragraph (2) shall be complied with the provision of school lunches for registered pupils at primary schools other than special schools.*
>
> *(2) On each day food from each of the groups A, B, C and D shall be available so that –*
>
> *(a) within group A*
>
> *(i) fresh fruit, fruit tinned in juice, or fruit salad shall be available every day;*
>
> *(ii) a fruit based dessert shall be available at least twice in any week;*
>
> *(iii) a type of vegetable (which does not fall within group B) shall be available every day;*
>
> *(b) within group B, fat or oil shall not be used in the cooking process on more than three days in any week;*
>
> *(c) within group C,*
>
> *(i) fish shall be available at least one day in any week;*
>
> *(ii) red meat shall be available on at least two days in any week.*
>
> *(3) For the purposes of lunches for registered pupils at primary schools, sources of protein in group C can include dairy sources of protein*
>
> *Nutritional requirements for pupils at secondary schools*
>
> *5. (1) The requirements specified in paragraph (2) shall be complied with in the provision of school lunches for*

*registered pupils at secondary schools other than special schools.*
*(2) on each day two types of food from each of the groups A, B, C and D shall be available so that –*
*(a) within group A both a fruit and a vegetable shall be available;*
*(b) within group B on every day that a food cooked in oil or fat is available, a food not cooked in fat or oil shall also be available;*
*(c) within group C, fish shall be available on at least two days in any week and red meat shall be available on at least three days in any week."*[120]

In addition to these regulations the Department for Education and Skills published *Healthy School Lunches*[121] which offered additional information for caterers on how to ensure the standards are maintained. This information elaborated on foods included in group E and stated that foods listed in this group are not essential for health but do add to the enjoyment of food. Therefore, it appears that the regulations allowed these items to be served but did not restrict their use and frequency. The *Healthy School Lunches* guidance notes suggested that fried items, for example, are limited to one on offer per day. The legislation essentially allowed items high in fat, sugar, and salt to be served on a regular basis due to the lack of restrictions in the regulations. However, it is possible these items were restricted to some degree in the school kitchens if caterers followed the supplementary guidance. As there was no formal monitoring process, it was the responsibility of LEAs to ensure standards were met; it is unclear to what extent foods from group E were served and whether LEAs actually complied with the regulations at all. By 2002 debates the House highlighted concern over the lack of monitoring and Minsters were questioned over whether they would conduct a survey into the efficacy of the regulations.[122] The Parliamentary Under-Secretary of State for the Department of Health advised the Department for Education and Skills were liaising with the Food Standards Agency about how and when a survey to evaluate the standards would be launched. 2002 also saw the introduction of a new Education Act[123] which incorporated, in Section 210, the School Standards and Framework Act, 1998 and stated that any meals provided by LEAs should meet the nutritional standards.

However, it also stated that meals *"may take such form as the authority think fit."*[123] This last sentence was not entirely permissive, LEAs were required by law to serve meals which met the food group standards but the form of such meals was open to interpretation. On the 8th September 2003 the Secretary of State for Education and Skills advised the House that the Department and the Food Standards Agency had commissioned King's College London to assess whether food served in schools complied with the regulations laid down in 2001.[124] The results were expected in late 2004; however, some MPs were keen to improve standards in school food and on 27th May 2004 Mr David Kidney, Labour MP, announced he would be bringing forward a ten-minute Bill on school food which aimed to ensure all schools had a food policy which dealt with school meals and the contents of children's packed lunches.[127] Mr Kidney brought his Bill to the House on 22nd June 2004 and described how it would require all schools to have a food policy, make the fruit for schools scheme permanent, extend entitlement to free school meals and include breakfasts, and amend legislation to incorporate nutrient-based standards.[128] Mr Kidney was able to present a sufficient argument and the House agreed to allow the School Meals and Nutrition Bill to be brought in on 12th January 2005.[129] The aims of the Bill were to:

> *"Make further provision about nutritional standards, and other nutritional requirements, for school meals; to regulate food vending machines in schools; to provide for restrictions on the whereabouts of pupils during school hours for the purpose of controlling the supply of food to them; to require the inclusion of information about nutritional standards of food in schools in reports of school inspections"*[129]

## Jamie's School Dinners

The School Meals and Nutrition Bill was due before the House on 25th February 2005; however, just two days before this Bill was presented, Jamie's School Dinners aired on television (Jamie's School Dinners, 2010). The celebrity chef, Jamie Oliver, waded into the school meal arena with his television series which portrayed a negative image of the food served in schools. Despite there being food based standards which LEAs were required by law to comply with, Jamie's series showed children eating vast quantities of processed meats and chips with

very few fresh vegetables. Jamie brought mass media attention to the Turkey Twizzler (a mass produced processed meat item) which the *Daily Mail* reported to contain 21.2 grams of fat in each portion (Daily Mail, 2005). Media panic aside it was clear from Jamie's portrayal of school lunches that they were not meeting the legally mandated food based standards. However, Mr Kidney's private Member's Bill was attempting to tighten the regulations for school meals prior to Jamie's series. The School Meals and Nutrition Bill was presented to request its Second Reading on 25th February and the opening statement described how the Bill aimed to provide a healthy eating environment in schools to enculture children into healthy eating habits for life. The statement described concerns over the increasing prevalence of obesity and it was the government's responsibility to protect future generations from ill health and this Bill would form part of that process.[130] Although the debate on the Bill appeared to gain support from all parties, many MPs agreeing school food needed improving due to the attention from Jamie Oliver's series, there were concerns over taking a top-down approach and legislating too heavily. Some MPs argued LEAs and cooks needed empowering and more rigid legislation would restrict this. However, the final statement from the Parliamentary Under-Secretary of State for Education and Skills, Stephen Twigg, argued that a restrictive Bill was not the answer it was through providing guidance to schools and offering them the tools to make necessary decisions that would improve school meals. He argued for self-governance, providing the information required and empowering schools into making the right decisions rather than developing unnecessary legislation which would make everyone's job harder.[130] Mr Twigg requested the House oppose this Bill, despite it being presented by members of his own party, he did not believe strict legislation was required. The question was put to the House as to whether the Bill should now be read a Second time and it received 6 Ayes, and 9 Noes. Only 15 MPs out of 650 voted on this Bill potentially indicating a widespread lack of interest in the issue or that MPs felt the legislation already in place was sufficient. The Deputy Speaker of the House declared that the Question was not decided and it should be placed under consideration until the next sitting of the House. However, it is unclear whether this Bill ever received its Second Reading as there were no further debates

found under the title which is hardly surprising considering the lack of votes from a distinct majority of MPs. Although this Bill did not progress through the House the government was not ignoring the issue of poor quality school meals. It was not possible, due to the level of media attention Jamie's School Dinners series was attracting. Due to the poor quality of food being served in school kitchens Jamie set up his *Feed Me Better* campaign (www.jamieoliver.com) and developed a manifesto which requested:

1) *Guarantee that children receive a proper nutritionally balanced meal on their plates.*
2) *Introduce nutritional standards and ban junk food from school meals.*
3) *Invest in dinner ladies: give them better kitchens, more hours and loads of support and training to get them cooking again.*
4) *Teach kids about food and get cookery back on the curriculum.*
5) *Commit long-term funding to improve school food.*

Although Jamie's campaign attracted a vast amount of attention and over 270,000 signatures on a petition to the Prime Minister, the government had been working to improve meals prior to the celebrity chef's involvement. The Secretary of State for the Department of Education and Skills had announced on 10th February 2005, a few weeks before Jamie's series aired, new minimum specifications for processed foods (burgers, sausages and cakes) would be introduced from September 2005 and stricter regulations on nutritional standards from 2006.[131] However, the level of interest in Jamie's series may have provided some impetus for the government to take swift action. Therefore, on 30th March 2005 the government announced that schools should be spending at least 50p per child on ingredients for meals, Jamie's series highlighted this was previously as little as 37p, and provided a £220 million package to help vastly improve the quality of school meals. In addition to this pledge it was announced the tougher nutritional standards would become mandatory from September 2006 based on recommendations from the School Meals Review Panel which had been set up before the involvement from Jamie Oliver. As part of this overhaul of the school meals service the government received an additional £60 million from the Big Lottery Fund to establish the

School Food Trust (SFT) which would provide support and guidance to schools and parents.[131] On 11th September 2006 the Education (Nutritional Standards for School Lunches) (England) Regulations[134] came into force which made some amendments to the previous regulations; certain processed meats were restricted, specifications for serving foods from group E were finally provided, and attempts to remove junk food from the canteen were brought in with the restriction on confectionary and savoury snacks such as sweets, chocolate, and crisps. By the end of September 2005 the School Meals Review Panel had published their report on developing and implementing the new nutritional standards. The *Turning the Tables*[132] report listed 35 recommendations with the first being to introduce nutrient and food based standards. These recommendations were incorporated into the school food regulations by September 2007 when the Education (Nutritional Standards and Requirements for School Food) (England) Regulations[135] were published.

## Ensuring Compliance: Who is Responsible?

The new regulations became the first in the history of school meals to provide very specific details on foods which could and could not be served in schools[2]. The nutritional aspect of these regulations came into effect on 1st September 2008 for primary schools and 1st September 2009 for secondary schools, special schools, and pupil referral units. This extra year allowed schools time to adapt to the new nutritional standards which required a vast amount of work to implement them within school kitchens around the country. However, these regulations only covered maintained primary, secondary, special and boarding schools, and pupil referral units. Any independent schools were exempt from the regulations, and although they were encouraged to comply, legally they were free to serve meals to whatever standard and quality they saw fit.[136] For the schools which were legally mandated to comply with nutritional standards, the responsibility on monitoring compliance was vague. The SFT had been conducting annual surveys since they began in 2005; however, this mainly focused on school meal take-up and all questions regarding compliance with nutritional standards were self-reported.[137] In addition to the SFT surveys, the

[2] See http://www.legislation.gov.uk/uksi/2007/2359/pdfs/uksi_20072359_en.pdf for specific details.

Office for Standards in Education (OFSTED) now included school food as part of its school inspections. In their 2010 report on school meals and the implementation of nutritional standards, OFSTED reported that out of the 39 visited, 15 primary and 8 secondary schools were close to, or fully, compliant with the standards. However, this was again self-reported and schools provided evidence that they had conducted nutritional analysis on their lunchtime menu cycle. In addition to this OFSTED reported that some schools had no monitoring procedures in place at all and school governors were unaware they had a responsibility to ensure standards were met.[138]

Despite the government setting up the SFT and including food in OFSTED inspections there were serious flaws in their methods for assessing whether schools complied with the new standards. Analysis of menus for compliance did not represent actual food provided to children in school and self-reported data would be open to bias. Despite these methodological flaws there was some attempt to assess whether schools were complying with the standards which may have resulted in a panopticon style effect with more schools striving for compliance due to the gaze of authority, in this case, OFSTED and SFT. Therefore, despite the results being questionable due to self-reporting biases, it is possible schools were actually serving food which adhered to the nutritional standards. However, OFSTED inspections were arranged in advance with each school which presents opportunities for additional methodological issues. Consequently, the monitoring of whether nutritional standards were adhered to was problematic. Not only were some schools unsure they were responsible for ensuring compliance, the agents charged with the task of monitoring the standards adopted flawed research methods to ensure rigorous collection and representative results. Moreover, it appears there were few, if any, consequences of schools not meeting the standards. Although non-compliance would be noted in the OFSTED report there is no information on the effect this had on the school and whether they attempted to resolve the matter. Therefore, it is unclear to what extent children were actually receiving meals which conformed to the standards laid down in legislation.

## Con-Dem Government to Condemn School Meals?

The General Election in May 2010 resulted in another change in administration. This election saw no party gaining a majority vote the UK was now under a coalition government involving the Conservative and Liberal Democrat parties. By July 2011 there were concerns that this change in administration would have detrimental effects on the school meals service. In a House of Commons debate on 19th July 2011 Andrew Gwynne, Labour MP for Denton and Reddish, described how the administration had removed the ring fenced school lunch grant which would now be combined into the schools' allocations.[141]

He argued this grant was protected to ensure it was spent on school food and increase the number of children eating healthy lunches and that removing it made it more difficult for schools to provide quality food. The School Lunch Grant operated from 2008 to March 2011 and it aimed to increase the number of children eating healthy school lunches by helping LEAs and schools keep the costs of meals down. The grant was only allowed to be used to pay for ingredients used for school lunches, pay wages for catering staff, purchase small pieces of kitchen equipment and pay for nutritional analysis software to ensure meals met the mandatory standards.[142] However, the Minister of State for the Department of Education, Sarah Teather, argued removing the ring fenced grant for school food gave schools more freedom to decide how to prioritise their spending, essentially allowing the schools to tailor their spending decisions to their individual needs. In addition to the change in ring fenced funding there were concerns over the new administration cancelling the free school meal pilot schemes being ran in various locations throughout the UK due to them being underfunded by £295 million. The Minister argued it was not possible to continue this scheme without cutting this amount from elsewhere in the Department. Additionally the concerns raised over the decision to remove government funding to the School Food Trust were addressed with the Minister advising that the Trust would not charge for advice it made available while in receipt of the funding. However, any advice prepared while SFT was a charity would be charged for but only to cover the costs incurred by such activities and it would operate as a not-for-profit organisation.

By 18th June 2012 more concerns were being raised regarding the nutritional quality of meals.[143] Alex Cunningham, Labour MP for Stockton North, questioned the Secretary of State for Education, Michael Gove, over whether he would review the guidance provided to academies and free schools to ensure they served healthy meals to their pupils. Sharon Hodgson, Labour MP, argued that it was a disgrace that nutritional standards had been scrapped for academies and free schools. However, the government had not removed the duty for academies and free schools to meet nutritional standards, it was merely they had not amended the legislation to include these schools.

Essentially, the arguments against this omission were correct, academies and free schools were legally allowed to serve whatever food they saw fit in their schools. According to Alex Cunningham, the School Food Trust had provided evidence that some academies were providing unhealthy foods to children; however, the Secretary of State for Education refuted this claim. Michael Gove argued that although some academies were not adopting the nutritional standards there was no evidence to show they were performing any worse than other maintained schools. He argued that all schools needed to improve the food they provided at lunch time and he would be offering an announcement shortly to address this and build on, not erode, the work done by Jamie Oliver.

## The School Food Plan

On the 4th July 2012 Michael Gove announced that the co-founders of the LEON restaurant chain, John Vincent and Henry Dimbleby, were to conducted a review into the school meals service and develop an action plan to accelerate the improvements in school food.[144] There was much controversy attached to this decision as it emerged in the *Daily Mail* that Michael Gove had commissioned this plan after spending time on holiday with Henry Dimbleby (Daily Mail, 2012). Some criticised this decision, Jamie Oliver (Guardian, 2012) argued it was costly and unnecessary, Sharon Hodgson questioned the impartiality of the review and requested Michael Gove publish his personal communications on the subject (Independent, 2012). However, impartiality aside the announcement justified this review and plan as a result of research conducted by SFT which highlighted great variation in the quality of school meals across

the country. According to the announcement the plan aimed to address two questions;

> *"1. How will we get our children eating well in school?*
> - *What more needs to be done to make tasty, nutritious food available to all school children?*
> - *How do we excite children about the food so that they want to eat it?*
>
> *2. In addition to helping children eat well in school, what role should cooking and food play more broadly in school life to enrich their home lives and leave a legacy for later in life?"*[144]

In order to answer these questions John Vincent and Henry Dimbleby advised they would seek expert advice from those working within and around the school meals service as well as conduct primary research. During the course of this consultation the government announced cooking would put back on the national curriculum and would be compulsory from September 2014, a move which was strongly backed by John and Henry.[144] The final report was published on 12th July 2013 and included 17 action points for schools, government, and anyone else involved in school food. Action point 2 in the report stated that the Department of Education would test and introduce food-based standards, which would be built on a nutritional model, to be introduced by September 2014 for all maintained schools, and academies that were founded before 2010 or after June 2014 (Gov.uk, 2015). Therefore, this implies that academies founded between 2010 and 2014 would be legally exempt from adhering to the nutritional standards. Although the lengthy report received positive responses there were still concerns this did not solve the issues that continued to dog the school meals service. Jamie Oliver, for example, welcomed the plan but argued it was now time to deliver on the promises and that responsibility sat with the government (Jamie Oliver, 2013). At the time of writing the School Food Plan is in its infancy of implementation. Therefore, it is currently unclear what, if any, impact this has on the future of school food. However, it brought a vast amount of attention back to school meals and increased pressure on government to maintain a service which the authors believe is vital for the health of the child population. In addition to this plan, and potentially as a result of it, on 17th September 2013 the Deputy Prime

Minister, Nick Clegg, announced at his party conference that from September 2014 all children in reception, year 1 and year 2 in state-funded schools will receive free school meals at a cost of £600 million.[147] The announcement was enthusiastically received by many involved with school meals; however, education professionals felt the money would be better spent elsewhere (Guardian, 2013). The Deputy Prime Minister stated it was his ambition to see every primary school child has the ability to sit down and eat a hot healthy lunch every day highlighting that this announcement was merely a pledge.

However, on 13th March 2014 the Children and Families Act achieved Royal Assent. This Act amended Section 512ZB of the 1996 Education Act to allow schools to provide free meals to children in reception, year 1 and year 2. Although the publication of this Act was actively welcomed by many involved in school food, especially those involved with the School Food Plan, there has been increasing concern over how schools would be able to meet this requirement in such a short time frame. After several decades of deregulations beginning in the 1980s many schools have lost their kitchen facilities and may struggle to implement the new legislation. At the time of writing there is a mixture of unease and excitement within the world of school food. Many are concerned the legislation for universal free school meals has been rushed through and not thoroughly planned leaving many head teachers with the stress of implementation. But there are also those who believe this is a positive step toward universal free school meals for all. This move to provide universal free meals borders on oppressive governance, especially when it is teamed with the recommendation by the School Food Plan to ban packed lunches in schools. Although providing free nutritional meals to children under year 2 in primary schools may offer financial benefits to parents should they chose to accept them, if primary schools ban packed lunches it removes all parental and child autonomy relating to food provision during the school day.

## Summary

This Chapter has presented an extensive historical perspective of the development of the school meals service over the last century and shown how the legislative governance has swung from permissive to duty-bound and back again, with recent events bordering on removing individual autonomy. In 1906 the introduction of school meals appeared almost altruistic with vast evidence being produced highlighting the extent of malnourishment in children as well as the adult population. However, concern may have been less related to the suffering of individuals and more related to the concern over the future of the Empire. There was a need to ensure a healthy adult population and school feeding was thought to be a suitable, although somewhat contested, approach. However, this legislation was permissive and only a minority of children were provided with a meal at that time. Fast forward to 1944 and the meal becomes duty-bound, LEAs are now required to provide meals to all children who want one. This duty, and perceived nutritional standards, remained in place until 1980 when the Education Act removed the duty to provide meals leaving individual schools to decide on the fate of their catering facilities and provisions. Although this Chapter has extensively questioned the legality of nutritional standards it was believed that they were mandatory and catering staff worked within them. Moreover, the belief that they were mandatory went to the very core of government as it was only in 1979 that documents began to question their legality. The removal of nutritional standards was only the beginning, this essentially deregulated the school meals service and paved the way for a more devastating Act, the 1988 Local Government Act. This Act not only changed the quality of the school meal as a result of the lowest tender securing the school catering contract, but it also deskilled the workforce (discussed further in Chapter 3). The school meal took a long time to recover (and is potentially still in recovery) from this deregulation and deskilling. It took media attention from a celebrity chef in 2005 to show that despite legislation the 1988 Act was still affecting the quality of food being provided to children; which indicates this Act had a longer lasting and potentially more detrimental effect on school meals than the 1980 Education Act. This highlighted that legislation can only do so much, without enforcement and monitoring it is almost rendered useless. The

most recent campaign, The School Food Plan, has offered a promising outlook, introducing free universal school meals to children under age 7; however, this may come at a price. Universal free school meals can be resisted by parents if they choose to provide a packed lunch for their child. However, the Plan's recommendation to ban packed lunches removes individual autonomy and may be met with parental resistance if put in to place by head teachers. Using the theoretical lens of governmentality it is possible to see how the introduction of school meals was a technology of power aiming to shape the technologies of the self. Not only would the school meal act on the physical body, as evidenced by the study in Bradford in 1907, but also there were discussions which saw this legislation as having far wider reaching possibilities. The school meals service presented the opportunity to instruct and guide, shaping children into healthy adults who followed encultured and preferred eating habits. Moreover, this governance ideology is still present today. However, the focus appears to be on healthy foods and balanced nutrition to prevent and reduce childhood obesity as opposed to feeding children to prevent illnesses related under-nourishment. While the School Food Plan, and numerous other reports, argue the beneficial effects of nutritious school food, this thesis appears to be the only example attempting to assess whether legislative changes have affected child malnourishment. School food has been used as a tool for governing child malnourishment; however, if there is little legislation to protect the meal it is questionable whether children will benefit from this meal.

# Part II - Results

*Part II of this thesis uses three Chapters to explore whether school meals have had any measurable impact, either negative or positive, on changes to child weight. These Chapters are framed by the literature presented in Part I and consist of three separate, but interlinked, studies. In Chapter 3 I explore the experiences of school cooks who worked in school kitchens during times of policy changes to nutritional standards for school meals. Chapter 4 uses the background chapters from Part I and the information provided by school cooks to give an overview of how child height and weight have changed over time in conjunction with the legislative change. This Chapter shows at a glance whether changes in school meal policy have had any effect on child height and weight. Chapter 5 attempts to assess whether there are any statistically significant relationships between school meal changes and child health. The National Study for Health and Growth is used as a case study to assess this relationship between 1972 and 1994.*

# Chapter 3

## Interviews with School Cooks

School cooks have prepared, cooked, and served meals to children since the service began in the early 20th Century. For the vast majority of this time the duties in the school kitchen have been completed by women. It is easy to understand why there is a clear gender divide in this occupation, cooking is among one of the many roles which are classified as women's work, in addition to the woman being the main child-care provider. Therefore, the school kitchen is an area where women can seek employment which is well suited to cultural notions of 'women's work' while also being able to manage employment and look after children. However, the main reason, given by cooks interviewed here, for entering this profession was focused on being able to work around their children's education. They discussed the role as being a female-centric position; however, the explanation for this was related to child-care responsibilities and not because this was seen as a female domain. It is a position of convenience rather than a role they undertook because of their sex. Despite modernisation and equality there are still certain areas of work which are largely dominated by women. The school kitchen is one.

The previous chapter charted the development of the school meals from a legislative perspective. Here I aim to contextualise the history of school meals by presenting a reality of government policy changes from 1964 to 2011 as experienced by those who prepared, cooked and served the food: the school cooks. The specific objectives are to understand how policy changes affected those who worked in school kitchens and to gain the perspective of school cooks on the impact of government changes on school meals. This chapter therefore presents information derived from interviews conducted with eleven school cooks in an attempt to understand the reality of changing school meals policy as seen from the perspective of the people preparing and serving the food.

## Methods

### Recruiting the Cooks

Initially, I believed the best place to recruit school cooks for this study would begin in local schools. However, despite contacting every school in the Teesside area, not one cook responded. Therefore, I placed advertisements requesting the help of school cooks in the *Evening Gazette* and *Herald and Post* local newspapers distributed throughout the Teesside area. The advert highlighted that this study was attempting to understand the development of school meals since at least the 1950s to present day in the hope that it would attract participants who worked at varying points in time. Additionally, local radio stations *TFM Radio and Magic FM* broadcast details of the study in their news section. Recruitment posters were developed and placed in libraries, community centres, coffee shops, care homes, and bingo halls. Additional recruitment advertisements were placed on social networking websites which widened the geographical spread of recruitment beyond the Teesside area to the whole of the UK. The School Food Trust (SFT) and the Local Authority Caterers Association (LACA) also agreed to advertise the study in their newsletters. Snowball sampling was used when women enquired about the study. A total of seventeen women responded to the recruitment drive. However, six withdrew before an interview date could be arranged, due to ill health or work commitments. Full study details were provided over the phone, or via email, and suitable interview dates were arranged for those willing to participate. Any women with experience working in school kitchens were eligible to participate and I travelled throughout the UK to conduct interviews. I began recruitment at the start of my PhD research in October 2010 and continued until summer 2012. In the space of two years I had managed to recruit and interview eleven women. Although clear themes came out of the narratives these women provided, it was also apparent that these women may have been more outspoken than their peers. Therefore, this chapter may only reflect the views of those more confident and outspoken and those with little autonomy chose not to take part.

## Interview Design

Initially, I had attempted to organise a focus group as I wanted to see how the women interacted on the topic of school meals as well as highlighting similarities and differences of opinions (Morgan, 1997). A focus group would have allowed me to record the women's differing opinions and experiences on one transcript as opposed to me analysing and locating the themes across transcripts from several individual interviews (Morgan, 1997). Due to the initial slow response rate, semi-structure interviews were conducted which were then continued for all subsequent respondents. I believe the study had benefitted from this change in research method as it is entirely possible that focus groups would have resulted in 'production blocking' (Fern, 2001:105) whereby a member may interrupt another which results in the first members' statements not being heard. There was also the issue of the amount of data required, individual interviews allowed me to focus on one participant at a time which provided with a more in-depth understanding of their experiences. Semi-structured in-depth interviews were conducted with all participants (n=11) at a venue of their choice; locations varied from hotels, homes, offices, and coffee shops. The school cooks were asked to recount their first experiences of working within school kitchens. This open question guided the study into a biographical-type narrative design (Creswell, 2007), whereby cooks provided a detailed description of their working career. Following recommendations from Kvale (1996), the interview developed as a conversation between two partners on a topic of mutual interest. In order to develop a narrative the cooks were able to talk freely and were asked follow-up questions to gather more information on specific points. A brief interview schedule was developed as a prompt where necessary. After explaining my interest in how changes to policy affected their working life, the cooks happily talked at length about their career. The resulting narratives allowed the contextualisation of the policies which framed the cooks' working environment.

## Transcription Process

All interviews were audio recorded, the data transcribed verbatim, and all transcripts assigned identification (ID) codes to protect the cooks' privacy. The transcripts were then read while listening to the audio tapes to ensure their accuracy. Any errors were corrected and notes were made regarding emphasis and tone of voice regarding particular words where necessary. Once this phase was complete, the transcripts were emailed to the cooks to confirm the interview was accurately represented.

## Narrative Analysis

Following Creswell (2007) a process of inductive analysis was adopted, thereby building themes from the "bottom-up" and organising the data into more refined categories (p.38). This was achieved through moving back and forth between the emerging themes and the transcripts until a comprehensive set of themes had been established (Creswell, 2007:38). This method was furthered by "restorying" the cooks' narratives by organising the emerging themes into a general framework (Creswell, 2007:56). Themes were interlinked with particular time periods which allowed contextualisation of relevant policies (See Table 3).

**Table 3 - Chronologically grouped themes from cooks' interviews**

| Time period | Themes |
|---|---|
| 1960 - 1979 | Training, cooking from scratch, food quality, family service vs cafeteria style |
| 1980 - 2000 | Training and peripatetics, declines in cooking from scratch, choice and children as consumers, staffing, compulsory competitive tendering, de-staffing, de-skilling, and demoralising, resistance |
| 2001 – 2011 | Back to cooking from scratch, skills gap, nutritional standards, and the Jamie Oliver effect. |
| _____ | Wider societal impact |

The transcripts were cut into sections and all pieces placed in chronological order. These sections were then grouped and analysed in relation to the particular government policy which was in place at that time. This method offered a contextualisation of government policy and how it affected the development of school meals.

Any sections which were unrelated to a particular time period, (e.g. when cooks discussed their views on changes to society) were added to a separate category labelled 'No time effect'. The latter was also coded for emerging themes and presented as a separate section to the chronological groups (Table 3). Themes that appeared across all transcripts were noted and where a theme was missing in a transcript it was contextualised in the time period when the cook had worked. For example, some cooks discussed 'Family Service' and others did not. This omission from some transcripts was simply explained by some ladies beginning their career after 'Family Service' was no longer practised in schools. Once this initial phase of analysis was complete, transcripts were coded in NVivo 9 and compared to the original thematic analysis to ensure internal validity. This second phase of analysis offered the opportunity to validate the original phase and also double check for any missed themes. No new themes were identified. However, the secondary analysis did highlight quotes that had previously been missed which helped strengthen some themes.

## Ethics and Privacy Protection

The Durham University Department of Anthropology Research Ethics and Data Protection Committee approved the study on 14/10/2010. Informed written consent was sought and obtained prior to all interviews taking place and information sheets were provided to all participants for their retention. All data collected were anonymised to protect participant confidentiality and stored in compliance with the UK Data Protection Act 1998 until they were destroyed upon completion of the study.

## Results

This section will begin by giving a brief description of the study sample and then present the results of the initial analysis of the cooks' narratives. It will discuss the themes in chronological order to enable a "restorying" of the cooks' narratives (Creswell, 2007:38). Although this ordering does appear to allow repetition of some themes, there is method in the madness. This chronological ordering allows the cooks' experiences to contextualise the legislation in place at that time, a central aim of this study. Additionally, this is how the cooks told their story, rarely going back and forth in time.

It was a chronological and biographical account of their experiences; therefore, the results are ordered their way. These experiences are grouped into themes which are then analysed in further detail and situated within the policy framework in the discussion section below.

## Study Sample

The 11 cooks who agreed to participate in this study had all worked between 1964 and 2011 (Table 4). The average length of service by the school cooks was 26 years. Participants came from various locations in the UK which allowed exploration of whether there were local or more national themes (Figure 4). Six cooks had worked in both primary and secondary schools, 3 had worked only in primary, and the remaining two only in secondary schools.

| ID | Time period | Length of Service | School Type |
|---|---|---|---|
| ID01 | 1966-1989 | 23 years | Secondary |
| ID02 | 1973-1990 | 17 years | Primary |
| ID03 | 1985-2005 | 20 years | Primary |
| ID04 | 1989-2000 | 11 years | Secondary |
| ID05 | 1987-2008 | 21 years | Primary |
| ID06 | 1975-2011 | 36 years | Both |
| ID07 | 1971-1989 | 18 years | Both |
| ID08 | 1964-2003 | 39 years | Both |
| ID09 | 1977-2011 | 34 years | Both |
| ID10 | 1975-2011 | 36 years | Both |
| ID11 | 1976-2011 | 35 years | Both |

**Table 4 - Participants length of service**

**Figure 4 – Map of cooks' locations produced using Google maps.**

## Thematic Restorying

This results section begins by providing a background into the life of the school cook. It describes why the women interviewed here entered the profession and how they believed it was a female orientated, low-status position. This brief introduction is then followed by the chronological thematic re-telling of the cooks' experiences.

## The Life of the School Cook

The role of school cook has, for the vast majority of its history, been a female occupation. Men have very rarely taken the position of school cook and only two women interviewed here had knowledge of men working in school kitchens. Moreover, the men they discussed either left the profession to become a chef or began their career as a chef and moved into school meals. Here one cook describes how it was always women and she had only ever known one man work in school kitchens during her eleven year career.

> *"It's always women, there was only ever one lad that worked there, he was assistant cook. . . he actually works in the Falklands in a hotel. . . he's a chef now. . . not a cook, as a cook you're classed as crap. . . I'm not a chef, I'm a little cook" (ID:04).*

Another cook described how, more recently, men were now being taken on in schools but one in particular found it to be a very different experience to that of a chef.

> *"Some of the schools are taking on kind of people who have had hotels, men! Two or three have got men, one in* [area removed for confidentiality] *particular although he's a chef and he's come from that he said it's completely different, I said oh tell me about it So you know, I had to go and calm him down because he'd left a job he'd really wanted this job it's everything he wanted to do but he was just floundering A) with the women because they were all getting bitchy.. as women do.. and small estates where they come from they're all a bit insular. I had to go and calm him down and say look get them told, Hey Pal.. but that's what we've got to be like, we say No, no, no get them told. And he said oh I'm really pleased you've come, I only sat him down for half an hour and said tell me what your problem is and he said oh that's great" (ID:06).*

It is quite easy to understand why the role of the school cook is generally regarded as a female occupation. Working in the school environment is beneficial to women with children. It allows them to work during school hours and term times while their children are in school and removes the need for additional childcare.

> *"you go into school meals for a specific reason, normally it's because you've got young kids, that's why I started" (ID:03).*

However, this flexibility with regard to childcare meant the occupation was quite in demand and difficult to enter.

> *"when I started you couldn't get into school meals, because everyone wanted to, it was really hard to get in" (ID:03).*

Some cooks described how they took whatever hours they were offered as a way of getting their foot in the door, and often women would work their way up to becoming a cook from an auxiliary position within the school meals service such as lunchtime supervisor.

> *"we had. . . two, three, four people just over the dinner washing up just for an hour or an hour and a half which is usually how you go in. . . If you were good you worked your way up to doing the cooking stuff" (ID:04).*

> *"Yeah, I started as like erm. . . in the yard, supervisory and then I worked my way up to ending up being cook" (ID:02).*

One cook describes how, although she had previously worked as a cook in a pub, initially she could only get just over one hour each day in the school kitchen. Additionally, she describes how the position she was interested in had already been filled by someone already working in the kitchen. This shows how women would work their way up the hierarchy through length of service and familiarity with the kitchen and staff.

> "*This was in the 80s, I've been doing it a long while. I got a job, I mean I used to cook in a pub and I got a job on an hour and a half a day, that was it. . . that was all I could get, it was a way in, the job I actually went for was already taken by somebody who was working in the kitchens. . . that was normal, it had already gone, they had to interview, but there was a vacancy as I say for an hour and a half a day and they asked if I was interested in that. . . and I thought well this is. . . although I want more hours because obviously it was only 7 and a half a week and I'm talking four pound an hour in those days. . . and so yeah, I went in on an hour and a half a day and I built up gradually" (ID:03).*

Although the job was desirable, the cooks described it as a very low status position, even among cooks today.

> *"everybody talks about oh school dinner ladies and they're thought of as just somebody's Mum who comes in the kitchen for a couple of hours" (ID:08).*

> "*But the worst thing, and one cook said this to me last week… But I'm just a cook and I stopped her in her tracks… I said don't let me ever, ever hear you say that again.. you are not <u>JUST</u> anything, you*

> *know you are doing a very important job and this girl had got just such low esteem it wasn't true, ok there were other factors beside the job but you know, I had to say you're not just. I had one Monday, no yesterday, and she said oh I'm the skivvy… <u>WHAT!</u>* [cook's emphasis]" *(ID:03).*

The cooks provided this basic background to offer some explanation as to why their profession is dominated by women. It is unsurprising that women dominate a profession which combines food production and child care, at home and within the school. These areas have been female domains for millennia; women have always been the main care and food provider for children. The position of school cook combines these two areas as not only are cooks providing for school pupils they are also providing for their own children; taking a job which fits in with their child care responsibilities. As this position is one firmly situated within a female domain it is not surprising that the women described it as low-status. Despite equal opportunities legislation in the 1970s and 1980s (Hakim, 2004) women are still generally found in low-paid, low-status employment sectors (Charles and Kerr, 1988; Kahn, García-Manglano, and Bianchi, 2014). Women become situated in these positions as a result of their home responsibilities but it is not an occupation a man would take due to this female orientated domain. Although men dominate the position of chef in restaurants their main clienteles are not children. I would argue it is this aspect which keeps men, in the main, out of the school kitchen. In the public subconscious: it is a woman's position to feed children but also women tend to be the main caregivers for children and this position allows them to combine work with their domestic duties. Whereas men may not need to occupy positions which combine caregiving with employment due to these gendered differences in domestic duties. This section has provided a description of the life of the school cook from their perspective. Themes which emerged from the transcripts which coalesce this topic included:- the position being filled almost exclusively by women; highly desired position due to work life balance; and the feelings of low status. Understanding the background of the school cook can provide insight into the themes that emerged from the narrative analysis which are described below.

## The 'Meat and Two Veg' Era: 1964 to 1979

During this period, all meals served were required, at th e time the regulations were not known to be in question, to provide each child with 650-1000 kilocalories, 20 grams of protein of animal origin, and 25-30 grams of fat in all forms. Additionally, meals were advised to be supplemented by ¾ oz of dried milk and children were entitled to receive one-third of a pint of fresh milk every day (Chapter 2). Seven cooks began their career within this time period and presented similar narratives of their experiences. Themes which emerged included: 1) Training, 2) Cooking from Scratch, 3) Food Quality, and 4) Family Service vs. Cafeteria Style.

1) Training

During the 1960s and 1970s the cooks described how they underwent prolonged training to become a school cook. First, cooks were sent away for a month into a training kitchen to learn the skills required to work in school meals. The training kitchen was run in each Local Education Authority (LEA).

> *"I spent a month at the training kitchen. . . was run by the School Meals Service and was intended to teach best practice and novice cooks the finer points of school meals" (ID:09).*
>
> *". . .* [County removed for confidentiality] *had 3 training centres around our large county, when you started in the service as a cook you attended a training course for at least 1 month, the county paid for you to go, transport costs etc, in the morning you assisted in the production of the meal for a busy secondary school, and in the afternoon learnt the bookwork for an imaginary school. . . and of course the basics of the service" (ID:06).*
>
> *"When I started every single person who was going to be any kind of cook whatsoever had a month away in a training kitchen, a month cooking, which you'd never be able to give them that time now" (ID:10).*
>
> *"When I did training, I used to go to that kitchen for a month" (ID:07).*
>
> *"I went to the training kitchen when I first started [1977], if you made 100 biscuits and you got 102 out you had to roll it again and get 100 out of it… so you'd take a few biscuits home" (ID:09).*

Gustaffson (2002) describes how in the interwar period the school meals service was not achieving its intended purpose of ensuring all children received a nourishing meal. Therefore, she argued, there was an emphasis on creating a national system as part of the post-war reconstruction (Gustafsson, 2002:687). Ensuring all school cooks received adequate intensive training would have been a key aspect in creating a standardised service which would attempt to serve children throughout the country with a nutritious meal. The cooks' descriptions of the training kitchen seem to agree with this idea of creating a national system. They all appear to discuss very similar experiences in terms of length in the kitchen and specific skills they were taught. Here one cook indicates the level of accuracy in food preparation that was expected whilst in the training kitchen. When catering for large numbers of children this level of precision would certainly ensure cost-effective catering. It would also ensure that meals served would meet the nutritional standards in place at that time.

> *"I remember, in the training kitchen especially, if you rolled you know, your oblong pastry had to fit the tin, you weren't allowed.. so you'd have scraps in your pocket.. if you didn't that portion was short of the requirements.. so sizes had to be just right" (ID:10).*

> *". . .they taught me everything, how to make pastry from scratch, suet puddings, absolutely everything. They could roll out pastry to go in oblong tart trays and it didn't look like a map of the United Kingdom, everything was precisely weighed and measured. . . the food was very traditional and it was beautifully cooked" (ID:11).*

Although a training kitchen was common during this time period, some cooks discussed how there were also college courses which they were encouraged to attend.

> *"In the past we'd have training centres, kitchens had lent themselves over, used to go there for a period of time and learn everything and that's the way it was. . . we were all trained, our boss insisted . . . she pushed people to go to college, even if they were qualified" (ID:06).*

However, the training kitchen may have only existed for a short period of time as cooks also discussed how they began training others. The role of the training kitchen, therefore, may have been to ensure standardised practice for one generation of cooks which was then expected to be passed down to new members of staff.

> *"I went to college for 7 year, in catering. . . I trained new staff, I had to train them. . . I used to get new trainees to come to be trained, that trainee was included in my staff so weren't allowed 2 or 3 hours a day to train that person, you had to train that person as well as organise that meal" (ID:01).*

The level of training available to cooks at this time period certainly fits with the idea of a standardised service as there was also the possibility of beginning an apprenticeship which combined college, the training kitchen, and on-the-job training. This may have been tailored to younger women entering the service, possibly school leavers as they may have had little previous experience of the catering service and may have required more training than older women.

> *"I started at 16 as an apprentice, I went to the training kitchen when I started. . . I started in a primary, it was a four year apprenticeship and you experienced, in these four years all aspects of school meals. So, I started in a nice little primary school and I was mothered and looked after . . . You were taught the basics of cooking, you went to college once a week as well as learning the more finer arts of catering" (ID:09).*

The cooks who began their career during the 1960s and 1970s were very well trained and had a solid understanding of cost-effective catering for large numbers, as well as how to meet the required nutritional standards. This knowledge allowed the cooks to prepare meals from basic ingredients as outlined below.

2) Cooking from scratch

Cooking from scratch is a term the cooks used to describe how all meals cooked during this time were prepared using locally sourced, fresh, seasonal ingredients. The majority of women in this time period prepared all of the meals from fresh ingredients which were delivered from local merchants on a regular basis.

> *"All of it was cooked from scratch, all the vegetables come in. . . fresh meat come in, made our own puddings, desserts, cakes and everything we made. . . we always made our own bread . . . we got the meat from the local butcher, we got the vegetables from. . . we'd say anybody that could provide the amount, cos you were talking about a vast amount of food, but he was local. . . our butcher was quite local. . . we didn't pick our suppliers they were picked for us" (ID: 01).*

*"Everything was fresh, everything was brought in fresh, fresh meat, everything was done from scratch" (ID: 09).*

*"The meals were good quality, they were cooked from scratch" (ID:08).*

*"and the policy was you hadn't to cook anything the day before. . . everything had to be fresh. . . on the day" (ID:06).*

All cooks who worked during this time period argued the meals were freshly made from local produce. Despite the use of fresh ingredients, not all schools had their own kitchen, in this situation meals were prepared, again from scratch, in a central kitchen and transported to individual schools. The cooks argued it was possible to make everything from scratch on a daily basis due to the number of hours and staff working in the kitchens.

*"there would be a kitchen supervisor, then there would be a head cook, a veg cook, a meat cook, a pastry cook, you know the staff were there to do everything from scratch" (ID:10).*

*"Oh they were cooking from scratch. . . we had the time to do it" (ID:07).*

*"I can remember going in at five in the morning to put turkeys in, and again it wasn't turkey crowns or anything, it was the whole turkey" (ID:06).*

Despite cooking from scratch some cooks described how their cooking methods may not have resulted in exceptionally nutritious meal by today's standards. In particular cooks described how cabbage was often boiled for hours without any thought of changes to nutritional content based on cooking times.

*"You used to boil it for hours, cabbage, that's why you used to get that smell in school canteens. . . the cabbage" (ID:07).*

*"everything was fresh and that's what the problem was, there was a lot of fresh food but of course it wasn't nutritionally good for people, although we thought at the time you put cabbage on. . . now. . . I go round schools now creating if they don't put the cabbage on at 11:30 when lunch is at 12" (ID:06).*

The cooks did not explain why items such as cabbage were cooked for such long periods of time, but they discussed how this was a common practice within their social networks at that time.

*"My mother-in-law… she always did gammon, she boiled the juice and get the stock and boil the cabbage in and boil it for two hours and it was lovely… best cabbage I've ever had" (ID:06).*

The nutritional standards for school meals in the 1960s and 70s did not include details on cooking methods and whether these would be detrimental to the nutritional quality of food. It is possible there were no concerns about the length of time vegetables were cooked and possibly no knowledge either that this was nutritionally detrimental. Additionally, the quality of the food supplied to the kitchens brought mixed responses from the cooks as further outlined below.

3) Food Quality

The rhetoric surrounding cooking from scratch today is built on the premise that you begin with good quality ingredients. Cooking from scratch in school kitchens during the 1960s and 1970s did not necessarily imply the same thing. The cooks described how sometimes the food may not have been the best quality but they had the knowledge to be able to make the best of it. Some cooks discussed how keeping costs down was always an issue which resulted in cheaper cuts of meat with use of every possible piece.

*"When I first started in school meals there were requirements that children had to have that were sort of brought in after the war for nutritional value, not necessarily a good thing. I remember there was a central kitchen. . . that used to do meals for all the village schools, you started work at 6am. . . I remember the second day, I had 80 pounds of liver to slice up by hand, you're slicing this liver up thinking, you know they're not going to eat it, you know it's all going in the bin and the worse thing was it was Ox liver so it was really strong. . . it was horrid and I do remember that sort of, keeping costs down was always a big issues and the lady that ran the central kitchen she. . . the pastry that was made up was always diabolical. . . it was. . . any bits of fat that came off the meat, she used to render it down and use that as lard for the pastry, so you can imagine how disgusting that was" (ID:07).*

*"That's how they used to make the pastry, rendered down lard. . . because it goes solid, fat off meat, so you know, old cooks, that's what they used to do" (ID:06).*

*"they used to use the leftovers as well. . . if you had mince left or something, it would be used in cottage pie the next day or you*

*would mince the roast where now we wouldn't risk anything" (ID:10).*

Cost efficient methods of cooking by using rendered meat fat for pastry and leftovers did not suit the cooks who were trained during this time period, as revealed in their interviews. It is possible this represents a difference in cooking ideology; those who were using more frugal methods may have done so due to the influence of rationing which was still present until 1954 (Murcott, 1994), whereas, cooks being trained during the 1960s and 1970s may have had access to more ingredients after rationing ended and no longer felt the need to be so frugal. There were some mixed responses on the quality of food that came into the kitchens. Some cooks discussed how the quality of meat and fish was particularly poor, and others discussed how all foods *should* have been grade A1 quality, and anything less should have been reported.

> *"I used to hate fish day, we used to get fish to make fish cakes or something. . . that was stinking. There wasn't the same QA* [quality assurance] *as there is now, I can remember seeing some fish with those little wormy things and you used to cut it up and do away don't get me wrong" (ID:06).*
>
> *"I can remember some of the meat coming in that looked as though it had abscesses on" (ID:07).*
>
> *"There was always a standard, I think people have always said that school meals, it was always poor quality but on the contracts they were always on A1 quality food and that's what they were set for but it was up to the supervisor, as the supervisor if you didn't think you were getting A1 standard of food it was up to you to report that back, but a cucumber you had to cut it to a size so that you could get 100 slices out of it, it was really precise" (ID:09).*

These differences in food quality may have been a result of regional variation. Cooks' discussions on food quality varied depending on which area they were from. Cooks discussed how foods were locally sourced; therefore, as these women came from different locations they had different food suppliers. However, the women who discussed poor quality meat failed to mention contracts stipulating A1 grade produce or any reporting system for food they believed to be below standard. Therefore, it is possible that there was also regional variation in the standard of produce expected in kitchens.

Another cook discussed the link between quality and quantity, in order to provide meals for large numbers of children the food had to be of a certain quality or they were not able to make the required number of meals.

> *"On the whole it was alright* [quality of the meat] *but a little incidence. . . I complained about a chicken. . . about a 3 ½ pound chicken something like that right. . . I wasn't getting me numbers out of these chickens and when I put them in the oven they were poof* [hand gestured to show size] *and when I brought them out they were poof* [gestured to show smaller than before] *and I thought there's something wrong here along the line. . . I decided that I would weigh me chicken, I would weigh it when it was cooked and I would weigh the amount of chicken I got off the bone. . . I wasn't only losing half I was losing three quarters and more, in the process of defrosting them to cooking them and serving them. . . I thought this can't be right so I phoned our office up about it and they said that you know I was the only one that had complained and I said well you know we're paying for something we're not getting these were supposed to be grade A birds and we were getting . . . so they said they would look into it. . . so as it happened, it was the inspectors come into the kitchens, they were always checking up on school meals kitchens. . . And I says to them about. . . I said, how much water do you get allowed in a chicken, a frozen chicken. . . so he said they could pump as much water in to fatten that bird up and to make it weigh and he said we can't do a thing about it. . . so that was that" (ID:01).*

This example shows how, although some ladies did report incidences where they were unable to meet the portion requirements, it was not necessarily easy to resolve. Another incident involving chickens could imply that supplies during this time were not up to the standards the cooks expected. Cooks, however, argued this was something they were used to as their mothers always cooked with the cheaper cuts of meat as it was all they could afford at the time.

> *ID:07 – "Boiling fowls, we'd make chicken pies... and they were as tough as old...* [boots].
>
> *ID:06 – " Oh the yellow fat inside!"*
>
> *ID:07 – "Yes, they were that old"*
>
> *ID:06 – "You used to put them in a big boiler to cook"*
>
> *ID:07 – "So much fat used to come off"*
>
> *ID:06 – "There was hardly any meat on them, you used to have to boil them for up to 3 hours. . . it wasn't the same quality as there is now. . . but our*

*Mums never used the best quality because they couldn't afford it so we were used to it. . . things were different, I mean you didn't eat steak every day, you ate the cheaper cuts of meat, the cheaper cuts of lamb to make pies"*

The ideology of making the best of what you had was something they were familiar with. Therefore, it is possible these women used the knowledge gained from their mothers and made the best of what was available. However, one cannot assume this normalising of lower quality produce resulted in poor quality school meals. One cook below discusses the use of Corned Beef and how it could be made into a nutritious meal.

*ID:01 – "Do you know what corned beef hash is?"*

*Interviewer – "Corned beef is not the most nutritious kind of meat"*

*ID:01 – "What I say about the corned beef hash is, if you were having a slice of corned beef on your plate, alright you've got all the salt and all the fat and everything in that one slice but you put that slice into a pan of vegetables and divide it between four people you've got a nutritious meal. . . you know, you've got your vegetables going into your stock and you've got a nutritious meal"*

Another cook explains one of her mother's methods for cooking meat. She previously described how they could not afford expensive cuts of meat; therefore, her mother would have to make the best of what their budget allowed them. In this example the cook describes how her mother would begin a casserole the day before they would eat it in order to cook the meat very slowly in order to make it tender. Cheaper cuts of meat have a tendency to be tough and fatty, therefore, long slow cooking would melt away the excess fat and tenderise the tough meat.

*"My Mam. . . you put the casserole on the day before and heat it up the next day and you had two days cooking at it to get the meat soft" (ID:06).*

Here one cook discusses how regional variation is one possibility for differences in expected food quality. Additionally, she notes how some cooks simply did not know how to prepare certain items resulting in poor meals or kitchen disasters.

*"A lot could depend on what area. . . and what the council were allowing them* [to do], *but also you know, no matter what some of the cooks done it wouldn't be any good. . . I went into a kitchen to*

> *open up on the morning with the lady who had took over from the cook cos she was off sick and when I went in I said you've left the steamer on all night and she says. . . the chicken was cooking. . . and I says, overnight? In a steamer? When she opened the door the bones was. . . well even the bones had collapsed and there was nothing left" (ID:01).*

This example shows how variation in food quality may have been the result of LEAs failing to ensure all staff were suitably trained or had sufficient support in times of illness. It is entirely possible this method of cooking chicken was commonly used by the usual cook in charge and this was a minor mistake on behalf of her stand in. However, in this instance the cook seemed to be describing a common problem regarding a lack of guidance and monitoring from the LEA. The cooks also discussed how some cooks were just lazy and it was not always possible to resolve such an issue.

> *"you know there were some cooks that did things that they probably shouldn't, it was all a bit. . . you used your discretion as to. . . you know what I mean" (ID:07).*

> *"There were some very good cooks, I would say there was quite a few good cooks but there was quite a few lazy cooks. . . but it was always very difficult because you, you would get somebody that had worked in school meals for 10/15 year and they were made up to a cook and you know even if you weren't happy about what they were doing it was very difficult to get rid of them and they were set in their ways and there was nobody, nobody gonna stop them, but I wouldn't say they were the majority. . . we had some good cooks" (ID:01).*

It is unclear whether *"lazy cooks"* were as well trained as the ladies interviewed here, whether they belonged to a generation of post-war cooks more familiar with ration-led cooking as discussed previously, or just had poor cooking skills. Therefore, it appears that food quality not only hinged on which LEA the cooks worked within, but also the level of training, commitment, and food ideology of the cook in charge.

4) Family Service vs Cafeteria Style

During the 1960s and early 1970s family service was the most common method of serving children. Family service meant that children sat together on a table

and were either served by older peers, or helped themselves to food from large containers on their table.

> *"we were only on one main meal* [when I first started], *they were in tureens, they were 6 on a table, with like meat in one, veg in another, potatoes in another, gravy in a jug and there were 6 children sat at a table and the children divided it between themselves. . . family service they called it" (ID:01).*

> *"traditional meat and two veg with fish on a Friday. . . we used to have it on tables and the children used to come and get it, well the older ones used to come and they'd help the little ones" (ID:02).*

The cooks described how family service aimed to educate the children in certain social skills and was seen as an integral part of the school day. They argued it was part of school teachers' duties to sit with children at lunchtime as it was seen as another aspect of the child's education. They described how it was to ensure children were taught how to eat properly, engage in conversation, use their cutlery correctly, and develop social skills.

> *"It was an accepted part of the teachers' duty that they would sit with them* [the children] *so it was very organised, orderly. . . it was taken in the schools, as part of their learning, that they're learning to share, to eat together, to eat nicely to use your cutlery. . . Social skills, conversation, all of these things were part of it as well as meeting the nutritionally balanced meal which the nutritional standards set down in the 1940s" (ID:08).*

> *"Family service. . . was a way of teaching the children to sit and eat a meal and have conversations, and you know, like you would at home, sit at a table and eat your meal" (ID:01).*

> *"Family service. . . when you used to get 8 on a table and you'd get some helping others" (ID: 06).*

As there was only one set meal per day it could easily be organised to meet the nutritional standards set in place during this time. However, whether children actually benefitted from these standards would have depended on whether they ate enough to take in the recommended 650-1000 calories estimated for the school lunch (REF Govt Circular 290). Some ladies argued family service, or more specifically, only serving one set meal resulted in a high proportion of food waste.

> *"What we did have then was a huge amount of plate waste, there was an awful lot of plate waste which went as pig swill, pig food. . . there used to be tubs of it" (ID:08).*

> *"I remember the waste, it was horrendous, you used to have a pig man that would come round in those days" (ID:07).*

Within the transcripts there appeared to be a regional variation to the level of food waste as cooks who worked in the North East of England argued the opposite to cooks from other areas.

> *"there was very little waste because really then children were still hungry, and not only what's happening was, unfortunately, the children that ate a lot finished the tureens off so there was nothing really that came back" (ID:01).*

> *"Not a great deal* [of waste] *we used to have to weigh the waste, but I don't think children were as fussy then. . . in them days the swill men used to come, you used to put any* [waste] *that you had, you'd put to the pig man" (ID:02).*

Only cooks from the North East of England remarked that food waste was not an issue during this time. This may be due to differences in levels of deprivation in the areas the cooks worked, North East children relying more heavily on the school meal than in other areas. However, without detailed demographic data from each location it would be inappropriate to make such an assumption. Although none of the cooks gave specific reasons for the high amount of wasted food in most areas, it was pointed out that for the children who did not like what was being served there was no alternative. The cooks did not imply some children went without a meal, although if some children were not eating all parts of the meal provided it would have impacted on their expected nutritional intake from that meal.

> *"The first secondary school I worked in, they served about 800 meals, and it was one meal, as it was one meal a day, you had it or you didn't have it. No choice at all" (ID:10).*

However, having teachers sitting at the table may have ameliorated the situation of children not getting the required amount of nutrition as they could have encouraged the children to eat a balanced meal.

> *"initially, most tables would have a teacher sitting at the end so there would be 7 children and a teacher, so that teacher would then*

*educate about eating but also see the children weren't eating very. . . or what they weren't eating and also encouragement using cutlery, table manners really" (ID:09).*

It was also argued that family service allowed children plenty of time to eat as well as 'let off steam' in the playground. Cooks described how the lunch break was up to an hour and a half which allowed children to eat their meal at a leisurely pace as well as have time to play before heading back to the classroom.

*"They'd get an hour and a half* [for lunch]. . . *If there were two sittings, first sitting would come in and they would take about half an hour or so over their meal, you know like you would do at home. . . properly, and then they could go outside and let off steam, they could run about, they could play football, they could hop, skip, and jump. . . Whatever they wanted to do, and then the second sitting would come in but they'd already been in the playground, playing football, hop, skipping, and jumping. . . so you know, they both had time at lunch to play, to enjoy that free time, to let off steam and go back into the classroom refreshed" (ID:01).*

However, the traditional meal with family service was coming to an end. According to Gustafsson (2002), a Working Party report in 1975 discussed how children were beginning to reject the traditional meal and, due to the rise in consumerism, it was thought offering options would be more attractive to pupils. Additionally, it was argued that children will only benefit from a nutritious meal if they ate it (Gustafsson, 2002:687). Therefore, the traditional meal was replaced with the choice menu. Cooks discussed how in the very late 70s the service changed to cafeteria style. Cooks were now preparing several meals offering children a choice menu as opposed to the traditional meal from previous years.

*". . .then as it moved on choices came, where it was you picked up a tray, a flight tray, and they came and started to choose what they wanted to eat" (ID:09).*

*". . .then it became what was known as tray service, cafeteria style, we got trays and then they used to come to the kitchen serving hatch then, and then you had a choice" (ID:02).*

*"then we started to do cafeteria style, you know give them a choice but there was never more than three choices and then we went into* [changes to LEA] *we went into as many choices as the cook wanted to put on, but at least three or four" (ID:01).*

One cook argued that the introduction of cafeteria-style meals was related to teachers wanting to reduce the requirement to supervise lunches, and also to shorten the school day, as teachers were striking over pay and conditions at this time (Jefferys, 2012). Either way, it appears that the introduction of cafeteria style service occurred at a time when the length of the lunch time was reduced.

> *"It was reduced from an hour and a half to an hour* [after introduction of cafeteria style] *cos teachers wanted to go home early, you know, whether that's true or not, I believe that's what it was. . . that it was taking the teachers their lunchtime to patrol the school for an hour and a half, but alright they did, but it also meant the school closed an hour early and teachers got home early" (ID:01).*

> *"the teachers went on strike, for pay and conditions and they stopped dinner time duties. . . so when they stopped dinner time duties they didn't sit with children for their dinner, so that's when family service went. . . but school meals have never had a say in that* [length of lunch break] *it's always been the schools. . . so some would have an hour and fifteen minutes, and hour is about the basic, but then suddenly if the children were going offsite they were causing trouble they were stealing they were having a lot of problems so they said right, we'll cut the dinner down to half an hour so that stopped the problem but it didn't stop the effect, but they thought it stopped the problem but then of course you've got to feed in 30 minutes so it was quick, more counters, more things they could eat with their hands, get them out of the way back into the classroom" (ID:09).*

Although these particular two cooks differed in opinion about why the length of the lunch break was reduced, they both thought that the demise of family service was a consequence of teachers no longer supervising school meals. However, *Nutrition in Schools*[78] report at this time expressed how children's tastes had changed. Large amounts of food waste were taken as evidence of rejection of the traditional meal, and so cafeteria-style meals were introduced. Some cooks supported the idea that cafeteria-style meals reduced the amount of waste, although without the guidance from cooks on what to eat as mentioned above, it may not necessarily have been a good thing. Some cooks discussed how this led to a decrease in the amount of food waste as children could now choose what they wanted to eat.

> *"It was the start of children choosing, but not necessarily what was healthy, so if they just wanted beans, you just gave them beans" (ID:09).*

However, with this change in service, time became more of an issue. In addition to the shorter lunch break, the children now had to queue for their meal as opposed to it being available on the table.

> *"That was when there was a big decline in school meals* [after cafeteria style] *because children were queuing for 20 minutes to get into the cafeteria. . . then they'd sit down and then they'd be back in the classroom. . . so they never really got time to let off steam. . . to be active outside" (ID:01).*

Additionally, one cook argued the change to cafeteria service shifted the responsibility of encouraging children to eat healthily, from the teachers to the cooks.

> *"At that point, again it was, you encouraged them, oh just try this, but it depends on who your supervisor was, how they interacted with the children. Some people think it's just a job, some people were dedicated. . . and that came about because the teachers went on strike. . . they didn't sit with children for their dinner" (ID:09).*

The cooks also noted that pre-prepared foods were also being introduced at this time.

> *"you would do sausage rolls and you would do corned beef and potato pasties but then they started to insist on you putting beef burger and buns on and hot dogs. . . and of course that was an easy way out for a lot of cooks. . . you fry the beef burger in the fryer, in the fat fryer. . . I always put mine in the oven, but it was an easy choice for them as you didn't need to stand there and make some other dishes, the buns come in and you just cut them open and that was that" (ID:01).*

The meals were still required to meet nutritional standards, but the cooks did not discuss how this was evaluated. Therefore, it is unclear whether the new cafeteria style provided the required nutrients. Additionally, the cooks did not describe how the pre-cafeteria style menus were evaluated. Although in those days there was no meal choice and it was easier to plan one nutritionally balanced meal, it is again unclear whether this was achieved. And despite some discrepancies in food quality the cooks felt their training, knowledge, and social learning had equipped them with the skills necessary to deal with lower quality supplies. Moreover, it is plausible that the quality of the food they prepared was

not unfamiliar to them. Some cooks briefly mentioned their mothers' methods of cooking which could answer why some cooks failed to report food items which were not of the standard expected. These food items may have been normalised within their home environments and therefore the cooks just did what came naturally to them, cook from scratch and make the best of it.

## The Dawn of the Turkey Twizzler: 1980 to 2000

This section takes us into the 1980s which brought some major changes for the school meals service. The 1980 Education Act removed the duty for LEAs to provide meals to children, apart from those receiving supplementary family benefits. Additionally, national pricing ceased and it was believed this Act removed the requirement for meals served to meet nutritional standards. The cooks interviewed here discussed how this time was a very difficult period for school meals. Although the 1980s saw the consolidation of cafeteria style school meals, the cooks argued they still attempted to cook as much as possible from scratch. However, this did not last long. The 1988 Local Government Act introduced Compulsory Competitive Tendering (CCT) which, according to the cooks, brought larger quantities of processed foods into school kitchens. The themes which emerged during this time period include: 1) Training and Peripatetics, 2) Staffing in the early 1980s, 3) Declines in Cooking from Scratch, 4) Increased Choice and Children as Consumers, 5) Compulsory Competitive Tendering, 6) De-staffing, de-skilling, and De-moralising, 7) Resistance.

1) Training and Peripatetics

Cooks argued they still received training in the 1980s but it appears this differed to the experiences of those who started their careers in the decades prior. Here a cook describes her training experience and how she was trained with anyone in the catering industry.

> *"Well when I went to college you were in with anyone from people in the bar/hotel trade but the majority were school cooks and you were taught to cook meals from scratch. You were trained with professionals. . . once you did that, you went for your certificates. . . your 7061 and 7062" (ID: 02).*

She describes how she had to attend a course to become an assistant cook and also the requirement to obtain the 7061 and 7062 certificates[3] to become a cook in charge. She did not describe any training she underwent while she was a kitchen assistant, this could indicate the training kitchen no longer operated and to become a cook you had to attend college.

> *"you couldn't be a cook until you had your 7061 as it was then, I don't know what they call it now but they had to have a City & Guilds, you had to go to college, I had to do the assistant cook course and I had to do the 7061 to become a cook and I was doing 7062 and I would have done my 7063 obviously. . ." (ID: 02).*

During this time period cooks also described how peripatetics would visit their kitchens to monitor the service. They were described as being part of the management team within the LEA and they would offer guidance on cooking methods.

> *"I remember our. . . one of the main supervisors coming round, you know from. . . they called them peripatetics then, I don't know what they call them now but they were like. . . from the office, they were administrators above you, and they could come and say. . . they used to like, say right now we have decided we think it would be better for you to put your fish fingers in the oven and your beef burgers in the oven, you're not deep frying things so much" (ID: 02).*

Another cook describes how she joined the peripatetic team and referred to herself as a *"trouble shooter"* who was sent to various different schools where they had reported problems in the kitchen.

> *"so then I joined the merry gang that I did, in different kitchens. . . I was a peripatetic and I went round different schools and if they were doing things right. .* [gestured with hands to say ok, thumbs up] *well then I was the trouble shooter. . . some schools, the headmaster didn't like choice, she was only putting two meals on so I went in to see what was happening and the kids were coming down and there was only like. . . hot dogs left. . . So little Frankie Smith didn't like hot dogs, well that's your fault. . . so I said well let's put three choices on. . ." (ID: 01).*

The cook explained how as a peripatetic she would help solve problems in the kitchens where schools or cooks had reported problems.

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3 - The 7061 and 7062 are City and Guilds qualifications in: Basic Cookery – 7061 and Cookery for the Catering Industry – 7062.

This service could have been a response to the change from family service to cafeteria style. Cooks had previously served one traditional meal which changed to a cafeteria style menu where more options were available. This could have created problems within kitchens where cooks were unable to cope with the rapid changes to the service. If there were also changes to training during this time it is possible the peripatetics filled a divide between the new service and reduced training. It could also have been a response to incidents of *"lazy cooks"* as discussed above in the previous decade.

2) Staffing in the early 1980s

During the early 1980s very few changes occurred in terms of staffing. The cooks described how they had the necessary number of staff to be able to cook the majority of food from scratch. The cooks described how each member of staff had specific duties in the kitchen and these were a necessary part of cooking from scratch.

> *"We did everything from scratch as we had the staff to be able to do it" (ID:02).*

This cook describes quite simply how cooking from scratch was seen as the norm and the number of staff in the kitchen enabled them to do it.

They had never known any other method of cooking and they required several members of staff to complete all the necessary tasks in the kitchen. Another cook elaborates on individual duties below.

> *"When I first went there we had a manager, kitchen chef supervisor, two qualified assistant cooks, two trainees, two three, four people who worked just over the dinner washing up for an hour or an hour and a half. . . we had two salad and sandwich girls, fryer. . . it was about near enough, we had nearly about 20 people. . . there were people on like 20 hours, 37½ hour chef supervisor which was me" (ID: 04).*

The number of staff working within the kitchen appeared to be geared towards cooking from scratch. They had the required amount of staff to enable this way of working and this appeared the norm until increases in pre-prepared foods came towards the end of the 1980s and early 1990s.

> *"We had a cook, an assistant cook, a veg cook, two girls came in later to do the dishes and after that we had another two came in at a later stage as we got nearer 12o'clock time. . . and you still had the other on the other side to scrape the plates" (ID: 02).*

3) Declines in cooking from scratch

The cooks continued to discuss how they still cooked from scratch during the 1980s. Although, as the decade progressed and entered into the 1990s there were increasing amounts of processed and pre-prepared foods being brought into the kitchens, in contrast to the previous years where all the food was made from basic ingredients. Here a cook describes how when she began her career in 1985 everything was still cooked from scratch. Although she argues the produce was not necessarily the best quality, she asserts that they had the knowledge to be able to make the best of it.

> *"We were cooking from scratch, it wasn't pretty, I wouldn't say it was good food cos a lot of it was seconds and out-grades. . . the meat wasn't brilliant but you could make it, I mean it was really fatty and awful, we used to do spam fritters. . . and we used to make all our own pastry, everything, bread" (ID: 03).*

Another cook argued that even in 1989, after the introduction of CCT, everything was cooked from scratch.

> *"When I first started* [1989]*, in my first job I actually made things, I made pasties, they'd bring these chickens in, we'd cook them and pick the chickens, made a proper white sauce, made a roux everything. Just seasoned it lightly, all the puff was made, we had a big puff pastry rolling machine that used to roll it, fold it. . ." (ID: 04).*

However, as this time period progressed into the 1990s narratives began to change and cooks described the introduction of pre-prepared and frozen produce. This cook reiterates the theme that during the 1980s everything was cooked from scratch. However, here the narrative changes to show how after the 1980s this method diminished.

> *"When I first started* [1987] *it was everything. . . from scratch. . . I remember that they cooked big hams, turkeys, chickens, everything was cooked. . . we prepared all the potatoes, if it was chips you chipped them, if it was boiled potatoes you prepared them all by hand. They did have a big rumble machine that used to peel them*

*but basically everything was done by hand. . . and then, after the 80s it started to diminish a bit" (ID: 05).*

This theme is furthered by another cook, as the narrative changes from *all* of the food being cooked from scratch to *a lot of the food.* This implies that some of the foods were no longer being cooked from scratch.

*"Well when I was there* [1987] *a lot of it was* [cooked from scratch] *we used to make our own pizzas then. . . put the tomato on and then the toppings. . . the flans we did all the flans from start. . . the sweet dough. . . (ID:02).*

As the cooks described their career during the early 1990s, the narratives began to change and they started to include the idea of frozen produce being used. They also discussed how in the beginning there was an even balance with foods prepared from scratch and those brought in. However, they begin to discuss how the introduction of more pre-cooked foods began to increase.

*"There were a few things we still cooked chicken, I think we did. . . yes, or it would come in prepared or cut up something like that so you did still cook quite a bit of food. You did a lot of meat pies that were from scratch. . . So I would say they had an even balance of frozen foods in the beginning and then eventually you started getting more and more pre-cooked foods coming in" (ID:05).*

*"sometimes we used tinned steak, but not always. . . beef burgers and sausages we always bought in but if it was meat pie, fair enough that was out of a tin but you baked that on the premises. . . as I was leaving it really seemed to* [begin to change] *then they would buy the pizzas in, buy the bread in for the sandwiches, it was just starting as I left, that was what, April 1990 I left. . . up until I left it was choice, salads, jacket potatoes" (ID: 02).*

Cooking from scratch appeared to be the dominant method of cooking throughout the 1980s. However, there were small changes due to the new cafeteria style menu on offer. Due to this style offering a choice of meals, cooks described how certain foods were now brought in and were not necessarily nutritious. During this time period cooks were preparing several meals which in the majority were cooked from scratch, but here began the introduction of processed meats such as beef burgers, sausages and tinned meats which were not discussed in the previous years.

4) Increased Choice and Children as Consumers

Cooks described how the change to cafeteria style and greater choice gave rise to the child as a consumer. This links with government thinking during the late 1980s that school canteens would be more efficient and would eliminate waste (Gustafsson, 2002:687). Although less waste was achieved, as discussed by the cooks in the previous decade, this may have been to the detriment of child health. The government changes effectively gave children access to unhealthy convenience foods such as beef burgers and sausage rolls on a daily basis. Without any nutritional standards in place, children were able to take any combination of foods. Some cooks argued they felt it was now their duty to encourage the children to eat healthily as teachers no longer participated in school lunch. Additionally, as there was now a variety of foods on offer, the children were able to choose their own combinations of food without necessarily understanding what constitutes a healthy meal. Cooks described how they often tried to encourage children to choose the healthier options, such as jacket potatoes instead of chips, but this may have been difficult to manage during the busy lunch period.

> *"we tried not to do as many chips if we could. . . kiddies love chips you know, but we tried to encourage the jackets. . . but if they wanted chips they could have it, you know if they had a roast they could have a few chips if they wanted but we'd try and give them mash. . . to encourage them, because a lot of them hadn't had half the vegetables, I mean, if they would prefer the beans with everything, whereas if you went with a roast they weren't supposed to have beans. You would say well if you try a bit of cabbage or a bit of carrots we'll give you a few beans" (ID: 02).*

As the cook describes above if a child had a roast they would encourage them to have mashed potato as the traditional accompaniment, but the child as consumer could ask for chips and they would receive them. However, it is unclear whether cooks were advised to give guidance to children over what they should eat. As the cook below explains, she would attempt to guide the children into making healthy choices but she argues they were not able to tell the children what they could and could not have for lunch.

The cook describes how there was an underlying fear of litigation and argued that laws pertaining to the children in school left cooks in an uncertain position of whether it was right or wrong to encourage healthy choices.

> *"Oh yeah* [offered guidance on meal choice] *well I suppose, it was the kids choice, you couldn't say to them you're not having that but I used to. . . you know if someone fell over you couldn't go over and put your arm around them. . . you know these laws" (ID: 04).*

Additionally cooks were wary of upsetting children over meal choices. One cook describes how she would gently persuade the children to eat healthily, but she highlights that it was not always possible.

> *"It was encouraged* [balanced and healthy meal] *but we couldn't always do it because they would end up crying and that's not what you want. . . so you gently tried to encourage them, at one point they tried just putting it on the plates, but that didn't work they didn't like that" (ID: 05).*

Other cooks discussed the idea of the child as consumer.

> *"you tried to cater for, you always had a convenience food, cos you know what children are like with convenience food" (ID:02).*

Additionally, convenience foods would have been less costly as they required less labour to prepare.

> *"I think it was the late 80s that packet stuff came in. . . late 80s, 90s, and it was then where it was the top one on the menu was let's say fish fingers and you'd do 80% of those and the lasagne was the next one down and you'd do 20% of those and what that means is you're cooking more of the cheapest so you're keeping the price down" (ID:03).*

With the child as consumer it became increasingly difficult to serve healthy meals. One cook argued that secondary schools very rarely required children to stay on school premises during the lunch break. Therefore, the school cafeteria had to compete for its customers with food establishments outside the school gates.

> *"to get the custom you had to compete. . . with the chip shop round the corner. . . if it was chucking down with rain you knew you'd have to make more chips but it was about getting a rapport with the kids making sure you sold what they wanted to eat, that it was hot, that it was the price they would pay and it was a pleasant atmosphere" (ID: 09).*

The child as consumer and freedom of choice appeared to become much more prevalent during this time period. In previous years children were given one meal and if they did not like it there was no alternative. All cooks believed choice was better than one traditional meal, but there were difficulties in ensuring the children ate healthily. From the 1980s onwards children, were now able to choose their own meals and, without any official nutritional standards, this brought the possibility for children to eat unhealthy, nutrient-poor meals on a daily basis.

5) Compulsory Competitive Tendering (CCT)

CCT essentially obligated all LEAs to put their catering services out to tender and to accept the lowest bid. The cooks argued this led to an increase in pre-prepared and frozen foods which resulted in staff cuts. This change in cooking methods was not favoured by the cooks interviewed here and they discussed how they attempted to continue cooking from scratch. However, reductions to staff numbers led to a reliance on the packaged foods as they no longer had sufficient hours in the kitchen to prepare everything from scratch.

> *"In the 70s and early 80s. . . there were all these little rules and regulations about what you would have but as we went into the CCT, that just went out of the window really because it was about producing the food to sell. . . CCT changed the whole way school meals was sourced really. . . it was all about how much food you could make and sell, so it was like sell to the kids, sell as much as you can to the kids. . . it was making things like iced buns, making loads of flapjacks really sort of high fat foods, do lots of sausages and chips, because they didn't take much doing" (ID: 09).*

As this cook describes, school meals became much more about "selling" food than ensuring children received a healthy meal. Another cook describes how, after being taken over by an outside catering company in the late 1990s, they cooked cheaper foods.

They also promoted the school cafeteria as a *"funky cafe"* in an attempt to encourage more children to stay for school lunch and put "*bums on seats".*

> "*. . . Burger in a bun, we served more of the cheaper stuff. . . all of these were brought in, ravioli we never cooked ravioli, ever, all out of a tin. . . it got to the point where kids preferred the popular fayre, burgers, chips. . . this was* [outside catering company] *where they did the tender. . . it was basically put up as like, they wanted it like a cafe, they thought that's what the kids wanted. . . they wanted it funky like a cafe, one of their sayings was bums on seats. . . (ID: 04).*

The new catering company appeared to operate for profit, serving cheaper meals and creating an environment in which the children would want to eat in order to bring them into the cafeteria to purchase their lunch.

> *"With CCT. . . it was all, it sort of became all fast food. . . when I first started as as a supervisor. . . they wanted meat and two veg and that then slowly went out of the window, they wanted chips every day, they wanted the sausages every day, it was more difficult to get them to eat the meat and two veg as time went on as we were encouraged to cook that, we were encouraged to cook the chips and gravy. . . (ID: 09).*

> *"It was guided by money. . . they want the commodities and they want the cheapest way of doing it and by buying processed foods and ready made things, if that's working out cheaper. . . it must be working out cheaper than doing it from what I call basic scratch work" (ID: 02).*

This cook discusses how they were provided with incentives to cook the food children wanted to eat regardless of whether this was nutrient-poor food. The cooks' wages were linked to the number of meals served per day, so it would benefit the staff if they could encourage more children into the cafeteria with chips and gravy.

> *"because of CCT and it was all about the cheapest thing we could do, this point system. . . about linking it to jobs was part of it but if we didn't produce the food you didn't get the extra hours so it was perpetual growth like that, but also they looked at what quality of food was bringing in and it was just burgers, cheaper. . . (ID: 09).*

Additionally, the price a child paid for their school meal increased as catering companies took over school kitchens. One cook argued that this led to some children not being able to afford a full meal and, specifically, those children entitled to a free meal.

The price allocated to children on free school meals was set at £1.30, according to one cook. After her kitchen was taken over she argued it was not possible for these children to have a proper meal as the price increased "*overnight".*

> *"This was the old style meal, pork pie, we made that, lovely minced pork, still chips, beans cabbage, apple crumble, came to £1.30. With the cash cafeteria, it would have come to £1.80. So the kids that were on free school meals got £1.30 allowance couldn't afford a palpable meal. . and that was just overnight then, when we moved to the cash cafeteria it just went up and the kids couldn't afford. . . we kept the same suppliers, to a certain extent, when they took us over so it was the same food but their price went up. . . their selling price (ID:04).*

CCT essentially left those who relied more heavily on the school meal in a very difficult position; they could not afford a full meal. Therefore, they were limited to items which they could purchase singularly as opposed to a full meal. This cook then argued that this change led to a decline in school meal uptake as children could leave the school premises and purchase a meal that was much cheaper than that available in the school canteen.

> *"our numbers did drop, they went right down when we were taken over because it was cheaper to go over to the shop and get a load of sweets. . . this was a secondary school and they were allowed off site. . . (ID: 04).*

Cooks described how, not only cheaper foods were brought in, but also changes to staffing and equipment, in a bid to keep overheads low. Certain pieces of equipment were taken away as they were no longer needed after the introduction of pre-prepared vegetables. Also the cooks discuss how this produce was often packaged in brines or chlorine-based chemicals to keep them fresh (Farmers Guardian, 2013).

> *"When CCT came in that's when all the packets came in and the other brilliant excuse where I used to work was because it would make all the meals uniformed, so no matter what school you went to all the meals would be the same, all your sponges, your pastry. . . and your pastry was like concrete. I'm talking sponge mixes, we had crumble mixes, I mean how easy is it to make crumble. . . but no, it was all packet, I mean we used to use tinned apple. . . but then that reduces your labour cost. CCT was all about cheapest, it was all about value. The food cost went down but so did the labour, all our equipment disappeared, our potato rumblers went, because our potatoes came in pre-peeled, now what they said was it was*

> *cheaper to bring in those pre-peeled, it didn't matter that they were in chlorine and they stunk to high heaven. . . oh it was awful. . . and the veg came in the same, it was all pre-prepared, you've got all your packets, you've got packet pastry, you got packet crumble, you got choux mix, you got scone mix, you got pizza bases. . everything, absolutely everything so all the flour went. . . So of course all the hours were reduced" (ID:03).*

With limited equipment and no basic ingredients, there was very little scope for cooks to be able to prepare alternatives if they felt the packet foods were poor quality.

> *"there was less equipment, there was machines that used to peel potatoes and things like that, they all went. . . little machines that would prepare, cube and dice, there were a few things went and then of course potatoes came in ready peeled or ready cubed. . . not quite the same, stood in whatever juices, brines to keep them, you know, fresh" (ID: 05).*

One cook, however, described how she was able to negotiate what products she used. She discussed how some of the packet mixes were not up to the standard she expected and she would continue to cook certain foods from scratch.

> "*some of the things we had were good. . . things like the burger mix, the bread mix wasn't good but if you could use that and make a good product then why not but the pastry mix was absolutely diabolical so you'd make your pastry and your sponges from scratch because you could do a better job. . . that's what I tended to do, if I could do a better job than a pastry mix that I'd make it from scratch but again it was the staff that you had behind you, my assistant cook was a perfectionist all our biscuits were the same size, so it was the people you had round you" (ID: 09).*

The issue of staff cuts discussed by all cooks later in this chapter highlights how cooking from scratch became increasingly difficult. Additionally, CCT also led to some schools closing their kitchens and outsourcing the meals to a centralised unit which the cooks described as a loss to the service. The 1980 Education Act which removed the obligation for schools to provide meals for the majority of children released schools from seeing the school canteen as a necessity.

> *"After CCT they didn't change back to central kitchens as such, so if it was an infants and a juniors school in the same vicinity and both had kitchens. . . they would make one. . . they'd do it* [cook] *from one in the same geographical area, that's what they tended to do. . . it was all down to cost. . . it was a shame really because a lot of the schools here are very rural so they would need that facility. . . (ID: 06).*

> *"It was during that really tricky period in the 80s when councils were considering whether or not to maintain their school meals service. . .* [county name removed to prevent participant identification] *had just closed their school meal service and the whole of. . . were considering whether or not to maintain their school meals services" (ID: 11).*

Another problem with CCT appeared to be difficulties catering for culturally diverse populations. One cook described how, after being taken over, she was no longer able to order *halal* meat which left her large population of Muslim pupils opting for pizza every day.

> *"We had a high population of Muslim. . . and they wouldn't let me order halal. . . Before, prior to that I used to buy all halal meat, they wouldn't eat it at first, they wouldn't believe it was halal until we got a Muslim teacher in and he would say look I'm eating it, it really is halal. . . but after, the Muslim kids mainly had pizza" (ID: 04).*

In addition to the issues with food quality, price increases, kitchen closures, and cultural diversity, CCT also brought staff cuts. The next section discusses how this negatively affected school meals, and possibly had lasting damage which is still present today.

6) De-Staffing, De-skilling, and Demoralisation

The perceived removal of nutritional standards in the early 1980s paved the way for CCT, without nutritional standards companies were able to source cheaper, less healthy foods and serve them for profit. Cooks described how changes to the method of cooking meant there was no longer a need for large numbers of staff in the kitchen. In the previous decades cooks described how there were many members of staff each with different duties pertaining to different aspects of food production and preparation. However, during the late 1980s and continuing through to 2000 staff cuts were made and had lasting effects.

*De-staffing*

Cooks described how changes to staffing levels were made in an effort to reduce the wage bill. As described earlier there were several members of staff employed within the school kitchen in order to cook food from scratch. However, with the introduction of CCT and the increase in pre-prepared and

frozen foods it was no longer cost effective to employ such large numbers of staff in the kitchen. Cooks described how in some cases this became apparent in the late 1980s; however, it was most noticeable during the 1990s.

> *"It was self-perpetuating. . . they got rid of staff. . . in the end I think we had me, I had two lasses on 15 hours, this was in September time as well* [new term meant busy kitchen]. . . *a 20 hour trainee, then the 7½ who'd just be on washroom see I wouldn't have an assistant cook because it ate everyone else's hours. . . some people had worked there like 20 years and their hours had been eroded and eroded" (ID: 04).*

This cook discussed how she was concerned over the staff cuts and therefore refused to take an assistant cook as this would have consumed too many hours in the kitchen, which could otherwise be spread over several positions. This highlights the solidarity of the workers and how they supported each other during times of job insecurity.

> *"It was the wages. . . if they'd been able to get us to cook. . . do the job in three hours instead of taking five, then you know, they'd have been quite happy because they were only paying us for three hours, which in the end was how it was working" (ID: 01).*

> *"Yes, they cut the hours down then you see, it was saving them money by buying the food in than paying the wages for the staff to cook the food from scratch. . ." (ID: 02).*

> *"Yes, it was the wage bill, I would say so yes it was definitely that, they were trying all the time to cut you down. . . that's the way I interpreted it. . . I don't think they were after cheapness, because I think they still had a quality standard, I definitely think it was with reducing peoples hours and reducing staff. . . yes" (ID: 05).*

Another cook discusses how the hours in the kitchen were reduced due to the new methods of cooking and serving food. It was no longer necessary to have staff washing plates and cutlery as the company which took them over after CCT replaced it all with paper boxes and plastic forks.

> *"We got really cut but then they got rid of all the plates and the plastic trays and we got. . . you know the things you get in* [fast food chain]*. . . the polystyrene boxes. We had the trays to carry the stuff on, they came with a tray and we had to wrap the burgers in the greaseproof paper with* [company name] *written on and you dumped it on the tray and then you gave them chips in a carton. It was like* [fast food chain]*. . . and another thing we used to do that*

> *we were getting pulled for* [refers to being reprimanded by senior staff] *they didn't put water jugs on the table. . . they had to buy bottled water. . . that was just before I left, they got rid of all the cutlery, they had plastic forks, so of course they cut all the hours, we used to have big sterilising sinks, didn't have a dishwasher, all by hand. . . but they cut all that" (ID: 04).*

The cooks clearly identified with the idea that the increase of frozen produce was aimed at reducing the wage bill. Some frozen items had previously been used in kitchens; however, the cooks argued this increased during this time period which affected staff levels.

> *"I would say about the 90s, then slowly frozen products would start coming in and so. . . they also cut down hours and cut down staff. . . for instance you used to make sponge cakes from all the ingredients and they started packaging food came, where you just added water to it, so that reduced, I always thought, it reduced the staff hours and cutting back that way" (ID:05).*

> *"They cut the hours down then you see, it was saving money by buying the food in than paying the wages for the staff to cook the food from scratch, well I would say so anyway. . . The staff bill would have been higher than the food bill at one time so these packet mixes, bought in bulk, would be cheaper than making things from scratch as it's quicker to make and you don't need as many staff to make it" (ID: 02).*

> *"they took out a big staffing element at that point. . . I can remember doing 15 sacks of potatoes for the chips, so suddenly frozen chips came in so that took that element of that person's job away that person was made redundant so there was lots of elements where, say we were making 2-300 iced buns per day and suddenly they were brought in and you iced them so there were parts of your job that just disappeared" (ID: 09).*

> *"that's your heavy point isn't it, wages cost more, that's what it was all about" (ID:06).*

One cook described how the cuts to staff would affect the food quality. She described how she discussed this with her manager at that time. She argued that without sufficient staff numbers they would become reliant on the pre-prepared food which she had seen becoming more prominent in the kitchen.

> *"I was going to lose a lady who come in on a morning at 9o'clock and she'd done all the veg prep and I was going to lose her because they were going to bring in the cabbage sliced, they were going to bring in the carrots diced, they were going to bring the potatoes in peeled, they were going to bring the chips in chipped. . . plus they*

> *wouldn't take anyone on permanent they were only on temporary so you were starting every term with a different worker, having to train them and you know, I said there's only one thing gonna suffer now. . . the food" (ID: 01).*

*De-skilling*

The changes to food production which resulted in staff cuts led to a deskilling of the work-force. Cooks began to rely on the pre-prepared foods as the number of staff in the kitchen had been reduced. They argued this affected future cooks coming to work in the service as their career started with the use of pre-prepared foods. The cooks interviewed here were unsure of the levels of training provided to those beginning their careers towards the end of the 1990s.

> *"The thing that happened. . . when the naughty 80s came in and CCT came in and then Jamie's turkey burgers and turkey twizzlers and all that, then the staff who were there weren't qualified. . . so what's happened is now we've got unqualified staff in kitchens. . . So it went to rock bottom, no cooking skills were required, no knowledge of what to do to put fish fingers in the oven" (ID: 06).*

This cook described how the changes progressed through the 1990s and some kitchens were left with unskilled workers. Cooks argued their profession became deskilled through the increasing use of pre-prepared meals being brought into the kitchens. One cook described the difference in cooking methods after she returned to the service following raising a family. She described how all of the foods were now brought in frozen and pre-prepared and very little mention was made to any produce being cooked from scratch.

> *"When I came back* [1996]. . . *it was all frozen meat, all pre-prepared potatoes, vegetables. . . mixes for puddings. . . all frozen, complete tray bakes" (ID: 10).*

Cooks also related the changes in school meals to changes occurring in the wider society. They argued that during this time period there were societal changes to food occurring which influenced the types of foods being offered in the school cafeteria.

> *"I suppose the school meals service going to frozen and mixes would have coincided with them being readily available elsewhere as well so it was probably the general population deskilling as well" (ID: 10).*

> *"Because we went very much into the little shaped faces and that business then because that was what the children were eating outside so it was perhaps, so well we'd better go along with it" (ID: 09).*

This issue could have had devastating effects on the wider society as the school meal was reinforcing negative food choices outside of the school environment. Nutritional standards during this time period would have ensured children would have accessed at least one healthy meal during the day and had the possibility of influencing parental food choices at home.

*Demoralisation*

The cooks argued the changes to school food had a dramatic demoralising effect. The first section in this Chapter discussed the life of the school cook and highlighted how the women already felt their job was quite low status. Changes that stripped them of their skills and made them feel their qualifications were a waste of time will have further impacted their feelings of self-worth. They had witnessed staff cuts and feared they might lose their job. Additionally, they disagreed with the packet foods now being used, but some felt they were powerless to speak against the changes.

> *"At the time I was way against it but it was a case of you had to do your job and if you wanted to stay in the industry at that time" (ID: 09).*

Not only did the cooks fear job cuts but also they feared they would lose the school meals service entirely. Cooks were passionate about their careers but the idea of strike action was not one they felt was available.

> *"I don't think there is any catering staff in the country that would go on strike. . . they know that if they went on strike for any length of time, what happens when you go back? you've lost your service. . . so we're in a catch 22 situation. . . there were threats of that a few years back and I said to the girls what do you want to do, and they said no I'm not doing it and I said neither am I so I came out of the union. . . but it's through fear" (ID: 03).*

> *"You didn't have a choice, I mean I think in general, the women were out as a second job, you just, you never complained you just accepted it, the unions had a bigger hold than they do now and they fought as hard as they could you know, but we just accepted it, you know, the way to keep the service" (ID: 06).*

Working hours were also reduced due to the increase in pre-prepared foods which left some women in financial difficulty. This led to feelings of bitterness towards their employers and they would seek alternative employment.

> *"It was terrible because people, if say for instance they were on 25 hours, 5 hours a day, she, that lady was a veg cook and now she was cooking frozen food she would only need to come in 20 hours. . . so she would lose that and she would still need that income so she would look for another job. . . in some cases you'd say stuff you I'm not coming in" (ID: 09).*

Another cook discussed how she enjoyed her job until she was told to serve beef burgers every day. She took great pride in producing an enticing display of food and became disheartened at the threat of disciplinary action if she did not comply in serving, in her view, unhealthy food items.

> *"I used to do all these Scandinavian sandwiches all these open sandwiches on a cold bar, there was a big variety. . . I enjoyed my job but then I was told I had to put beef burgers on at least once a week so I done that. . . then I got told I had to put them on every day. I was told if I didn't put them on every day I would be reported to the head office" (ID: 01).*

Another cook reads from materials provided to her shortly after being taken over from an outside catering company. She described how the ethos in the literature was about promoting an entrepreneurial spirit but, in reality, that was not the case. She argued that they had little autonomy and when she attempted to provide healthy alternatives to the children she would receive a warning from senior staff.

> Reading from catering company information leaflet: "[*The companies employ a development programme promoting management culture that empowers the unit personnel to adopt an entrepreneurial spirit]. . . that's actually rubbish because anything you tried to do on your own was just quashed. I was always getting done for costings as I'd order real veg and not the frozen stuff" (ID: 04).*

7) Resistance

Despite the demoralising effects of the changes in production of school food some cooks argued they attempted to resist the changes. As pre-prepared foods began to increase, the cooks described ways in which they tried to continue cooking food from scratch and offer foods they perceived as healthy as opposed to sticking to the menus provided by their LEA. The fact that cooks voluntarily worked longer hours in order to continue cooking from scratch, could be interpreted as resistance to using pre-prepared products of inferior quality. Here a cook describes how she had become frustrated with the changes to food quality and wanted to go back to cooking from scratch by opting out of LEA led catering. She described how the LEA attempted to make it quite difficult for her to opt out of their catering service. However, she managed to negotiate with local suppliers to order produce at lower prices than the LEA could provide. She described the LEA as adopting *"bully boy tactics"* to make the transition to in-house catering quite difficult. However, she successfully introduced in-house catering with the support of the school and the Head Teacher, and began serving meals cooked from scratch using locally-sourced produce.

> *"In 1999 all the secondaries could opt out, so they all went self-financing, and* [the Headteacher] *said to me 'look, primaries will come so we'll wait. . . you stick with it'. . . by this time I was getting fed up, anyway in 2000 it came out that primarys could, so I went to the cook supervisors meeting . . . so* [named removed] *was there and she said 'I'm here to talk about primary schools opting out and it is really difficult, is there anybody here thinking about doing it?' So I thought well here we go, hand up. . . and she took one look and said, 'I thought it might be you. . . you won't be able to make it work, you won't be able to keep your staff, what happens when staff are off, you won't be able to get the prices we get, basically you won't be able to do it' So, I said ok fine, but we're doing it. . . we opted out, I actually got cheaper prices than what we were paying through the council, when the actual day came that we were going to opt out they came in and basically wanted to take everything. . . they wanted me to do a stock take. . . I said no. . . then they came in. . . have you got uniforms, I said no problem come back later and you can have them. . . they took our uniforms. . . bully boy tactics" (ID:03).*

Another cook described how she left her position as a school cook for alternative employment due to the increase of pre-prepared foods being used. Terminating her employment and a career change can be seen as the ultimate method of resistance.

> *"I left to go into office because I could see the start of this coming where you weren't cooking a lot and I enjoyed the cooking, whereas if it's bought in, to me you're flashing it. . . and that's, to me, not cooking. . . that's just a personal opinion" (ID:02).*

As previously described cooks also discussed how they regularly worked longer, unpaid hours in order to prepare meals from scratch. It is unclear whether this method of resistance prevailed as newer generation cooks who replaced women after retirement may not have had the same level of dedication or training to be able to cook from scratch. Here a cook described her resistance and how she was regularly reprimanded for going over on her budget due to ordering fresh food instead of the recommended pre-prepared foods.

> *"I'd go in early to cook me stuff, me real stuff, oh and I got wronged for getting this, like broccoli and real carrots instead of frozen carrots. . . You can't change these business people. . . you can kick back. . . I used to get bollocked* [colloquial word for reprimanded] *every week for my costings. . . one Christmas dinner I got real sprouts, real carrots and all of us went in about 6am, we went in and cooked a real Christmas dinner" (ID:04).*

Another cook describes how she was fully committed to continue providing freshly cooked meals, whereas other catering providers had opted for pre-prepared produce.

> *"I was committed to maintaining a freshly cooked school meals service using fresh local products and good quality manufactured foods, proper cod fish fingers and proper sausages, whilst others had opted for completely deskilling and manufactured products" (ID:11).*

This cook highlights how it was possible to continue serving freshly cooked meals in schools and she actively kept this service within the kitchens she supervised. However, other cooks working in different LEAs were expected to stick to the menus provided and serve the pre-prepared foods. Two cooks describe how they served the beef burgers and buns (as listed on the LEA menu), but they would not cook them in the time-saving manner expected.

> *"we didn't deep fry our burgers we did our beef burgers in the oven and the fish fingers in the oven, we never used to deep fry them, fair enough they would take longer but we cooked them in there so most of the grease would come out, then you would take them out and lay them on a sheet of paper so it absorbed all the grease" (ID:02).*

> *"they started to insist on you putting beef burger and buns on and hot dogs and of course that was an easy way out for a lot of cook. . .* [Interviewer: Less time consuming?] *Yeah, of course, you fry the beef burger in the fryer in the fat fryer. . . I always put mine in the oven, but it was an easy choice for them as you didn't need to stand there and make some other dishes" (ID:01).*

As well as these passive resistance methods, some cooks actively resisted orders from their LEA. Here a cook describes how she was told to serve beef burgers in buns every week so she obliged until she was told to serve them every day. She argued that she thought beef burgers in buns were unhealthy as she described how she had seen the effect this diet had on children in America. She describes how her LEA threatened her with dismissal if she continued to ignore their requests to serve beef burgers in buns every day.

> *"I wouldn't put them on and erm if I put them on it was only once a week and yes it's quite honest cos I'd been to America in 1967 and I'd seen what happened to children who ate beef burgers and buns everyday and I tried to argue my point and it didn't work. . . but then I was told I had to put them on once a week so I done that and then I was told I had to put them on every day of the week. . . I was in charge of the kitchens so I could more or less please myself as long as I stuck to the main menu but then I was told that if I didn't put beef burgers on every day I'd be reported to the head office. . . so, eventually after quite a few threats I was told I would be taken over the the head office and probably sacked because I wouldn't do as I was told. . . so I put beef burgers on every day" (ID:01).*

This particular cook argued the LEA insistence was because of local competition between schools to increase the number of children eating school meals. Therefore, the LEA wanted to serve food that encouraged children to eat in the school canteen in order to increase school meal uptake. However, this cook discussed that it was unnecessary to serve such items in her canteen as most children were already having a school lunch. Cooks like this were dedicated to cooking from scratch and serving children good food despite changes to policy and orders from their LEA. However, their resistance methods were not

sustainable in the vast majority of cases as women began to seek alternate employment or retired. There were some success stories where cooks were able to take charge of the school catering and remove themselves from the LEA and CCT. Although CCT would have still been in place, in the above example, one cook at least was able to seek lower prices than the LEA and was therefore successful in gaining the catering contract for her school.

## Real Food back on the Menu: 2001 – 2011

The themes discussed in this time period included 1) Back to Cooking from Scratch, 2) The Skills Gap, 3) The "Jamie Oliver" Effect, and 4) Nutritional Standards. During this time period, policies were amended to include specific nutritional requirements for school meals. In April 2001, for the first time in school meals history, legal nutritional standards for school meals were published and became compulsory. These standards were based on "food groups" in contrast to earlier standards based on energy requirements, and aimed to ensure children received a balanced meal. Although these standards were publicly criticised at the time it is not clear, from the interviews with cooks, whether they were beneficial. In 2005, the celebrity chef, Jamie Oliver, began a campaign for the re-introduction of *nutrient specific* standards in school meals. In addition, the Government announced new legal standards for all foods served in schools and the School Food Trust was set up to lead the national implementation. These standards became mandatory for primary schools in 2008 and, 2009 for secondary schools. The cooks interviewed here did not mention the introduction of standards in 2001; they merely continued to discuss the use of pre-prepared foods.

However, such foods would have been required to meet the newly established food group standards (see Chapter 3). Not all of the cooks interviewed here worked from 2001-11. However, those who had left schools prior to 2001 offered information from during this time period. This was generally given as information gleaned from friends still working in school meals or from media reports.

1) Back to cooking from scratch

The cooks who worked during this time period discussed how it was difficult moving back to cooking from scratch after such a long period of using processed, packaged foods. They argued they did not have the staff to be able to manage all of the new tasks in the kitchen and, through years of deskilling, were not able to cope with the new style of cooking.

> *"Yes. . .* [it was more difficult going back to cooking from scratch after using packet foods] *and that's only my opinion but that's where it seemed to hit us. . . staff" (ID:05).*

Although some cooks found it difficult to accept the changes, older generation cooks who had worked in this style previously were not too fazed. However, they had to adapt their working schedule to be able to cook more food from scratch, due to insufficient staff numbers in the kitchen, and this was generally voluntary and unpaid work.

> *"Yes, I probably stopped a little longer making sure everything was alright. . . yes, it was quite a big responsibility, you've got to make sure, every day making sure you've got what you should have in" (ID:05).*

When this particular cook was asked whether she thought other cooks worked additional, unpaid hours, she confirmed it was common practice and argued it was not something to which cooks would generally admit. This highlights how more cooks have had to increase their hours voluntarily to be able to cook food from scratch. Other cooks confirmed how job insecurity forced them to keep quiet.

> *"some cooks will not speak out because they are frightened of losing their job. . . one of the questions I ask is how many hours in the kitchen are there a week. . . and they tell me, and I look at them and say now tell me how many hours you actually do. . . the average is about 2 ½ hours a week extra" (ID:03).*

> *". . .* [do many cooks work longer?] *probably a lot and probably a lot wouldn't tell you" (ID: 05).*

Although some cooks felt they needed to work longer due to limited staff numbers, some cooks argued it was due to ideas on food quality. One cook discussed how ladies would start work early because they preferred to prepare fresh rather than pre-prepared items such as vegetables.

> *"I think that happens a lot* [working longer] *you know they don't like the pre-prepared potatoes so they will peel them themselves in their own time. . . You get the extremes really, those who do as little as possible and you get the ones who use a lot of their own time" (ID:10).*

Another cook argued that it was down to the personality of the individual cook and their relationship with the school as a whole as to whether they would succeed in reverting back to cooking from scratch. She argued it needed a whole school approach to make it successful, and argued that cooks needed to feel valued in the school community. This cook identified with the idea that women from low paid occupations feel undervalued and attempted to show how this can be overcome.

> *"they'd probably do alright, that wouldn't be a problem* [cooking from scratch]*. . . it always comes to that particular person, it always comes back to the cook in charge, the person in charge and the relationships within that school the relationship with the head teacher and what the head teacher's like with them, so it's about that whole school approach. . . if they're valued and accepted in that school" (ID:06).*

Although some of the older generation cooks were excited at the prospect of cooking from scratch again there were some who refused. One cook discussed how, in her new role helping cooks meet the new standards, she met women on both sides, those for and against cooking from scratch.

This cook highlighted the variability of cooks today and how despite the re-introduction of nutritional standards some are still cooking from packet foods and not all are cooking from scratch.

> "*I went to a school who wanted to opt out* [of LEA controlled catering] *and the cook was an old. . . what I call old school cook and she really wanted to do it, she really wanted to go back to cooking from scratch, that's what she knew. . . the other school, it's what we call a regen kitchen, everything came in frozen. . . took it out, put it in the regen, job done. She was quite aggressive. . . at the bottom of it she turned round and said if you bring in what I think you want to bring in she says, I'm off, she says, because I can't cook. . . she's got four kids!" (ID: 03).*

2) The Skills Gap

Cooks argued that from 2001-2011 the school meals service was suffering from a distinct skills gap. Cooks argued that the increasing use of processed packet foods in earlier times had led to a deskilling of the work force. New staff were only experienced in cutting open packets and it is unclear what level of training was offered to newer staff members. The cooks interviewed here felt skills had been lost and dedication to the job was almost non-existent among the next generation. It appears as though the policy changes from the late 1980s are still affecting worker morale and, consequently, the quality of food today.

> *"some of them haven't* [had much cooking experience] *a lot have got through by the skin of their teeth and they're doing it and to me they haven't got the skills. . . and we're expecting them to do that* [cook from scratch] *and we're expecting them to be great with the customers" (ID:06).*

Another cook described how training has not been given to some cooks and there appear to be no plans in the future to help close this skills gap.

> *"they haven't in lots of places trained them. . . and there's still no systems in place to train them either and I think that's wrong. . . I think I wouldn't eat what you've put on the meals. . . they don't taste it, as a cook you should. . . but they're not cooking, they're not cooks" (ID:06).*

However, a skills gap is not necessarily the case for all areas and could highlight regional variations and differing interpretations of the government legislation currently in place. Another cook discussed how in her area they are faced with resistance to using fresh produce and are actively attempting to update the skills of their staff.

> *"we've gone through the process of having diced frozen onions in which were really expensive, to have in fresh. . . we've got in expensive pieces of equipment to chop them up but they're still using the frozen ones because they can't be arsed* [bothered] *to do that. This is a skill you need, if you can't use a knife we'll teach you how to use a knife, we'll teach you how to use the machine, but you* <u>*are*</u> [cook emphasis] *using fresh" (ID:09).*

The current generation of cooks will have always used a vast majority of pre-prepared foods, and to begin using fresh produce without the level of training older that cooks received must be quite a daunting task.

Here the cook describes how, even when using fresh foods, there is still a distinct gap in their knowledge of food.

> *"If they can buy frozen and use a handful of that then why should I chop it* [explaining the new cook mentality]. *Another thing I came across once, we use fresh broccoli and one kitchen was ordering far more broccoli than they should have been ordering so I thought, Oh well the kids must love it. . . So I went in and saw how they were preparing it and they were just cutting the florets off and the whole of the stalk was being thrown away. . . so I said what are you doing? "Oh no you can't eat that", yes you can it's part of. . . they have no perception of what to do" (ID:09).*

Another cook described how, in previous years, cooks were extremely dedicated to their jobs and she would not have been able to cope without the support from her assistant cook. However, she believes that now she has retired there are very few cooks who can fill the skills gap that is present in the school meals service.

> *"it was part of your nature really. . . my assistant that I worked with for most of those years, at least 17 years, she was really dedicated to me and without her I would have found it extremely difficult to cope. . .* [is there anyone there now to fill the skills gap?]. . . *no, definitely not. . . they don't have the same level of dedication, the younger ones that are coming in" (ID:05).*

Considering the difficulties these cooks have described it appears that there is a clear skills gap within the school meals service today and it is unclear whether this is being addressed nationally. With the introduction of strict nutritional standards after Jamie Oliver's campaign it became problematic to expect newer generations of cooks to be able to make the change to cooking from scratch as easily as the older generations would have. The cooks went on to discuss the effect Jamie Oliver's campaign had on the school meals service and then how the re-introduction of strict nutritional standards made the skills gap even more apparent.

3) The "Jamie Oliver" Effect

In 2005 the TV series, *Jamie's School Dinners,* was broadcast in the UK (www.jamieoliver.com/school-dinners), and highlighted the poor quality of food being served to school children. The cooks interviewed here all discussed this series and how it affected their working life. Although they argued this campaign helped bring good food back into school kitchens, they felt the resulting media attention gave them bad press as the ones responsible for feeding children poor quality food. Here, the cooks described how the food being served in school kitchens at the time of Jamie Oliver's series was probably better than that which children were accessing in the wider society. They also argued that food quality was not necessarily any better elsewhere and that the wider societal shift in dietary habits should have been the focus of attention rather than placing the media gaze upon school meals.

> *"when it started to change, the turkey twizzler, you know, Jamie Oliver, turkey twizzler get it out, if you think about what we were selling and look where parents were taking their children out, school meals was probably one step higher than what the pub chains were providing. . ." (ID:09).*
>
> *"Yes, we took the big hit" (ID:10). . . we took the brunt, but it wasn't just about school meals, at the end of the day school meals has ethics" (ID:09).*

Additionally, cooks argued their menu was designed by those in the LEA and they had very little say in what was ordered. The cook below describes how, after Jamie's series was aired, parents began coming to the kitchen door to ask about the food their children were being served, but she had been told not to speak with anyone and to direct parents to the LEA. As she describes, she felt this was demoralising as cooks were not allowed to defend themselves.

> *"You weren't allowed to do anything, you hadn't got your own voice at all. . . it came to us. . . it did to begin with and we were told from our office that we were to direct people to them we were told we couldn't speak to people which in a way was a bit of a demoralising thing because you felt you couldn't speak for yourself but in another way you did have parents coming to the back door, knocking on the door, which wasn't right either. . . that was a horrendous time because you felt like you were worthless really and you were told if*

> *anyone wants to know you refer them to the office, you couldn't do anything" (ID:05).*

The same cook went on to describe how Jamie's campaign failed to highlight how cooks in general were following menus distributed to them from the LEA.

> *"Yes, it was unfair cooks were represented. . . we were directed from above. . . you weren't allowed to do anything, you hadn't got your own voice at all. . ." they aimed it* [the campaign] *right there* [at the cooks] *I don't think every authority was the same as the one they showed" (ID:05).*

Considering how the cooks described their relationship with the LEA and their restrictions, it is possible the LEA did not want cooks to speak out against the foods they were providing. Whatever their reasons, this left the cooks feeling as though they were scapegoats for their LEA. Moreover, Jamie's series affected the cooks' wage. Here a cook describes how, after the programme aired, almost overnight children stopped having a school lunch. As a cook's pay was paid based on how many children they served, this reduced their salary.

> *"The biggest backlash for me was the children stopped coming and you're paid on how many children you served. . . so from having 140 children, it seemed like overnight you'd not halved it but we were down to 110 children something like that and we were down to 3 staff, 4 staff in the kitchen you work on so many hours so that reduced all our wages. . . so that was the biggest thing and the other thing was you felt very demoralised because you felt as though you were incapable of cooking and they didn't know that each one of us in that kitchen had qualifications" (ID:05).*

> *"The number of pupils bringing packed lunches rose after Jamie Oliver's TV programmes. . . even the* [area removed for confidentiality] *schools that were providing a nutritionally balanced meal were severely affected by the TV programme and were unable to persuade parents otherwise. . . so it didn't seem to matter whether you were providing a good or bad school meal everyone was tarred with the same brush" (ID:11).*

Although cooks argued Jamie Oliver did some good in highlighting areas where school meals could be improved, like highlighting mandatory standards were not being adhered to in all schools, they felt his TV series was not a true reflection of their personal experiences. One cook argued the series was *"a load of tripe"* as she felt Jamie was out of touch with the dietary habits of young

children. She felt his methods to remove the junk food, did more damage than good.

> *"I mean this Jamie Oliver I've never known anything like it in all my life the way he went on. . . well it was a load of tripe wasn't it. . . See Jamie Oliver does this kind of expensive top range. . . but he was right, where I worked. . . now they've re-done one of the kitchens and where I had the boilers to do the vegetables and I had a steamer to do the puddings and things like that. . . they'd took nearly all that out and all down one wall there was about 5 freezers. . . well you know what was them freezers for? Pre-made meals and I couldn't see where they'd done any basic cooking. . . Now if they go back to basic cooking that kitchen'll have to be stripped and started again. . . but no, Jamie Oliver was right as far as that was concerned but what he went in with was, in my opinion, was ridiculous, you know. . . you don't take beef burgers and buns away from kids like that and hand them a thing. . . a plate of pasta and. . . whatever he wanted to give them. . . you can't do that" (ID:01).*

As other cooks discussed, the number of children eating school meals quickly decreased after Jamie's series which left a large number of children bringing packed lunches or visiting local shops for lunch. One cook highlighted how recent research has shown packed lunches to be quite unhealthy.

> *"Recent investigations have shown that only 1 in 100 home produced packed lunches meet the nutritional standards for school meals" (ID:11).*

Additionally, food outlets on the school fringe do not have a reputation for being particularly healthy and some cooks argued schools had not discouraged burger vans to park outside the school gates in return for a share of the profits.

> *"Even burger vans have parked outside schools" (ID:10).*

> *"But some schools were actually taking a cut of what the burger van was making. . . so they could park in the school entrance" (ID:09).*

Although these claims are un-verified here (if children were put off school meals by Jamie's programme) there were many other, possibly more unhealthy, outlets that were willing to serve them. Therefore, cooks argued that in theory Jamie did a lot of good, he helped raise attention to the fact that nutritional standards were not being adhered to, but it took a long time for the children to come back into the school cafeteria.

> *"It took a long time* [for numbers to increase] *two years at least before we started getting back numbers. . . it's the bad publicity. . . that didn't help, I think it was publicity really that caused a lot of the. . . I know his intentions were very good, Jamie Oliver, he's probably a bit like us, he's our bad guy. . . but he had very good intentions" (ID:05).*

4) Nutritional Standards

Although 2001 brought food group standards to school meals, this appeared to have little effect on the quality of foods being served to children. Jamie Oliver's TV programme came in 2005, four years after the food group standards were introduced, and the quality of school food was heavily criticised despite these standards being in place. As a consequence of media hype surrounding Jamie's series, and reports received from the School Meals Review Panel, the government set up the School Food Trust and mandatory nutritional standards were revised in 2008 for primary schools and 2009 for secondary schools. Although all the cooks interviewed here thought nutritional standards were vital for school meals, the changes were received with some criticism and difficulties. Here one cook describes the changes to nutritional standards required more training for their staff, but that it was difficult to convey specific guidelines and how small changes could affect the nutritional balance of the menu.

> *"Well we've trained all our cook supervisors in nutrition so that they are all aware of the correct nutrition and that's been filtered down to the rest of our staff but. . . it all has to be analysed now through a package, we use Crisp, they think if they just take away, or say the children don't like spaghetti bolognaise Oh I'll put shepherds pie on, yes you can't do that but we need to perhaps tweek the menu accordingly, and they don't understand like the reasons we're putting things like pulses into things like spaghetti bolognaise is to increase nutrition" (ID:09).*

> *"We can meet those guidelines and get everything in place but then the head will come back and say my children don't like that, I don't want you to serve that anymore, so it's educating heads, parents, mid-day supervisors, why do they have to eat that, why can't we have baked beans and mashed potato and no vegetables, why have you put fruit in the pies, I don't like fruit. . . so it's not just educating our staff and the children it's the whole culture" (ID:09).*

There could be difficulties with staff and head teachers as they perceive replacement meals as healthy but when a whole menu has been nutritionally analysed through a computer package small changes could cause problems. The cook states that it is not just their cooks that need educating in the new standards but all those involved in school meals. The nutritional standards in place today are more specific than those in previous years. Obviously advances in nutritional science have taken place over time, therefore, one cannot demonise previous policies for lacking in specificity. However, some cooks argue these standards are too specific and difficult to maintain.

> *"personally, they've gone too far, I think it was needed and I think it's a lot, lot better and I think children are eating vegetables in primary schools. . . but I think they need a lot of training in the schools and I think they've gone too far with the nutritional standards to a degree. . . I think most of the head teachers, and the head teachers I've talked to, it's more important that those children are eating something than them not eating it" (ID:06).*

There was also concern of how accurate the computer software is and whether catering companies are being honest in whether the food served actually meets the nutritional guidelines.

> "*so they're putting it through the nutritional analysis so they're putting, so say the menu is cheese and egg flan, fish. . . cheese and egg flan we'll have 50 portions of that, fish we'll have 50 portions of that but it might be, 100 portions of fish fingers but through the nutritional analysis they're putting 50/50 so when it goes through the nutritional analysis all the choice that they've put in. . . and they're allowed to do this. . . it comes out great, this is a nutritionally analysed menu but then you go back, and no one is asking them, go back and put the actual sales mix in. . . they're doing it as a generalisation. . . they're assuming" (ID:06).*

Cooks also argued that it is unclear how these standards are to be evaluated and whether all school kitchens are actually sticking to the standards.

> *Interviewer: Who evaluates the service, OFSTED?*
>
> *"They never did. . . (ID:10)*
>
> *"They did in one of our schools" (ID:09)*
>
> *"Yes, they did a pilot didn't they, but even then I saw the report for a school that wasn't sticking to them properly and it came out fine, it was a county school and they didn't comment on the things that I*

*knew they weren't doing. . . so they're not very thorough about it" (ID:10).*

The cooks did not seem able to clearly identify how the nutritional standards were being evaluated at the time of interview and it appeared that it was based on an honesty scheme. One cook argued that they were rigorous in the way they monitor the ordering of food and check to see if kitchens were following the guidelines.

> *"It's being honest about it, we stick to the guidelines as much as we can and if we can't we're honest about it and say we're working towards them and we've got a rigorous auditing process. . . we go around kitchens, we check. . . we're quite lucky really that all our ordering system is online so we've got the ability to check what people are ordering but I think we're one of the only ones that do that, all of our ordering is online, all of our stock is online" (ID:09).*

However, another cook argued there are no systems in place to ensure school kitchens are meeting the requirements.

> "*if they're saying they're mandatory* [nutritional standards] *if they're saying they're legal requirements. . . they should be monitored. . . it's very difficult to maintain with such specific standards. . . I think the School Food Trust should, or the government, put their money where their mouth is and say these standards are mandatory and we will have to check them or the county councils have something in place to check them and there's nothing in place at all to check them or monitor them. . . mandatory standards, they should test them and every county should have a dietician or nutritionist, and again from the LACA 2011 report not all LEAs are using dieticians and nutritionists and I think that's important" (ID:06).*

There may be some clear regional variation in the ability to monitor and evaluate whether the nutritional standards are being adhered. It is also difficult to understand whether monitoring through computer-based, nutritional analysis software actually represents the reality of what children eat. However, it is acknowledged this study is based on 11 women, not all of whom worked up until this time period, therefore it would require further research to understand this issue thoroughly.

> "*Most authorities are putting them through a computer system, but as you well know with a computer system it can be altered and that's what I'm saying has happened. . . with two schools I've done, I'm not saying that's wrong but that's what happened, they're*

*putting them through to fit the standards. . . god knows what's happened in reality" (ID:06).*

## Wider Societal Changes

In addition to the effects the government policy had on school meals the cooks discussed the wider societal implications of a declining school meal service. In the early years, the school meal was very much seen as not only nutritionally important but also socially. Children were encouraged to eat with a knife and fork, family service encouraged children to engage in conversation and eat in a civilised manner. However, with the change to cafeteria style and teachers no longer sitting with children the dynamic of school eating was completely changed. Cooks argued the school meal is no longer a social experience and essentially teaches children to eat quickly, quietly, and leave.

*"Some days it was extremely quick, I think it was too quick for them, some days it was a bit of a rush to get served. . . If it got loud then somebody would be there to calm it down but it was very fast, especially if you've got two sittings to do in an hour and a quarter" (ID:05).*

*"they've got to go back to the infants and junior schools to give them more time to sit and eat. . . my grandchildren when they were having their dinners in school they wouldn't have eaten anything because they didn't have time and, well you know yourself, if you were gonna eat something it takes you, if you're sitting down to a meal it takes you a good half hour" (ID:01).*

Cooks argued social interaction is discouraged and eating quickly is encouraged in order to get the rest of the children in to eat their lunch. They also described how children have very poor knife and fork skills and most children prefer foods they can eat with their hands. Some cooks argued this was due to children not eating 'properly' at home. However, this could also be related to the time they have to eat in the dining room. It may be quicker for children to eat with their hands, or just a fork, than to struggle eating in the manner which cooks found most socially acceptable.

*"You've got the social aspect of it where, as I say the school I was in yesterday where the kids didn't know how to use a knife and fork, very few of them picked up their knife. . . tried to, it was lasagne, you've got new potatoes with it, peas and sweetcorn, and the potato they were just picking it up, stabbing it with the fork and just eating if off the fork. . . because they couldn't, didn't know how to cut it up. .*

> *. I went into a school, primary school, social skills were very low, very low, the children couldn't use a knife and fork. . . aged 10" (ID:03).*

This cook discussed how she believed this lack of cutlery skills was due to parents assigning responsibility to the school for teaching children how to eat. Similar concerns were expressed early in the twentieth century when the 1906 Education Act introduced school meals for the first time. Some MPs argued it would lead to diminished parental responsibility to feed their children.

> *"Unfortunately some of those parents say it's not our job to do this. . . so more and more responsibility is going onto the teaching staff and the school. . . some parents will say it's, for whatever reason, the school's responsibility. . . I've got a head teacher telling me yesterday that they're coming in and they're not toilet trained, they've got no social skills. . . they don't sit at a table, because they don't sit at a table. . they can't deal with it, they can't deal with the food because they've had packed, or pureed, the jar, because it's easier so therefore you give a child. . . again I was watching a child try and cut a piece of meat, it was a work of art. . he gave up, he literally gave up. . . and I said to one of the girls that was working there, that's going to go in the bin. . . and sure enough, it did" (ID:03).*

Although children appear to struggle with cutlery today, one cook argued there were ways in which this issue could be ameliorated. She argued giving the younger children smaller knives and forks could help them get used to eating them as normal sized cutlery is too big for them to manage.

> "*When we left and went into* [County name removed for confidentiality] *council every juniors, infants, and seniors all had the big knives and forks. . . now I mean, when you've got children at home what do you do? You give them small ones don't you. . . so you know a little 4 year old, 4 ½ comes and has these great big knives and forks put into their hand and they've only had a little one at home, they can't balance them. . . so you know these are the things that you might not think are important but I think they're important" (ID:01).*

These cooks highlight how there are many aspects to dining in schools which appear to be ignored yet are quite important in terms of helping children learn how to eat 'properly'. Ensuring children have enough time to eat leisurely, learning to use cutlery, and engaging in conversation were all topics which

cooks felt were important factors in school meals but appear to have been ignored in favour of ensuring adequate nutrition.

> "*you've got to look at the bigger picture, it's not just, I mean for me, it's not just about the food it never has been. . . It's a wider picture, it's do the children know where their food comes from, most of them know it comes from Tesco, even teachers you know don't realise that cows have to have calves every year to keep producing milk, and so, yeah it's holistic to me, we always used to have a saying. . . what's delivered in the classroom is taught in the dining room and what's delivered in the dining room is taught in the classroom. . . I was in one particular school last week, fantastic, she'd got a food map. . . there was a pin and a piece of string which said your meat comes from. . . and so it was all mapped out, but there's geography, it's English because it's writing. . . another cook told me he takes cookery lessons with the kids. . . they were making fairy cakes but the recipe was for 60 and he said we only want to make 24 so how do you do that? There's your maths, it's all in cookery, it's all in food" (ID:03).*

The cooks interviewed here believed that the school dining experience needs to be encompassed into a more engaging eating experience. As the cook above described, there are ways in which lessons from the classroom can be reinforced in the dining room and it appears some schools are taking on board the whole school approach.

> *"Where it's been successful and it's been changed around and a lot of marketing put into it, they've got a great service. . . they've got an agreement with the supermarket opposite the school, they won't serve the kids at dinner time. . . it's all that sort of thing it's really good and the kids use the service, they love it. . . the first time I've ever seen a 16 year old, a big lad says 'are ours school dinners the best in the county Miss' with a pudding and custard in his hand saying this is lovely. . . the kids do love it, they love the food" (ID:06).*

Although there are great examples of schools adopting a whole school approach there is still a large amount of stigma attached to school meals. One cook described how media representations of school meals have not always been complimentary which makes their job quite difficult.

> *"You only need to listen to the television and they're saying my school dinner days, lumpy school custard and you feel like saying. . . I can feel like poking them in the eye when. . . but it <u>isn't like that in general!</u>* [cook's emphasis]" *(ID:06).*

## Limitations

Prior to analysing the above themes in the discussion section it is necessary to highlight the limitations and strengths of this study in order to contextualise the narratives provided by the cooks. It is worth noting that this population was incredibly difficult to recruit. Despite advertising through various different mediums over the course of two years, only eleven cooks were recruited to the study. In the early stages of recruitment all schools in the North East of England were contacted and asked to circulate the recruitment poster among their catering team, this did not yield a single participant. The posters were then circulated to the Local Education Authority catering service, and again not a single participant came forward. The posters clearly identified Durham University, the School Food Trust and the Economic and Social Research Council logos which may have been intimidated caterers. After conversations with the cooks who participated, it became clear that there were distinct levels of animosity between the cooks themselves, LEA catering teams, and the School Food Trust. It appears as though the cooks were suspicious of research that attempted to find links between poor quality school meals and childhood obesity and the inclusion of the School Food Trust on the flyers may have resulted in cooks being nervous of participating for fear of repercussions. This may explain why the cooks who participated all appeared to adopt similar responses to the changes in school meals policy. They also may have wanted to appear as though they were advocates for the children due to current negative rhetoric surrounding school meals. Additionally the school cook is often characterised as docile and apathetic to child welfare in contemporary television programmes, such as Lunch Lady Doris in The Simpsons. Moreover a recent children's book by Morgan Tomos (2011) *Mrs Gwrak,* details the story of a school cook who is a witch attempting to kill all children. Interestingly the synopsis given seems to highlight why the cooks interviewed here may have been apprehensive about taking part in a study which attempts to understand whether school meals have influenced childhood obesity.

> *"She is a witch and David knows that she's a witch! He can see through her disguise! But not even his parents believe him when he says that the school cook is deliberately trying to kill everybody with her sugary grotesque golden food lunches, which make*

> *everyone so fat that they can hardly move. David won't eat it and, armed with a sprig of witchweed, he tries to destroy the witch before she destroys everyone else"* (Tomos, 2011).

Despite these questions over the generalisibility of their responses it is important to note that the majority of these interviews took place in isolation from one another and yet the cooks still presented very similar narrative accounts of their time working in the school meals service. However, this still presents a limitation as these views may only be representative of the cooks who felt able to voice their opinions. As the cooks discussed, their position was one of low status and it is entirely possible the majority of cooks felt their opinions were worthless and therefore did not come forward to participate. There is also the question of how much these women were able to remember. All the women began their careers in the school meal service prior to 1990 so it is entirely possible that some of the experiences they discussed may have been romanticised or forgotten. However, the similarity of experiences does give some validity regardless of whether pieces were omitted. Future research to tease out these idiosyncrasies would benefit from utilising prominent gate keepers to cross the barrier into the school cooks' networks. This research created contacts with key players in the school cooks population; however, time constraints prevented any further interviews.

## Strengths

The historical nature of this study is its most redeeming quality, despite this also being a limitation as described above due to potential memory issues and romanticism of past events. Cooks, on average, worked in the school meals service for 26 years and began their careers between 1964 and 1989. This provided a longitudinal perspective on the development of the service until the women began to leave their positions between 1989 and 2011. Although the small sample size can be seen as a limitation, this is outweighed by the time coverage offered by these women, their combined experiences cover a 47 year time period. Moreover, the majority of interviews were in isolation from one another, yet the women presented quite similar narratives. The aim of the interview was given to these women so their narratives were framed within changes to government policy.

However, the themes they presented were their experiences of these changes. There was limited researcher bias within this study as my knowledge surrounded the specific legislation changes and the cooks offered their reality of that situation. Therefore, the limitations discussed above can be ameliorated by these strengths in time coverage and similarity of themes.

## Discussion

The objective of this study was to explore the perceived reality of government policy changes in relation to school meals as experience by school cooks. More specifically it aimed to understand how policy changes affected those who worked in school kitchens and whether they believed the quality of school meals was affected, for better or worse. Additionally, the description the cooks provided with regards to the meal quality at specific points in time highlights how we cannot assume children received a nutritionally balanced meal as might be the case if we only reviewed the legislation. Moreover, it also must be acknowledged that this reality is only the perspective of the cook, another important factor would be whether the children ate the meals provided. The rationale behind this study was to contextualise government policy changes with the experiences of those working in the school meals environment. By gaining this lived experience it can add a qualitative layer to the statistical analyses which will be discussed in Chapters 4 and 5. The cooks' reality of government policy change coalesces ideas on what constitutes 'real' food. The themes which were teased out from their narratives were centred around the theme of cooking from scratch. The policy changes which occurred in conjunction with technological advances in food production conflicted with the cooks' 'mental template of a meal' (Allen, 2012). Throughout the analysis of themes it became apparent they were all linked to the theme of cooking from scratch. This highlighted the central issue of importance to be that of what the cooks perceived as real food and in times of change in the early 1990s the cooks attempted to hold onto their ideas of what makes a meal. Allen (2012) describes a similar concept where a classically trained French chef served as an army cook in the Franco-Prussian War. Despite having to cook under the strain of war, Auguste Escoffier maintained his 'mental template of a meal' and gave his wartime menus equal footing in his memoirs aside menus cooked for

royalty. According to Allen, this equal footing provided evidence that despite the conditions and resources available during the war Escoffier put great effort and thought into the meals he prepared (Allen, 2012:187). Cooks centralised their narratives around cooking from scratch, to them a meal constitutes fresh ingredients prepared from their raw form. Their principles and training surrounding food were not easily altered when changes to policies and food technology allowed the introduction of pre-prepared and frozen foods. Therefore, this discussion will highlight how policy changes conflicted with cooks' ideas on real food and show the interconnections between the themes present in their narratives.

## Recipe for Disaster – What Constitutes 'Real' Food?

During the 1960s and 1970s when some of these cooks began their careers it was recommended, and believed mandatory, that school meals provided children with 650-1000 kilocalories, 20 grams of protein of animal origin, and 25-30 grams of fat in all forms and meals were to be supplemented by ¾ oz of dried milk (Chapter 2). In the results section above, this era is titled *'Meat and Two Veg'* as essentially this was the standard template for the meals served to children. The school meal at that time was organised as the children's main meal of the day and the recommended nutritional standards reflected this. At that time cooks prepared a main meal which constituted, in general, meat and two vegetables followed by pudding. From the cooks' discussions this was a common idea within wider society at the time. Linked to this idea on what constitutes a meal were the themes on training, food quality, and family service vs. cafeteria style. Cooks described how they spent a month within the training kitchen in order to learn the necessary skills to provide nutritious meals economically to large numbers of children. During their training they were taught how to prepare meals from their raw form cost-effectively. Additionally, the women will have been encultured into this method of cooking by their mothers. This style of cooking at that time was normal, aside from the differences in quantities; the quality was similar to what these women had grown up with. Although there were some discrepancies with perceived food quality this was normalised by the cooks' learned knowledge from their

mothers. When discussing food quality cooks related this to their experiences at home. Their mothers often used cheaper cuts of meat but were still able to produce a nutritious meal due to their cooking methods. The cooks described how they adopted similar methods within the school kitchen, this may have also derived from their training, but they centred it on cultural practices within the home. Cooking from scratch will have been the dominant method of food preparation during the 1960s and 1970s due to there being very few alternatives. Although tinned foods will have been common but these were not discussed in great detail or potentially classed as deviant by the cooks and therefore not deemed worth of elaboration. Their cultural ideas on what constitutes a meal were not wholly pinned to the meat and two veg idea as they discussed the change to a choice menu with fondness. Their discussions on the introduction of the choice menu and cafeteria style service were not negative, they appeared to enjoy this break from the traditional style meal of meat and two veg as not only did this change reduce the amount of food waste, it also allowed them to offer a greater choice of foods for the children. The women appeared to take great pride in their ability to demonstrate their skills in the kitchen and prepare a wider variety of dishes for the children to choose from. There was no resistance detected in the narratives to this change in service as the women were still working within their cultural ideal of preparing meals from their raw form. Although this change will have resulted in more complex menus in contrast to the one set meal, the cooks adopted it with great vigour. There were some negative aspects discussed with regards to the change to cafeteria style, but these did not relate to the food served. The cooks felt cafeteria style focused on feeding the children quickly and ignoring the social element of eating. The old method of family service was seen as a way of enculturing the children into 'proper' eating habits. The cultural ideas of families sitting together at meal times and having the food on the table to be served by parents or helping themselves were present in the school dining room. Older children would assist younger ones in getting food from the tureen on the table and a teacher would act as head of the table and encourage children to adopt 'proper' table manners such as: using cutlery correctly, having conversations, and also ensuring children ate their meal.

The cooks argued the change to cafeteria style meals was related to teachers' strikes at the time. Teachers no longer wanted the responsibility of monitoring the dining room during lunchtimes; therefore, cafeteria style meant children would choose their meal from a serving hatch and sit at a table with their peers to eat. Cooks also described how the length of the lunch period was reduced at this time. At the beginning of their careers they discussed how the lunch period was at least an hour and a half long which allowed children to eat their meal at a leisurely pace and still have time to play outside before returning to class. They argued the reduction was linked to the teachers no longer wanting to supervise the lunch break and an attempt to shorten the school day. However, changes to the service were recommended in the Working Party report *Nutrition in Schools* in 1975.[78] The report discussed how children had begun to reject the traditional meal, due to rises in consumerism, and offering choice would be more attractive and an economical way to reduce food waste. However, the cooks described this change as having a negative impact on the children. They argued the children now had to queue for their meal which could sometimes be as long as 20 minutes. The women felt this resulted in the children not having very long to eat their meals as they were more interested in still having time to '*let off steam'* and play in the school yard. They also felt this change resulted in a shift in their responsibilities towards the children. The cooks argued the removal of teachers in the dining room meant they were now responsible for ensuring the children ate a healthy meal and encouraged them to try new foods. However, children may have been averse to this as there will have been no adults eating these foods with them at the table. This could be understandable from an evolutionary perspective; humans may have learned to eat by observing others due to the potential for new foods to be harmful. In our evolutionary history our kin would have potentially encultured us into what foods are safe to eat. If modern humans are encultured into specific feeding habits in a similar fashion then adults eating with children in the school dining room may have ameliorated any aversion to new food. The cooks' discussions of this change in service again came back to the idea of cooking from scratch. For the first time they began to describe the use of pre-prepared meals. At the end of the 1970s and beginning of the 1980s the cooks discussed the use of beef

burgers, hot dogs, sausage rolls, and described how they no longer made their own bread buns. From the 1980s onwards the cooks' discussions became heavily dominated by themes interlinked with cooking from scratch. The 1980 Education Act did not place a duty on LEAs to provide meals to children, apart from those entitled to a free school meal, and it was perceived that nutritional standards were no longer mandatory. It was from discussions of this time period that the cooks' central theme was that of cooking from scratch. As this period saw the introduction of processed foods, or foods that had not been prepared and cooked from their raw form by these women, it is understandable that this theme becomes more prominent. The cooks described several themes related to training, staffing, and policy change. However, these often came with some reference to the changes in food. Cooks discussed how processed/pre-prepared foods began creeping into the kitchen during the 1980s. However, they argued they still maintained their mental template of a meal by preparing the majority of meals from scratch. However, at the end of the 1980s Compulsory Competitive Tendering (CCT) was introduced which cooks argued led to staff cuts and a reliance on the processed foods. Cooks described how their catering service was put out to tender and, in accordance with the CCT legislation, LEAs were required to accept the lowest bid. Due to this tendering process, cooks argued, there were widespread staff cuts which impacted their ability to cook from scratch. This method of cooking for large numbers of children required several women in the school kitchen. However, according to the women interviewed, CCT and the decrease in staff led to some kitchens becoming reliant on the pre-prepared meals as there were insufficient numbers of staff in the kitchen to prepare meals from scratch. This increase in processed foods contrasted with the cooks' perceptions on what makes a meal. Although it is possibly a generational idea, these women had clear ideas that food constitutes items cooked from their raw form. Combined with the advances in food technologies at the time, the tendering process resulted in many catering services being taken over by outside catering companies who were able to purchase cheaper mass-produced foods. The cooks disagreed with this type of food, although their ability to voice their opinion or actively change what was being served was extremely limited.

Only one cook interviewed here overtly disagreed with the LEA menus and competed with the larger companies to bid for the catering contract. The other cooks either covertly resisted the foods or removed themselves from the kitchen altogether. As will be described below, these differences appear to be linked to the cooks' feelings of status and fear of losing their job.

## Women's Roles in the Labour market: The Resistant or Silent Worker?

The role of the school cook has almost exclusively been occupied by a woman for the entire history of school meals. It is understandable that this is the case as providing food for children has been a female occupation for millennia. However, women choosing to enter the work environment appear to be disadvantaged due to their parental responsibilities. The rise of the 'new man' aside, women today still have the dual burden when it comes to work. Finch (1996) argues that the labour market puts women in a disadvantaged position. Although full-time childcare is available it is generally too expensive for many, without even contemplating whether women are happy to leave their children with others. The cooks interviewed here described how, in the main, women sought positions in the school kitchen as this was well suited to their childcare responsibilities without creating the need to pay for childcare outside school hours. The cooks interviewed here described how they began their careers in school kitchens as it suited their childcare responsibilities in that this position allowed them to work in term time only. They tended to work their way up to the position of cook so beginning work at 5 a.m. may have been at a time when their children had grown up or they may have required some minimal childcare help during the working day but these were offset by the fact they did not need longer term childcare during the vacation periods. The 16 year old trainees that were described may not have entered this profession as a result of other childcare responsibilities. But potentially as a result of gendered stereotypes whereby they believed it was a suitable career for themselves, potentially as there were fewer employment options open to them. Cooks would work during the school day which enabled them to still meet their parental responsibilities of taking and collecting their children from school, as well as only working during

school terms. Finch (1996) attributes this to the fact that within our society the labour market is organised around the presumed dominant model of the family which includes divisions of labour based on gender (p.18). However, the dominant model creates questions pertaining to whether this working arrangement actually creates flexibility for women or whether it just creates more disadvantages. School cooks who took this position may have essentially worked a double day; paid work inside the school kitchen and unpaid work in the home (Truman, 1996:38). There is also the additional idea that the position of the school cook falls within the domestic sphere of employment and would, therefore, be a role traditionally occupied by women. Truman (1996) argues that women and men occupy different types of jobs with gender segregation being very common and women undertaking employment largely at the lower end of an organisation (p.35). Although the women interviewed here were at the top of the school kitchen hierarchy, all of the positions below them were occupied by women. Moreover, the cooks described how there were very few men working within the school meals service and those who did were trained chefs, a term which was never afforded the women here. Men working in the catering position would often take the title of chef as opposed to cook as this implies a higher status position and also segregates them from working within the domestic sphere.

The cooks interviewed here described how they felt their position was one of low status despite being at the top of the hierarchy within the kitchen. Positions in the lower end of an organisation often give the employees little opportunity to voice concerns or little faith those concerns will be addressed. Cooks described their position as one of low status and they generally had little opportunity to have their voice heard when they disagreed with changes to school meals. Cooking from scratch appears to be an area where they could demonstrate their skill and was something they took great pride in. Their discussions over the types of food they served, prior to the introduction of processed foods, were delivered with a sense of pride. Although they openly discussed the quality of food may not have been of the highest standard, they argued their knowledge and skill overcame this issue.

However, their idea on what makes real food came into conflict with technological changes to food production and although this may have been of economic benefit for the LEAs, some cooks resisted this change. After the introduction of CCT and as the 1990s progressed, the cooks argued they still prepared some food from scratch but a lot of the products were either pre-prepared; chipped potatoes and chopped vegetables for example, or came in frozen and only required heating in the oven. This change in food service saw a segregation of responses from the cooks interviewed here. Half the women described ways in which they attempted to reject the processed foods and the other half felt they could not risk losing their job and so cooked what they were told. The tendering process resulted in job losses and reduction in hours, this linked with the feeling of low status helps explain why some cooks accepted the changes occurring in their kitchen and did not attempt to resist them. This did not reflect a change to their cultural ideas of what constitutes real food as their demeanour changed when they discussed the use of processed foods. They appeared saddened and reaffirmed how they had no choice, people were having their hours reduced and they needed to keep their job. The risk of being unemployed outweighed their mental template of a meal.

Truman (1996) confirms these women's concerns as she demonstrates how CCT had more detrimental effects on women working in the catering industry as opposed to men in similar fields (p.43). Although she uses cleaning as an example, she described how CCT reduced the hours of cleaners, majority were women, by between 16 and 25 per cent, whereas male workers in refuse collection retained their usual working hours (Truman, 1996:43). Cooks described a similar situation, after CCT their hours were reduced and some positions ceased to exist. According to the cooks, this combination of policy change and advances in food technologies had negative impacts on the school meals service. However, some cooks attempted to resist these changes. Their dominant personalities refused to accept the new foods and they held onto their idea of real food. In the school kitchens resistance took the form of indirect opposition through various less visible means as opposed to formal resistance such as protests and strikes (Prasad and Prasad, 2000:388).

Indirect, or routine resistance as it is also known, can take many forms and usually represents mundane actions by workers which are acts that persist to oppose forms of control and domination by their organisation (Prasad and Prasad, 2000). The cooks resisted the menus sent by their organisation as some of the foods listed did not require cooking from scratch. One cook even resigned from her position in the kitchen as she felt she was not cooking. To these women who resisted, it was not the quality of the food that mattered, it was not where the food items came from, it was all to do with their input and cooking the food from its raw form. That was real food. Their mental template of a meal surrounded the idea that you start with the raw ingredients and you make a meal. The new food items being introduced conflicted with this idea as they only required basic input from the women. This idea was so integral to their perception of real food and the school meal service that they argued the increase in processed foods de-skilled the workforce.

They described how newer generations of cooks appear to resist cooking from scratch as they became reliant on the processed foods due to limited numbers of staff in the school kitchens. The ability to cook from scratch for large numbers of children requires many hands in the kitchen, an issue which the women interviewed here argued had not been resolved at the time of writing. Additionally, there will have been generational shifts in ideas around what constitutes real food and today's cooks may have little reservations about processed foods as they are more abundant and accepted in the wider society. This study highlights how ideas on the meal and what constitutes real food have changed over time. The women interviewed here were part of an older generation who grew up with meals cooked from scratch. Their cultural ideas on food were not static, they accepted changes from the traditional meat and two veg framework but they would not accept items which did not conform to their idea on real food. Even the cooks who did not resist the food changes defended their actions and appeared saddened at their choice. To these women real food was made with their hands, not emptied out of a packet.

## Conclusion

This chapter has presented a chronological description of the development of school meals from 1964 to 2011 as perceived by school cooks. This has presented a perspective on the reality of the school meals policy during this time period and allowed an understanding of how they affected the cooks' career and the quality of the school meal. This study has highlighted the importance of understanding cultural values on what constitutes food. All of the women here had the same mental template of a meal which began with the use of food in its raw form. The introduction of processed foods conflicted with the cooks' cultural notions on real food. However, they did not remain static in terms of specific foods being considered a meal as they readily adopted the change to cafeteria style service and the ability to show their flair in the kitchen. However, the greatest issue for these women was they felt they were no longer cooking. Their mental template of a meal conflicted with policies and advances in food technologies which allowed processed foods to become prevalent in the school kitchen.

The cooks' resistance to these changes highlights how important their template was to them. Some cooks even resigned from their jobs and moved into completely different career paths as the ultimate resistance to processed foods. It appears that legislation to ensure nutritional standards in school meals is important as it has been demonstrated here how large amounts of processed foods, assumed to be high in fat, sugar, and salt, were introduced after the 1980 Education Act, and CCT. But, there is also the need to consider what the cooks feel constitutes real food, if their ideas differ from that which is legislated they may undertake methods to resist nutritional standards. Adopting rigorous training schemes may be of benefit, however, the cooks here related their training to their experiences within the home. If shifts in wider society are more accepting of processed foods today, and these are in fact detrimental to health, then this may further impact the issue of childhood obesity. Cooks interviewed here briefly described how younger generations of cooks today may be adopting resistance methods to cooking from scratch which potentially highlights a shift in the mental template of the meal.

# Chapter 4

## Assessing the Impact of Government Intervention on Child Malnourishment, 1908-2010

This Chapter is an overview of how child height, weight, and BMI have changed over the course of 102 years. As described in Chapter 2, during this time there were several changes to legislation affecting school meals, and in Chapter 3 I discussed how these were experienced by school cooks. This Chapter aims to draw the themes of these other chapters together and map them into changes in child health, represented by height, weight, and BMI, and explore whether any patterns emerge. I will: a) present an overview of how the average height and weight of children aged 10-12 have changed from 1908 to 2010, and b) explore whether there are any apparent correlations between child BMI, school meal legislation, and cooks' experiences.

### Materials

In order to understand the effect that policies relating to school meals have had on child health, data were gathered from seven cross-sectional and longitudinal datasets dating from 1908 to 2010 accessed from the Economic and Social Data Service (now part of the UK Data Service) and the Medical Research Council (MRC). Table 5 summarises the datasets used, their average sample size, and the average age of the girls and boys measured per year. The type of data available within each dataset varied and therefore, the age range analysed for children was limited to 10-12 (an age range represented in each of the datasets) in an attempt to cover the whole 102 year time period. Despite several limitations this study presents a unique insight into the development of average height and weight in children over an extensive time period.

**Table 5 - Datasets used to assess changes to average height and weight in children aged 10-12 from 1908 to 2010**

| Dataset[4] | Time period | Average age | | Average sample per year | |
|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls |
| Heights and Weights of British School Children | 1908-1950 | 11.13 | 11.12 | 905 | 903 |
| MRC National Survey of Health and Development | 1956-1957 | 10.86 | 10.86 | 2015 | 1864 |
| School Child Chest Health Survey | 1966 | 10.20 | 10.21 | 1324 | 1336 |
| National Child Development Study | 1969 | 11.33 | 11.33 | 6495 | 6194 |
| British Cohort Study | 1980 | 10.20 | 10.20 | 6252 | 5908 |
| National Study for Health and Growth | 1972-1994 | 10.50 | 10.48 | 644 | 612 |
| Health Survey for England | 1995-2010 | 10.50 | 10.50 | 183 | 178 |

## Methods

All datasets were assessed for their age range which resulted in this analysis being limited to age 9.99-11.99 due to the lack of comparable age groups across all datasets. Additionally, due to the Heights and Weights of British School Children dataset only reporting averages for height and weight it was necessary to reduce all other datasets to averages in order to see how this has changed over time. Whilst it is acknowledged the samples sizes for each year included in this study are not large enough to be representative of the UK as a whole, this study was unable to locate further historical data to increase sample sizes. Decimal ages were calculated where possible using the method described by Eveleth and Tanner (1990:4)[5] which aims to provide a precise age on date of measurement where a child aged 10 in a record might be almost 11. However, this method requires a child's date of birth and date of examination. Where no date of birth was reported the age at last birthday was taken.

4 - Data accessed through UK Data Service and Medical Research Council. See pages 274-278 for full referencing and access details for all datasets.

[5] Eveleth and Tanner (1990) "Decimal age. The year is divided into 10, not 12. Each date in the calendar is marked (from the table above) in terms of thousandths of the year. Thus 7 January 1962 is 62.016. The child's birth date is similarly recorded, e.g. a child born on 23 June 1959 has the birthday 59.474. Age at examination is then obtained by simple subtraction, e.g. 62.016 – 59.474 = 2.542, and the last figure is rounded off." (p 6-7).

The average age for each year of measurement was generated which gave an age range of 10.20-11.33. Data presented in the results section have not been adjusted for differences in measurement and items of clothing worn as this cannot be accurately assessed. Additionally, no outliers have been removed despite indications that some data may be erroneous. Potential errors in the results will be highlighted and discussed. The average BMI for boys and girls aged 9.99-11.99 was calculated for each time point. Height and weight were taken from each dataset and the average BMIs for boys and girls were generated using the most common formula for studying obesity:

$$BMI = \frac{\text{WEIGHT (Kg)}}{(\text{HEIGHT (M)})^2}$$

All comparable data were taken from each data source, discussed below, and a new dataset was created in the Statistical Package for Social Scientists (SPSS) version 20. This combined dataset included, year of measurement, sex of child, number of children measured, and average values for age, height, weight, and BMI. These variables were used to assess how height, weight, and BMI have changed in aged 10-12 children over the 102 year period and presented in the results section below.

## Dataset 1: Heights and Weights of British School Children, 1908 – 1950

These data were gathered by Professor Bernard Harris as part of a project assessing changes in the health and well-being of past generations (Harris, 1997). The heights and weights of children attending public elementary school from 1908 to 1947 and primary schools from 1947 to 1950 were gathered as part of the School Medical Service. Harris collated data from the School Medical Officers' Annual Registers. All available data in these sources were transcribed by Harris (Harris, 1997). Data were grouped by geographical location and average height, weight, and age of the children were reported. For this Chapter, averages for height, weight, and age from each location were combined to generate an overall 'national' average for height and weight among children aged 10-12 for each year from 1908 to 1950.

**Dataset 1: Limitations**

Although the measurements were taken by school medical officers, the supporting documents do not provide details on anthropometric procedures or items of clothing worn by the children. It was not possible to validate the figures reported in this dataset since the original files were not easily accessible, but Professor Harris believes his transcriptions to be reliable (personal communication). Moreover, Harris described how there are potential errors in the original documents. Some figures appear to have been copied from previous entries or are so different to the values reported for other areas that they are assumed to be incorrect. However, only extreme values were removed prior to me creating the 'national' average. It was not possible to verify potential minor errors, such as those being identical to previous entries; therefore, these data have been included. According to Harris (personal communication) before 1947 at least, the children were inspected at ages 5, 8, and 12. Only a small proportion of children were measured between the ages of 10 and 11 and they were potentially selected as a result of them being perceived as under-nourished. Additionally, these data were drawn from averages collated from different geographical locations. In this study these averages were collated in an attempt to create a 'national' average. Although creating an average of an average is not hugely problematic from a statistical perspective, it is worth noting as erroneous or extreme outliers may distort the results .

**Dataset 2: MRC National Survey of Health and Development, 1956-1957**

These data were collected by the Medical Research Council (MRC) as part of an on-going interdisciplinary life course study which began with a maternal survey of all recorded births in England, Scotland, and Wales during one week in 1946. A socially stratified sample of 5,362 babies was selected for follow up and has been studied 22 times (MRC NSHD, 2013). For this Chapter, an application for access to height, weight, and date of birth variables was submitted to the MRC and a data agreement completed on 31st July 2013. Although specific date of birth was not provided for confidentiality reasons, all of these children were born during the same week in 1946; therefore, as date of measurement in months was provided, I was able to calculate an average age for boys and girls.

The MRC NSHD data coordinator assigned to this project provided me with guidance notes on methods for collecting the height and weight of children in 1956-7. Height was measured to the nearest inch and weight to the nearest 0.1kg; measurements were taken by school doctors or nurses and with children only wearing their underclothes.

**Dataset 2: Limitations**

It is assumed standard anthropometric techniques were adopted for measuring each child; however, there were no guidance notes which explained in detail how the practitioners should measure the children. It is also not possible to verify if any standard techniques were strictly adhered to.

## Dataset 3: School Child Chest Health Survey, 1966

These data were collected by Colley & Reid (1966) as part of a project to assess the prevalence of respiratory symptoms, past history of respiratory diseases, lung function, and middle ear disease in school-children aged six to ten. In addition to variables associated with respiratory function, height, weight, and age were also taken. For this Chapter, date of measurement, date of birth, height, and weight were collected. A 'national' average for boys and girls was generated for those aged around 10 years.

**Dataset 3: Limitations**

The only guidance notes available with this dataset were the original data collection questionnaires. There were boxes designated for height and weight measurements; however, there were no descriptions of how these measurements were taken. It is assumed standard anthropometric methods were adopted, but this was not possible to verify. The study specified that children were aged between 6 and 10 which will have included children approaching 11. However, this dataset does not include children up to age 11.99 which should be taken into consideration when discussing the results and comparing these to other datasets.

## Dataset 4: National Child Development Study (NCDS), 1969

The NCDS is a continuing longitudinal study which follows the lives of all UK citizens who were born between the 3rd and 9th March, 1958, and gathered data from participants on childhood development from birth to early adolescence. The aim of the study is to understand the factors which affect human development over the life-course. To date there have been eight attempts to trace all the members of the birth cohort which has monitored their physical, educational, and social development (NCDS, 2011). The data that are used in this Chapter were taken from Sweep Two of this study in 1969 when the participants were aged 11. The supporting documentation states that children were measured by a medical examiner, height was taken without shoes and socks, and weight was taken in undervest and underpants. Date of birth and date of measurement were provided and decimal ages were calculated.

### Dataset 4: Limitations

Although measurements were taken by medical professionals it is not possible to verify if standard anthropometric procedures were adopted for each child measured.

## Dataset 5: British Cohort Study 1970 (BCS70), 1980

The BCS70 is a longitudinal study which collected data about the births and families of all babies born in the UK during one week in 1970 (BCS70, 2011). The aim of the study was to explore the social and biological characteristics of the mother in relation to neonatal morbidity and to compare results to the NCDS. To date there have been eight attempts to collect data which monitors the participants' health, education, social, and economical circumstances. At each sweep the scope of the study broadened from a medical focus at birth to include physical, educational and social development at ages 10, 16, 26 years and beyond (BCS70, 2011). The data used in this Chapter were taken from the ten year follow-up sweep in 1980 when participants were age 10. The supporting documentation states children were measured by either a health visitor, school nurse, or a community medical officer and that standardised height and weight measurements were taken. Date of birth and date of measurement were provided and decimal ages were calculated.

**Dataset 5: Limitations**

It is assumed standard anthropometric procedures were used for measuring the children as they were taken by trained health professionals. However, no specific details were provided with regards to clothing or shoes worn by children during measurement.

## Dataset 6: National Study of Health and Growth (NSHG), 1972-1994

The NSHG was a mixed longitudinal study which collected data from primary school children aged 4.5 to 11 within 22 areas in England and 6 areas in Scotland from 1972 to 1994 (NSHG, 2013). The aim of the study was to assess possible effects of changes in the provision of welfare, school milk, and school meals on the nutritional state of the population. It was an anthropometric surveillance system recording selected growth, nutritional, and health characteristics which may have been affected by changes to food policies (NSHG, 2013). The data used in this Chapter were gathered from each sweep between 1972 and 1994 for all children aged 9.99-11.99, the study only measured children up to age 11 but there were children who were approaching 12 on the day of measurement. The supporting documentation states children were weighed on a Herbert Portable Lever-Balance Scale by a health visitor or school nurse. It was advised not to weigh children with the scales on a carpet as this would affect accuracy. Children were weighed in underpants, shoes and socks were removed. Height was taken using a Holtain Special Portable Stadiometer and children were measured without socks or shoes with their head held in the Frankfurt plane.[6] Date of birth and date of measurement were provided and decimal ages were calculated.

**Dataset 6: Limitations**

The NSHG attempted to weight the population towards children from poorer backgrounds as this tends to be a particularly hard population to reach. Initially, the desired sample was not achieved, therefore from 1983 to 1994 the sample switched on odd years to that of a more deprived inner-city population (Chinn and Rona, 1999:6). This purposive sampling should be considered when

6 - Frankfurt plane - The head is positioned so the line between the lower border of the left orbit and the upper margin of the ear canal is horizontal.

interpreting the results. There do not appear to be any major limitations with regards to the anthropometric data collection. However, due to measurements being taken by different practitioners there is a possibility of discrepancies between measurement techniques.

## Dataset 7: Health Survey for England (HSE), 1995-2010

The HSE is an annual cross-sectional survey which is designed to monitor trends in the nation's health (HSE, 2013). It began in 1991 but only began collecting data on children under 16 when it replaced the NSHG in 1995. A core questionnaire is included every year which asks for information on general health, psycho-social indicators, smoking, alcohol, demographic and socio-economic indicators, while measurements of height, weight, and blood pressure were also taken by a trained interviewer or nurse. For this Chapter, data were gathered from every year of measurement from 1995 to 2010 (at time of writing data for 2011 were unavailable) for all children who reported their age at last birthday as 10 or 11. Height was measured using a stadiometer, children were asked to remove socks and shoes and their head was placed in the Frankfurt plane. Weight was measured using Soehnle scales and the protocol for weighing adults was followed where shoes, heavy garments of clothing, heavy jewellery, loose change, and keys were removed. No such protocols for measuring children were identified in the guidance notes, but it is assumed similar methods were used.

### Dataset 7: Limitations

In order for participants to remain anonymous the HSE does not include any identifiable variables such as date of birth. Therefore, it was not possible to determine the child's exact age at measurement so both age 10 and 11 were included in selecting the data as children could be approaching, or recently celebrated, their birthday. There are no guidance notes stating whether the recorded weight was adjusted for clothing.

## Results

### Changes to average BMI, height, and weight in children aged 10-12 from 1908 to 2010

This section reports the average BMI, height, and weight of the data discussed above and will explore how this has changed since 1908. Figures 5-7 show how these measures have changed over the 102 year period. Average BMI for boys and girls aged 10 to 12 increased steadily from 1908 to 2010 with a sharp rise after the 1980s and a sharp decline after 2005. There also appears to be more variation in BMI pre-1960s than post-1960s in this age group.

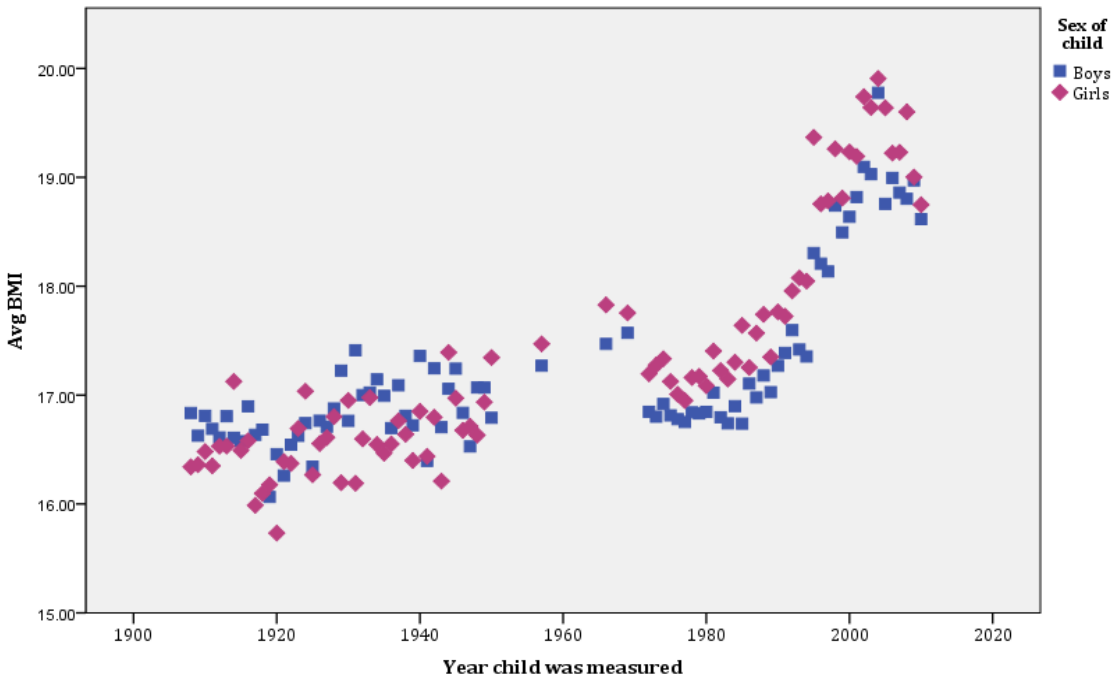



**Figure 5 – Changes in average BMI of boys and girls aged 10-12 from 1908 to 2010**

Figure 6 shows how the average height of boys and girls also increased over this time period; however, it was during the early half of the 20th Century where this trend appears to have a slightly steeper increase and this slows somewhat after the late 1960s. In addition to this slight increase pre-1960s there is much more variation -year on year compared to weight and also between the sexes. This could be a result of sociological issues; however, it is more likely attributed to the 1908 to 1950 data points being an average of an average collated from various different geographical locations. The later data appears to show much less variation year on year and also between boys and girls.

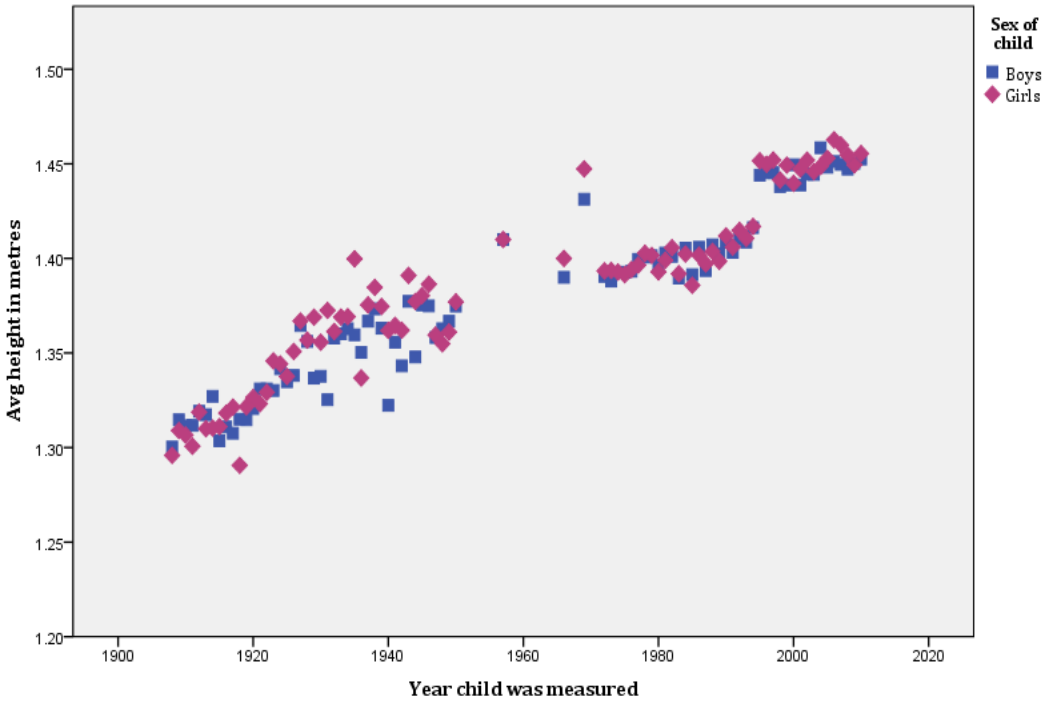



**Figure 6 - Change in average height of boys and girls aged 10-12 from 1908 to 2010**

Figure 7 shows how the average weight of boys and girls has changed from 1908 to 2010. As with height there has been a general increase during the time period; however, whereas height increased more rapidly during the early half of the 20th Century, weight appears to have increased more rapidly after the 1980s and this graph bears more resemblance to that of the average BMI. Additionally, there appears to be less variation in the pre-1960s era in year on year weight increases and differences between the sexes than that seen above in Figure 6 for height. As height is squared in the BMI calculation this could explain the variation in average BMI seen pre-1960s in Figure 5.

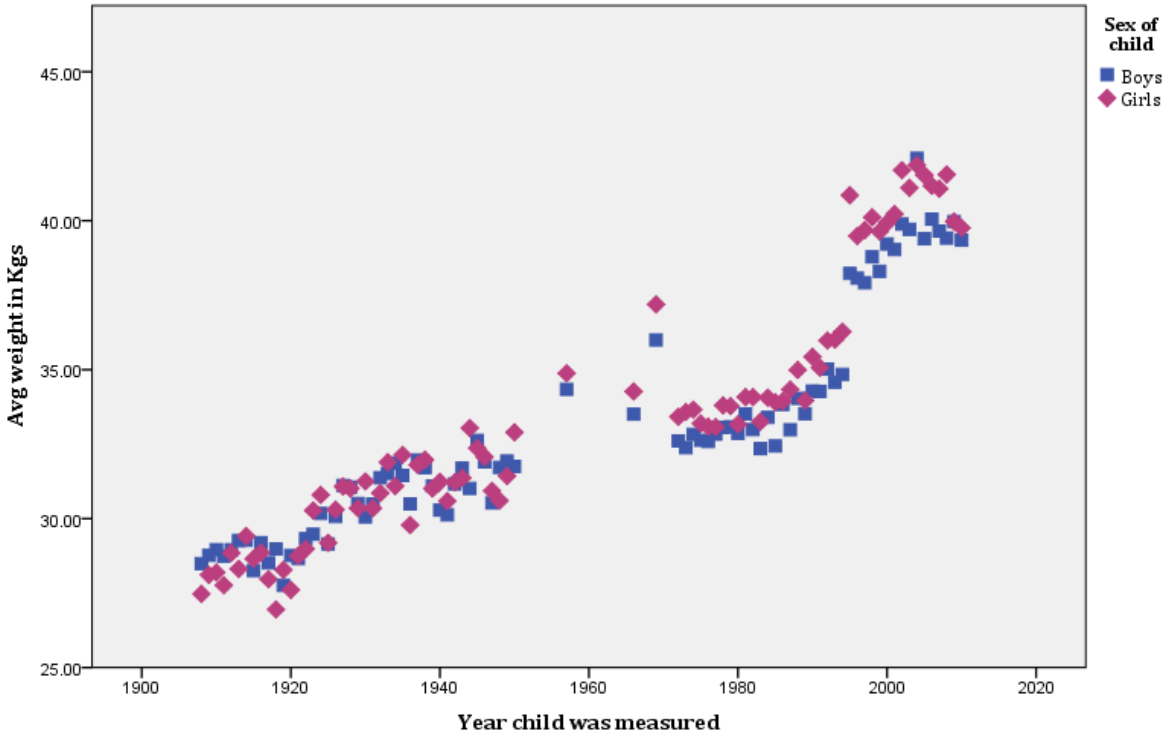
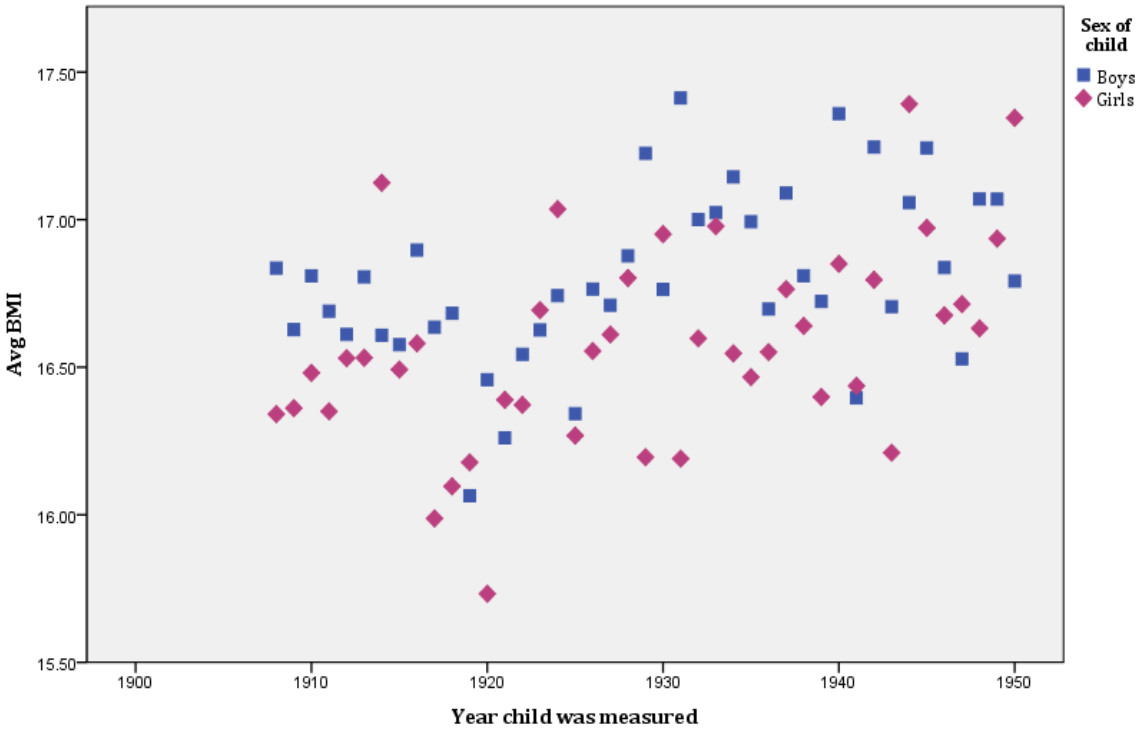



**Figure 7 - Change in average weight of boys and girls aged 10-12 from 1908 to 2010**

The graphs above present an overview of the changes to height, weight, and BMI, from 1908 to 2010; despite some variation depending on which measurement was presented all graphs followed a similar increasing pattern. However, if the entire time period is split in two (from 1908-1950 and 1956-2010), it is possible to spread out the graphs to show the variation year on year and potentially highlight sociological factors at certain points in time which may have influenced the results seen here (Figures 5-7).

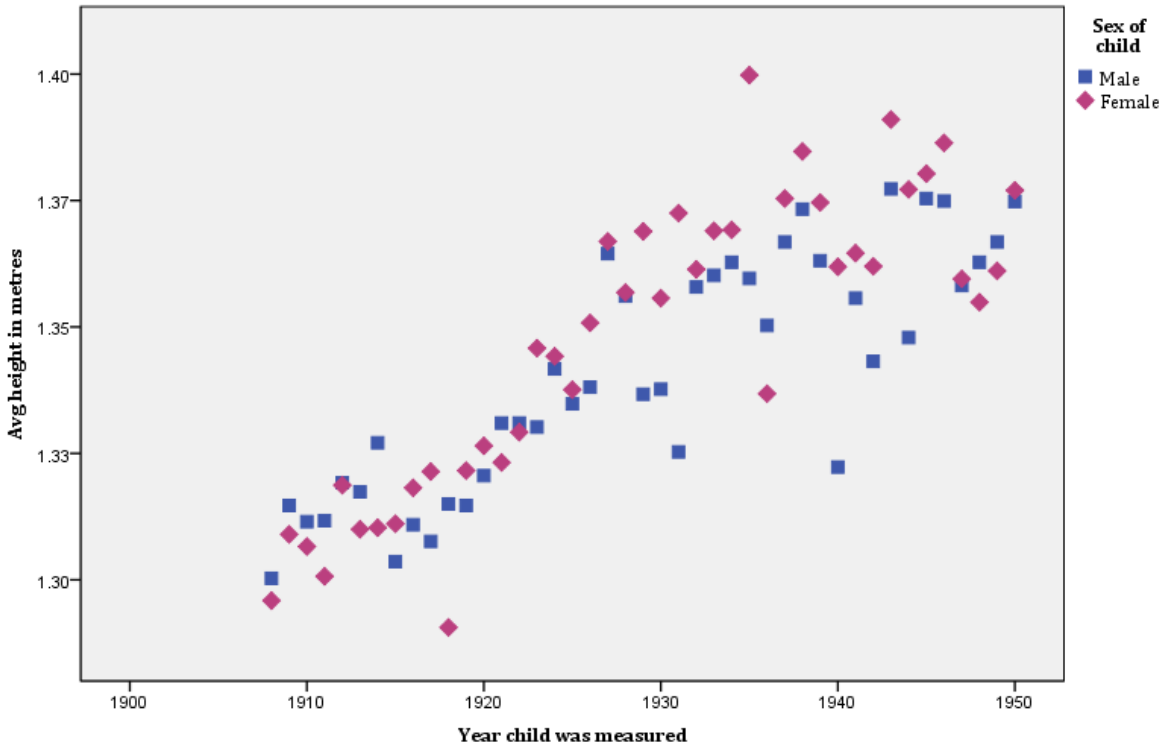
Unfortunately, data were not available to fill the gap from 1950 to 1955 and 1958 to 1969. Figure 8 below shows a sporadic increase in BMI for boys and girls from 1908 to 1950. There is a slight increase towards the end of the 1940s; however, there is great variation year on year. It appears as though girls fared slightly worse than boys after the First World War but boys average BMI also dipped shortly after 1919.

**Figure 8 - Average BMI change in boys and girls from 1908 to 1950**



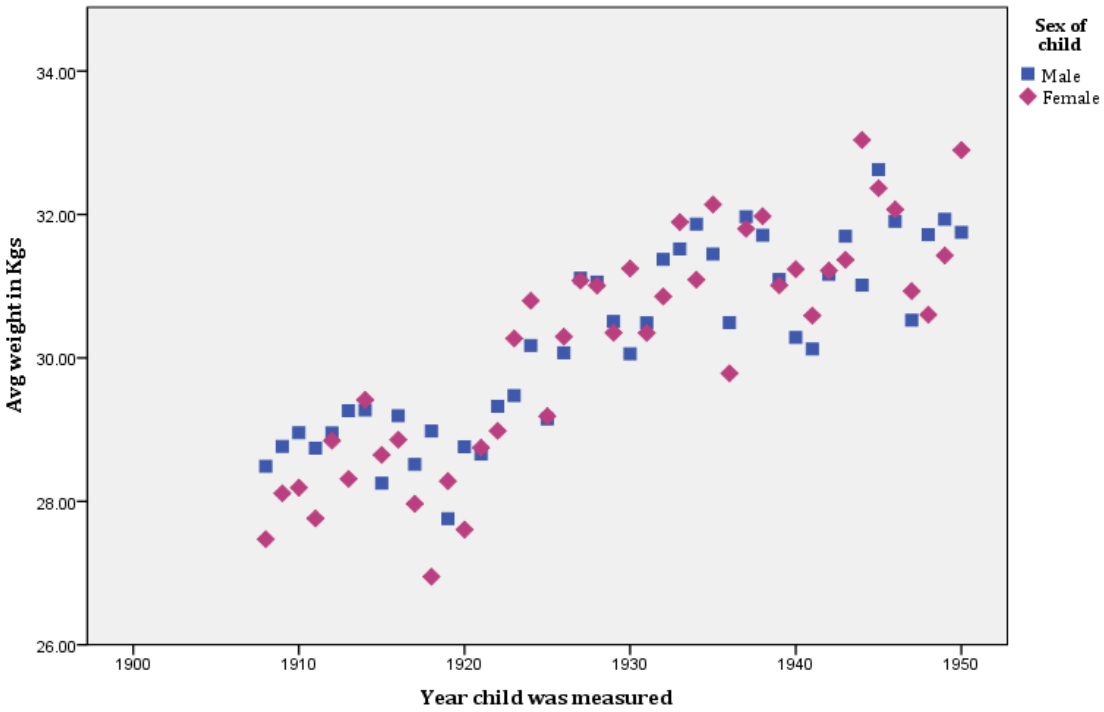

The variation seen in Figure 8 may also be explained by the use of BMI, when looking at Figure 9 and Figure 10 there is much less variation in the increases in height and weight with the data points being much closer together year on year. Figure 9 below shows the average height of boys and girls from 1908 to 1950. Again, there is a distinct increasing trend throughout this time period. However, it appears as though this is more pronounced in the girls. Between 1908 and 1925, girls and boys appear to be similar heights; however, moving from 1930 onwards the pattern becomes more varied with girls tending to be taller and on a steeper increasing trend than the boys. The trend is increasing for boys from the 1930s, but this appears to dip around the time of the Second World War and begins to increase shortly after 1945.

**Figure 9 - Average height in boys and girls from 1908 to 1950**




When looking at weight there is less variation between the sexes than that seen for height in Figure 9 above. Below, Figure 10 shows the general trend for increasing weight throughout this time period. There are declines in average weight around the time of the First and Second World Wars for both boys and girls. For weight, both sexes appear to follow a similar increasing trend with less variation than that seen in the height graph above. From this graph it appears that both World Wars had a greater effect on weight than that of height; however, this quickly increases during peace time.

**Figure 10 - Average weight for boys and girls from 1908 to 1950**




From 1908 to 1950 the graphs above show a clear trend for increasing height and weight while BMI shows more variation. The effect of war on children is also depicted in these graphs as both average height and weight decline around the time of both World War I and II. However, from these graphs it appears that boys fared worse throughout war time as their height appeared to dip further than girls and take longer to recover. Looking at the graph for weight showed both boys and girls averages declining during war time but rapidly recovering as we moved through the 1920s before a slight plateau throughout the 1930s and beginning to dip as we move through to the 1940s.

The graphs presented below show average BMI, height, and weight for the later time period, 1950 to 2010. Figure 11 shows the average BMI of boys and girls from 1956 to 2010. This BMI graph shows a much clearer increasing trend than that of Figure 5. There is little variation in the averages between the sexes as opposed to the scattered variability shown in Figure 5. Taking this graph at face value, it appears as though from 1956 to 1969 the average BMI is similar to the averages seen in the 1990s for both boys and girls; however, this must be read with some caution. The sample sizes for each dataset varied quite dramatically; therefore, this dip could be a result of changing sample sizes. As Table 5 above shows the data for this later time period were taken from 5 different datasets. Idiosyncrasies between datasets aside, there is still a clear increasing trend in BMI beginning in the mid-1980s which begins to decrease from 2005, with a continued decline until the last data point in 2010, for both boys and girls, with girls coming out slightly worse with the higher average BMI.

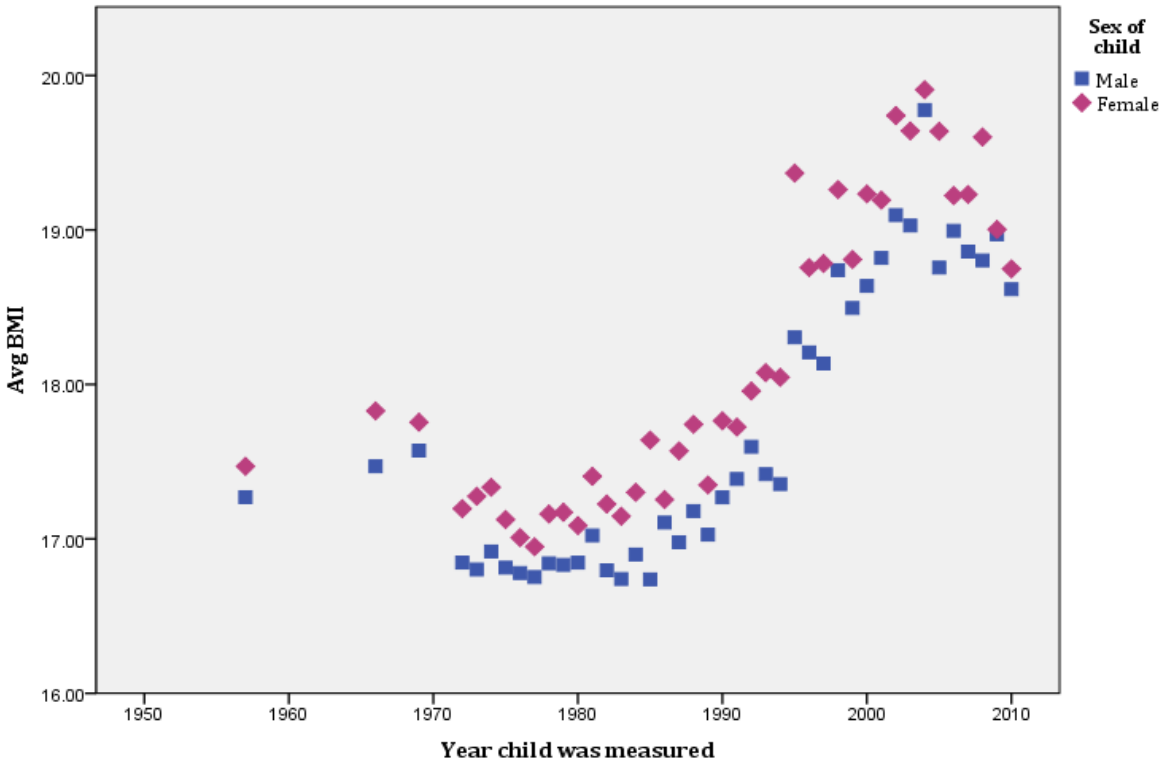



**Figure 11 - Average BMI for boys and girls from 1956 to 2010**

The differences between datasets become more apparent when viewing height alone. In Figure 12, again there is a clear increasing trend in the average height of both boys and girls but the points between each dataset are not as close as previously seen in the BMI graph above. It is unlikely this difference between the datasets is caused by variation in anthropometric procedures used to collect the data as the differences are greater than would be expected for methodological differences. Therefore, it is most likely caused by the cohort effect and also sample size. The smaller the sample size, HSE being the smallest in this study, the larger effect extreme cases will have on the average. Despite these methodological issues it is still clear that height was increasing for both boys and girls during this time point with a stark decline from 1969 to 1972 which is most likely caused by the difference in average age. The average age of boys and girls measured in 1969 NCDS was 11.33, whereas in 1972 average age was 10.50. There is also a decline in average height of boys and girls from 2005 which begins to increase again towards 2010.

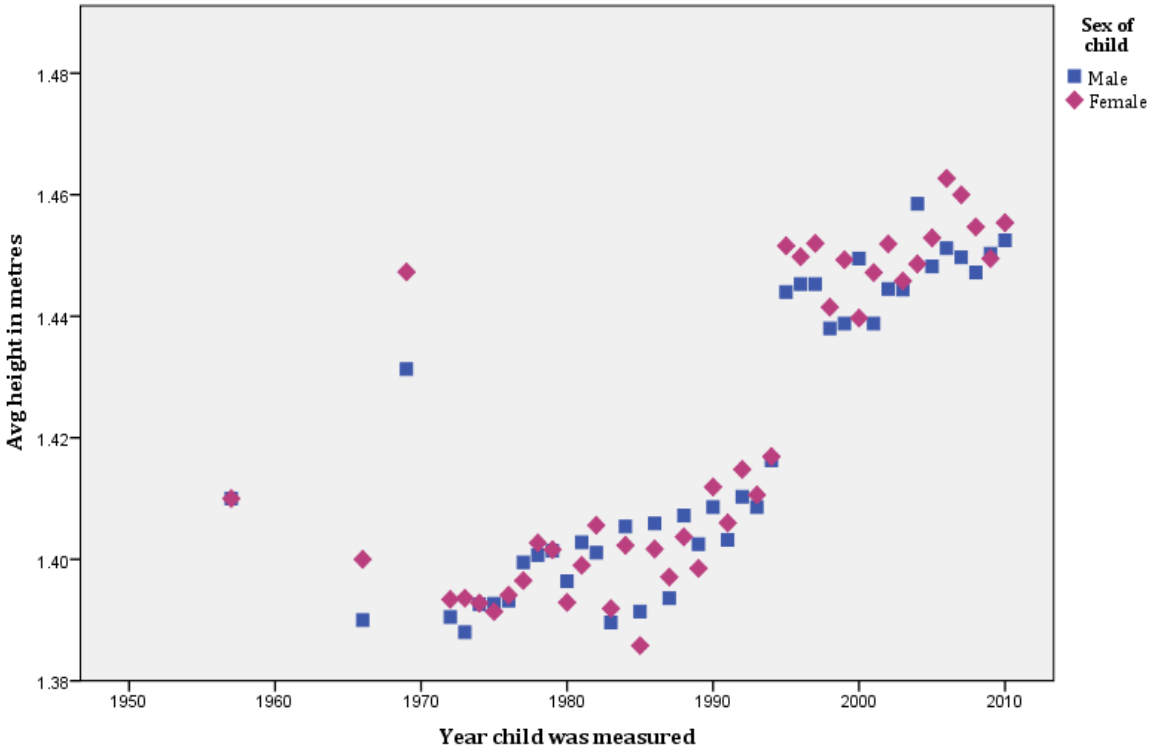



**Figure 12 - Average height for boys and girls from 1956 to 2010**

Figure 13 shows a similar pattern for weight to that of height in Figure 12 above. However, for weight it appears that the average for girls is higher than that of boys, whereas, the height graph above shows less difference between the sexes. For weight, girls are heavier at almost every time point from 1956 to 2010 even after the point at which average weight begins to decrease.

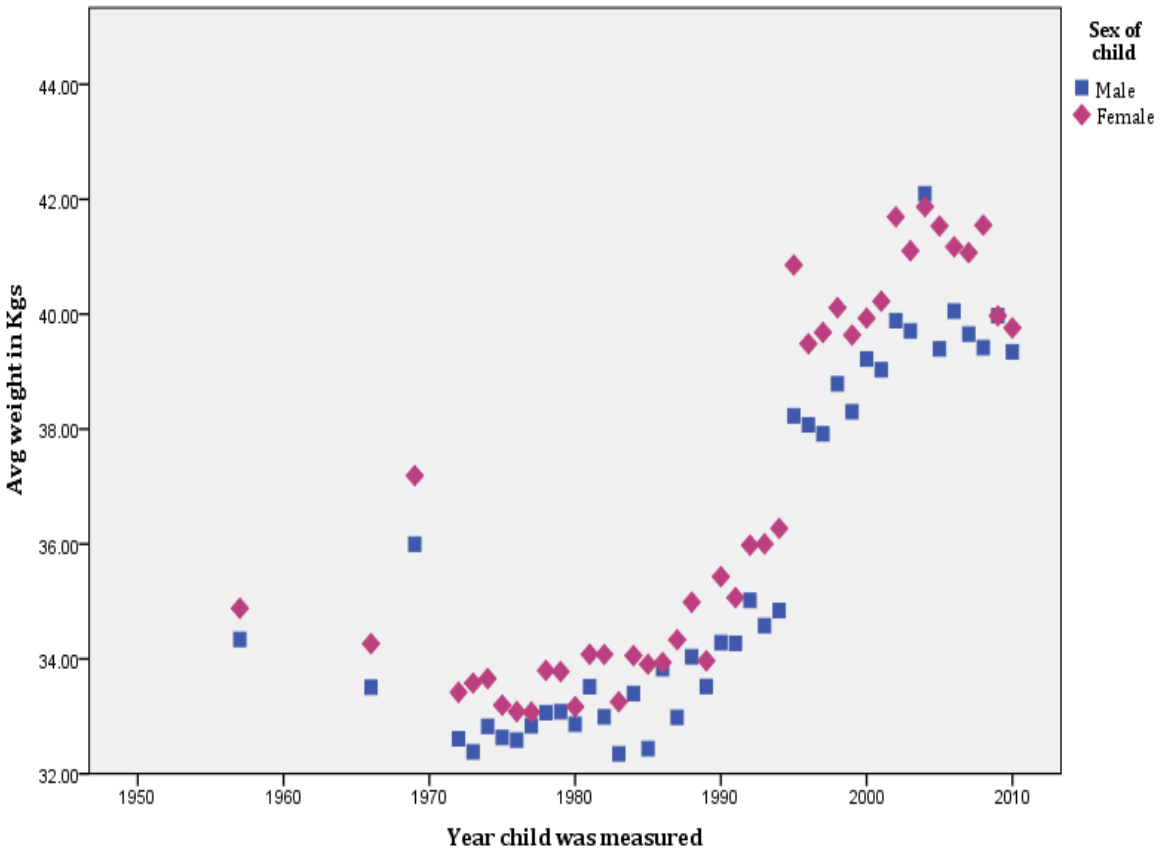



**Figure 13 - Average weight for boys and girls from 1956 to 2010**

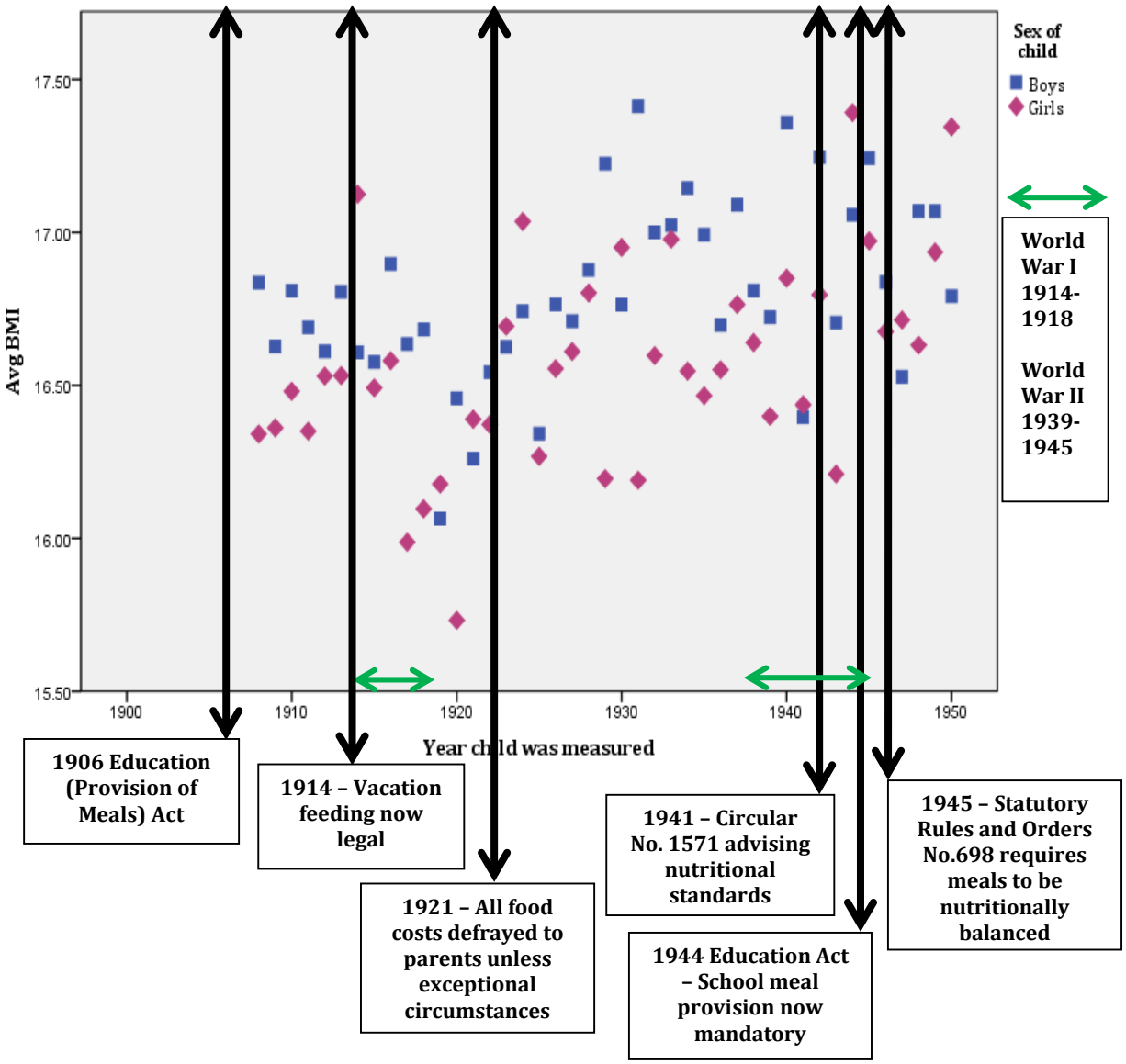
## Legislation, Cooks, and Child Malnourishment: How do these relate over time?

This section presents a visual representation of how legislation for school meals and the themes discussed by school cooks relates to the changes in average BMI among children aged 10 to 12 from 1908 to 2010. Although it is not possible to assess levels of correlation here, this graphical representation provides the background for the next chapter which will address whether the legislative change has had any impact on child health. This section here allows us to tentatively see whether there are any visible patterns when the BMI data from 1908 to 2010 are presented together and then focus the statistical lens on these patterns in Chapter 5 to assess potential correlations.

Figure 14 below replicates the average change in BMI from Figure 5 above with the changes to school meal legislation added at the relevant time points to visualise any potential associations. There are no cooks' themes to present in this graph as the women interviewed did not begin their careers until after 1950.

This graph shows that there appears to be no clear pattern or relationship between changes in policy and child BMI. After 1906 it appears as though BMI was increasing for both boys and girls; however, without having any earlier data it is not possible to clearly attribute this rise to the introduction of school meal legislation. Additionally, the 1906 Act was a permissive Act which did not mandate school lunches and Chapter 2 described how very few children received a meal at that time. One of the most striking points on this graph is the effect of war on child BMI; there is a clear decline towards the end of the First World War and a cluster of lower BMI points around the time of the Second World War. However, children aged 10-12 were not routinely measured and the declines shown here may not be nationally representative. Indeed, it has been shown elsewhere (Harris, 1993) that measurements of children in the routine age groups did not decline as seen here.

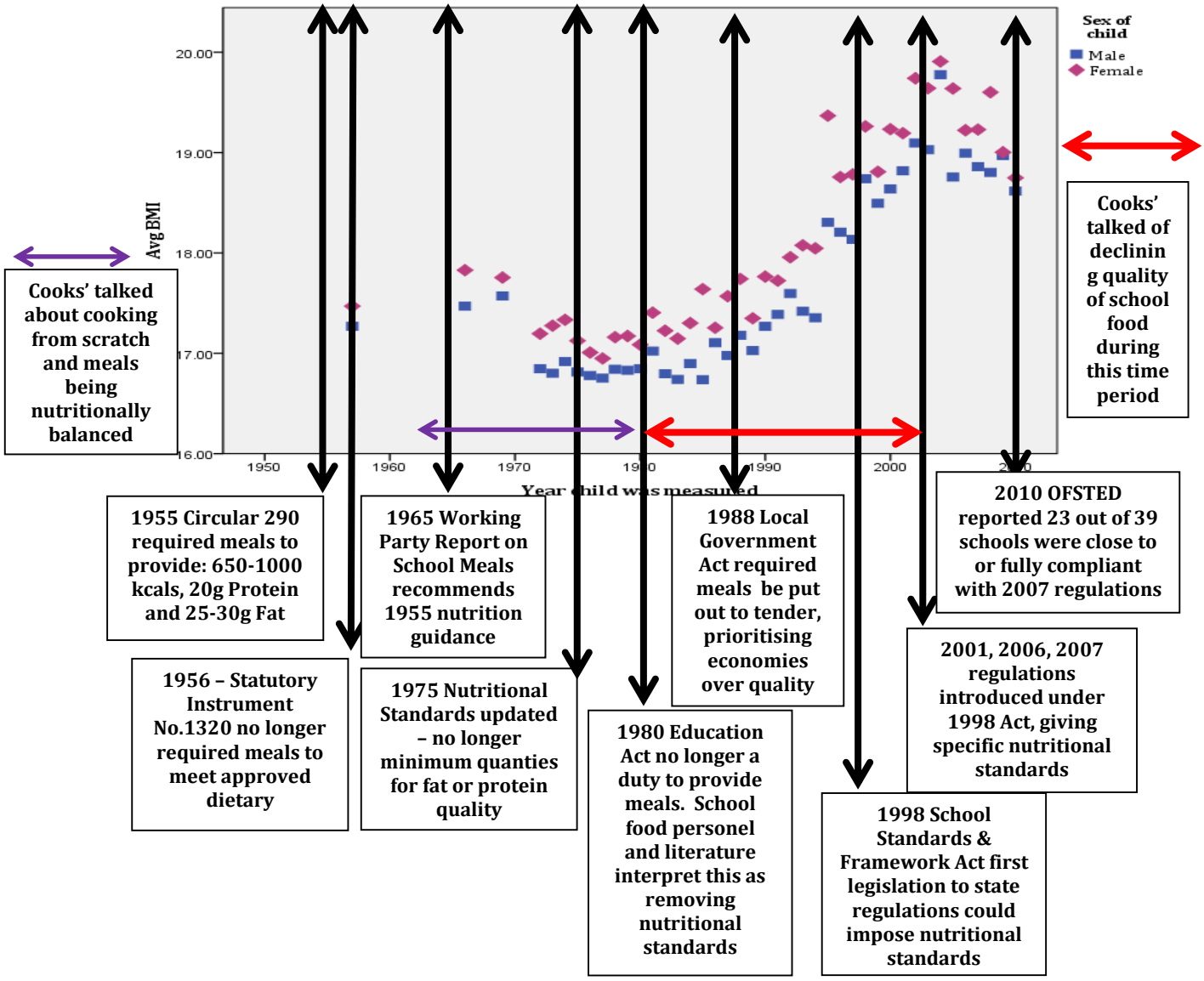
**Figure 14 - Legislation compared to average BMI of children aged 10-12 from 1908 to 1950**



In Figure 15 below, the continued upward trend for BMI is shown alongside additional legislative change and the most prevalent themes discussed by school cooks. At the beginning of this graph it appears as though BMI declines prior to 1970 and plateaus up until the mid-1980s. This plateau coincides with cooks describing how they prepared meals from scratch and worked within the nutritional guidelines in place at the time. However, declines in BMI at this time point should be read with caution. This decline is more likely attributed to differences between the datasets used in this study. There were differences in the average ages of children measured which will have impacted on the results presented here.

After 1980 the average BMI increases quite rapidly after remaining almost at a plateau throughout the 1970s. When this graph is interpreted alongside government legislation for school meals and the cooks' themes it appears as though the deregulation of school meals may have had some impact on child health. Additionally, after 2005 there is a clear decline in BMI, and height (Figure 11, Figure 12, Figure 13) which could highlight a potential relationship with the stricter nutritional standards for school meals introduced in the 2006 regulations. Although, this does not imply causation, it certainly provides justification for further investigation. Moreover, Chapter 1 described how this time period was also characterised by other factors which may have influenced the rapid increases in child BMI such as health and activity patterns, greater availability and marketing of fast foods and ready meals, selling school playing fields and limited physical education, increase in home computers and games consoles which enhanced the attractiveness of sedentary activities, and welfare reforms.

**Figure 15 - Legislation and cooks themes compared to average BMI of children aged 10-12 from 1950 to 2010**



## Discussion

This Chapter has attempted to provide an overview of how child BMI, height, and weight have developed over the course of 102 years from 1908 to 2010. Contemporary analysis of historical data is littered with flaws, such as, not having access to the raw data and or original guidance notes which provide information on how the data were collected. Additionally, this Chapter choose historical scope over data that were precisely comparable. This has resulted in difficulty making conclusive statements about the patterns that have emerged. However, it is hoped this Chapter has at least been able to address its first aim and present some insight into how these variables have changed over the course of a Century. Although there are some issues with regards to using several different datasets it is still clear that children have been getting taller and heavier over this 102 year time period. Figures to 13 have shown how there has been a general increasing trend for BMI, height, and weight since 1908 in both boys and girls within the 10-12 age range with two exceptions.

During the two World Wars, 1914-1918 and 1939-1945, there are clear declines and these graphs confirm the nutritional stress which war placed on these particular children due to the resulting declines in their BMI, height, and weight. However, the declines seen in the Second World War were less severe than those seen for the First, potentially as a result of rationing which aimed to provide all families with sufficient nutrition. Moreover, legislation introduced in 1944 placed a duty on LEAs to provide school meals which may have protected children from the nutritional stresses seen during the First World War. Although this legislation did not come into force until 1st April 1945, shortly before the end of the Second World War. Moreover, children in this age group were not routinely measured and could, therefore, represent a population of children who were purposefully selected for being outside of a 'normal' range, for example being under-nourished. This particular result then could show that children who were already suffering from under-nourishment fared much worse during war time than their peers. Therefore, it is difficult to present a representative depiction of fluctuations in malnourishment among this age group of children from 1908 to 1950.

Although we see a decline in weight and BMI towards the end of this time period, it is important to note that the National Child Measurement Programme (NCMP, established in 2006), which has a much larger and nationally representative sample, has recently reported an increase in the prevalence of overweight/obesity from 2006 to 2012 (Ridler, Dinsdale, and Rutter; 2013). The decline seen in BMI, height, and weight from 2005 onwards in this Chapter is based on data from the Health Survey for England (HSE) with much smaller sample sizes; therefore, it would be incorrect to generalise from these findings and state that child BMI, height, and weight have declined in England from around 2005 onwards. However, future work could look more closely at this decline to understand why the averages for children in this age group and population began declining. The second aim of this Chapter was to see whether fluctuations in the average BMI of children aged 10-12 can be seen to correlate, at least visually, to known changes in government policies for school meals and narratives from school cooks. Although there do appear to be some visual clues to correlation (Figure 14 and Figure 15) such as the declining quality of school meals after the 1980s and increases in child BMI, as well as declines in BMI coinciding with stricter nutritional regulations after 2005, this does not necessarily imply causation between these variables. Figure 14 and Figure 15 provide a visual representation of potential relationships between the themes discussed in Chapters 2 and 3 and child BMI over a 102 year period. From 1908 to 1950 it is difficult to see any clear patterns between school meal legislation and fluctuations in child BMI, height and weight. In Figure 15 the most striking point is the rise in child BMI after the mid-1980s. Although the 1980 Education Act removed the duty on LEAs to provide school meals and this Act was believed to have abolished mandatory nutritional standards, the graphs shown in this Chapter do not indicate any negative effects on child BMI, height, or weight in the early 1980s. However, towards the end of that decade the general increasing trend began to rise at a steeper gradient. This rise in BMI, height, and weight occurred concurrently with the market liberalisation of the school meals service through CCT which cooks argued resulted in a decline in school meal quality.

Therefore, the declining quality of the school meal may have exacerbated the rise in childhood obesity which was being driven by a wide variety of sociological and technological changes as described in Chapter 1. The decline in child BMI seen after 2005 could be attributed to the introduction of mandatory nutritional standards for school meals; however, as mentioned above there are methodological issues which render this inconclusive.

The results presented in this Chapter may also be affected by changes in the age of puberty which have occurred in recent years. Over the last century there has been a distinct decline in average age at the onset of puberty, demonstrated by early onset of menarche in girls and early adolescent growth spurt in boys (Tanner, 1962). Tanner described the change in age at menarche as reducing at a rate of about 4 months per decade from around 16.5 to 17 years in 1830 to roughly 13 years in 1960 (pp.152-3). Moreover, he discussed there had been a similar trend in the average age at which boys reached their peak height velocity. Placing this into context, Tanner argued this would equate to children aged 10 in 1930 being the size of children aged 9 in 1960 (1962:152). Improvements in health, nutrition, living conditions, and sanitation over the last century were described as driving this upward trend (Tanner, 1962). However, in more recent years the explanations for continuing declines have been expanded. Parent *et al.* (2013) describe how the timing of puberty can be influenced by neurological signals in addition to changes in environmental conditions such as nutrition, light, stressors, and endocrine disruptors. This Chapter focused on children aged 9.99 to 11.99 which is slightly below the ages Tanner describe in 1962. However, more recent studies have shown that the onset of puberty has decreased to around 12 years in girls and 11 in boys (Downing and Bellis, 2009). Therefore, it is possible that the subsequent growth spurt which follows the onset of puberty (Gluckman, Beedle, and Hanson, 2012) could provide some explanation for the changes in height, weight, and BMI, in addition to differences seen between the sexes seen in this Chapter.

## Limitations

Although this Chapter presents unique insight into the fluctuations of child height, weight, and BMI over an extensive time period, this comes at a price. It is not possible to generate conclusive statements about how these variables have changed over time due to the inconsistency of comparable data. Moreover, where data appear to be comparable there may be other factors which affect the conclusions which can be reached. The age range which was selected for this Chapter was purposefully limited to 9.99-11.99 in order to include as many of available datasets as possible. This resulted in a greater chronological spread, however, created limitations in the generalisability of the findings. Moreover, the lower heights, weights, and BMIs seen from 1908 to 1950 may not represent sociological issues affecting malnourishment, these may be affected by the choice of age group in this Chapter. Children within the 9.99-11.99 age group were not routinely measured and may have only been included as a result of malnourishment. Indeed, Harris (1993) showed that around the time of the First World War for the majority of children in the routine measurement age groups, average heights increased. There were areas that saw declines in average heights, however, Harris argues the overall trend was continuity (p.361). This suggests that the results presented in this Chapter for the time period 1908 to 1950 could be lower than the national average during that time and that the declines seen around the First and Second World Wars may be indicative of children already under nutritional stress as opposed to the wars having the great effect presented in the graphs above.

## Strengths

Although it is not possible to generalise these findings to the school population as a whole due to the limitations discussed above, this Chapter does provide insight into this particular age group across a 102 year time period. This is an extensive period of time and despite the caveats it does align with the literature presented in Chapter 1. This Chapter shows clear increases in height and weight across the whole time period potentially indicating children's nutritional status has improved to some extent. However, the changes in BMI across this time period indicate there has been a shift from under- to over-nourishment in this population of children.

## Conclusion

This Chapter presented an overview to the changes in child BMI, height, and weight from 1908 to 2010 and how these changes relate to key pieces of school meal legislation and the school cooks' narratives. Despite the vast limitations with a historical study of this nature it has indicated there may be areas where the sociological changes discussed in Chapter 1, such as welfare provision, privatisation policies, unemployment and the technological changes, have affected child malnourishment. It has also indicated that specific time points may be worthy of further investigation as there are clear coincidental associations with school meal legislation and fluctuations in child BMI, such as the increase after the 1944 Education Act which made the provision school meals mandatory, the 1980 Education Act which removed that mandate, the 1988 Local Government Act which introduced CCT, and the declines in BMI seen around 2005 shortly after the 2001 regulations which introduced mandatory nutritional standards. Although the 2005 declines in BMI do not correlate with more nationally representative data such as the NCMP it would be interesting to explore these differences. The next Chapter aims to explore some of these areas in more depth, specifically the time period between 1972 and 1994, to assess the extent to which school meal legislation has impacted on child health.

# Chapter 5
## The National Study of Health and Growth: A Case Study

The previous Chapters have provided various strands of evidence to describe the potential influence of school meal legislation on child malnourishment. In Chapter 1 I discussed the development of childhood obesity, Chapter 2 described the development of the school meals service since 1906 and Chapter 3 presented school cooks' experiences of the legislative changes. This Chapter will combine these strands to explore whether the legislative changes regarding the nutritional content of the school meal have had any measurable impact on child BMI Z-scores.

The National Study of Health and Growth (NSHG) began in 1972 and ran for 23 years until 1994 after which the Health Survey for England assumed responsibility for collecting data on children. As described in Chapter 4, the NSHG was set up to assess possible effects of changes in the provision of welfare, school milk, and school meals on the nutritional state of the population. As a result, this study collected child height and weight data, as well as information on school meals. This study was the only one identified which included school meal and child weight/height variables, but it also spanned the time period in which school cooks described the declining quality of school meals, the mid-1980s to 1990s.

Therefore, the NSHG provides the necessary variables to assess whether changes to government legislation and subsequent declines in school meal quality have affected child BMI Z-scores. Therefore, the aim of this final Chapter in the results section is to use the NSHG variables on school meals and child BMI Z-score to understand whether, and to what extent, school meal legislation can be shown to have any impact (positive or negative) on child malnourishment as represented by BMI Z-score.

## Methods

The NSHG dataset was accessed via the UK Data Service website (http://ukdataservice.ac.uk/). The dataset was assessed for variables which are known risk factors for childhood obesity, as described in Chapter 1, and additional variables relating to the school meal. Table 6 lists all of the variables of interest which were present and identifiable across the whole 23 year study period. The NSHG was initially devised as a 5-year study; however, subsequent funding and changes to project leadership over the 23 year period led to changes in sampling and questionnaires (Chinn and Rona, 1999). Unfortunately, these fluctuations during the life-span of this study led to discrepancies in the way questions were asked and variables coded across the years of data collection which meant it was not possible to include all variables of interest. Although the risk factors for childhood obesity were described in Chapter 1 it was not possible to control for these variables to a great extent in this Chapter.

**Table 6 - List of variables derived from NSHG**

| Child Variables | Adult Variables |
|---|---|
| Sex of Child | Social Class of Respondent 1972 - 1976 |
| Date of Birth | Social Class of Spouse 1972-1976 |
| Date of Measurement | Social Class of Mother 1977-1994 |
| Height | Social Class of Father 1977-1994 |
| Weight | |
| Type of meal eaten at lunchtime | |
| Does child receive a free school meal? | |

Despite there being many variables related to socio-economic status the way these were coded and amended at subsequent data collections it was not possible to be able to attempt generate a comparable variable across the 23 year study period. Additionally, it was not possible to identify comparable parental weight variables across the study period due to differing labels, not to mention the problem with weight and height being self-reported. Therefore, these issues resulted in there being only one adult variable available for analysis. It was possible to use social class - of respondent and spouse (1972-1976), mother and father (1977-1994), in an attempt to control for the potential effect of parental socio-economic status on child BMI z-score. From 1972 to 1976 the labels of

'respondent and spouse' have been assumed to be mother and father as in most cases the questionnaires were completed by the mother; however, this is not guaranteed to be correct in all instances. Another issue with NSHG is that the study attempted to weight the population towards children from poorer backgrounds as it was believed these children would be most affected by changes in welfare provision, school milk, and school meals. Therefore, to monitor the effects of such change the study attempted to over-select for those from poorer backgrounds. The desired sample of poorer children was not initially achieved; therefore, from 1983 to 1994 the sample was switched on odd years to that of a more deprived inner-city population. Although the NSHG included children aged from 5-12 this Chapter only focused on children aged 10-12 to ensure consistency with Chapter 4. Additionally, Chinn & Rona (2001) reported a greater increase in overweight and obesity prevalence in the older children from their analysis of children aged 5-11 from the NSHG. Therefore, it seemed unnecessary to include children under 9.99 in this Chapter. In the previous Chapter it was not possible to generate BMI Z-scores as the historical data were too far removed from averages of contemporary children to be suitable for comparison and individual data were not available from 1908 to 1950. Creating a BMI Z-score for a child in 1908 would likely produce a score that presented the child as extremely undernourished as the LMS Growth tool would compare their BMI to that of the contemporary children whose growth data make up the UK90 database. It is more methodologically sound to create a BMI Z-score using data as close to the reference population as possible to prevent skewed results. Moreover, the pre-1950s data presented in Chapter 4 were averages as opposed to individual level data required for analysis here. However, the NSHG was one of the datasets used to create the UK90 population which the LMS Growth tool uses to generate the BMI Z-score. Therefore, as these data are present in the UK90 it was possible to generate the BMI Z-score and be able to group them in reference to the National Obesity Observatory (NOO) cut-off points (-2SD = underweight, between -2SD and +1.32SD = healthy weight, +1.33SD = overweight, +2SD = obese, +2.66SD severely obese). Height and weight data were taken from the NSHG and ran through the LMS Growth tool to generate the age and sex specific BMI Z-score.

## Statistical Analysis

Table 7 lists the variables used, the type of data, and where these were amended from the originals in the NSHG, how they were coded (categorical) or derived (continuous). All analyses were performed in SPSS version 20.

**Table 7 - Variables used in analysis, derived from NSHG**

| Variable | Type of Data | How derived (continuous) / coded (categorical) |
|---|---|---|
| Child's age | Continuous | Year of measurement minus year of birth |
| Child's sex | Categorical nominal | Boy or Girl |
| Lunchtime meal | Categorical nominal | Paid school meal, free school meal, packed lunch and went home |
| Paid or Free Meal? | Categorical nominal | Paid school meal, free school meal |
| BMI Z-score | Continuous | Height and weight data exported into LMS Growth tool, BMI Z-score generated then imported back into SPSS |
| NOO BMI Cut off points | Categorical nominal | BMI Z-score recoded into NOO BMI cut off points 1 – Underweight (< - 2SD) 2 – Healthy Weight (between > -2SD and +1.32SD) 3 – Overweight (+1.33SD) 4 – Obese (+2.SD) 5 – Severely Obese (+2.66SD) |
| Parent's social class (social class labels were taken from the NSHG guidance notes and applied to the relevant code 1-9) | Categorical ordinal | Coded by NSHG, labels added as follows 1 – Professional and senior managerial, 2 – intermediate managerial, 3 – non-manual, 4 – semi-skilled, 5 – unskilled manual, 6 – skilled manual, 7 – never gainfully employed, 8 – No spouse/non-working housewife, 9 – unknown |

Histograms were produced for both boys and girls BMI Z-score to visually assess for normal distribution. Associations between continuous and categorical variables with more than 2 groups were assessed using one-way multiple response ANOVA. All tests were considered statistically significant if $p \leq 0.05$.

The ANOVA can show a significant relationship between one continuous variable and one multiple response categorical variable, therefore it may produce a significant result but have confounding untested variables. In order to address this, linear regression was performed after the ANOVA to assess several, multiple response categorical variables. However, the ANOVA and regression results are analysed together as the regression can only tell us which variable has a significant relationship with the continuous outcome and not which response within that variable is having the effect.

## Results

This section provides the final results of this thesis and presents a variety of tables and graphs to highlight whether there are any statistically significant relationships between the type of meal a child had at lunchtime and their BMI Z-score and whether any such relationships were more significant before, during, or after changes to school meal legislation. Table 8 below provides information on the sample size of boys and girls for each year of measurement.

The sample sizes for boys and girls are similar for all years of measurement, apart from 1973 to 1976. It is unclear whether these small sample sizes represent the total number of boys and girls aged 10-12 within that year's cohort or whether this is a result of the methodological issues resulting from changes to questionnaires. According to Chinn and Rona (1999) the years 1973 to 1976 resulted in some data not being compatible with that collected in 1972 as a result of modifications to data collection forms and questionnaires.

**Table 8 - Sample sizes for Boys and Girls aged 10-12 for each year of measurement**

| Year of Anthropometric Exam | Sex of child | | Total |
|---|---|---|---|
| | Boy | Girl | |
| 1972 | 1346 | 1304 | 2650 |
| 1973 | 83 | 75 | 158 |
| 1974 | 83 | 65 | 148 |
| 1975 | 50 | 80 | 130 |
| 1976 | 80 | 60 | 140 |
| 1977 | 1266 | 1222 | 2488 |
| 1978 | 1336 | 1258 | 2594 |
| 1979 | 1226 | 1219 | 2445 |
| 1980 | 1122 | 1146 | 2268 |
| 1981 | 1133 | 1123 | 2256 |
| 1982 | 1109 | 1098 | 2207 |
| 1983 | 1275 | 1200 | 2475 |
| 1984 | 1115 | 985 | 2100 |
| 1985 | 1061 | 1052 | 2113 |
| 1986 | 1012 | 945 | 1957 |
| 1987 | 1031 | 968 | 1999 |
| 1988 | 1033 | 969 | 2002 |
| 1989 | 1019 | 914 | 1933 |
| 1990 | 1154 | 993 | 2147 |
| 1991 | 1135 | 1027 | 2162 |
| 1992 | 1021 | 980 | 2001 |
| 1993 | 1054 | 966 | 2020 |
| 1994 | 1004 | 988 | 1992 |
| Total | 21745 | 20631 | 42376 |

Therefore, it is likely that these small sample sizes are not the total figures for these years but are coded in such a way they appear missing. It is important to take note of this discrepancy in sample size for the years 1973 to 1976 as these differences may skew the results below.

## Graphs depicting changes to BMI Z-score

This section will present a range of graphs showing the changes to average BMI Z-score for boys and girls aged 10-12 since 1972. The first two graphs show how the average BMI Z-score of boys and girls aged 10-12 changed over the 23 year time period. Figure 16 below shows how the average BMI Z-score for boys aged 10-12 has increased over time. In 1972 the average BMI Z-score for boys was -0.1384 (SD 0.99480) this had increased to 0.1328 (SD 1.07492) by 1994. Additionally, the increase in standard deviations over this time highlights a widening of the spread about the mean. This increasing deviation from the mean could indicate a shift in the normal distribution which will be explored below using histograms.

**Figure 16 - Average BMI Z-score of Boys aged 10-12 from 1972 to 1994**

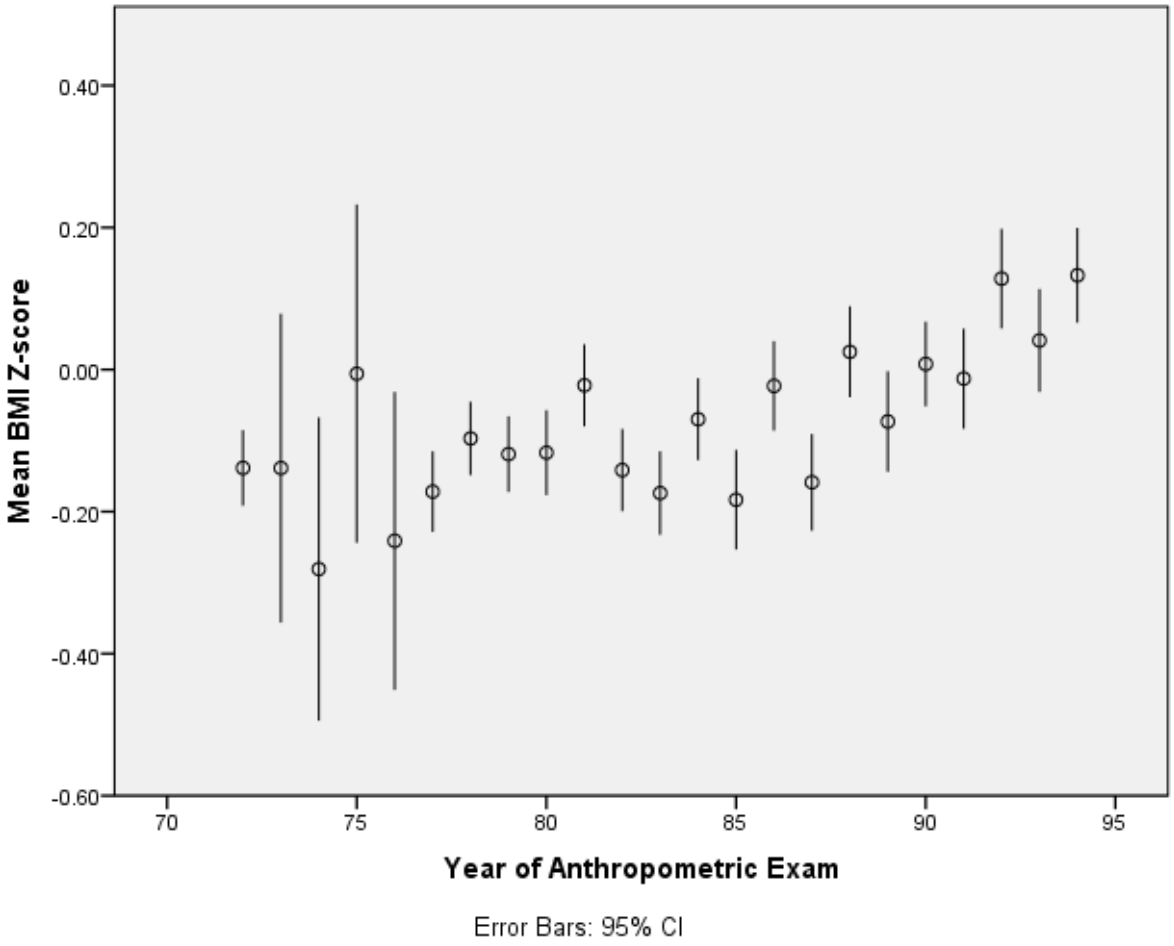
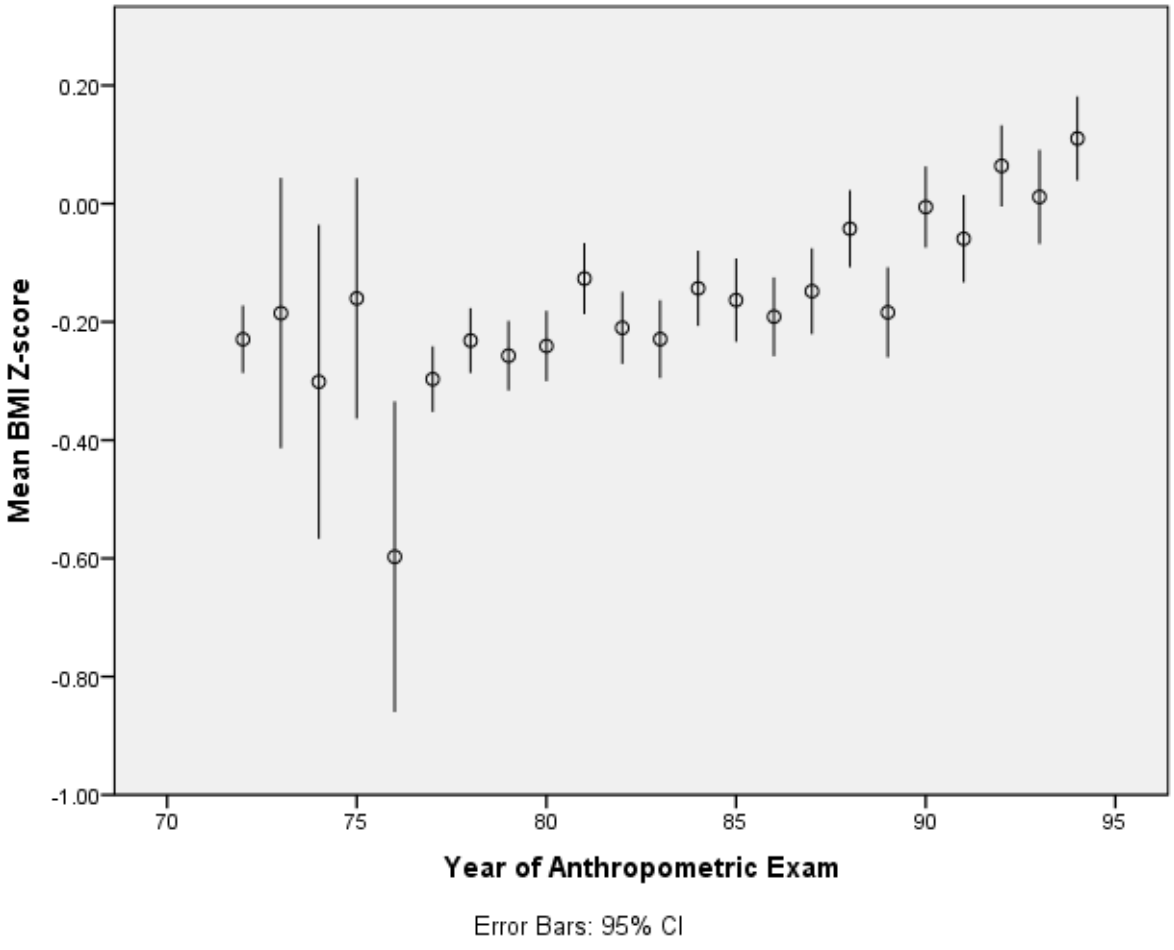


Figure 17 shows how BMI Z-score changed over the same time period for girls. As with the boys there is an increasing trend, however, for girls this appears to form a straighter line and is less variable than the boys. In 1972 the average BMI Z-score for girls aged 10-12 was -0.2294 (SD 1.05228) which increased to 0.1102 (SD 1.13823) by 1994. As with boys the standard deviations around the mean also increased for girls over this time period. This change in standard deviation shows there is more variation around the mean in the later years which indicates the spread of the BMI Z-score has changed over this time period.

**Figure 17 - Average BMI Z-score of Girls aged 10-12 from 1972 to 1994**



In order to assess whether this change in standard deviations has led to a skewed distribution in BMI Z-score for boys and girls the following histograms were produced for the years 1972, 1982, and 1992. Figure 18, 20, and 21 below show how the distribution of boys BMI Z-score has changed over a 20 year period.

**Figure 18 - Distribution of Boys BMI Z-score in 1972**

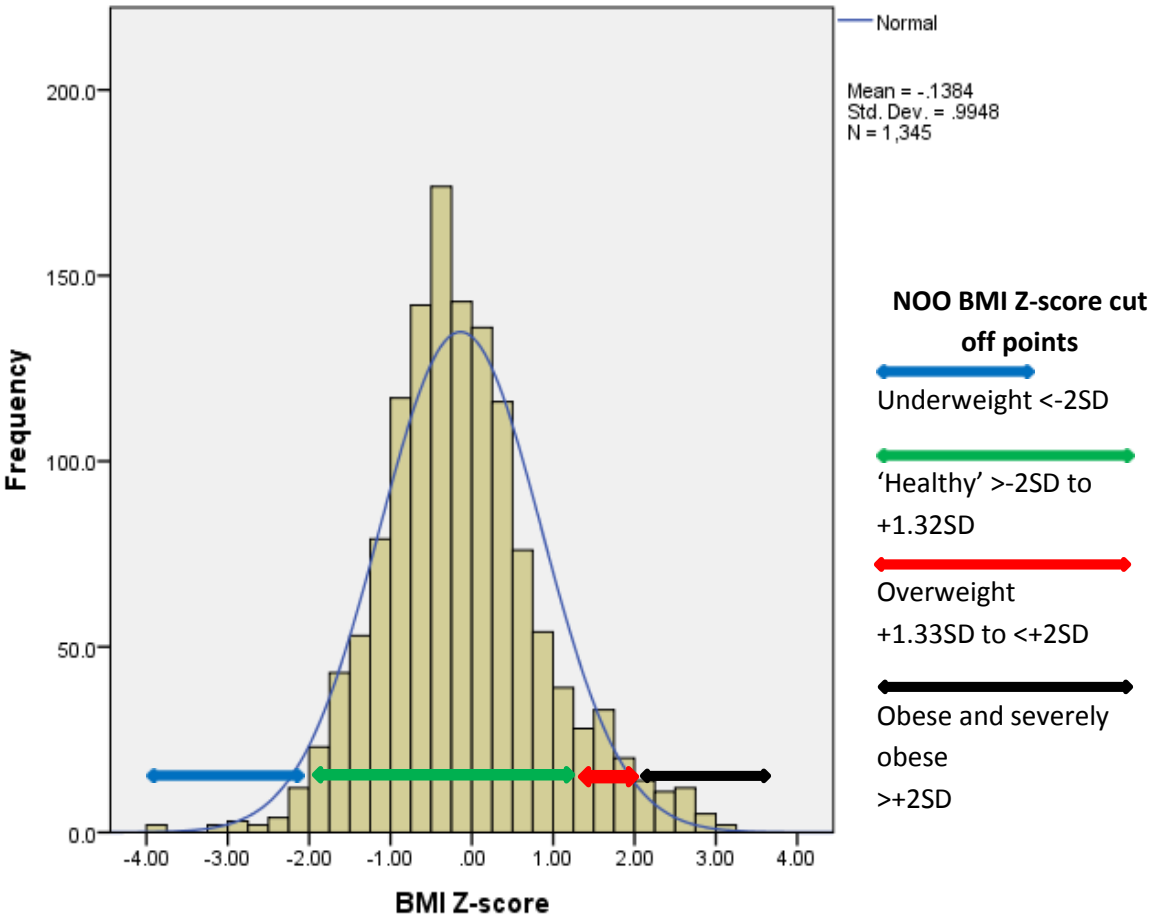



Figure 18 above shows a right skewed distribution, when the NOO cut off points for interpreting the BMI Z-score are included, the graph shows more boys falling into the overweight and obese end of the distribution than those in the underweight category. However, the mean BMI Z-score is -0.1384 which is classified as healthy so despite a right skewed distribution boys aged 10-12, on average, were a healthy weight.

**Figure 19 - Distribution of Boys BMI Z-score in 1982**

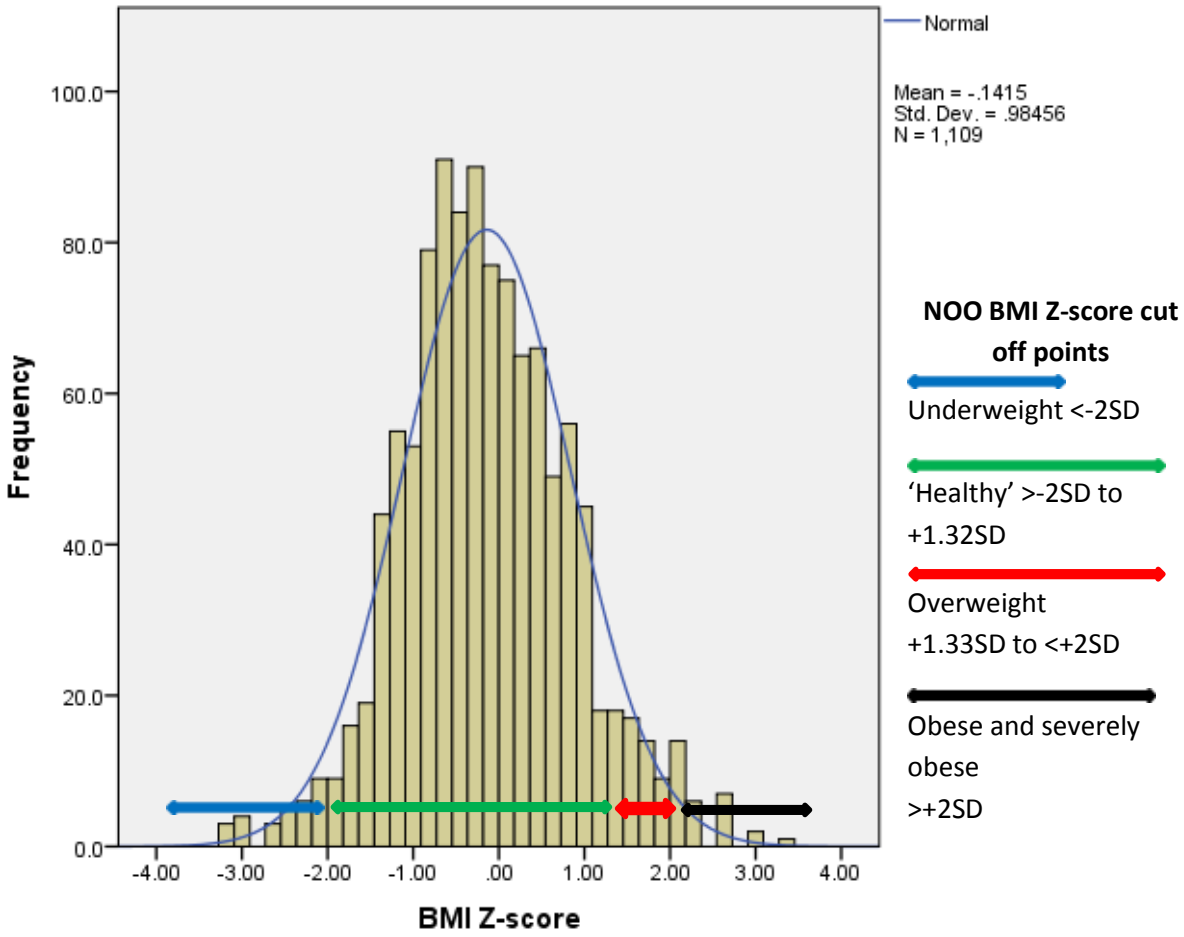
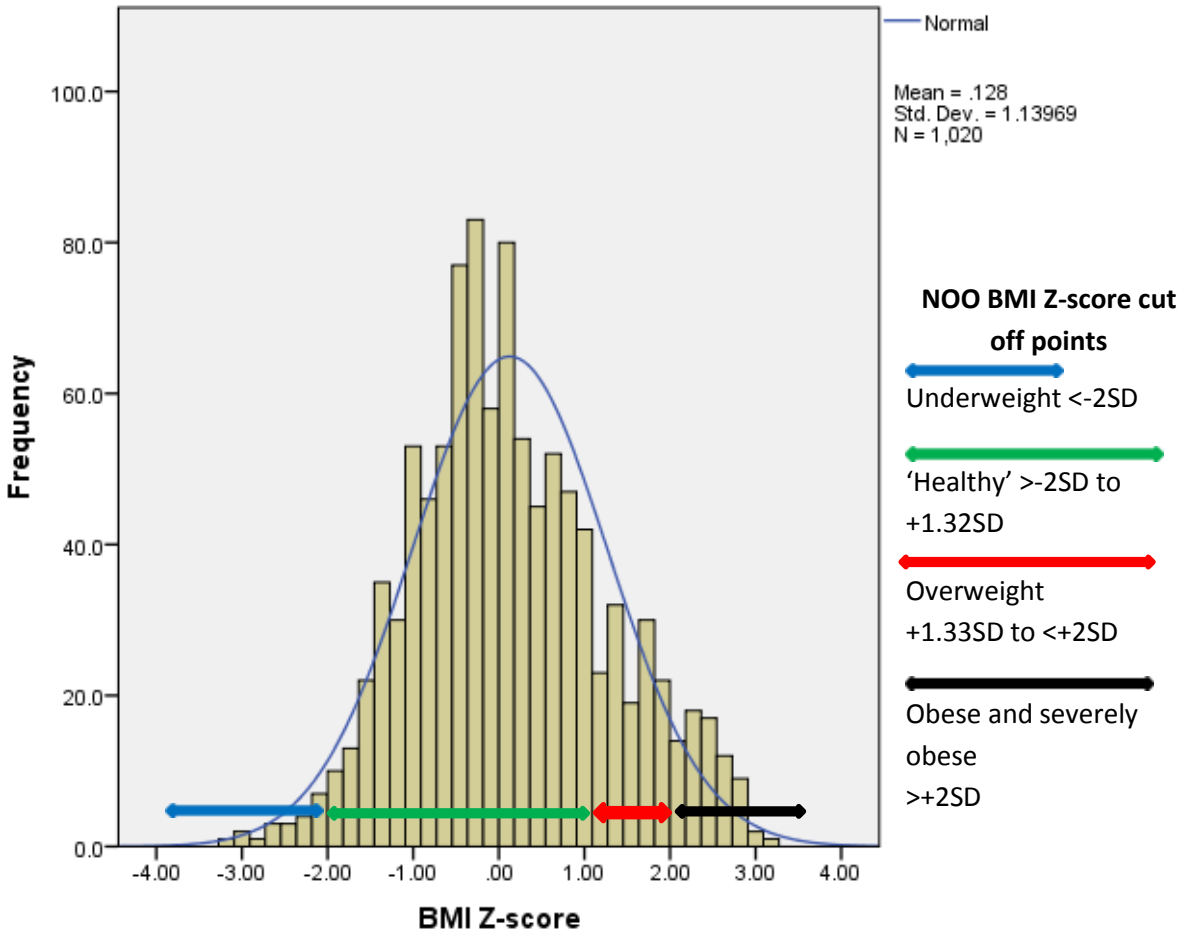


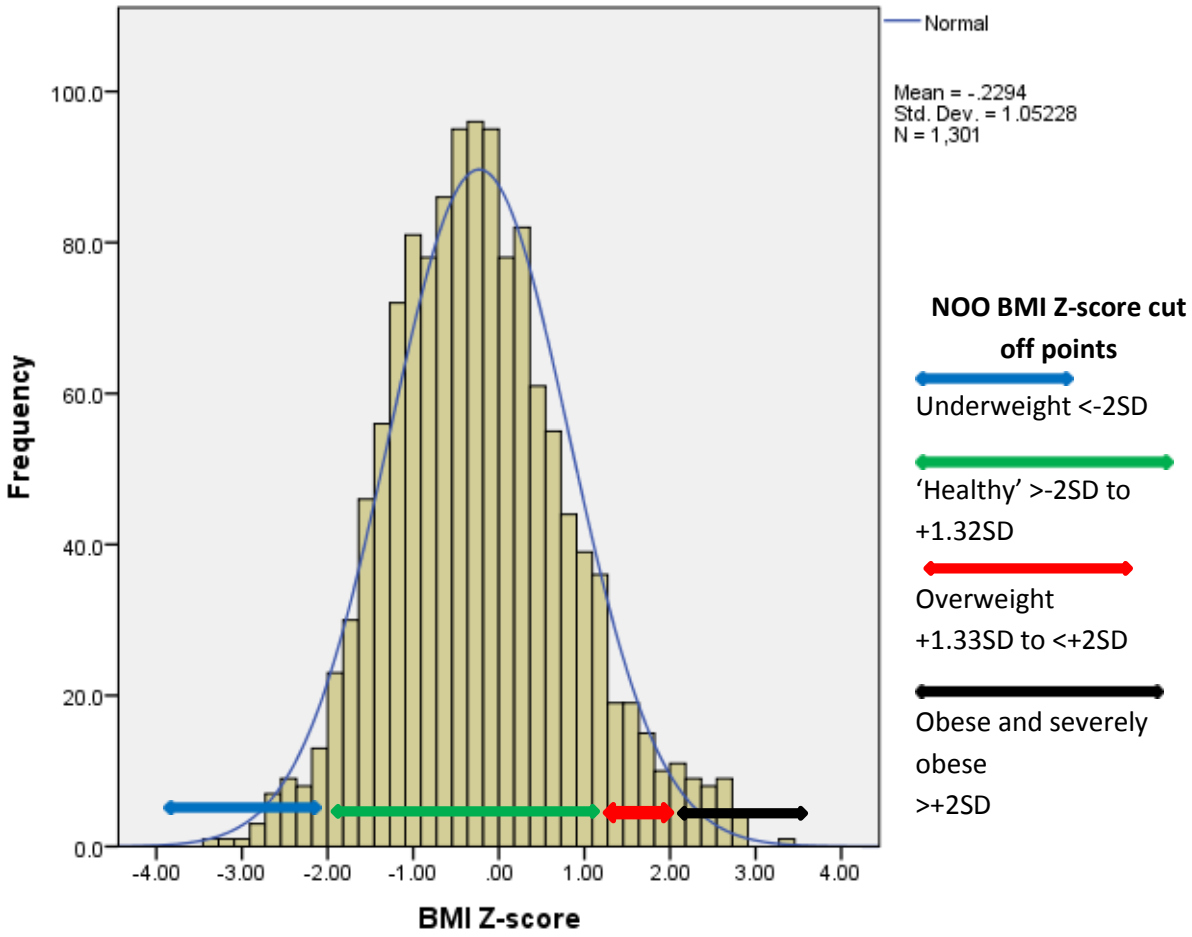

Figure 19 depicts the distribution of boys BMI Z-score in 1982 and appears more normally distributed than that in 1972 above. However, the average BMI Z-score has decreased from -0.1384 in 1972 to -0.1415 here in 1982. The average has shifted ever so slightly to the left and again when the arrows for NOO cut off points are included there are a greater proportion of boys in the overweight and obese end of the distribution than in the underweight end.

**Figure 20- Distribution of Boys BMI Z-score in 1992**




The data from 1992 show the average BMI Z-score for boys increased from -0.1415 in 1982 to 0.128 here in 1992 and it is clear that there is a much larger proportion of boys in the overweight and obese end of the distribution. These 3 graphs show that the prevalence of overweight and obesity has increased in boys since 1972 due to the increasing right skew of the distribution. The next 3 graphs will show how this distribution has changed over time for girls.

**Figure 21 - Distribution of Girls BMI Z-score in 1972**




For girls in 1972 Figure 21 shows the average BMI Z-score was lower than the boys, -0.2294 compared to the boys -0.1384. The histogram is right skewed indicating the proportion of girls in the overweight and obese end of this distribution is greater than those in the underweight end. Additionally, it appears as though there were more overweight/obese girls in 1972 than boys as seen in Figure 18 above.

**Figure 22 - Distribution of Girls BMI Z-score in 1982**

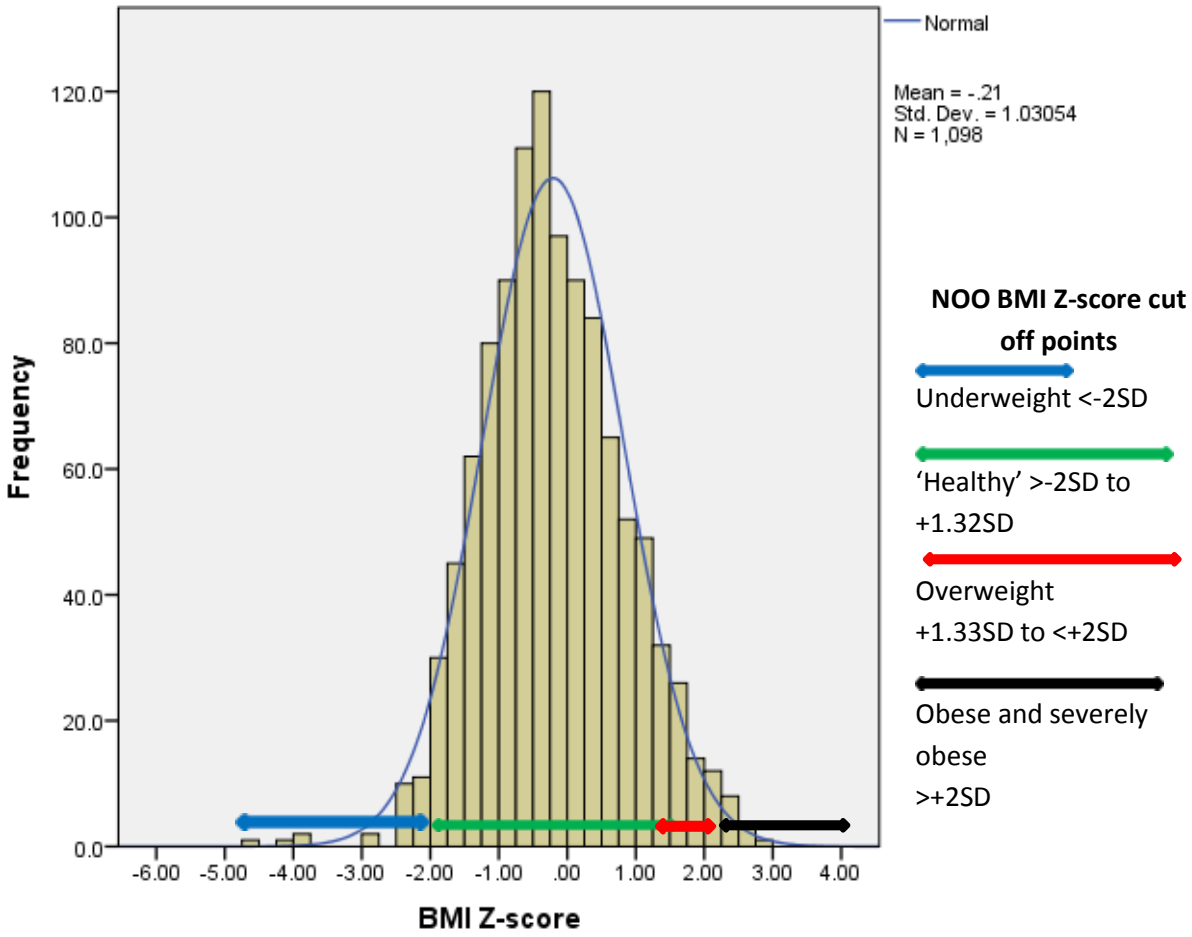
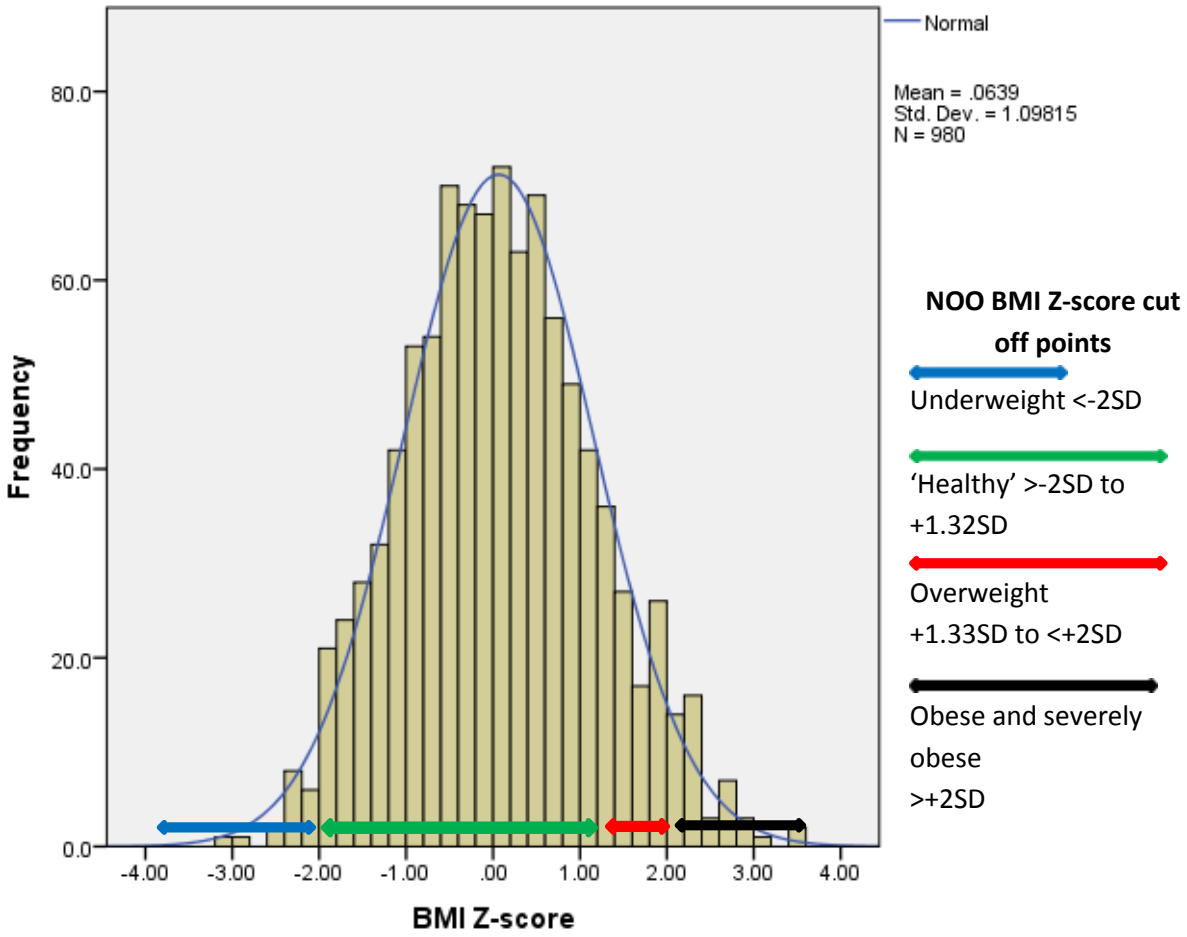



Figure 22 shows how the shift to the right has progressed since 1972, the graph shows how there are far fewer girls in the underweight category of <-2SD than that previously seen in Figure 21 above. The average BMI Z-score shows a marginal increase from -0.2294 in 1972 to -0.21 here in 1982. Therefore, for girls it appears as though at this time point there has been little increase in the overweight and obese category but a positive reduction in the number of girls in the underweight category.

**Figure 23 - Distribution of Girls BMI Z-score in 1992**




Despite the apparent plateau in overweight and obesity seen in Figure 22 from 1982 above, Figure 23 shows this was not been maintained as time progressed. In 1992 the distribution is much flatter than that seen previously with a much larger proportion of girls falling into the overweight and obese end of this distribution. Again, this shifting to the right has resulted in fewer girls sitting in the thinness end of the distribution which can be seen as a positive result. However, these graphs only provide a visual representation of this change, below Table 9 explores how the proportions of children falling within each category have changed over this time period. The graphs above have shown that from 1972 to 1992 there appears to be an increasing proportion of boys and girls falling into the overweight and obese cut off point. Table 9 below shows how the percentages of children in each BMI Z-score cut off point changes from 1972 to 1994.

**Table 9 - Percentage increase of overweight and obese Boys and Girls from 1972 to 1994**

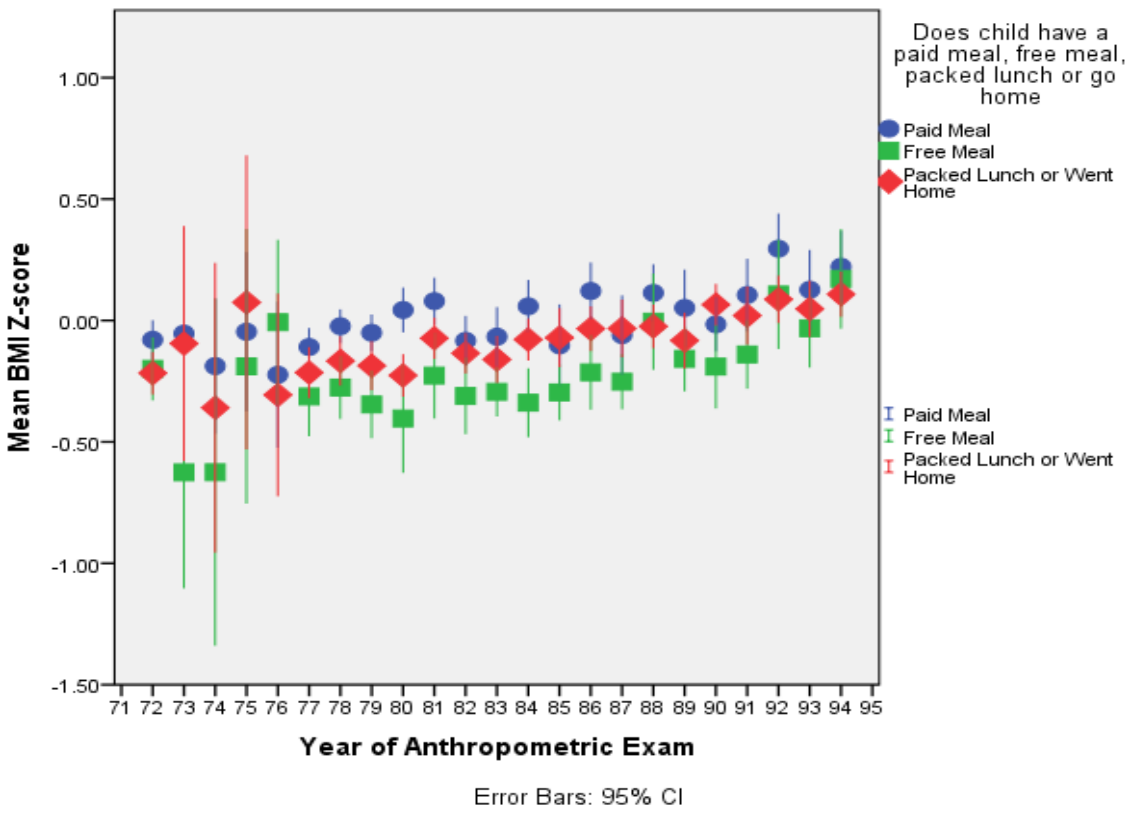
| NOO BMI Z-score Cut off | 1972 | | 1982 | | 1992 | | 1994 | |
|---|---|---|---|---|---|---|---|---|
| | Girls n=1304 | Boys n=1346 | Girls n=1098 | Boys n=1109 | Girls n=980 | Boys n=1021 | Girls n=988 | Boys n=1004 |
| Underweight <-2SD | 3.6% | 1.9% | 2.6% | 2.7% | 1.9% | 2.2% | 2.4% | 1.8% |
| 'Healthy' >-2 to 1.32SD | 88.7% | 89.6% | 89.5% | 90.1% | 85.1% | 82.0% | 82.4% | 82.7% |
| Overweight 1.33 to 1.99SD | 4.4% | 5.2% | 5.6% | 4.5% | 8.3% | 8.7% | 10.2% | 10.8% |
| Obese 2 to 2.65SD | 2.8% | 2.4% | 1.9% | 2.3% | 3.7% | 5.5% | 3.8% | 3.5% |
| Severely Obese >2.66SD | 0.5% | 0.9% | 0.3% | 0.5% | 1.0% | 1.7% | 1.1% | 1.3% |

As can be seen in the above table the percentage of boys and girls in the overweight, obese, and severely obese cut off points have increased since 1972 (Girls: overweight from 4.4 to 8.3%, obese from 2.8 to 3.7%, severely obese from 0.5 to 1.0%. Boys: overweight from 5.2 to 10.8%, obese from 2.4 to 3.5%, severely obese from 0.9 to 1.3%). This table confirms the skew identified in the histograms (Figures 18 to 23) above as the percentage of children in the underweight category is much lower than that of the overweight to severely obese categories combined. Additionally, it shows how there has been a decreasing trend for children in the underweight category, 3.6% to 1.9% in girls and 1.9% to 1.8% in boys. Although this decrease can be seen as a positive in terms of reducing child under-nourishment, the proportion of children in the 'healthy' category also decreases, 88.7% to 85.1% in girls and from 89.6% to 82.7% in boys. It is clear from the graphs and table presented above that overweight, obesity, and severe obesity have increased over this time period, corroborating with the evidence in the literature described in Chapter 1 and the results from Chapter 4. However, it is so far unclear how this relates to the type of meal a child had at lunchtime and whether there are any clear patterns that indicate potential relationships with changing legislation. The next section presents a series of graphs to explore this relationship further.

## Graphs depicting potential relationships between BMI Z-score and meal type

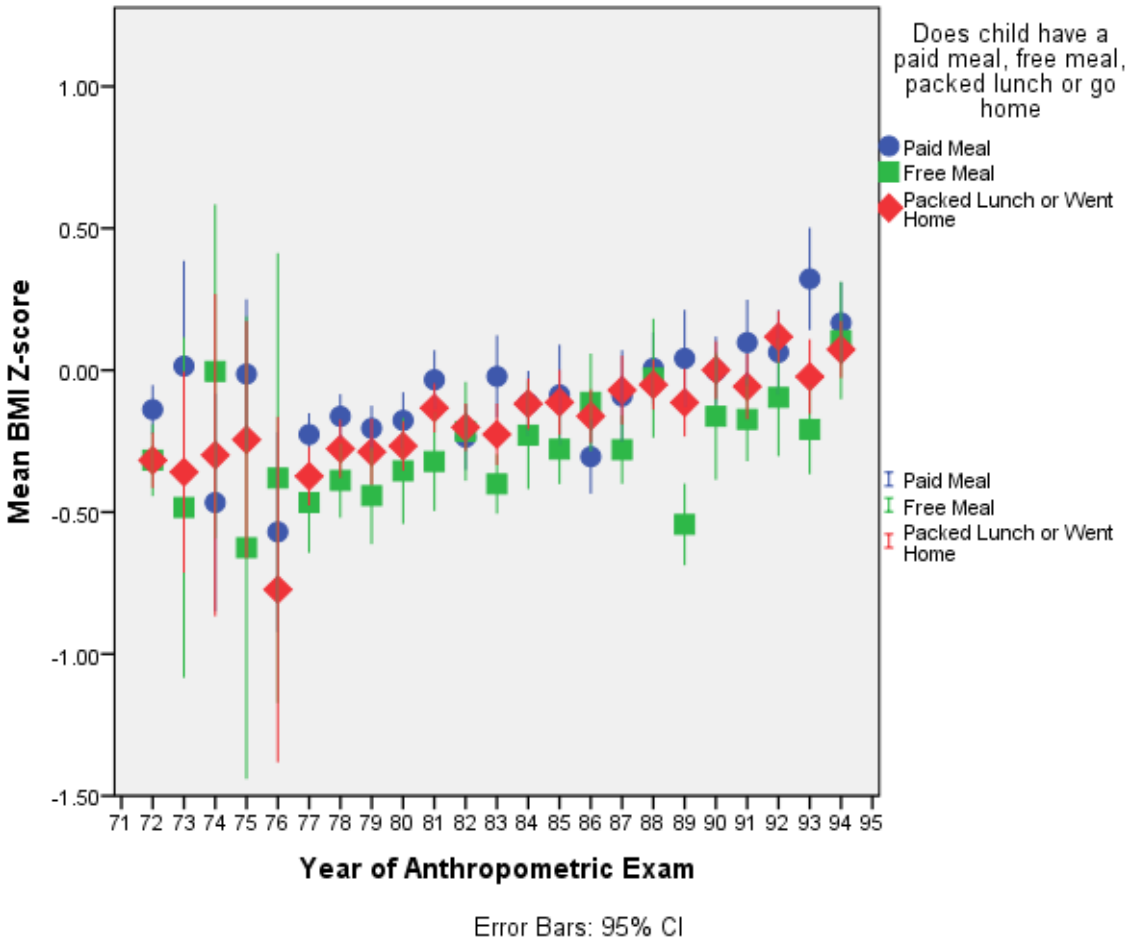
Prior to conducting statistical analysis to assess the relationship between BMI Z-score and the type of meal a child ate at lunchtime, the following graphs were produced to assess whether there were any visual patterns between these variables before or after legislative changes to school meal policy. Figure 24 below shows how there is a clear pattern between the type of meal taken at lunchtime and the average BMI Z-score for boys aged 10-12. Boys taking a free school meal have a lower average BMI Z-score than those taking a packed lunch or going home and those paying for a school meal. Moreover, this pattern appears to begin to merge around 1992 with there being very little difference between the free meal boys and the packed lunch/go home boys in 1992 and from 1993 the average BMI Z-score for all three meal groups is very similar. The period between 1973 and 1976 does not appear to follow this pattern; however, it was during this time there were methodological issues which affected the sample size.

**Figure 24 - Boys BMI Z-score in relation to type of meal from 1972 to 1994**



In Figure 25 the pattern seen in Figure 24 for boys appears to be replicated here for girls. The girls receiving a free school meal have a lower average BMI Z-score than those taking a packed lunch or going home and girls having a paid school meal have the highest average BMI Z-score. Again, the methodological issues present from 1973 to 1976 are also seen here. Although the pattern is similar to Figure 25 above, it looks as though the differences between meal type and BMI Z-score are not as great for girls. The pattern is more closely clustered for girls and the merging of the meal types only appears to begin in 1994, later than the boys. One of the most relevant similarities between the boys' and girls' graphs is there do not appear to be any significant changes, either increasing or decreasing, in average BMI Z-score around specific time points related to changes in school meal legislation. The period from 1972 to 1979 covers the period prior to the 1980 Education Act which is generally assumed to have removed the legal requirement for meals to meet nutritional standards.

**Figure 25 - Girls BMI Z-score in relation to meal type from 1972 to 1994**



From 1980 to 1988 is the period after the perceived removal of nutritional standards and 1989 to 1994 is the period after the introduction of Compulsory Competitive Tendering (CCT). In both graphs there is a slight increase in the average BMI Z-score for all meal types after 1980 which then decreases in 1982, and drop further in 1983, before beginning to increase again in 1984. However, these changes are too small to be beyond that expected to occur as a result of natural variation and any increases related to changes in legislation would not be expected to be seen so quickly. Moreover, the interviews with school cooks described CCT as having the most impact on meal quality, therefore, theoretically it would be the latter part of the 1980s that any changes related to legislation would be expected to be seen. Additionally, the cooks described how there were changes in food composition within society which has not been factored in here. It is worth contextualising the results seen here with wider sociological changes to prevent making incorrect conclusions. Although there does not appear to be any visual significance of particular time points having a greater influence on average BMI Z-score for both boys and girls, apart from a general increasing trend over time, there is a clear indication that there is some relationship between the type of meal taken at lunchtime and average BMI Z-score. The pattern seen above, of course, does not imply causation and there will be confounding variables that cannot be controlled for here. However, the next section will attempt to tease out the finer intricacies of the patterns seen above with a view to understanding to what effect these types of meal have had on increasing overweight and obesity in children.

## One-way ANOVA Results

One-way ANOVAs were performed to identify whether there were significant differences in BMI Z-score between the various categorical variables. This analysis grouped the time period into 3 distinct phases, 1972 to 1979 - pre-1980 Education Act (split into two sub-groups, 1972 to 1976 and 1977 to 1979 due to data issues relating to parents' social class discussed below), 1980 to 1988 - post-1980 Education Act but also pre-1988 CCT, and 1989 to 1994 -post-1980 Education Act and 1988 CCT. If the legislative changes have impacted on child BMI Z-score the results should indicate significant relationships in the 1989 to 1994 group as this was the time period after the detrimental legislative change which cooks described as greatly impacting school meal quality.

## Testing the relationship between BMI Z-score and School Meal Type

One-way ANOVAs for multiple comparisons were conducted for preliminary analysis in order to assess whether there was significant variation of BMI Z-score between various categorical variables. As described above, this was first conducted grouping the time period into 3 phases, 1972 to 1979 (sub-groups 1972 to 1976 and 1977 to 1979), 1980 to 1988, and 1989 to 1994. The ANOVA tested for significant differences of BMI Z-score between the groups for the type of meal a child had during the school day, a paid school meal, free school meal, packed lunch or went home. Due to the fact free school meals are provided to children whose parents are entitled to specific welfare benefits it was necessary to separate these children from those who paid for a school meal to understand whether it was the meal itself or the circumstances of the family that was having an effect on the child's BMI Z-score. However, this is still not a perfect measure as not all children take the free meal they are entitled to and some families who are entitled to a free meal may not be from the lower socioeconomic strata expected. The variable for meal type separates those having a free school meal from those having a paid meal as differences between these values would suggest a wider sociological phenomenon affecting BMI Z-score than that of the school meal.

Essentially, those taking a school meal, paid or free, are eating the same meal and thus any significant results should be equally present in both groups of the variable, if the quality of food has affected BMI Z-score. As described above the ANOVA can only assess one continuous variable against one multiple response categorical variable. Therefore, the following section presents separate analyses, differences of boys' and girls' BMI Z-score between meal types and differences of boys' and girls' BMI Z-score between parents' social class. These results are then compared to the results from the regression analysis to fully understand which of these variables has the strongest association with child BMI Z-score.

**ANOVA Results for Boys aged 10-12 from 1972 to 1994**

The first table in this results section shows the ANOVA results for aged 10-12 boys measured during the 1972 to 1979 time group, split into two sub-groups (1972 to 1976 and 1977 to 1979) in order to be compatible with the ANOVA below testing for associations between BMI Z-score and parents' social class. This time period is characterised as being relatively stable in terms of legislative change to the nutritional quality of the school meal. Although the legality of nutritional standards has been questioned in Chapter 3, in Chapter 4 the cooks described how they worked within the nutritional guidelines as though they were mandatory. Therefore, this time period could be taken as relatively stable with no major changes to the school meal system. Table 10 presents the ANOVA results showing a significant relationship, $p = 0.035$, between BMI Z-score and the type of meal boys had at lunchtime. However, $F=3.360$ is relatively small suggesting a lot of variation within the groups rather than between them. To understand the variation between the groups and whether any differences between them are significant, post-hoc tests are required to show relationships between and within the categorical groups.

**Table 10 - ANOVA results for Boys aged 10-12 from 1972 to 1976**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 6.579 | 2 | 3.290 | 3.360 | .035 |
| Within Groups | 1535.998 | 1569 | .979 | | |
| Total | 1542.577 | 1571 | | | |

Table 11 below shows the results from the post-hoc Scheffe tests which show whether there are significant results between BMI-Z-score and the different groups within the categorical variable. This table shows there were no significant differences between the school meal groups for the time period 1972 to 1976. This result confirms the suggestion from the F-value that the BMI Z-score is more variable within each group, resulting in a significant p-value, however the difference between groups was not significant. These results are potentially limited by the small sample size during this time period.

**Table 11 – Post-hoc Scheffe results for Boys aged 10-12 of BMI Z-score by meal type from 1972 to 1976**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .14800 | .07731 | .160 | -.0414 | .3374 |
| | Packed Lunch or Went Home | .12119 | .05433 | .083 | -.0119 | .2543 |
| Free Meal | Paid Meal | -.14800 | .07731 | .160 | -.3374 | .0414 |
| | Packed Lunch or Went Home | -.02681 | .08049 | .946 | -.2240 | .1704 |
| Packed Lunch or Went Home | Paid Meal | -.12119 | .05433 | .083 | -.2543 | .0119 |
| | Free Meal | .02681 | .08049 | .946 | -.1704 | .2240 |

The time period 1977 to 1979 shows a significant difference between the type of meal and BMI Z-score, F=14.501 and p=0.000 as seen in Table 12. This suggests there is a significant difference between the meal type groups as opposed to showing variability within the groups as seen previously.

**Table 12 - ANOVA results for Boys aged 10-12 from 1977 to 1979**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 27.777 | 2 | 13.889 | 14.501 | .000 |
| Within Groups | 3430.694 | 3582 | .958 | | |
| Total | 3458.472 | 3584 | | | |

Post-hoc Scheffe tests, Table 13 below, showed that boys who had a paid school meal had a significantly higher BMI Z-score than those who had a free meal and those who had a packed lunch or went home.

**Table 13 - Post-hoc Scheffe results for Boys aged 10-12 of BMI Z-score by meal type from 1977 to 1979**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .24670* | .05087 | .000 | .1221 | .3713 |
| | Packed Lunch or Went Home | .12790* | .03685 | .002 | .0377 | .2181 |
| Free Meal | Paid Meal | -.24670* | .05087 | .000 | -.3713 | -.1221 |
| | Packed Lunch or Went Home | -.11881 | .05493 | .097 | -.2533 | .0157 |
| Packed Lunch or Went Home | Paid Meal | -.12790* | .03685 | .002 | -.2181 | -.0377 |
| | Free Meal | .11881 | .05493 | .097 | -.0157 | .2533 |

*. The mean difference is significant at the 0.05 level.

The next time period, 1980 to 1988, signifies the first major change to the school meals service with the Education Act 1980 achieving Royal Assent. This Act was interpreted as removing the requirement for school meals to meet any mandatory nutritional standards. However, in Chapter 4 cooks described how they continued to prepare meals in the same manner as in the previous time period. They cooked meals from scratch and maintained these were still nutritionally balanced. However, they did describe how they noticed pre-prepared items beginning to enter the kitchen from the mid-1980s.

Table 14 shows the ANOVA results for boys from the year group 1980 to 1988, F=43.813 and p=0.000 indicating a highly significant difference in BMI Z-score between the meal type groups.

**Table 14 - ANOVA results for Boys aged 10-12 from 1980 to 1988**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 95.624 | 2 | 47.812 | 43.813 | .000 |
| Within Groups | 9862.911 | 9038 | 1.091 | | |
| Total | 9958.535 | 9040 | | | |

Post-hoc Scheffe tests in Table 15 show that there were significant differences between all meal type groups and BMI Z-score. Boys taking a paid school meal had a significantly higher BMI Z-score than those having a free school meal and a packed lunch or going home. Additionally, boys taking a packed lunch or going home had a significantly higher BMI Z-score than those having a free school meal. Boys having a free school meal had a significantly lower BMI Z-score than all other groups. All comparisons were significant at p=0.000.

**Table 15 – Post-hoc Scheffe results for Boys aged 10-12 of BMI Z-score by meal type from 1980 to 1988**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .29323* | .03133 | .000 | .2165 | .3699 |
| | Packed Lunch or Went Home | .11685* | .02541 | .000 | .0546 | .1791 |
| Free Meal | Paid Meal | -.29323* | .03133 | .000 | -.3699 | -.2165 |
| | Packed Lunch or Went Home | -.17638* | .02877 | .000 | -.2468 | -.1059 |
| Packed Lunch or Went Home | Paid Meal | -.11685* | .02541 | .000 | -.1791 | -.0546 |
| | Free Meal | .17638* | .02877 | .000 | .1059 | .2468 |

*. The mean difference is significant at the 0.05 level.

The final time period from 1989 to 1994 is characterised as being the most turbulent of the 23 years covered by the NSHG in terms of the effects of school meal legislation. According to school cooks the introduction of CCT in the 1988 Local Government Act led to a decline in the quality of the school meal. This legislation required all Local Authority services to be put out to tender and the lowest bid would secure the contract. This included the school meals service and cooks argued this resulted in pre-prepared foods securing a more dominant position in the school kitchen. Table 16 below shows the ANOVA results for this time period and indicates a slightly significant difference, F=8.303 and p=0.000.

**Table 16 - ANOVA results for Boys aged 10-12 from 1989 to 1994**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 21.523 | 2 | 10.762 | 8.303 | .000 |
| Within Groups | 6951.973 | 5364 | 1.296 | | |
| Total | 6973.496 | 5366 | | | |

Post-hoc Scheffe tests, Table 17, show that boys taking a free school meal had a significantly lower BMI Z-score than boys having a paid school meal and those taking a packed lunch or going home, p=0.000 and 0.023 respectively.

**Table 17 – Post-hoc Scheffe results for Boys aged 10-12 of BMI Z-score by meal type from 1989 to 1994**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .18733* | .04601 | .000 | .0747 | .3000 |
| | Packed Lunch or Went Home | .07518 | .03689 | .125 | -.0151 | .1655 |
| Free Meal | Paid Meal | -.18733* | .04601 | .000 | -.3000 | -.0747 |
| | Packed Lunch or Went Home | -.11215* | .04074 | .023 | -.2119 | -.0124 |
| Packed Lunch or Went Home | Paid Meal | -.07518 | .03689 | .125 | -.1655 | .0151 |
| | Free Meal | .11215* | .04074 | .023 | .0124 | .2119 |

*. The mean difference is significant at the 0.05 level.

## Summary – ANOVA Results for Boys

The results of the ANOVA tests exploring whether there was a significant relationship between differences in BMI Z-score of boys aged 10-12 based on the type of meal they took at lunchtime have shown highly significant results for the year groups 1977 to 1979, 1980 to 1988, and 1989 to 1994. For each of these time periods, boys who had a free school meal had a significantly lower BMI Z-score than boys in the other meal type groups. As these boys would have essentially received the same meal as boys who paid for school lunches it may be that this difference in average BMI Z-score is more related to the reasons why these boys are entitled to a free meal rather than the meal itself. This relationship will be explored further by assessing the differences between boys' BMI Z-score and parents' social class. The next section presents the results from the ANOVA tests exploring the relationships between BMI Z-score and meal type for girls.

## ANOVA Results for Girls aged 10-12 from 1972 to 1994

This section presents the ANOVA results for girls based on the same time periods as described above for boys. Table 18 shows the overall ANOVA result for the first time period, 1972 to 1976, F=5.303 and p=0.000, indicating the average BMI Z-score for girls differs between the meal type groups, although the F-value is not that large suggesting there may be greater differences within the groups as opposed to between them

**Table 18 - ANOVA Results for Girls aged 10-12 from 1972 to 1976**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 11.420 | 2 | 5.710 | 5.303 | .005 |
| Within Groups | 1621.533 | 1506 | 1.077 | | |
| Total | 1632.954 | 1508 | | | |

Post-hoc Scheffe tests below in Table 19 confirm there are minimal differences between all meal type groups. However, there is one significant relationship, girls having a paid school meal had a significantly higher BMI Z-score than the girls taking a packed lunch or going home, p=0.011. All other comparisons were not significant.

**Table 19 - Post-hoc Scheffe results for Girls aged 10-12 of BMI Z-score by meal type from 1972 to 1976**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .16678 | .07898 | .108 | -.0267 | .3603 |
| | Packed Lunch or Went Home | .17684* | .05862 | .011 | .0332 | .3205 |
| Free Meal | Paid Meal | -.16678 | .07898 | .108 | -.3603 | .0267 |
| | Packed Lunch or Went Home | .01006 | .08227 | .993 | -.1915 | .2116 |
| Packed Lunch or Went Home | Paid Meal | -.17684* | .05862 | .011 | -.3205 | -.0332 |
| | Free Meal | -.01006 | .08227 | .993 | -.2116 | .1915 |

*. The mean difference is significant at the 0.05 level.

Table 20 shows results for the time period 1977 to 1979 and indicates a significant difference between the meal type groups, F=11.892 and p=0.000.

**Table 20 - ANOVA Results for Girls aged 10-12 from 1977 to 1979**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 24.205 | 2 | 12.102 | 11.892 | .000 |
| Within Groups | 3534.488 | 3473 | 1.018 | | |
| Total | 3558.693 | 3475 | | | |

Post-hoc Scheffe tests, Table 21, show the girls taking a paid school meal had a significantly higher BMI Z-score than those taking a packed lunch or going home and the girls having a free school meal, p=0.011 and 0.000 respectively.

**Table 21 - Post-hoc Scheffe results for Girls aged 10-12 of BMI Z-score by meal type from 1977 to 1979**

Multiple Comparisons

Dependent Variable: BMI Z-score
Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .23012* | .05117 | .000 | .1048 | .3554 |
| | Packed Lunch or Went Home | .11628* | .03880 | .011 | .0213 | .2113 |
| Free Meal | Paid Meal | -.23012* | .05117 | .000 | -.3554 | -.1048 |
| | Packed Lunch or Went Home | -.11384 | .05554 | .123 | -.2498 | .0222 |
| Packed Lunch or Went Home | Paid Meal | -.11628* | .03880 | .011 | -.2113 | -.0213 |
| | Free Meal | .11384 | .05554 | .123 | -.0222 | .2498 |

*. The mean difference is significant at the 0.05 level.

From 1980 to 1988, Table 22 indicates there was a significant relationship between the meal groups, F=12.454 and p=0.000.

**Table 22 - ANOVA results for Girls aged 10-12 from 1980 to 1988**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 28.757 | 2 | 14.379 | 12.454 | .000 |
| Within Groups | 10089.369 | 8739 | 1.155 | | |
| Total | 10118.127 | 8741 | | | |

Table 23 shows girls having a free school meal had a significantly lower BMI Z-score than girls having a paid meal and those taking a packed lunch or going home, p=0.000 in both cases. All other comparisons were not significant.

**Table 23 - Post-hoc Scheffe results for Girls aged 10-12 of BMI Z-score by meal type from 1980 to 1988**

Multiple Comparisons

Dependent Variable: BMI Z-score
Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .16107* | .03360 | .000 | .0788 | .2433 |
| | Packed Lunch or Went Home | .03492 | .02689 | .430 | -.0309 | .1008 |
| Free Meal | Paid Meal | -.16107* | .03360 | .000 | -.2433 | -.0788 |
| | Packed Lunch or Went Home | -.12615* | .03026 | .000 | -.2002 | -.0521 |
| Packed Lunch or Went Home | Paid Meal | -.03492 | .02689 | .430 | -.1008 | .0309 |
| | Free Meal | .12615* | .03026 | .000 | .0521 | .2002 |

*. The mean difference is significant at the 0.05 level.

From 1989 to 1994 Table 24 shows, again, a significant relationship between the type of meal taken at lunch time, F=23.437 and p=0.000.

**Table 24 - ANOVA results for Girls aged 10-12 from 1989 to 1994**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 62.106 | 2 | 31.053 | 23.437 | .000 |
| Within Groups | 6623.485 | 4999 | 1.325 | | |
| Total | 6685.591 | 5001 | | | |

The post-hoc Scheffe results in Table 25 below indicate significant relationships between all meal types. Girls having a paid school meal had a significantly higher BMI Z-score than girls having a free school meal and those taking a packed lunch or going home, p=0.000 and 0.046 respectively. Additionally, girls taking a packed lunch or going home had a significantly higher BMI Z-score than girls having a free school meal, p=0.000. Girls having a free school meal had a significantly lower BMI Z-score than all meal groups.

**Table 25 - Post-hoc Scheffe results for Girls aged 10-12 of BMI Z-score by meal type from 1989 to 1994**

Multiple Comparisons

Dependent Variable: BMI Z-score
Scheffe

| (I) Does child have a paid meal, free meal, packed lunch/go home | (J) Does child have a paid meal, free meal, packed lunch/go home | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Paid Meal | Free Meal | .32447* | .04853 | .000 | .2056 | .4433 |
| | Packed Lunch or Went Home | .09751* | .03928 | .046 | .0013 | .1937 |
| Free Meal | Paid Meal | -.32447* | .04853 | .000 | -.4433 | -.2056 |
| | Packed Lunch or Went Home | -.22696* | .04223 | .000 | -.3304 | -.1236 |
| Packed Lunch or Went Home | Paid Meal | -.09751* | .03928 | .046 | -.1937 | -.0013 |
| | Free Meal | .22696* | .04223 | .000 | .1236 | .3304 |

*. The mean difference is significant at the 0.05 level.

## Summary – ANOVA Results for Girls aged 10-12

The results of the ANOVA tests for girls aged 10-12 have shown how the significant relationships have shifted over time. Between 1972 and 1976, girls having a paid school meal had a significantly higher BMI Z-score than girls taking a packed lunch or going home. There were no significant relationships for any other comparisons. By 1977 to 1979 the girls having a paid school meal now had a significantly higher BMI Z-score than both other groups. During the 1980 to 1988 time period the significance shifts to the girls receiving free school meals, here girls having a free school meal had a significantly lower BMI Z-score than both other groups with no other comparisons showing significance. In the final time period, 1989 to 1994, there are significant relationships between all meal types. Girls taking paid school meals have a significantly higher BMI Z-score than both other meal groups, girls taking packed lunches or going home have a significantly higher BMI Z-score than girls on free school meals, and girls taking the free school meal had a significantly lower BMI Z-score than the other two groups. At each time point the girls having a paid school meal had a significantly higher BMI Z-score than the other two groups. Apart from between 1972 to 1976, the girls taking a packed lunch or going home generally had a lower BMI Z-score than the paid meals but higher than the girls having free meals. Similarly, apart from 1972 to 1976, the free school meal girls had a significantly lower BMI Z-score across the remaining time periods.

Therefore, as seen in the results for the boys it appears as though the underlying effects on BMI Z-score are not associated with the school meal itself. From 1989 to 1994 was predicted to show the strongest associations between BMI Z-score and meal type due to this time period following the detrimental legislative change which cooks described as greatly impacting school meal quality. However, as with the boys, there were significant differences between paid meals and free meals, essentially children received the same food. Therefore, these differences must exist due to unaccounted confounding variables. Chapter 2 described the influence of parents' social class or socioeconomic group as having an effect on childhood obesity, therefore, the next section will explore the potential relationship between the child's BMI Z-score and parent social class.

## Testing the relationship between BMI Z-score and parent social class

The results shown above show there are significant differences between the mean of BMI Z-score between the groups of meal type. This relationship is under question as there was a consistent significant difference between the children having a paid school meal and those having a free school meal. These children would essentially be receiving the same type of meal, therefore, these significant differences suggest there are other confounding variables which are acting on the BMI Z-score. This section will investigate whether the parent's social class is one of these potential confounding variables. Chapter 1 described the theoretical variables which are most commonly associated with childhood obesity; however, as previously discussed all possible confounders could not be included here. Due to the modifications in the data collection methods and the questionnaires used in the NSHG from 1972 to 1976 it was necessary to use year groups again during the analysis of parent social class and child BMI Z-score. From 1972 to 1976 the questionnaire asked for details about the respondent and spouse's social class. From 1977 to 1994 the questionnaire asked for details about the Mother and Father. For this level of analysis there was no way to combine these variables, due to missing labels in the data file, to understand who was the respondent, mother, father, or other, and who was the spouse, again was this the mother, the father, or another individual.

The guidance notes included a copy of the questionnaire and there were various options to select for 'respondent' which included grand-parents, uncles and aunts to name a few. There was an additional variable in the original dataset which asked the respondent's relationship to the child, this included mother, father, grandparent, aunt, sibling, among others. However, it was not possible to cross this variable with that of respondent social class and spouse social class in an attempt to merge this information together to generate a singular mother and father variable. It was due to issues of being unable to merge around ten variables while keeping them linked to their respective children that restricted the possibility of testing for known risk factors for childhood obesity, such as parents' weight. However, through creating new year groups associated with the changing labels for parent social class it is possible to assess how this relates to the child's BMI Z-score. The year groups for this analysis remained linked to the school meal legislative change; however, the 1972 to 1979 period needed to be split in two due to the changing of the respondent/mother and spouse/father variables. Therefore, from 1972 to 1976 this ANOVA will assess the relationship between BMI Z-score and respondent/spouse social class. From 1977 to 1979, 1980 to 1988 and 1989 to 1994, the ANOVA will assess BMI Z-score and mother/father social class.

## ANOVA Results for Parents' Social Class from 1972 to 1994

The tables below show the relationship between the boys' and girls' BMI Z-score and the parental social class variables. In the first time period from 1972 to 1976 the resulting ANOVA table for the relationship between boys' and girls' BMI Z-scores and respondent/spouse social class produced no significant results (Boys – respondent, $F=1.375$ $p=0.203$, spouse $F=0.880$ $p=0.532$, Girls – respondent $F=0.806$ $p=0.597$, spouse $F=1.505$ $p=0.151$). The result for the first time period could be related to the issues of sample sizes encountered during 1973 to 1976. However, during the next time period, 1977 to 1979, Table 26 for Boys BMI Z-score in relation to Mother's social class shows a significant p-value $p=0.020$. However, $F=2.281$ indicating that the significant p-value relates to large variation within the social class groups as opposed to between them.

**Table 26 – ANOVA results for Boys BMI Z-score within Mother's social class 1977 to 1979**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 17.552 | 8 | 2.194 | 2.281 | .020 |
| Within Groups | 3672.635 | 3819 | .962 | | |
| Total | 3690.187 | 3827 | | | |

Moreover, the results for the multiple comparisons showed no significant differences between the nine social class groups confirming the small F-value and significant p-value relates to large variation within the social class group. There were no significant results for the same time period, 1977 to 1979, when Father's social class was selected, F=1.763 and p=0.080. When assessing the girls BMI Z-score in relation to Mother's social class from 1977 to 1979, Table 27, F= 2.074 and p=0.035 suggesting, again like the boys in this time period, a large variation within the social class groups rather than between them. Moreover, the post-hoc Scheffe results showed no significant results between the social class groups, confirming the small F-value. Additionally, there were no significant comparisons for Father's social class, F=0.994 and p=0.438.

**Table 27 - ANOVA results for Girls BMI Z-score within Mother's social class from 1977 to 1979**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 16.862 | 8 | 2.108 | 2.074 | .035 |
| Within Groups | 3747.330 | 3688 | 1.016 | | |
| Total | 3764.192 | 3696 | | | |

Conversely, this variation within groups appears to change to between groups from 1980 to 1988. Table 28 below shows a highly significant relationship for boys' BMI Z-score between the nine Mother's social class groups, F=13.367 and p=0.000.

**Table 28 - ANOVA results for Boys BMI Z-score within Mother's social class from 1980 to 1988**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 116.135 | 8 | 14.517 | 13.367 | .000 |
| Within Groups | 10732.082 | 9882 | 1.086 | | |
| Total | 10848.217 | 9890 | | | |

The post-hoc Scheffe results in Table 29 show the significant differences between the Mother's social class groups. Boys whose Mothers were classified in the 'never gainfully occupied/not classifiable' social class group had significantly lower (p=≤0.05) BMI Z-scores than boys whose Mothers were classified in all other social class groups apart from those in the 'professional and senior managerial' and 'unknown' social class groups. All other comparisons were not significant.

**Table 29 - Post-hoc Scheffe results for Boys aged 10-12 of BMI Z-score within Mother's social class from 1980 to 1988**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Mother Social Class | (J) Mother Social Class | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Never gainfully occupied/not classifiable | Professional and Senior Managerial | -.15205 | .07982 | .889 | -.4665 | .1624 |
| | Intermediate Managerial | -.30819* | .04018 | .000 | -.4665 | -.1499 |
| | Non-manual | -.29365* | .03394 | .000 | -.4273 | -.1600 |
| | Semi-skilled manual | -.19549* | .03544 | .000 | -.3351 | -.0559 |
| | Unskilled manual | -.23985* | .05261 | .008 | -.4471 | -.0326 |
| | Skilled manual | -.24411* | .05567 | .014 | -.4634 | -.0248 |
| | No spouse/non working housewife | -.21246* | .03200 | .000 | -.3385 | -.0864 |
| | Unknown | -.11094 | .05235 | .810 | -.3171 | .0952 |

*. The mean difference is significant at the 0.05 level.

Table 30 shows the same time period but assessing the relationship with Father's social class and indicates a significant result, albeit not as strongly associated as the Mother's result above, F=6.573 and p=0.000.

**Table 30 - ANOVA results for Boys BMI Z-score within Father's social class from 1980 to 1988**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 57.418 | 8 | 7.177 | 6.573 | .000 |
| Within Groups | 10789.679 | 9881 | 1.092 | | |
| Total | 10847.097 | 9889 | | | |

The post-hoc Scheffe test for Father's social class, Table 31, indicates that boys whose Fathers were classified in the 'unknown' social class had lower BMI Z-scores than boys whose Fathers were classified in the 'intermediate managerial' p=0.000, 'skilled manual' p=0.001, and 'no spouse/non-working housewife' p=0.001, social class groups. All other comparisons were not significant.

**Table 31 – Post-hoc Scheffe results for Boys BMI Z-score within Father's social class from 1980 to 1988**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Fathers Social Class | (J) Fathers Social Class | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Unknown | Professional and Senior Managerial | -.10928 | .05354 | .842 | -.3202 | .1016 |
| | Intermediate Managerial | -.27289* | .04346 | .000 | -.4441 | -.1017 |
| | Non-manual | -.13812 | .05528 | .620 | -.3558 | .0796 |
| | Semi-skilled manual | -.12106 | .04627 | .553 | -.3033 | .0612 |
| | Unskilled manual | -.16736 | .06901 | .661 | -.4392 | .1045 |
| | Skilled manual | -.20390* | .03931 | .001 | -.3587 | -.0491 |
| | Never gainfully occupied/not classifiable | -.08611 | .11440 | 1.000 | -.5367 | .3645 |
| | No spouse/non working housewife | -.23139* | .04616 | .001 | -.4132 | -.0496 |

*The mean difference is significant at the 0.05 level.

For the girls during the same time period, Table 32, the BMI Z-scores differed significantly between the Mother's social class groups, F=5.392 and p=0.000.

**Table 32 - ANOVA results for Girls BMI Z-score within Mother's social class from 1980 to 1988**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 49.873 | 8 | 6.234 | 5.392 | .000 |
| Within Groups | 10956.172 | 9477 | 1.156 | | |
| Total | 11006.046 | 9485 | | | |

The post-hoc Scheffe results in Table 33 below confirm the F-value which indicated significant differences in BMI Z-score for girls whose Mothers were classified in the 'never gainfully occupied/not classifiable' social class group. Girls relating to this group had significantly lower BMI Z-scores than girls whose Mothers were classified in the 'intermediate managerial' p=0.008 and the 'unskilled manual' p=0.009 social class groups. All other comparisons were not significant. Additionally, comparisons for girls' Father's social class for this time period were not significant F=1.373 and p=0.203.

**Table 33 – Post-hoc Scheffe results for Girls BMI Z-score within Mother's social class from 1980 to 1988**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Mother Social Class | (J) Mother Social Class | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Never gainfully occupied/not classifiable | Professional and Senior Managerial | -.03154 | .08142 | 1.000 | -.3523 | .2892 |
| | Intermediate Managerial | -.19598* | .04309 | .008 | -.3657 | -.0262 |
| | Non-manual | -.13505 | .03600 | .080 | -.2768 | .0067 |
| | Semi-skilled manual | -.11484 | .03744 | .309 | -.2623 | .0326 |
| | Unskilled manual | -.24587* | .05464 | .009 | -.4611 | -.0307 |
| | Skilled manual | -.22194 | .05870 | .075 | -.4532 | .0093 |
| | No spouse/non working housewife | -.08627 | .03361 | .582 | -.2187 | .0461 |
| | Unknown | -.17495 | .05864 | .351 | -.4059 | .0560 |

*The mean difference is significant at the 0.05 level.

In the final time period, 1989 to 1994, the boys BMI Z-score differed significantly between the Mother's social class groups, F=9.818 and p=0.000.

**Table 34 - ANOVA results for Boys BMI Z-score within Mother's social class from 1989 to 1994**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 100.685 | 8 | 12.586 | 9.818 | .000 |
| Within Groups | 8173.123 | 6376 | 1.282 | | |
| Total | 8273.808 | 6384 | | | |

The post-hoc Scheffe results for this time period, Table 35, show that boys whose Mothers were classified as 'never gainfully occupied/not classifiable' had a significantly lower BMI Z-score than boys whose Mothers were classified in the following social groups 'intermediate managerial' p=0.000, 'non-manual' p=0.000, 'semi-skilled manual' p=0.000, 'unskilled manual' p=0.000 and 'skilled manual' p=0.034. All other comparisons were not significant.

**Table 35 – Post-hoc Scheffe results for Boys BMI Z-score within Mother's social class from 1989 to 1994**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Mother Social Class | (J) Mother Social Class | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Never gainfully occupied/not classifiable | Professional and Senior Managerial | -.13254 | .09674 | .985 | -.5136 | .2485 |
| | Intermediate Managerial | -.34907* | .04913 | .000 | -.5426 | -.1555 |
| | Non-manual | -.26826* | .04322 | .000 | -.4385 | -.0980 |
| | Semi-skilled manual | -.25741* | .04495 | .000 | -.4345 | -.0803 |
| | Unskilled manual | -.35317* | .06516 | .000 | -.6099 | -.0965 |
| | Skilled manual | -.28353* | .06952 | .034 | -.5574 | -.0097 |
| | No spouse/non working housewife | -.44609 | .13338 | .192 | -.9715 | .0794 |
| | Unknown | -.17275 | .05335 | .233 | -.3829 | .0374 |

*. The mean difference is significant at the 0.05 level.

There was also a significant result for the Father's social class, however, the F-value was much smaller than that of the Mother's result above, here in Table 36 F=2.941 and p=0.003. The small F-value here is confirmed by the post-hoc Scheffe results in Table 37 below indicating only one significant association. Boys whose Fathers were classified in the 'unknown' social class group had a significantly lower BMI Z-score than the boys whose Fathers were classified in the 'intermediate managerial' social class group, p=0.008. All other comparisons were not significant.

**Table 36 - ANOVA results for Boys BMI Z-score within Father's social class from 1989 to 1994**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 30.417 | 8 | 3.802 | 2. 941 | .003 |
| Within Groups | 8243.390 | 6376 | 1.293 | | |
| Total | 8273.808 | 6384 | | | |

**Table 37 – Post-hoc Scheffe results for Boys BMI Z-score within Father's social class from 1989 to 1994**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Fathers Social Class | (J) Fathers Social Class | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Unknown | Professional and Senior Managerial | -.10070 | .07711 | .989 | -.4045 | .2031 |
| | Intermediate Managerial | -.24360* | .05362 | .008 | -.4548 | -.0324 |
| | Non-manual | -.11551 | .07513 | .968 | -.4115 | .1805 |
| | Semi-skilled manual | -.11724 | .05958 | .868 | -.3520 | .1175 |
| | Unskilled manual | -.08574 | .08936 | .999 | -.4378 | .2663 |
| | Skilled manual | -.12247 | .04898 | .619 | -.3154 | .0705 |
| | Never gainfully occupied/not classifiable | -.37355 | .20213 | .906 | -1.1698 | .4227 |
| | No spouse/non working housewife | -.15205 | .05268 | .402 | -.3596 | .0555 |

*. The mean difference is significant at the 0.05 level.

Table 38 shows the results for the girls in the same time period, 1989 to 1994, and indicates the BMI Z-scores differed significantly across the Mother's social class groups, F=8.495 and p=0.000. Table 39 presents the post-hoc Scheffe results and, again, the girls whose Mothers were classified in the 'never gainfully occupied/not classifiable' social class group had a significantly lower BMI Z-score than those in the following social class groups; 'intermediate managerial' p=0.000, 'non-manual' p=0.000, 'semi-skilled manual p=0.012, and 'unskilled manual' p=0.000. All other comparisons were not significant. Additionally, comparisons for girls' Father's social class were not significant, F=1.239 and p=0.271.

**Table 38 - ANOVA results for Girls BMI Z-score within Mother's social class from 1989 to 1994**

ANOVA

BMI Z-score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 91.845 | 8 | 11.481 | 8.495 | .000 |
| Within Groups | 7914.005 | 5856 | 1.351 | | |
| Total | 8005.851 | 5864 | | | |

**Table 39 – Post-hoc Scheffe results for Girls BMI Z-score within Mother's social class from 1989 to 1994**

Multiple Comparisons

Dependent Variable: BMI Z-score

Scheffe

| (I) Mother Social Class | (J) Mother Social Class | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Never gainfully occupied/not classifiable | Professional and Senior Managerial | -.05362 | .10086 | 1.000 | -.4510 | .3437 |
| | Intermediate Managerial | -.32943* | .05136 | .000 | -.5318 | -.1271 |
| | Non-manual | -.26591* | .04682 | .000 | -.4504 | -.0815 |
| | Semi-skilled manual | -.21218* | .04788 | .012 | -.4008 | -.0236 |
| | Unskilled manual | -.41860* | .07002 | .000 | -.6945 | -.1427 |
| | Skilled manual | -.22736 | .07340 | .295 | -.5165 | .0618 |
| | No spouse/non working housewife | -.12432 | .15602 | 1.000 | -.7390 | .4903 |
| | Unknown | -.19022 | .05746 | .204 | -.4166 | .0362 |

*. The mean difference is significant at the 0.05 level.

## Summary – ANOVA results for parent's social class from 1972 to 1994

The results presented above indicate there are clear differences between specific social class groups. However, these relationships are not present for either girls or boys in the first time period from 1972 to 1979. This either indicates that during this time period there was very little variation in BMI Z-score between the social class groups or that the methodological issues described above are of such an extent they have removed significant power within the tests to be able to assess this efficiently. These results do highlight a clear relationship between both boys and girls BMI Z-score and Mother's social class. From 1980 to 1994 boys and girls whose Mothers were grouped in the 'never gainfully occupied/not classifiable' social class had significantly lower BMI Z-scores than most of the other social class groups. Although there were significant results for the boys whose Fathers were classified in the 'unknown' social class, this was not seen for the girls. As these tests were not able to compare more than one multiple response categorical variable with BMI Z-score the next section will explore the meal type and social class variables together in a linear regression.

## Linear Regression Results

The previous section has shown how the BMI Z-score of boys and girls has varied between several categorical variables. It has provided an insight into the differences between the average BMI Z-score for boys and girls who had a paid school meal, a free school meal, had a packed lunch or went home. Additionally, it has shown how this measure has differed between parents' social class. However, the ANOVA cannot show the relationships between several categorical variables at once. By using a linear regression it is possible to see how the significant relationships with the children's BMI Z-scores change when both type of meal and parents' social class variables are assessed together in the model. The ANOVA results showed there to be a significant relationship between the BMI Z-score of boys and girls receiving free school meals, however, it was not possible to add the parents' social class variable to the ANOVA test to see if this changed the effect of free school meals on BMI Z-score.

Therefore, a linear regression will show whether it is the free school meal or the parents' social class which affects the child's BMI Z-score. Although it seems that at this stage the ANOVA is an unnecessary analysis tool if the linear regression can tell us which variable predicts BMI Z-score, unfortunately this is not the case. Linear regression cannot show the relationship between the multiple responses within the categorical variables. Therefore, without the ANOVA we would not know which meal type or social class group the results relate to. The linear regression results here will be discussed in relation to the ANOVA results to fully understand any significant relationships. As with the previous section these results will be presented within the following year groups, 1972 to 1976, 1976 to 1979, 1980 to 1988, and 1989 to 1994 to take into account the changes in parents' social class variable and the changes in school meal legislation.

## Regression results for Boys aged 10-12 from 1972 to 1994

The first section here will present the results for the boys' regression analysis for the year groups described above. Table 40 shows the model summary and the overall model fit was $R^2$ =0.007. Table 41 shows that when BMI Z-score for boys aged 10-12 from 1972 to 1976 was predicted it was found that the type of meal (β = -0.054, p=0.034) was a significant predictor but respondent social class (β =-0.045, p=0.080) and spouse social class (β=0.043, p=0.086) were not significant predictors. When this is compared to the ANOVA results there was an overall significant relationship, p=0.035, for meal type. However, the F-value was quite small, 3.360, suggesting the significant differences in this year group were within each meal type as opposed to between them. Additionally, the lack of significant relationships with parent's social class in Table 41 is consistent with the results from the ANOVA. Therefore, during 1972 to 1976 it appears there were no significant relationships between any of the variables presented here.

### Table 40 - Model summary for Boys BMI Z-score predicted by meal type and parents' social class 1972 to 1976

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .083[a] | .007 | .005 | .98844 | .007 | 3.623 | 3 | 1568 | .013 |

a. Predictors: (Constant), Does child have a paid meal, free meal, packed lunch/go home, Spouse Social Class, Respondents social class

### Table 41 - Regression results for Boys aged 10-12 from 1972 to 1976

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | -.041 | .091 | | -.447 | .655 | -.220 | .139 |
| Respondents social class | -.019 | .011 | -.045 | -1.750 | .080 | -.039 | .002 |
| Spouse Social Class | .019 | .011 | .043 | 1.717 | .086 | -.003 | .042 |
| Does child have a paid meal, free meal, packed lunch/go home | -.058 | .027 | -.054 | -2.127 | .034 | -.112 | -.005 |

a. Dependent Variable: BMI Z-score

For the next time period, 1977 to 1979, Table 42 shows the overall model fit was $R^2 = 0.008$. Table 43 when BMI Z-score was predicted it was found that type of meal (β=-0.062, p=0.000) and both parental class variables (Mother – β=-0.054, p=0.001, Father – β=-0.039, p=0.019) were all significant predictors. When these results are compared with the ANOVA, Table 13 above shows that boys having a paid school meal had a significantly higher BMI Z-score than those having a free school meal and a packed lunch or going home. However, the ANOVA showed no significant relationships between boys BMI Z-score and parent's social class.

**Table 42 - Model summary for Boys BMI Z-score predicted by meal type and parents' social class from 1977 to 1979**

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .090[a] | .008 | .007 | .97872 | .008 | 9.841 | 3 | 3581 | .000 |

a. Predictors: (Constant), Fathers Social Class, Does child have a paid meal, free meal, packed lunch/go home, Mother Social Class

**Table 43 - Regression results for Boys aged 10-12 from 1977 to 1979**

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | .381 | .112 | | 3.407 | .001 | .162 | .600 |
| Does child have a paid meal, free meal, packed lunch/go home | -.068 | .018 | -.062 | -3.716 | .000 | -.104 | -.032 |
| Mother Social Class | -.041 | .013 | -.054 | -3.235 | .001 | -.066 | -.016 |
| Fathers Social Class | -.017 | .007 | -.039 | -2.343 | .019 | -.031 | -.003 |

a. Dependent Variable: BMI Z-score

For the time period 1980 to 1988 Table 44 shows the overall model fit for predicting BMI Z-score by parents' social class and meal type was $R^2 = 0.006$.

Table 45 shows when BMI Z-score was predicted it was found that meal type (β=-0.041, p=0.000) and Mother's social class (β=-0.062, p=0.000) were significant predictors and Father's social class (β=-0.013, p=0.236) was not a significant predictor. When this result is compared to the ANOVA results all meal types showed significant relationships with BMI Z-score. The boys taking a free school meal had a significantly lower BMI Z-score than those having a paid school meal and those taking a packed lunch or going home. Additionally, the boys having a paid school meal had a significantly higher BMI Z-score than the boys taking a packed lunch or going home. For parents' social class, although the regression shows only Mother's social class as a significant predictor of the boys BMI Z-score the ANOVA showed significant results for both Mother and Father. These significant relationships were located on 'never gainfully occupied/non-working housewife' social class group for the Mother and 'unknown' social class group for the Father.

**Table 44 - Model summary for Boys BMI Z-score predicted by meal type and parents' social class from 1980 to 1988**

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .075[a] | .006 | .005 | 1.04681 | .006 | 16.916 | 3 | 9036 | .000 |

a. Predictors: (Constant), Fathers Social Class, Does child have a paid meal, free meal, packed lunch/go home, Mother Social Class

**Table 45 - Regression results for Boys aged 10-12 from 1980 to 1988**

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | .190 | .045 | | 4.187 | .000 | .101 | .280 |
| Does child have a paid meal, free meal, packed lunch/go home | -.049 | .013 | -.041 | -3.887 | .000 | -.074 | -.024 |
| Mother Social Class | -.028 | .005 | -.062 | -5.816 | .000 | -.038 | -.019 |
| Fathers Social Class | -.006 | .005 | -.013 | -1.185 | .236 | -.015 | .004 |

a. Dependent Variable: BMI Z-score

For the final time period, 1989 to 1994, the overall model fit was $R^2 = 0.006$ as shown in Table 46. Table 47 shows that the type of meal (β=-0.023, p=0.087) is no longer a significant predictor of boys' BMI Z-score, along with Father's social class (β=-0.013, p=0.369). Mother's social class (β=-0.068, p=0.000) was the only significant predictor of boys' BMI Z-score for this time period. However, as with the previous time period the ANOVA results showed significant results for boys having a free school meal, significantly lower BMI Z-score than those having a paid school meal and those taking a packed lunch or going home. Additionally, there were significant results for both Mother and Father's social class, for the Mother it was within the 'never gainfully occupied/non-working' social class group and the 'unknown' group for Father's social class.

**Table 46 - Model summary for Boys BMI Z-score predicted by meal type and parents' social class from 1989 to 1994**

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .075[a] | .006 | .005 | 1.13711 | .006 | 10.075 | 3 | 5363 | .000 |

a. Predictors: (Constant), Fathers Social Class, Does child have a paid meal, free meal, packed lunch/go home, Mother Social Class

**Table 47 - Regression result for Boys aged 10-12 from 1989 to 1994**

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | .315 | .063 | | 4.998 | .000 | .191 | .438 |
| Does child have a paid meal, free meal, packed lunch/go home | -.031 | .018 | -.023 | -1.714 | .087 | -.067 | .004 |
| Mother Social Class | -.037 | .008 | -.068 | -4.760 | .000 | -.053 | -.022 |
| Fathers Social Class | -.006 | .007 | -.013 | -.899 | .369 | -.019 | .007 |

a. Dependent Variable: BMI Z-score

### Regression results for Girls aged 10-12 from 1972 to 1994

This next section presents the regression results for aged 10-12 girls from 1972 to 1994. In the first time period, 1972 to 1976, Table 48 shows the overall model fit, $R^2$ =0.008. Table 49 indicates meal type was a significant predictor for BMI Z-score (β=-0.072, p=0.006), respondent (β=-0.039, p=0.133) and spouse (β=-0.018, p=0.488) were not significant predictors. These results are consistent with the ANOVA results, Table 19 shows girls having a paid school meal had a significantly higher BMI Z-score than those taking a packed lunch or going home and there were no significant associations with either respondent or spouse social class.

### Table 48 - Model summary for Girls BMI Z-score predicted by meal type and parents' social class

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .091[a] | .008 | .006 | 1.03732 | .008 | 4.185 | 3 | 1505 | .006 |

a. Predictors: (Constant), Spouse Social Class, Does child have a paid meal, free meal, packed lunch/go home, Respondents social class

### Table 49 - Regression results for Girls aged 10-12 from 1972 to 1976

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | .052 | .098 | | .536 | .592 | -.139 | .244 |
| Does child have a paid meal, free meal, packed lunch/go home | -.082 | .030 | -.072 | -2.752 | .006 | -.140 | -.023 |
| Respondents social class | -.017 | .012 | -.039 | -1.503 | .133 | -.040 | .005 |
| Spouse Social Class | -.009 | .013 | -.018 | -.694 | .488 | -.033 | .016 |

a. Dependent Variable: BMI Z-score

During the next time period, 1977 to 1979, Table 50 and Table 51 show that only meal type was a significant predictor for BMI Z-score (β=-0.060, p=0.000) and the overall model was $R^2$=0.004. The ANOVA results showed that girls having a paid school meal had a significantly higher BMI Z-score than girls having a free school meal and those taking a packed lunch or going home. Mother's and Father's social class were not significant predictors in this time period. This result is consistent with the ANOVA reported above, although there was a significant overall p-value, p=0.35, for Mother's social class and girls BMI Z-score the F-value was quite small, F=2.074, which indicated there was greater variation within the social class groups as opposed to between them. This was confirmed by the post-hoc Scheffe tests which showed no significant results between any of the social class groups. Additionally, there were no significant comparisons for Father's social class, F=0.994 and p=0.438.

**Table 50 - Model summary for Girls BMI Z-score predicted by meal type and parents' social class from 1977 to 1979**

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .065[a] | .004 | .003 | 1.01005 | .004 | 4.973 | 3 | 3471 | .002 |

a. Predictors: (Constant), Fathers Social Class, Does child have a paid meal, free meal, packed lunch/go home, Mother Social Class

**Table 51 - Regression results for Girls aged 10-12 from 1977 to 1979**

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | -.226 | .115 | | -1.958 | .050 | -.452 | .000 |
| Does child have a paid meal, free meal, packed lunch/go home | -.068 | .019 | -.060 | -3.542 | .000 | -.106 | -.031 |
| Mother Social Class | .003 | .013 | .004 | .221 | .825 | -.022 | .028 |
| Fathers Social Class | .012 | .007 | .029 | 1.684 | .092 | -.002 | .027 |

a. Dependent Variable: BMI Z-score

From 1980 to 1988 as seen in Table 52 and Table 53 the overall model fit was $R^2$=0.001 and the only significant predictor for BMI Z-score for aged 10-12 girls was Mother's social class (β=-0.032, p=0.003, meal type and Father's social class were not significant predictors. The ANOVA results above show that when assessing meal type alone there was a highly significant relationship with BMI Z-score, F=12.454, p=0.000). The girls having a free school meal had a significantly lower BMI Z-score than girls having a paid school meal or those taking a packed lunch or going home, p=0.000 in all comparisons. The ANOVA comparisons for Mother's social class and girl's BMI Z-score did not indicate such a highly significant relationship, F=5.392, p=0.000. Girls whose Mothers were in the 'never gainfully occupied/not classifiable' social class group had a significantly lower BMI Z-score than those in the 'intermediate managerial' (p=0.008) and 'unskilled manual' (p=0.009) social class groups. However, when meal type and parents' social class are included together in the regression model the significance seen in the ANOVA for meal type is lost, indicating that Mother's social class is more strongly associated with girls BMI Z-score.

**Table 52 - Model summary for Girls BMI Z-score predicted by meal type and parents' social class from 1980 to 1988**

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .034[a] | .001 | .001 | 1.07544 | .001 | 3.461 | 3 | 8738 | .016 |

a. Predictors: (Constant), Fathers Social Class, Does child have a paid meal, free meal, packed lunch/go home, Mother Social Class

**Table 53 - Regression results for Girls aged 10-12 from 1980 to 1988**

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | -.046 | .048 | | -.958 | .338 | -.141 | .048 |
| Does child have a paid meal, free meal, packed lunch/go home | -.011 | .013 | -.008 | -.793 | .428 | -.037 | .016 |
| Mother Social Class | -.015 | .005 | -.032 | -2.944 | .003 | -.025 | -.005 |
| Fathers Social Class | -.004 | .005 | -.008 | -.764 | .445 | -.014 | .006 |

a. Dependent Variable: BMI Z-score

In the final time period, 1989 to 1994, Table 54 shows the overall model fit for predicting BMI Z-score in girls aged 10-12 was $R^2$=0.007. As seen in the previous time period, Table 55 shows Mother's social class was the only significant predictor of BMI Z-score in girls (β=-0.083, p=0.000). Meal type (β=-0.020, p=0.160) and Father's social class (β=-0.018, p=0.230) were not significant predictors. The ANOVA results above indicated there were significant relationships between all meal types, girls having a paid school meal had a significantly higher BMI Z-score than girls having a free school meal and those taking a packed lunch or going home (p=0.000 and 0.046 respectively). Additionally, the girls having a free school meal had a significantly lower BMI Z-score than all other meal groups. However, the results seen in the previous time period appear to be replicated again here. The ANOVA results for Mother's social class are consistent with the results here in Table 55. The girls of Mothers in the 'never gainfully occupied/not classifiable' social class group had a significantly lower BMI Z-score than those in the 'intermediate managerial' p=0.000, 'non-manual' p=0.000, 'semi-skilled manual' p=0.012, and 'unskilled manual' p=0.000 social class groups.

**Table 54 - Model summary for Girls BMI Z-score predicted by meal type and parents' social class from 1989 to 1994**

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .081[a] | .007 | .006 | 1.15273 | .007 | 11.108 | 3 | 4998 | .000 |

a. Predictors: (Constant), Fathers Social Class, Does child have a paid meal, free meal, packed lunch/go home, Mother Social Class

**Table 55 - Regression results for Girls aged 10-12 from 1989 to 1994**

Coefficients[a]

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| (Constant) | .212 | .067 | | 3.181 | .001 | .081 | .343 |
| Does child have a paid meal, free meal, packed lunch/go home | -.027 | .019 | -.020 | -1.404 | .160 | -.065 | .011 |
| Mother Social Class | -.046 | .008 | -.083 | -5.607 | .000 | -.062 | -.030 |
| Fathers Social Class | .008 | .007 | .018 | 1.200 | .230 | -.005 | .022 |

a. Dependent Variable: BMI Z-score

**Summary - Regression results for Boys and Girls aged 10-12**

In summary, the results presented above have added to the previous section assessing individual variables against BMI Z-score. The regression results taken in conjunction with the ANOVA show which of the multiple responses in the categorical variable were significant predictors for the boys and girls BMI Z-score. From 1972 to 1976 the regression results showed that meal type was a significant predictor of BMI Z-score for both boys and girls. However, this relationship was unclear for the boys as the ANOVA did not indicate a significant result on any of the meal types, it suggested that the significance related to variation of BMI Z-score within each meal type as opposed to between them. This was clearer for the girls as the ANOVA showed that girls having a paid school meal had a significantly higher BMI Z-score than girls taking a packed lunch or going home. Therefore, these combined results suggest that having a paid school meal predicted a higher BMI Z-score for aged 10-12 girls from 1972 to 1976.

In the next time period, 1977 to 1979, the regression results for the boys indicated all variables, meal type, Mother and Father's social class were significant predictors of BMI Z-score. The ANOVA results for this time period showed that the boys having a paid school meal had a significantly higher BMI Z-score than those having a free school meal and those taking a packed lunch or going home. However, the ANOVA reported there was no relationship with either parent's social class, Mother – $F=2.281$, $p=0.020$ and Father – $F=1.763$ and $p=0.080$. For girls the regression and ANOVA results appeared were consistent and suggested that having a paid school meal was a significant predictor of higher BMI Z-score. Mother and Father's social class was not a significant predictor and this is supported by the ANOVA results, Mother – $F=2.704$, $p=0.035$ and Father – $F=0.994$, $p=0.035$. The significant p-values found in this result, when compared to the regression, appear to support the idea that the variation in BMI Z-score is within the parent social class variables as opposed to between them.

From 1980 to 1988 Mother's social class was a significant predictor of BMI Z-score for both boys and girls. The ANOVA results for boys showed a highly significant relationship (F=13.367, p=0.000) for BMI Z-score and Mother's social class, specifically boys of Mothers in the 'never gainfully occupied/not classifiable' group had significantly lower BMI Z-scores than boys with Mothers in the 'intermediate managerial' (p=0.000), 'non-manual' (p=0.000), 'semi-skilled manual' (p=0.000), 'unskilled manual' (p=0.008), 'skilled manual'(p=0.014), and 'no spouse/non-working housewife' (p=0.000) social class groups. Additionally, the ANOVA suggested a significant relationship with Father's social class (F=6.573, p=0.000), however, this association disappears in the regression. The boys' regression results also showed that meal type was a significant predictor of BMI Z-score and when this is assessed in conjunction with the ANOVA results it appears as though having a paid meal was a significant predictor for a higher BMI Z-score and having a free meal was a significant predictor for a lower BMI Z-score. Those having a packed lunch or going home had significantly higher BMI Z-score than the free school meal boys and a significantly lower BMI Z-score than the paid school meal boys. For boys the results of both tests indicate highly significant relationships between BMI Z-score, meal type and Mother's social class. Although the Mother's social class was also a strong predictor of BMI Z-score for girls this was not seen across as many of the social class groups as the boys. The ANOVA showed that girls of Mothers within the 'never gainfully occupied/not classifiable' social class group had a significantly lower BMI Z-score than girls whose Mothers were classified in the 'intermediate managerial' (p=0.008), and 'unskilled manual' (p=0.009) social class groups. Therefore, being a girl of a Mother in the 'never gainfully occupied/not classifiable' social class group was a significant predictor of having lower BMI Z-score than girls with Mothers in the 'intermediate managerial' and 'unskilled manual' social class groups. Although the ANOVA also presented a significant relationship between girls BMI Z-score and meal type - free school meal girls had a significantly lower BMI Z-score than all other meal types - this association disappeared in the regression results. Additionally, these results showed Father's social class was not a significant predictor of BMI Z-score for girls or boys during this time period and this was consistent with the

ANOVA results. In the final time period, 1989 to 1994, only Mother's social class was a significant predictor of BMI Z-score in both boys and girls. Any associations with meal type seen in the ANOVAs disappeared in the regression, suggesting that during this time period the strongest predictor of girls and boys BMI Z-score was the Mother's social class. The ANOVA showed that boys of Mothers in the 'never gainfully occupied/not classifiable social class had significantly lower BMI Z-scores than boys whose Mothers were classified in 'intermediate managerial' (p=0.000), 'non-manual' (p=0.000), 'semi-skilled manual' (p=0.000), 'unskilled manual' (p=0.000), and 'skilled manual' (p=0.034) social class groups. This suggests that being a boy of a Mother in the 'never gainfully occupied/not classifiable' social group was a significant predictor of having a lower BMI Z-score than boys in the above mentioned social class groups. When comparing the regression and ANOVA for girls, it appears that having a Mother in the 'never gainfully occupied/not classifiable' social class group was a significant predictor for having a lower BMI Z-score than girls of Mothers in the 'intermediate managerial' (p=0.000), 'non-manual' (p=0.000), 'semi-skilled manual' (p=0.012), and 'unskilled manual' (p=0.000) social class groups.

## Discussion

The various different results presented above have attempted to explore whether there was a significant relationship between the changing legislation in relation to the school meal and fluctuations in BMI Z-score of boys and girls aged 10-12 from 1972 to 1994. This section will draw together all of these results and discuss, in chronological order, whether they indicate that legislative changes had an impact on child BMI Z-score. The first section will draw together all of the results from the first time period, 1972 to 1979, which represents the pre-legislative era. Although some legislation was in place during this time period, this era represents a moment of relative stability in the school meals history, at least when taken in context with the changes that followed.

## 1972 to 1979 – 'Legislative' Stability?

During this time period there was relative stability within the school meals service from a legislative perspective. Although cooks described in Chapter 4 that there were changes to the way the meal was served around the end of the 1970s, from family service to cafeteria style, they described how they made the vast majority of meals from scratch and worked within the, perceived mandatory, nutritional guidelines. Therefore, taking the hypothesis that government legislation has affected child BMI Z-score it would be expected that in this time of relative legislative stability there would be a similar stability in boys and girls BMI Z-score. Here I will combine all the results presented above for both boys and girls and discuss whether these indicate the school meal legislation has influenced the fluctuations in BMI Z-score. The histograms presented in Figure 18 and Figure 21 from 1972 indicated that for both boys and girls there was a right skew in the distribution of BMI Z-score. This skew is confirmed by the results in Table 9 which shows how the percentage of children in the NOO 'underweight' category was smaller than the percentage of children classified as overweight, obese, and severely obese. Attempts to visually assess whether differences in BMI Z-score occurred between the different meal types children had at lunchtime were presented in Figure 24 and Figure 25. During this time point, 1972 to 1979, these graphs present an unclear picture due to the methodological issues from 1973 to 1976 which are clearly identifiable by the increase in the error bars at that time. Although it appears as though in 1972 boys and girls who had a paid school meal had a higher average BMI Z-score, the error bars overlap through all meal types which suggests this is merely representing the variation among this population. However, when these results are combined with the statistical analysis it can offer some further insight into whether there is a wider sociological phenomenon creating this difference in BMI Z-score between meal-type or whether this is just representing the variation among boys and girls aged 10-12. It is difficult to tease out any potential relationships during this first time period due to the methodological issues which affected data collection from 1973 to 1976. However, the preliminary ANOVA results suggested there were significant differences in average BMI Z-score between the meal types. For the boys this

significance was lost in the post-hoc Scheffe tests suggesting there was more variation within the meal groups as opposed to between them, confirming the suspicion from Figure 24 which shows overlapping error bars. However, for the girls in the same time period the results indicated that girls who had a packed lunch or went home had a significantly lower BMI Z-score than those who had a paid school meal. All error bars are overlapping and it appears as though the packed lunch or go home girls have a very similar BMI Z-score to that of the free school meal girls, yet there was no significant relationship for the latter in relation to the paid school meal girls. However, Chinn and Rona (1999) conducted analysis on school meal type and height of children classified in a 'poor' group and 'not poor' group. Their findings indicate that those who were in receipt of a free school meal and categorised as 'poor' were shorter than those in the 'not poor' group (Chinn and Rona, 1999:94). The overlapping error bars and insignificant relationships described in this Chapter may be a result of calculating BMI Z-score rather than focusing on individual measurements of height and weight. However, when taken in context of the results from Chinn and Rona (1999) they also indicate that the free school meal policy was targeted at the right children. In addition to these results assessing the association between meal type and BMI Z-score, the results assessing parents' social class produced insignificant results for this early time period. Only one significant result was identified between boys BMI Z-score and Mother's social class; however, the post-hoc Scheffe results showed no significance suggesting the variation was within the social class groups as opposed to between them. However, when this time period was assessed in the linear regression the type of meal was identified as the only significant predictor of both boys and girls BMI Z-score. From the results presented in this time period it appears as though the only significant relationship is that between BMI Z-score and the type of meal the child had at lunchtime. Although, this could purely be a result of the methodological issues related to data collection between 1973 and 1976; therefore, results from the next time period may be able to offer a more robust perspective on the relationships between these variables. From 1977 to 1979 the graphs depicted in Figure 24 and Figure 25 show clear differences in the average BMI Z-score for both boys and girls when compared to meal type. The

boys and girls having a free school meal had an average BMI Z-score lower than both other meal types. The ANOVA results show that these differences were significant and that boys taking a paid school meal had a significantly higher average BMI Z-score than those having a free school meal and those taking a packed lunch or going home. The girls ANOVA results showed the same pattern, girls having a paid school meal had a significantly higher BMI Z-score than those having a free school meal and those taking a packed lunch or going home. However, as seen in the previous time period there were no significant relationships identified between the children's BMI Z-score and parents' social class. The post-hoc Scheffe tests for both boys and girls resulted in no significant comparisons between the social class groups, the significant results seen in the preliminary ANOVA, Table 26 and Table 27, therefore relate to significant differences within the social class groups as opposed to between them. However, the regression results for boys paint a different picture. Table 43 indicates that meal type, mother's social class, and father's social class were all significant predictors of BMI Z-score. The meal type is the most significant result in this regression, p=0.000, which is consistent with the ANOVA results and may suggest that the ANOVA and post-hoc Scheffe tests lacked sufficient power to be able to highlight the relationships with parents' social class. This discrepancy, however, is not replicated in the results for the girls. The regression in Table 51 is consistent with the ANOVA results for girls in this time period, meal type was the only significant predictor of BMI Z-score. The results for the time period from 1972 to 1979 suggest that there are significant relationships between boys and girls average BMI Z-score and the type of meal taken at lunchtime during the school day. However, the differences in BMI Z-score between the paid for and free school meals suggest that this relationship is not as a result of meal quality. Although this time period is characterised by legislative stability it was not expected that significant differences in BMI Z-score would be seen between the two meal types which represent essentially the same meals being consumed. Therefore, there is clearly a wider sociological phenomenon affecting these BMI Z-scores which is being seen through the type of meals children took at this time.

## 1980 to 1988 – Dismantling the 'Legislation'

The publication of the 1980 Education Act signalled a dramatic change in the school meals service. Although this thesis has questioned the legality of the nutritional standards this Act allegedly removed, the history of school meals literature and the narratives from school cooks present overwhelming evidence that those involved in school meals at this time believed the Act removed the nutritional standards which they had previously accepted as legally mandated. However, the cooks interviewed in Chapter 4 described the time period leading up to 1988 in very similar terms as the previous era. They described noticing small changes, increasing use of packet mixes and pre-prepared items such as bread buns, but in the main they described how they continued to cook the majority of meals from scratch. Therefore, this era, despite the changes to the 1980 Education Act could also be viewed as relatively stable in terms of the foods being served to children. The cooks' reality of legislative change did not signal this era as being particularly detrimental to the quality of food provided to children. The results from this time period indicate a growing prevalence of overweight and obesity in boys and girls aged 10-12. Figure 19 and Figure 22 show, as in the previous era, a right handed skew with more children in the overweight, obese, and severely obese categories than in the underweight category. This skew is consistent with the results presented in Table 9 which highlight the percentage change of the number of children within each NOO category. In 1982 2.6% of girls were classified as underweight, a decrease of 1.0% since 1972 and 7.8% occupied the overweight, obese and severely obese categories which is an increase of 0.1% on the previous era. The skew seen in boys from this table differs slightly from the girls in that 2.7% of boys were categorised in the underweight cut off point which was an increase of 0.8% from the previous time period and a decrease of 1.2% to 7.3% in the overweight, obese, and severely obese categories combined. Despite underweight increasing and overweight and obesity decreasing slightly in boys the skew is still present. Therefore, the right skew seen in the previous time period has persisted through to 1982, increasing the percentage of girls occupying the overweight and obese category and decreasing slightly for boys.

When the relationship between BMI Z-score and meal type is examined for the time period 1980 to 1988 there is a clear difference in the average BMI Z-score for each meal type. Figure 24 shows that in 1980 the average BMI Z-score of boys having a paid school meal is higher than that seen in 1979. Additionally, this is the first time point where the error bars for paid school meal and packed lunch/go home do not overlap. During this entire time period the boys having a free school meal have the lowest average BMI Z-score. Although, after 1980 the error bars begin to overlap again for each year leading up to 1988 apart from 1984 when the free school meal boys move away from those taking a packed lunch or going home. Figure 25 presents a similar pattern for the girls, those having a free school meal have the lowest average BMI Z-score. However, there are no time points from 1980 to 1988 where the error bars do not overlap. Despite the overlapping error bars suggesting this may represent the spread of BMI Z-score for aged 10-12 girls and boys from 1980 to 1988, when the averages are separated by meal type there is a distinct difference. As in the previous time period this difference is explored further through the ANOVA and regression statistical methods. From 1980 to 1988 there were highly significant differences in BMI Z-score between all meal types for the boys. The post-hoc Scheffe tests showed those having a free school meal and those taking a packed lunch or going home had significantly lower average BMI Z-scores than the boys having a paid school meal. For girls this time period only showed significant differences for those having a free school meal. During this time girls having a free school meal had a significantly lower average BMI Z-score than those having a paid school meal and those taking a packed lunch or going home. Additionally, this time period saw significant relationships between BMI Z-score and parents' social class. For boys this was seen for both Mother and Father, however, the BMI Z-score for girls only showed a significant relationship with Mother's social class. Boys and girls with Mothers classified in the 'never gainfully occupied/not classifiable' social class group had a significantly lower average BMI Z-score than those from most other social class groups. However, when the meal type and parents' social class variables are assessed together the significance on meal type disappears for the girls, leaving just the Mother's social class as a significant predictor for BMI Z-score.

Conversely, this is not the case for boys, their regression results show both Mother's social class and meal type as significant predictors of BMI Z-score. When these results are combined with the ANOVAs it appears that for girls Mother's social class is a significant predictor of a lower average BMI Z-score and for boys it is both the type of meal and Mother's social class which are significant predictors of a lower average BMI Z-score. It is possible that the relationship between meal type and BMI Z-score seen in boys is related to that of the Mother's social class considering the entitlement to a free school meal would be based on the income of the family. If a Mother was not gainfully employed it would increase the chance that the children would receive, or at least be entitled to, a free school meal. Additionally, the significant relationships seen during this time period may be highlighting associations with confounding variables which have not been tested here.

### 1989 to 1994 – School meals enter the Free Market

During this time period the school meals service was placed on the free market with the publication of the 1988 Local Government Act which required all local authority services to be put out to tender. This included the school meals service and the legislation required competitive tendering with the lowest bid securing the service. The cooks described this time period as having long lasting detrimental effects on not only the quality of the meal but also the skills of those working in the service. The previous time period is seen to have removed the mandatory nutritional standards which then paved the way for external companies to provide low cost, low quality foods to the school kitchens through compulsory competitive tendering. Essentially this time period, in conjunction with the publication of the Education Act in 1980, is characterised by removal of all government intervention in the school meal service. The cooks argued this change resulted in declines in food quality and increases in pre-prepared and processed foods. The results from this time period indicate these policies may have affected child BMI Z-score, although not necessarily as a direct result of changes to school food but through wider sociological phenomena which links to the school meal. The histograms of BMI Z-scores from 1992, seen in Figure 20 and Figure 23, show the increase in the right skew

distribution. Additionally, the percentages shown in Table 9 show, again, how the left and right tails of the distribution are quite uneven. The right skew had increased again from 1982 to 1992, 13% of girls (up 5.2% since 1982) and 15.9% (up 8.6% since 1982) of boys were overweight, obese or severely obese. For underweight 1.9% of girls (down 0.7% since 1982) and 2.2% of boys (down 0.5% since 1982) occupied this category. By the end of this time period, in 1994, there were 15.1% of girls and 15.6% of boys classified as overweight, obese or severely obese whereas those within the underweight category remained disproportionately low, a slight increase since 1992 for girls at 2.4% and a further reduction for boys at 1.8%. This is consistent with the contemporary obesity literature which indicated this time period as showing the greatest increase in overweight and obesity in children. The relationship between average BMI Z-score and meal type for this time period, Figure 24 and Figure 25, shows the same pattern as in previous years. The children having a free school meal had a lower average BMI Z-score than the other meal types, but again there are years where the error bars overlap. The ANOVA results again showed the children taking a free school meal had significantly lower BMI Z-scores than those having a paid meal and those taking a packed lunch or going home. Additionally, it was Mother's social class, 'never gainfully occupied/not classifiable' which was associated with a lower average BMI Z-score in both boys and girls. Also, boys whose Fathers were classified in the 'unknown' social class had a significantly lower BMI Z-score than boys whose Fathers were classified in the 'intermediate managerial' social class. However, the F-value was relatively small, F=2.941 which indicates more variation within the social class groups as opposed to between them. However, the regression results for this time period showed only Mother's social class was a significant predictor of both boys and girls BMI Z-score. All other comparisons seen in previous years were no longer significant during the 1989 to 1994 time period. The significant social class group was, again, Mothers classified as 'never gainfully occupied/not classifiable'. Therefore, these results suggest that any relationships seen in the ANOVA were a result of the Mother's social class and once this variable was assessed alongside meal type in the regression, the significance of meal type was lost to social class.

Once again, Mother's social class was a significant predictor of a lower average BMI Z-score in both boys and girls indicating that any relationships described in the literature between parents' lower socioeconomic status and obesity in children are a more recent phenomenon.

## Summary

This discussion has indicated that the most significant predictor for a lower BMI Z-score in children from 1972 to 1994 was Mother's social class. However, this Chapter was unable to include all known variables which have been linked to childhood obesity and Mother's social class could have confounding variables acting upon it which are the true factors influencing BMI Z-score. The significantly low average BMI Z-scores of the children taking a free school meal indicate that the reasons why these children have a free school meal adversely affects their BMI Z-score. The unemployed Mother may receive free school meal entitlement for her children; however, these children would be receiving essentially the same meal as children who paid for their school lunch, yet they have significantly different BMI Z-scores. These results raise a multitude of questions over the mechanism behind these differing BMI Z-scores and only offering Mother's social class as the explanation is insufficient. Moreover, classifying the free school meal as a marker of social status must be done with the knowledge of potential caveats. Children may only receive free school meals at certain time points, during times of parental unemployment for example. However, this may not be static and the children who receive free school meals may at live in affluence at other points in time. Moreover, cut-off points for free school meal entitlement may mean that some families do not qualify for free meals yet they would still be classified as low social status. Using the school meal arrangement as a marker for social status is not a perfect tool; however, it provided the opportunity to assess whether there were clear differences. The overlapping error bars in the graphs showing average BMI Z-score by meal type may highlight these points. However, it is necessary to understand the wider sociological phenomena occurring during this time period to fully explore why there were significant differences in BMI Z-score of children depending on which meal type they had during the school day.

Chapter 1 presented a wider sociological picture of this time period which was characterised by a variety of economic and social instabilities. The 1980s exhibited increases in unemployment and an increase in neoliberal government policies, deregulation and favouring liberal free markets, which could all offer explanations for the increases in the percentage of children classified as overweight or obese and for the significant differences in BMI Z-score between the various meal types.

## Conclusion

This Chapter has presented a variety of results assessing the impact of government legislative changes on child BMI Z-score. These results were separated chronologically to represent the various time points at which the legislation was amended in order to understand whether these periods highlighted significant differences. The most consistent result throughout this Chapter has been linked to the free school meal. Children taking a free school meal had, in most results, a significantly lower average BMI Z-score than those having a paid school meal and those taking a packed lunch or going home. This result alone clearly suggests that there is a wider sociological phenomenon which was affecting the differences seen in BMI Z-score for both boys and girls aged 10-12. Additionally, the Mother's classified in the 'never gainfully occupied/not classifiable' social class group was a significant predictor for BMI Z-score. If the Mother was not working it would have increased the likelihood that the child would be entitled to a free school meal which explains why these variables were strongly associated. However, the contemporary literature on childhood obesity suggests lower socio-economic status of the parents is significantly associated with higher BMI Z-scores. The results from this Chapter suggest this relationship with low socio-economic status and childhood overweight and obesity emerged after 1994. It suggests this relationship may be a more modern association than previously thought. This Chapter suggests that up until 1994 children of unemployed Mothers had a significantly lower average BMI Z-score than children of Mothers from the other social classes. However, this is far from conclusive as the variables for social class used in this analysis did not differentiate between Mothers who have never been gainfully

employed and Mothers who may be temporarily unemployed. These could be important distinctions as well as equating unemployment with social class. Moreover, it has indicated that there may have been wider sociological phenomena occurring during this time period which have not been tested here but may have influenced the rise in childhood obesity but also influenced the low average BMI Z-score of the children having a free school meal. The next Chapter in this thesis aims to draw together all of the previous Chapters and offer some final conclusions over the relationships presented here with a view to explaining the differences described above.

# Part III - Discussion & Conclusion

*Part I and II have presented a wealth of evidence surrounding the issue of child malnourishment and school meals in addition to three individual studies exploring how school meal legislation has impacted on child malnourishment. The Chapters have presented discussions and conclusions of their own, however, this final section of this thesis attempts to draw these together to gain a more general overview of whether the school meal has been an effective tool for governing child health.*

# Chapter 6

## Policy in Perspective: Has School Meal Legislation affected fluctuations in Child Malnourishment?

Since the introduction of mandatory education for children in 1880 the school has been a site for governing a larger proportion of the child population (Popkewitz, 2003). The school provides an environment where societal and political values can be reinforced or transformed (Rose, 1999). This thesis has shown how the school meal was initially developed under the auspices of altruism, feeding malnourished children, but at the same time was a tool of government to ensure children grew up healthy. The school meal was introduced as a tool for governing child health after vast proportions of men were rejected from enlisting in the army during the Boer War as a result of poor health attributed to malnourishment. It was believed that children needed to be fed during the school day not only to benefit from the education now being provided to them but also to ensure the success of future military efforts. Today child health is still a concern for government and this thesis has shown increasing obesity rates to be one of the areas of government intervention. The school meal is still being used as a tool for intervention into child health; however, fluctuations in governmental ideology have affected its efficacy and potentially contributed to increases in childhood obesity prevalence. This thesis aimed to show whether it was possible to link changes in government legislation on school meals with fluctuations in child BMI or BMI Z-score from the early 20th Century. Here I will draw together all of the previous Chapters and discuss whether it has been possible to make such connections. The bulk of this thesis has mainly been descriptive as opposed to analytical which has been intentional to gain a thorough understanding of the fluctuations in child malnourishment alongside governmental intervention through school meals. This final section aims to draw these descriptions together to understand how and why the school meal has been used as a tool for governing child malnourishment. The historical scope of this thesis has highlighted how child malnourishment has swung from one end of the spectrum to the other.

Initial concerns about child health were focused on children being undernourished and towards the end of the 20th Century this concern shifts to concern to overnourishment. However, this concern has consistently been aimed at a particular socio-economic group throughout the entire period covered by this thesis, from 1880 to present day. Modern data collected by the NCMP shows how children from poorer backgrounds are significantly fatter than their more affluent peers and any reductions or stability in average overweight and obesity prevalence have been among affluent children whereas prevalence in children from poorer backgrounds continues to increase. Part I of this thesis presented the background to fluctuations in child malnourishment in addition to discussing the development of the school meals service. These Chapters taken together show how concerns over child malnourishment led to governmental intervention through the introduction of school meals and the school medical service. Chapter 1 described the shift in concern over child malnourishment from under- to overnourishment throughout the course of the 20th and 21st Centuries. Chapter 2 used the same time frame but showed how the school meal had been introduced and developed in response to these nutritional concerns.

## Governing Child Malnourishment: Shaping individuals through the school meal

Part I presented a lengthy introduction to the issue of child malnourishment which has plagued government for over a century. The introduction of school meals to ameliorate poverty-related illness appeared altruistic; however, it provides an example of government attempting to shape citizens into healthy adults capable of selling their labour, or fighting in future wars. This could be seen as an example of what Foucault described as governmentality in his lectures at the Collège de France (Gordon, 1991). In these lectures he described how modern subjects are created through two techniques, technologies of power and technologies of the self. According to Gordon (1991) Foucault suggested that we can analyse modern societies through reconstructing the technologies of power which are "designed to observe, monitor, shape and control the behaviour of individuals situated within a range of social and

economic institutions such as the school, the factory, and the prison" (p. 3-4). Modern subjects are thus created by taking on and practising the technologies of power as a form of self-regulation (Foucault, 1988; Coveney, 1998). In terms of this thesis the school meal has acted as a technology of power aiming to shape the nutritional outcomes of individuals through direct intervention of the foods they consume in school but also by way of technologies of the self. According to Dean (2010) Foucault saw the school as a site through which power could be exercised over and through individuals as a way of regulating and shaping them. Rose (1999) described how the early 20th Century saw a "new social medicine" which aimed "to produce a healthy and efficient population through engaging individuals with a hygiene programme for managing themselves and their relations with other, educate them in the detailed techniques of body maintenance, sanitation, diet. . . and monitoring health clinics for tuberculosis, venereal diseases, and child welfare" (p.23). The school meal has worked as a regulatory tool, aiming to ensure the fitness of children by providing nutrition but also as a tool for shaping them to become healthy adults, not just physically but mentally, governing their mentality. Individuals may have taken on board these technologies of power and adopted particular nutritional behaviours. However, it is unclear to what extent the school meal influences future adult behaviours. Moreover, this thesis has been unable to identify whether there are clear associations between changes in school meal legislation and fluctuations in childhood malnourishment. Developing a school feeding programme to address issues of child malnourishment and the maintenance of Britain's Empire at the turn of the 20th Century was not immediately, and has probably never been, welcomed by all Members of Parliament. Concern over expenditure of public rates and diminishing parental responsibility thwarted initial attempts to put school meals onto the statute book. However, towards the end of the 19th Century it became clear that poverty-related illness was related, in part, to the demands of the industrial economy and it has been argued that the introduction of school meals and the school medical service were part of wider political interventions which formed the beginnings of the welfare state (Harris, 2004; Alcock, Daly, and Griggs, 2008).

The introduction of school meals can be seen as technologies of power acting upon individuals, or more specifically working class families and children, in a way that did not remove their autonomy, the meal was not forced upon individuals, but aimed to re-shape them into healthy individuals and ensure the future of the 'Empire' (Rose, 1999). The legislation in 1906 aimed to govern at a distance, as Rose (1999:132) describes "the concern for the health and welfare of children in the early twentieth century certainly sought to utilize 'the family' and the relations within it as a kind of social or socializing machine in order to fulfil various objectives – military, industrial, and moral – but this was to be done not through coercive enforcement of control under threat of sanction, but through the production of mothers who would want hygienic homes and healthy children." The school meal and medical service were methods of feeding and monitoring children and these two institutions were a way for government to instil particular social norms. Not only were these technologies of power aimed at producing healthy citizens but they also aimed at shaping future parents. By feeding children in schools it instilled a normality of maintaining healthy children through alleviating undernourishment. The addition of the school medical service worked to further this idea of 'normal' by identifying children who were undernourished, or otherwise unhealthy, and sought to produce healthy citizens through social programmes (Rose, 1999). The shift of malnourishment to the overweight and obese end of the spectrum provides further evidence of governing through school food. New legislation introduced in the late 1990s to ensure school meals met specific nutritional standards could be viewed as a response to the shift of malnourishment to the overweight and obese end of the spectrum. Government legislation for school meals allows individual autonomy to remain and the meal governs at a distance to shape and guide individuals (Gordon, 1991; Coveney, 1998). However, the publication of the School Food Plan in 2013 presented a disturbing rhetoric which encouraged schools to ban packed lunches, effectively removing all parental and child autonomy and forcing children to eat the, allegedly, nutritionally balanced and healthy school meal (Dimbleby and Vincent, 2013). This represents a complete shift from the introduction of school meals in 1906 where it was felt even permissive legislation to allow LEAs to serve meals was

too far in terms of intervening in individual lives. However, today it is seen as acceptable, if not the only way to prevent further increases in obesity in childhood, to remove all autonomy in terms of school feeding to govern the mentality of specific groups of the population. The School Food Plan not only recommends banning packed lunches, if possible, but also introducing an on-site policy whereby children are not allowed to leave the school premises at lunchtime (Dimbleby and Vincent, 2013). It appears as though initial governance practices to ensure the health of future generations have swung from resistance from government to intervene at all, to now bordering on coercive oppressive forces. However, government has not yet intervened to this extent and the recommendations in the School Food Plan remain at the discretion of head teachers as to whether they will be introduced in schools. However, the School Food Plan highlights conclusions drawn in this thesis, that the school meal is a tool for governing the health of children. Chapter 1 of the School Food Plan begins, much similarly to this thesis in that it presents information about the costs to the National Health Service (NHS) and health consequences of obesity (Dimbleby and Vincent, 2013:30). However, throughout this century of amendments to legislation, reports, plans, and general attempts at creating healthy individuals through the school meal it is unclear whether the tool has the desired impact or whether wider sociological factors undermine the ability of one meal to ensure this future healthy utopia.

**Efficacy of the School Meal in Governing Child Malnourishment**

Part II adopted a mixed-methods approach to assess the efficacy of school meal legislation on child malnourishment. Chapter 3 attempted to contextualise the legislative history of school meals through interviews with school cooks. The women interviewed as part of this study described how they cooked the majority of meals for children from scratch, using raw ingredients, preparing and cooking them on a daily basis. From these interviews it became apparent that despite the changes to the 1980 Education Act it was the 1988 Local Government Act which proved most detrimental to the school meals service. These interviews also demonstrated how the cooks' mental template of a meal conflicted with changes to government legislation. Whether nutritional standards were legally mandatory prior to the 1998 School Standards and

Framework Act was largely irrelevant to cooks. It was believed that school meals must meet specific nutritional standards until 1980 and the cooks worked to maintain such standards. They believed that the children they served were given nutritionally balanced meals but this was not as a result of legally mandated, or not, nutritional standards. It was more related to the cooks' cultural ideas on what constitutes real food; if the meal was cooked from scratch using fresh ingredients then it was real, nutritious food. However, around the late 1970s to early 1980s the cooks described how pre-prepared foods began entering the school kitchen. Initially the cooks did not seem too fazed by these new items as they still cooked the majority of food from scratch. However, they argued that after the introduction of CCT in 1988 the quality of the meal declined and they saw greater quantities of pre-prepared foods entering the kitchen. The cooks resisted this change; however, this may not have been altruistic and resistance may have been due to the conflict with their mental template as opposed to concern over the quality of food being provided to children. In my opinion it was a combination of the two, cooks felt these new food items were not real food and as a result felt they were not good for the children. These interviews with cooks offered great insight into the reality of legislative change to school meals in addition to highlighting the effects of neoliberal government policies during the 1980s. The period of neoliberal reform during the 1980s saw decreases in wages, increases in unemployment as well as welfare reductions and increases in poverty (Scott-Samuel *et al,* 2014) which can be seen in the school kitchen. The increase of new food technologies facilitated these reforms as it reduced wage expenditure in the school kitchen which was forced upon the cooks and the LEAs by the 1988 Local Government Act. This Act required LEAs accept the lowest bid for school meal provision, by introducing more pre-prepared meals the wage bill was reduced and potentially the waistlines of British children were increased. This tendering process essentially allowed fast-food into the school kitchen and removed any beneficial effects the school meal might have had on children. Additionally, this process deskilled an entire workforce of women who no longer required their extensive training.

Chapter 4 combined over 100 years of child height and weight data to assess whether any fluctuations in these measurements can be seen to visually correlate with the legislative changes and school cooks' narratives. The graphs presented in this Chapter show a clear increasing trend for height, weight, and BMI in both boys and girls aged 10-12 with declines around the times of World War I and II, which may have been impacted by the fact that children within this age range were not routinely measured and may not be representative of the wider 10-12 population. The increases seen after 1908 and both Wars may have been facilitated by the school meals programme, as Figure 4 in Chapter 2 clearly indicated the benefits of the school meal service for children in Bradford. However, it was not possible to make such direct connections in Chapter 4 and the intention was to assess whether any visual correlations were present. However, these visual correlations fail to take into account other wider sociological factors which may have also influenced the increasing trend. Interestingly Figure 16 showed how increases in average BMI began to increase more sharply after the late 1980s which is around the time of the 1988 Local Government Act which put the school meal service out to tender. However, firm conclusions about the effect of changes to the school meal on child health are not feasibly drawn from this Chapter. There are some interesting visual correlations; however, it is likely the legislative changes to school meals had a minimal direct effect on child malnourishment.

Chapter 5 assessed this relationship through analysing data from the National Study of Health and Growth (NSHG). This dataset was the only one identified which included school meal variables alongside child height/weight data and spanned the time period which saw significant changes to school meal legislation. The NSHG detailed whether children had a paid school meal, free school meal, or went home/had a packed lunch. Therefore, if the school meal legislation had any measurable impact on the child height/weight variables it would be expected that the paid meal and free meal children would show similar fluctuations if variables such as parental income were able to be controlled for. However, this was not the case.

Although there were similar patterns of increasing average BMI Z-score regardless of meal type, there were significant differences between the meal type groups. Children on free school meals generally had a significantly lower BMI Z-score than children having a paid meal or those going home/taking a packed lunch. Although the averages began to merge towards the end of this study period, Chapter 5 appeared to show that children from potentially poorer backgrounds, due to them receiving a free school meal, had significantly lower average BMI Z-scores than their more affluent peers. Modern data from the NCMP shows the opposite, children from poorer backgrounds are often fatter than their more affluent peers. Chapter 5 suggests the relationship between poverty and obesity is a relatively recent phenomenon if these results are taken in a broad sense. However, this may indicate that up until 1994 (the last data collection point in the NSHG) the school meal was still a tool for protecting children from poorer backgrounds from undernourishment and the legislative changes which saw increases in pre-prepared meals in the late 1980s could have had more significant effects on these children. However, more advanced statistical analyses would strengthen this conclusion. The school meal was potentially the most nutritious, and possibly only, meal children from this social stratum could access each day and if that became less nutritious these children may have suffered more than their affluent peers. Moreover, the Chapter also showed how the type of school meal a child had was a significant predictor of BMI Z-score. Throughout all the time periods under analysis there was a significant relationship between free school meal and lower average BMI Z-score. Therefore, the conclusion drawn from these results suggests that wider sociological factors, such as poverty potentially related to the 1980s liberal reforms, appear to have affected children from socioeconomic strata differently. However, in terms of obesity it seems as though the children from more affluent backgrounds may have succumbed to this phenomenon before the children from poorer classes, in contrast with contemporary children.

## Conclusion

Assessing the effect of school meal legislation on child malnourishment in isolation from wider sociological phenomenon is a difficult task. This thesis asked the question: Can legislation relating to school meals be seen to have any measurable impact on child malnourishment since the early 20th Century? It is not possible to assess the efficacy of a single policy against the issue of child malnourishment when the causation of this disorder is so multi-faceted. However, that has been the remit of this thesis and it would be easy to say this research has been inconclusive due to the difficulty in attributing school meal legislation to health outcomes in children. However, this thesis has shown how child malnourishment has shifted since the early 20th Century to present day and that legislation relating to school meal has been developed as a response to these fluctuations. Although there were no significant patterns identified which showed fluctuations in child malnourishment after legislative changes, there were clear patterns linked to wider sociological factors such as changes to welfare provision, as discussed in Chapter 1, of which the school meal forms a small part. Chapter 2 showed the immediate effects of school feeding in Bradford in 1907, children gained weight within 10 days and lost weight during the vacation period when meals were not provided. Severe undernourishment here might have been the reason why children showed such rapid weight gain; however, there has been little research to suggest that current nutritionally balanced school meals can consistently and sustainably reduce the obesity prevalence in children (Brown and Summerbell, 2009). Chapter 5 has also shown that there were significant relationships between free school meals and lower BMI Z-score suggesting that up until 1994 poorer children were still on average lighter/shorter than their affluent peers. However, the school meal can only remain effective in preventing malaise in poorer children if it is protected from governmental policy reform. Although increases in childhood obesity may have been more intrinsically linked to the changes in liberal market policies, as shown by Offer, Pechey, and Ulijaszek (2012), the school meal was not immune from market liberalisation. The cooks in Chapter 3 presented their experiences of Compulsory Competitive Tendering and described how the quality of the school meal declined and Chapter 5 demonstrated how average BMI Z-score

increased during this time, although when these data were separated by school meal type it showed that the paid school meal children had significantly higher BMI Z-scores than those on free meals. The conclusions to be drawn from this thesis are that the school meal has been used as a tool for governing the health of children but its efficacy in achieving the desired outcomes is difficult to assess. Although there have been great advances in reducing undernourishment in children, the opposite end, overnourishment, is now causing such great concern in government that recent reports on school meals have begun to discuss oppressive technologies of power to overcome the rising prevalence of obesity in children. This thesis has demonstrated in Chapter 1 that the rise in childhood obesity seen in the mid-1980s may be more correlated to the restructuring of the welfare state and the phenomenon is part of the increasing health inequalities seen as a result of "the crisis of British Capitalism" as opposed to directly linked to changes in school meal legislation (Scott-Samuel *et al,* 2014:54; Offer, Pechey and Ulijaszek, 2012). Moreover, the effects of school meal legislation may be more apparent when children are undernourished, as seen in Bradford in 1907. Undernourishment is just as multi-factoral as overnourishment, however, the former can be ameliorated by merely increasing food intake. Overnourishment, or overweight and obesity, requires more than just decreasing food intake to solve and while ensuring the school meal is nutritionally balanced will be beneficial, it is not the only factor that needs to be addressed. Therefore, the school meal could be an ineffective tool for tackling the current issue of childhood obesity while the wider social determinants of health are overlooked. Health inequalities, and obesity, will continue to rise among those from the lower socio-economic classes if economic inequality and insecurity continue to persist. The school meal may offer some respite for malnourishment resulting from wider sociological factors *if* it is protected from market liberalisation and restructuring of the welfare state.

# Future Study

Government legislation relating to school meals has the potential to differentially impact children depending on their socio-economic background. However, to understand the impact of government legislation on child health it is necessary to extend the analytical lens beyond one category of legislation, in this case that relating to school meals. This thesis begun by questioning whether it was possible to see whether changes in school meal legislation can correlate to fluctuations in child malnourishment. However, it appears as though this legislation is too entangled within wider sociological change to be able to conclusively state it has had any effect on child malnourishment. School meal legislation is more widely associated, and affected, by wider welfare reforms which have been associated with increases in childhood obesity. Therefore, future work should explore a wider remit of legislative changes to understand how these have impacted child health in conjunction with technological and sociological changes.

Additionally, this study raised several questions relating to generational shifts in food ideologies. The cooks interviewed for this thesis described their ideas on what constitutes real food. Do adults and children today have differing ideas on what constitutes 'real' food? Did the removal of processed foods from school cafeterias create tension due to differing ideas on what is real food? Has the mental template of a meal shifted over time with younger generations more accepting of changes in food technologies and processed foods? Is the school meal a method by which individuals gain food knowledge? Do these mental templates of a meal conflict with public health messages in relation to reducing obesity rates? These changes in mental templates across generations could have implications for health interventions designed for children by adults. Without understanding the target population's ideas on real food and how food knowledge is taken up by individuals, interventions may be a recipe for disaster.

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# Appendices

## Appendix 1 – School Meal Documents

**Table 56 - List of documents relating to school meals policy**

| | Date | Document | Overview | Source |
|---|---|---|---|---|
| 1 | 1868 | The Elementary Education Bill | Debate in House of Commons requesting leave to introduce a Bill for Elementary Education | Hansard – HC Deb 17March 1868 vol 190 cc1816-26 |
| 2 | 1868 | The Elementary Education Bill | First reading of Elementary Education Bill | Hansard – HL Deb 24 March vol 191 cc105-38 |
| 3 | 1868 | The Elementary Education Bill | Second reading of Elementary Education Bill | Hansard – HC Deb 24 June 1868 vol 192 cc1983-2011 |
| 4 | 1870 | The Elementary Education Act, 1870 | An Act to provide public Elementary Education in England | House of Commons Parliamentary Papers (HCPP) Education in England (EIE) |
| 5 | 1880 | The Elementary Education Act, 1880 | An Act to make further provisions to attendance of children at school | EIE |
| 6 | 1884 | Education Department: Children's Penny Dinners | Question in HC regarding the Penny Dinners provided to children in Devon | Hansard – HC Deb 13 November 1884 vol 294 cc1581-2 |
| 7 | 1891 | The Elementary Education Act, 1891 | An Act to make further provision for assisting Education in England | EIE |
| 8 | 1903 | Debate transcript: The National Standard of Physical Health | Debate in House of Lords regarding 'deterioration of the physique of the working classes' | Hansard – HL Deb 06 July 1903 vol 124 cc1324-56 |
| 9 | 1903 | Debate transcript: Class IV | Debate in House of Commons on finances relating to the Board of Education with comments on the inability of children to benefit from the education provided as they were physically inferior | Hansard – HC Deb 09 July 1903 vol 125 cc165-235 |

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| 10 | 1904 | Report of the Inter-Departmental Committee on Physical Deterioration | Report of inquiry into allegations of deterioration in certain classes of the population | HCPP |
| 11 | 1905 | Debate transcript: Civil Services | Discussion in House of Commons on the feeding of children suffering from malnutrition | Hansard – HC Deb 22 March 1905 vol 143 cc 808-81 |
| 12 | 1905 | Elementary Education (Feeding of Children) Bill | A Bill to make provisions for the feeding of children in public schools | HCPP |
| 13 | 1905 | Debate transcript | Discussions in House of Commons on the Elementary (Feeding of Children) Bill | Hansard – HC Deb 27 March 1905 vol 143 cc1219-77 |
| 14 | 1905 | Debate transcript | Discussion in House of Commons on Physical Deterioration and the need to empower LEAs to provide meals in school | Hansard – HC Deb 18 April 1905 vol 145 cc531-71 |
| 15 | 1905 | Report of the Interdepartmental Committee on Medical Inspection and Feeding of Children Attending Public Elementary Schools | Inquiry into the voluntary agencies that supply meals to school children | HCPP |
| 16 | 1905 | Medical Inspection and Feeding of School Children | Summary of Report in BMJ | BMJ Noc. 25, 1905 p:1409-1410 |
| 17 | 1906 | Debate transcript | House of Commons discussion on the Education (Provision of Meals) Bill | Hansard |
| 18 | 1906 | Special Report on Education (Provision of Meals) Bill, 1906 | Select committee review of evidence relating to the Bill | HCPP |
| 19 | 1906 | Debate transcript | House of Lords Second Reading of Education (Provision of Meals) Bill 1906 | Hansard – HL Deb 19 December 1906 vol 167 cc1473-82 |
| 20 | 1906 | The Education (Provision of Meals) Act, 1906 | An Act to make provision for meals for children attending school | HCPP; EIE |
| 21 | 1907 | Education (Administrative Provisions) Act 1907 | An Act which introduced compulsory medical inspections of school children | EIE |

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| 22 | 1909 | Board of Education Report on the Working of The Education (Provision of Meals) Act, 1906. | Report on the LEAs which exercised their powers under the Act, 1909 | HCPP |
| 23 | 1907 | Report of the Medical Superintendent on a course of meals given to necessitous children from April to July, 1907 | Report produced by the City of Bradford Education Committee | National Archives – ED 138/59 |
| 24 | 1909 | Debate transcript | Education (Administrative Provisions) Bill | Hansard HC Deb 23 April 1909 vol 3 cc1795-867 |
| 25 | 1910 | Report on the Working of the Education (Provision of Meals) Act, 1906 | Report requested by the Board of Education to assess whether LEAs exercised their powers under the Act, 1910 | HCPP |
| 26 | 1913 | Education (Provision of Meals) Act, (1906) Amendment Bill | Bill to allow LEAs to serve meals during school vacation, previously not covered by the 1906 Act and deemed illegal | HCPP |
| 27 | 1914 | Debate transcript | Education (Administrative Provisions) Bill, Second Reading to legalise the provision of meals during school vacation | Hansard HC Deb 27 March 1914 vol 60 cc 715-83 |
| 28 | 1914 | Education (Provision of Meals) Act, 1914 | An Act to amend the Education (Provision of Meals) Act, 1906 to allow LEAs to serve meals to children on school days and in vacation | EIE |
| 29 | 1921 | Education Act, 1921 | An Act consolidating enactments relating to education. Sections 82 to 85 relate to provision of school meals, recovery of costs, defraying costs in certain circumstances, and duty of teachers | EIE |
| 30 | 1939 | Debate transcript | Meals in Schools (Dietary) discussion in the House of Commons regarding the appointment of a dietician by the Board of | Hansard HC Deb 03 April 1939 vol 345 c2465W |

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| | | | Education to assess school meal quality | |
| 31 | 1939 | Debate transcript | Education (Meals in Schools) discussion on the work by school meals inspectors | Hansard HC Deb 03 May 1939 vol 346 cc1900-2W |
| 32 | 1940 | Memo to Inspectors E.No.436 | Memo issued to the education inspectors giving instructions to ensure proper assessment of the school meals service | National Archives – ED 138/59 |
| 33 | 1941 | Debate transcript | Food Policy: Nutrition of Children. Discussion in the House of Lords on extending the school meals service | Hansard HL Deb 21 October 1941 vol 120 cc 346-63 |
| 34 | 1941 | Written answers | President of Board of Education responds to written questions relating to reform proposals for education – one proposal is introducing the obligation for LEAs to provide meals to necessitous children | Hansard HC Deb 23 October 1941 vol 374 cc1937-9W |
| 35 | 1941 | Board of Education Circular No. 1571 | Government Circular increasing ration allowances for school meals and first recommended nutritional standards | King's College Franklin-Wilkins Library (Store) Pamphlet TX357 GRE |
| 36 | 1941 | Board of Education Memo 504/7 | Memo to all District Inspectors of Schools noting specific requirements necessary for sufficient inspection of school meals. | National Archives – ED 138/59 |
| 37 | 1943 | Debate transcript | School Meals: Discussion in the House of Commons on improving the school meals service | Hansard HC Deb 25 February 1943 vol 387 cc285-6 |
| 38 | 1943 | Debate transcript | School dinners: Board of Education advise number of children taking school meals | Hansard HC Deb 11 March 1943 vol 387 cc850-1 |
| 39 | 1943 | Debate transcript | School meals (vegetables): Board of | Hansard HC Deb 10 June 1943 vol 390 |

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| | | | Education advise progress being made in ensuring children were eating vegetables. | c864W |
| 40 | 1943 | Board of Education Educational Reconstruction Cmd. 6458 | Command Paper proposing education reforms. Section 95 recommends provision of school meals by LEAs become a duty | HCPP cmd.6458 |
| 41 | 1944 | Education Act, 1944 | An Act to reform the law relating to education in England and Wales. Section 49 places a duty on LEAs to provide meals to school children | EIE, Legislation.gov.uk /ukpga/ge06/7-8/31/ introduction/enacted |
| 42 | 1945 | Circular No. 34 Draft Provision of Milk and Meals Regulations | Draft of forthcoming regulations giving specific requirements for school meals as a result of the Education Act 1944 | National Archives – ED/50/660 |
| 43 | 1945 | Statutory Rules and Orders 1945 No.698 Education, England and Wales Provision of Milk and Meals | Provision of Milk and Meals Regulations stipulating set of rules requiring compliance by LEAs | National Archives – ED 50/660 |
| 44 | 1944 | Debate transcript | President of Ministry of Education acknowledges school meal provision is lacking in some areas and advises of 3 year plan to address this. | Hansard HC Deb 05 October 1944 vol 403 cc1122-3 |
| 45 | 1946 | Statutory Rules and Orders 1946 No. 1293 Education, England and Wales Provision of Free Milk | Provision of Free Milk Regulations, 1946 prohibits the charge of pupils at maintained schools, day pupils and boarders for school milk | National Archives – ED 50/661 |
| 46 | 1949 | Ministry of Education letter to all LEAs | Letter informing LEAs of upcoming amendments to Statutory Instruments | National Archives ED 50/661 |
| 47 | 1950 | Statutory Instruments 1949 No. 2280 Education, England and Wales, The Milk and Meals (Amending) Regulations, 1949 | Amending regulations to create a uniform charge for school meals, replacing previous varying charges and adjustments for partial and total remission of | National Archives – ED 50/661 |

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| | | | cost of meals in cases of hardship | |
| 48 | 1951 | Ministry of Education letter to all LEAs | Letter informing all LEAs of upcoming amendments to Statutory Instruments | National Archives – ED 50/662 |
| 49 | 1951 | Statutory Instruments 1951 No. 340 Education, England and Wales, The Milk and Meals (Amending) Regulations, 1951 | Amending regulations to increase the charge for school meals | National Archives – ED 50/662 |
| 50 | 1953 | Ministry of Education Circular 262 | Circular to advise increase in charges for school meals | National Archives – ED 50/662 |
| 51 | 1954 | Statutory Instruments 1954 No. 910 Education, England and Wales, The Milk and Meals (Amending) Regulations, 1954 | Regulation to allow the Minister of Education to prescribe the source and quality of milk provided to children | National Archives – ED 50/662 |
| 52 | 1955 | Statutory Instruments 1955 No. 320, Education, England and Wales, The Milk and Meals (Amending) Regulations No. 2, 1955 | Regulation to enable the Minister of Education to approve provision of milk tablets as an alternative to dried milk in schools | National Archives – ED 50/662 |
| 53 | 1956 | Statutory Instruments 1956 No. 575, Education, England and Wales, The Milk and Meals (Amending) Regulations, 1956 | Regulation to clarify the provision of dried milk or milk tablets to be be provided at a reasonable cost | National Archives – ED 50/663 |
| 54 | 1956 | Ministry of Education Report of an Inquiry into the Working of the School Meals Service (1955-56) | Report summarises results of inquiry supplemented by returns from LEAs and from reports by H.M. Inspectors | Out of Print: HMSO. Author's personal copy |
| 55 | 1956 | Debate transcripts | Minister of Education receives question as to whether school inspectors are qualified to assess school meal quality | Hansard HC Deb 01 November 1956 vol 558 c1590 |
| 56 | 1956 | Ministry of Education Circular 308, The School Meals Service | Circular to LEAs reporting on various outcomes of review into the school meals service | National Archives – ED 50/663 |

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| 57 | 1956 | Statutory Instruments 1956 No. 1320, Education, England and Wales, The Provision of Milk and Meals Amending Regulations, 1956 | Consolidation of previous regulations | National Archives – ED 50/663 |
| 58 | 1956 | Statutory Instruments 1956 No. 1321, Education, England and Wales, The Education (Local Education Authorities) Grant Amending Regulations No. 5, 1956 | Regulations introducing changes to the grant payment to LEAs for the expenditure of school milk and meals | National Archives – ED 50/663 |
| 59 | 1959 | Statutory Instruments 1959, No. 409 Education, England and Wales, The Provision of Milk and Meals Amending Regulations, 1959 | Modifies the exisiting regulations and places additional meals other than mid-day meals at the discretion of LEAs | National Archives – ED 50/739 |
| 60 | 1961 | School Meals Service Statistics for England and Wales 1960-61 | Ministry of Education Inspectors report on the number of children receiving meals between 1960-61 | National Archives – ED 50/739 |
| 61 | 1965 | Department of Education and Science. The Nutritional Standard of the School Dinner: Report of the Departmental Working Party on the Nutritional Standard of the School Dinner and the Type of Meal (1965) | Working party set up by the Secretary of State to review the Nutritional Standards laid down by Government Circular 290 | University of Oxford, Bodleian Libraries – OGB/E.3d/1966(11) |
| 62 | 1966 | Debate transcript | Secretary of State for Education and Science advises the cost of the school meals service. | Hansard HC Deb 10 November 1966 vol 735 cc1523-4 |
| 63 | 1968 | Department of Education and Science, Circular 11/68 – The School Meals Service | Circular advising LEAs on arrangements for remission of the school meals charge | National Archives – ED 50/739 |

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| 64 | 1971 | Debate transcript | Secretary of State for Education and Science advises there would be no change to nutritional standards regardless of changes to cost of meals | Hansard HC Deb 04 February 1971 vol 810 cc1887-8 |
| 65 | 1971 | Statutory Instruments 1971 No.169 Education, England and Wales, The Provision of Milk and Meals (Amendment) Regulations, 1971 | Regulations converting the charges for school meals to decimal currency | National Archives - ED 269/17 |
| 66 | 1971 | Department of Education and Science letter to Chief Education Officer | Letter to all LEAs advising on the forthcoming Education (Milk) Act, 1971 | National Archives – ED 269/13 |
| 67 | 1971 | Education (Milk) Act, 1971 | Act to restrict the duty of LEAs to provide milk to children in school | EIE |
| 68 | 1971 | Department of Education and Science Circular No. 12/71, Provision of Milk and Meals (Amendment No 2) Regulations 1971 | Circular to all LEAs advising amendments to regulations under the Education (Milk) Act, 1971 removing the duty to supply milk to all children exxcept under certain circumstances | National Archives – ED 269/13 |
| 69 | 1971 | Statutory Instruments 1971 No. 1368 Education, England and Wales, The Provision of Milk and Meals (Amendment No.2) Regulations 1971 | Amending previous regulations relating to the supply of milk and defraying of the cost of supplying milk and meals | National Archives – ED 269/13 |
| 70 | 1971 | Correspondence relating to errors in Circular 12/71 Provision of Milk and Meals Regulations | Letters between Ministers and the Secretary of State requiring authority to amend an error in Circular 12/71 which allows LEAs to use discretion in charging for meals, milk, and other refreshment | National Archives – ED 269/13 |
| 71 | 1972 | School Meal Statistics 1970/71 | Institute of Municipal Treasurers & Accountants and Society of County Treasurers 7th | Durham University Library – XXJLP5/SCH |

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| | | | return from information sent by LEAs to the Department of Education and Science on numbers of children taking school meals for the year 1970/71 | |
| 72 | 1973 | Correspondence relating to new supplementary benefits rates which affected the income scale for remission of school meal charges | Letter between Ministers and Treasury Dept | National Archives – ED 269/18 |
| 73 | 1974 | Debate transcript | Working Party assessing the nutritional content of school meals announced in the House of Commons | Hansard HC Deb 24 May 1974 vol 874 cc285-6W |
| 74 | 1974 | Circular 9/74 Provision of Milk and Meals (Amendment) Regulations, 1974 | Circular advising all LEAs of amendments to supplementary benefit rates for the remission of school meal charge | National Archives – ED 269/20 |
| 75 | 1974 | Statutory Instruments 1974 No. 1125 Education, England and Wales, The Provision of Milk and Meals (Amendment) Regulations, 1974 | Regulations amending provisions for the calcualtion of a parent's income to determine entitlement to remission of charges for school meals | National Archives – ED 269/20 |
| 76 | 1974 | Correspondence relating to increases in school meal charges | Letters between Ministers advising the need to issue notice to the LEAs regarding increase to school meal charges and reminders to reduce embarrassment for children receiving free school meals | National Archives – ED 269/20 |
| 77 | 1975 | Statutory Instruments 1975 No. 331 Education, England and Wales, The Provision of Milk and Meals (Amendment) Regulations 1975 | Regulations increasing the charge for school meals from 12p to 15p | National Archives – ED 269/20 |
| 78 | 1975 | Nutrition in Schools: Report of the Working Party on the Nutritional Aspects of School Meals | Report of a Working Party set up by the Department of Education and Science to investigate the | Durham University Library – Offpub R/75 27 |

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| | | | nutritional aspects of school meals | |
| 79 | 1976 | Debate transcript | Secretary of State for Education and Science discusses the nutritional standards for school meals | Hansard HC Deb 14 July 1976 vol 915 c189W |
| 80 | 1978 | Debate transcript | Secretary of State for Education and Science asserts economy measures would not affect the nutritional standard of the school dinner | Hansard HC Deb 26 January 1978 vol 942 cc709-10W |
| 81 | 1978 | Minute papers and documents relating to consolidation of legislation | Minute papers discussing the consolidation of legislation and various Statutory Instruments due to potential ultra vires | National Archives – National Archives ED 269/119 |
| 82 | 1978 | Minutes relating to, and draft copies of, Education (Micellaneous Provisions) Bill, The Provision of Milk and Meals | Papers and draft Bills attempting to consolidate previous legislation and address the ultra vires | National Archives – ED 269/119 |
| 83 | 1978 | Letters relating to proposals for inclusion in the Queen's Speech | Correspondence attempting to introduce mandatory provision of free milk for 7-11 year old school children | National Archives – ED 269/119 |
| 84 | 1978 | Education Bill, Notes on clauses (House of Commons) Clause 16 – Provision of Milk, Meals, and Other Refreshments | Introductory notes on the provisions to be included in the Education Bill | National Archives – ED 269/119 |
| 85 | 1979 | Education School Meals Service expenditure report | Report discussing ways to reduce the expenditure on school meals | National Archives – ED 269/119 |
| 86 | 1979 | School Meals Service Working Group – 7th Meeting | Report discussing the form of the school meal and whether the 1944 legislation permits the Minister to impose the content of the meal | National Archives – ED 269/149 |
| 87 | 1979 | School Meals Service Working Group – 9th Meeting | Report agreeing minutes of 2nd and 3rd Meetings also discussing the | National Archives – ED 269/149 |

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| | | | potential introduction of a la carte meals | |
| 88 | 1979 | School Meals Service Working Group – 10th Meeting | Report discussing maintaining a traditional two course meal for primary school children and introducing choice for secondary pupils | National Archives – ED 269/149 |
| 89 | 1980 | Education Act, 1980 | Act which led to the common misconception it removed nutritional standards for school meals | Legislation.gov.uk/1980/20/pdfs/ukpga_19800020_en.pdf |
| 90 | 1980 | Debate transcript | Prime Minster is asked whether she will set up an inquiry into the nutritional content of school meals | Hansard HC Deb 03 June 1980 vol 985 c641W |
| 91 | 1980 | Debate transcript | Secretary of State for Education and Science asked if he will set minimum nutritional standards for school meals | Hansard HC Deb 22 July 1980 vol 989 c661W |
| 92 | 1980 | Debate transcript | Secretary of State for Education and Science asked if he will set up a pilot study to monitor nutritional standards in school meals | Hansard HC Deb 25 July 1980 vol 989 c404W |
| 93 | 1980 | Debate transcript | MP for Newcastle expressing concerns over the lack of duty on LEAs to provide meals to all children. | Hansard HC Deb 04 August 1980 vol 990 cc215-41 |
| 94 | 1981 | Debate transcript | Discussion in the House of Lords regarding LEAs which had ceased to provide meals to all children. | Hansard HL Deb 03 February 1981 vol 416 cc1033-4 |
| 95 | 1981 | Debate transcript | Discussion in House of Commons requesting examination of school meals service which had been reported to be worse than the service in prisons | Hansard HC Deb 10 February 1981 vol 998 cc834-42 |
| 96 | 1981 /82 | Correspondence relating to inquiry on school | Letters and reports collected by the | Parliamentary Archives – |

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| | | meals | Education, Science, and Arts Committee for the inquiry into school meals | HC/CP/9468 |
| 97 | 1982 | House of Commons Seventh Report from the Education, Science, and Arts Committee, Session 1981-82, School Meals | Inquiry reporting on expenditure, administration, and policy relating to school meals | University of London Institute of Education Library – Huv GRE |
| 98 | 1982 | School Meals: The Government Response to the Seventh Report from the Education, Science, and Arts Committee, Session 1981-82 | Report outlines the government's reply to the recommendations given in the Seventh Report | University of Southampton Library – p 371.GRE |
| 99 | 1982 | Debate transcript | Debate over the government's rejection of the select committee recommendations. | Hansard HC Deb 6 December 1982 vol 33 cc591-671 |
| 100 | 1985 | Debate transcript | Labour MP questions whether the government should do something to ensure children from low income families receive a decent meal during the day | Hansard HC Deb 19 March 1985 vol 75 cc767-8 |
| 101 | 1987 | Debate transcript | Education (Nutritional Requirements) Bill placed before the House for a second reading | Hansard HC Deb 20 February 1987 vol 110 cc1224-9 |
| 102 | 1988 | Local Government Act, 1988 | Act which required LEAs to undertake certain activities competitively and regulate | Legislation.gov.uk/ukpga/1988/9/contents |
| 103 | 1986 | Social Security Act, 1986 | An Act which removed entitlement for free school meals for children whose parents received Family Credit. | Legislation.gov.uk/ukpga/1986/50/contents |
| 104 | 1989 | Debate transcript | House of Lords debate on decrease in school meal take up as a result of the Social Security Act, 1986 | Hansard HL Deb 19 July 1989 vol 510 cc774-6 |
| 105 | 1990 | Debate transcript | Questions put before the Secretary of State for Education and Science regarding nutritional standarsd | Hansard HC Deb 05 July 1990 vol 175 cc682-3W |
| 106 | 1991 | Debate transcript | Secretary of State for Health announces Green | Hansard HC Deb 04 June 1991 vol 192 |

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| | | | Paper on The Health of the Nation which is criticised for not mentioning nutritional standards for school meals | cc155-72 |
| 107 | 1992 | Debate transcript | Discussion in the House of Lords on potentially including guidance on nutritional standards for school meals in the Health of the Nation White Paper | Hansard HL Deb 03 March 1992 vol 536 cc752-5 |
| 108 | 1992 | Debate transcript | Question to the Secretary of State for Education on introducing nutritional standards, again repeating the mantra of LEA responsibility | Hansard HC Deb 03 November 1992 vol 213 c118W |
| 109 | 1996 | Education Act, 1996 | Act which consolidates the Education Act, 1944 and various other enactments relating to education | Legislation.gov.uk/ ukpga/1996/56/ contents |
| 110 | 1998 | School Standards and Framework Act, 1998 | First Act to permit regulations for nutritional standards in school meals | Legisaltion.gov.uk/ ukpga/1998/31/ contents |
| 111 | 1998 | Ingredients for Success: A Consultation Paper on Nutritional Standards for School Lunches | Department of Education and Employment consultation paper requesting advice and views from people interested in school food | Author's personal copy |
| 112 | 1999 | Responses to consultation paper Ingredients for Success | Correspondence providing advice and opinions on school meals | Parliamentary Archives – HC/CP/12774 |
| 113 | 1999 | Statutory Instruments 1999 No.604 Education, England and Wales, The Education (Transfer of Functions Concerning School Lunches) (England) Order 1999 | Regulations imposing duties on the provision of free school meals and paid meals when in force | Legislation.gov.uk/ uksi/1999/604/ contents/made |
| 114 | 1999 | Statutory Instruments 1999 No.2164 Education, England, The Education (Transfer of Functions Concerning School | Order revoking previous instrument | Legislation.gov.uk/ uksi/1999/2164/ contents/made |

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| | | Lunches etc.) (England) (No.2) Order 1999 | | |
| 115 | 1999 | Statutory Instruments 1999 No.2258, Education, England The Education (School Meals Staff) (England) Regulations 1999 | Regulations outlining the responsibilities of LEAs on the appointment, discipline, suspension, and dismissal of school meals staff | Legislation.gov.uk/wsi/1999/2802/contents/made |
| 116 | 1999 | Statutory Instruments 1999 No.2257 Education, England and Wales The Education (Non-Maintained Special Schools) (England) Regulations 1999 | Regulations requiring Non-Maintained Special Schools to comply with nutritional standards for school meals | Parliamentary Archives – HL/PO/JO/10/11/3158/2353 |
| 117 | 1999-2000 | House of Commons Education and Employment Committee First Report School Meals | Report of the inquiry into school meals conducted after the consultation paper Ingredients for Success | The Stationery Office |
| 118 | 2000 | Debate transcript | Secretary of State for Education is asked how nutritional standards will be enforced | Hansard HC Deb 08 February 2000 vol 344 c87W |
| 119 | 2000 | Debate transcript | Discussion in House of Commons regarding the Education and Employment Committee's report on school meals | Hansard – HC Deb 22 June 2000 vol 352 cc113-54WH |
| 120 | 2000 | Statutory Instruments 2000 No.1777 Education, England The Education (Nutritional Standards for School Lunches) (England) Regulations 2000 | First regulations introducing nutritional standards for school lunches for registered pupils at maintained schools, community, foundation and voluntary schools and community and foundation special schools | Legislation.gov.uk/uksi/2000/1777/contents/made |
| 121 | 2001 | Healthy School Lunches for pupils in nursery schools/units: Guidance for school caterers on implementing national nutritional standards | Government guidance on implementing the national nutritional standards to school caterers | Education.gov.uk/schools/adminandfinance/schooladmin/90012940 / school-food-standards |
| 122 | 2002 | Debate transcript | House of Lords questioned whether the government would set | Hansard HL Deb 28 March 2002 vol 633 c78WA |

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| | | | up a survey to assess the impact of the food group regulations | |
| 123 | 2002 | Education Act 2002 | Act which substitutes sections of the Education Act 1996 in relation to LEA functions regarding school meals | Legislation.gov.uk/ ukpga/2002/32/ contents |
| 124 | 2003 | Debate transcript | Department of Education and Skills asked for an update on the research project into assessing nutritional standards | Hansard HC Deb 08 September 2003 vol 410 cc109-10W |
| 125 | 2003 | Statutory Instruments 2003 No.689 Education, England The Education Act 2002 (School Meals) (Consequential Amendments) (England) Regulations 2003 | Regulations amending Education (Transfer of functions concerning school lunches etc) (England) (No.2) Order 1999 and Education (Information about individual pupils) (England) Regulations 2001 in connection siwth section 201 of Education Act 2002 | Parliamentary Archives – HC/CL/ JO/10/2802/758 |
| 126 | 2003 | Statutory Instruments 2003 No.383 Education, England The Education (Free School Lunches) (Prescribed Tax Credits) (England) Order 2003 | Order relating to entitlement to free school meals when parents are receipt of Tax Credits | Legislation.gov.uk/ uksi/2003/383/ contents/made |
| 127 | 2004 | Debate transcript | Labour MP announces plans to introduce a new school food Bill | Hansard HC Deb 27 May 2004 vol 421 cc1703-6 |
| 128 | 2004 | Debate transcript | Mr David Kidney Labour MP requests leave to bring in a Bill on school food | Hansard HC Deb 22 June 2004 vol 422 cc1202-4 |
| 129 | 2005 | School Meals and Nutrition Bill | A bill to make further provisions about nutritional standards and to regulate food vending machines in schools | Publications. Parliament.uk/pa/ cm200405/cmbills /037/2005037.htm |
| 130 | 2005 | School Meals and Nutrition Bill Debate transcript | Second reading of Bill which made provision to provide an environment and regime for healthy eating in schools | Publications. Parliament.uk/pa/ cm200405/vo0502 25 /debtext/50225-11. Htm |

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| 131 | 2005 | Standard Note House of Commons Library: School Meals: duties and powers of LEAs, nutritional standards and healthy eating at school | Standard note produced by House of Commons library providing background on school meals and recent Government initiatives to improve school meals | Parliament.uk/ briefing-papers/ SN/SP/2883.pdf |
| 132 | 2005 | Turning the Tables: Transforming School Food | Report by the School Meals Review Panel on introducing new and stricter nutritional standards from September 2006 | www.childrensfoodtrust.org.uk/assets/research-reports/turning_the_tables_appendices.pdf |
| 133 | 2006 | Statutory Instruments 2006 No.2381 Education, England The Education (Nutritional Standards for School Lunches) (England) Regulations 2006 | Regulations replacing Education (Nutritional Standards for School Lunches) (England) Regulations 2000 | Legislation.gov.uk/ uksi/2381/contents |
| 134 | 2007 | Statutory Instruments 2007 No.2359 Education, England The Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2007 | Regulations to require school food to comply with certain nutritional standards, replaces Education (Nutritional Standards for School Lunches) (England) Regulations 2000 and Education (Nutritional Standards for School Lunches) (England) Regulations 2006 | Legislation.gov.uk/ uksi/2007/2359/ contents/made |
| 135 | 2008 | Statutory Instruments 2008 No.1800 Education, England The Education (Nutritional Standards and Requirements for School Food) (England) (Amendment) Regulations 2008 | Regulations amending The Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2007 | Legislation.gov.uk/ uksi/2008/1800/ contents/made |
| 136 | 2009 | Parliamentary Office of Science and Technology: Postnote No.339 – Nutritional Standards in UK Schools | Parliamentary note describing children's nutritional requirements, the take-up of school meals in the UK, the capacity to enforce the standards and impact on children's diet, learning, and behaviour | Parliament.uk/ parliamentary_ offices/post/pubs 2009.cfm |

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| 137 | 2010 | School Food Trust Annual Surveys | Surveys conducted by SFT mainly assessing school meal take-up nutritional compliance was self-reported | www.childrensfoodtrust.org.uk/research/annual-surveys |
| 138 | 2010 | Office for Standards in Education Food in Schools: Progress in implementing the new school food standards | OSTED report on food in schools assessing compliance with nutritional standards | www.ofsted.gov.uk |
| 139 | 2011 | Statutory Instruments 2011 No. 728 Education, England The Education (Free School Lunches) (Prescribed Tax Credits) (England) (Amendment) Order 2011 | Regulations relating to entitlement of free school meals when parents are in receipt of Tax Credits | Legislation.gov.uk/uksi/2011/728/contents/made |
| 140 | 2011 | Statutory Instruments 2011 No. 1190 Education, England The Education (Nutritional Standards and Requirements for School Food) (England) (Amendment) Regulations 2011 | Regulations amending the Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2007 to allow boarding schools to provide pupils with confectionery, snack, cakes, and biscuits as part of an evening meal | Legislation.gov.uk/uksi/2011/1190/contents/made |
| 141 | 2011 | Debate transcript | Debate in House of Commons on School Meals | Hansard Westminster Hall 19 July 2011 Column 183 WH |
| 142 | 2011 | Standard Note House of Commons Library: School Meals and Nutritional Standards | Note which summarises the main policy developments in school meals since March 2005 | Parliament.uk/briefing-papers/SN/SP/4195.pdf |
| 143 | 2012 | Debate transcript | Alex Cunningham questions the Secretary of State for Education on whether he will change the advice to academies and free schools to ensure they provide health school meals | Hansard www.publications.parliament.uk/pa/cm201213/cmhansrd/cm120618/debtext/120618-0001.htm#12061811000494 |
| 144 | 2012 | Press Release: Government announces School Food Plan | John Vincent and Henry Dimbleby Founders of Leon food chain tasked with review of school food due 2013 | Gov.uk/government/news/improving-school-food |

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| 145 | 2013 | Statutory Instruments 2013 No. 650 Education, England The Free School Lunches and Milk (Universal Credit) (England) Order 2013 | Order prescribing free school meals where parents are in receipt of Universal Credit | Legislation.gov.uk/ uksi/2013/650/ contents/made |
| 146 | 2013 | The School Food Plan | Plan into improving school meals | Schoolfoodplan.com/ wp-content/uploads/ 2013/07/school_ food_plan_2013.pdf |
| 147 | 2013 | Press Release: Free school lunch for every child in infant school | Deputy Prime Minister announces free school meals for all children in reception, year 1 and year 2 in state-funded schools | https://www.gov.uk/government/news/free-school-lunch-for-every-child-in-infant-school |
| 148 | 2014 | Children and Families Act 2014 | Act to amend section 512ZB of the 1996 Education Act to allow provision of free school meals to children in reception, year 1 and year 2 in primary schools | http://www.legislation.gov.uk/ukpga/2014/6/pdfs/ukpga_20140006_en.pdf |
| 149 | 1911 | Annual Report of the Chief Medical Officer 1910 | Report of the CMO providing details of average number of children in attendance in schools and proportion taking school meals. | DC14/31/1 – Centre for Buckinghamshire Studies |

## Appendix 2 – Literature relating to 1980 Education Act

This appendix provides some examples of the literature which describes how the 1980 Education Act removed the requirement for school meals to meet any nutritional standards.

Berger (1990)

"the Education Act of 1980 arrived on the statute book, virtually abolishing nutritional standards on a national basis. The Act meant that the government had shrugged off all responsibility for the school meals service, leaving the local education authorities free to provide a service or not as they wish. The only statutory requirements laid on LEAs were to provide meals for those entitled to a free meal and to provide facilities for those who bring their own food to school. It is somewhat ironic that there should have been no guidelines issued to local authorities about the nutritional value of the free meal since this meal was likely to be the only substantial meal that the child in receipt of it would get in the day" (p.51).

The Caroline Walker Trust (1992)

"The education Act 1980 is particularly important in the history of school meals, as it removed the obligation on LEAs to provide school meals, except for children entitled to free school meals. The Act also removed the obligation for meals to be sold at a fixed price, and for them to meet any nutritional standards" (p.23).

Passmore and Harris (2004)

"The 1980 Education Act (Department of Education and Science 1980) changed the school meals service from a compulsory national, subsidised service for all children, to a discretionary local service. This Act: removed the obligation on LEAs to provide school lunches, except for children entitled to free school meals; removed the obligation for meals to be sold at a fixed price; removed the requirement for the lunches to meet nutritional standards and; removed the entitlement to free school milk" (p.223).

Evans and Harper (2009)

"The Education Act (1980) formed part of a generalised attempt to dismantle the welfare state of which school meals were a part. School meals were relegated to a nonessential service, and the obligation on LEAs to provide meals was removed (except for those pupils entitled to free school meals), nutritional standards were abolished and national pricing ended" (p.90).

Gustafsson (2010)

“A radical change in policy on school meals came with the 1980 Education Act. Here the duty on LEAs to provide school meals was removed (except for those pupils entitled to free meals). At the same time nutritional standards and fixed pricing were dropped” (p.59).

Morgan and Sonnino (2010)

“the 1980 Act introduced four fundamental revisions: it removed the obligation on LEAs to provide school lunches, except for children entitled to free school meals; it removed the obligation for meals to be sold at a fixed price; it eliminated the requirement for lunches to meet nutritional standards; and it abolished the entitlement to free school milk” (p.92).

Pike (2012)

“During the Thatcher era, school meals were subject to a radical programme of reform which comprised a number of elements; first the removal of the obligation upon local authorities to provide school meals, except for those children entitled to free school meals; second the removal of nutritional standards governing school food” (p.51).

Dimbleby and Vincent (2013)

“The 1980 Education Act removed the legal requirement for LEAs to provide a meal for every pupil, abolished minimum nutritional standards (which had first been introduced in 1941) for school meals and tightened entitlement criteria for FSM, formally linking criteria to the benefits system.” (p.139)

Spence et al (2014)

“The 1980 Education Act removed nutritional standards, first introduced in 1941” (p.1)