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One False Move...

A STUDY OF CHILDREN'S INDEPENDENT MOBILITY

MAYER HILLMAN
JOHN ADAMS
JOHN WHITELEGG

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Preface

This report is based on a research study focused on junior schoolchildren aged 7 to 11, and senior schoolchildren aged 11 to 15. It explores their travel patterns and levels of personal autonomy, and the links that these have with their parents' perception of the danger to which their children are exposed when travelling on their own.

The findings and conclusions are drawn from surveys carried out in 1990 in English schools in five areas of England, replicating surveys carried out in 1971 by Policy Studies Institute (formerly Political and Economic Planning) in the same schools in order to provide a temporal dimension to the study, and in five matching areas in Germany in 1990 to provide a cultural dimension.

In acknowledging the considerable help obtained during the course of the study, we would particularly like to thank Juliet Solomon for her invaluable contributions to the writing of the report.

We would also like to record our appreciation of the hard work that Margaret Whitelegg put into managing the surveys in the German schools including translations of the questionnaires and relevant correspondence. We are grateful to Sebastian Rechenberger for his help with the translations and for his general advice. Thanks are also due to Richard McKinnon for co-operating with us in running the pilot survey in his junior school, Martin Munro and Steve Juggins for preparing the tabulations for us, and Claire Jarvis and Owen Tucker for the cartography.

The surveys in the English schools were administered by John Adams, Mayer Hillman, Alison Muir, Juliet Solomon and Sally Vernon; and in Germany by Stephan Czapla, Wolfgang Held, Sebastian Hoffmann, Alexander Kubitza and Antje Kilgus. We wish to thank the local education authorities, the Heads and teachers in the schools in which the surveys were carried out, and not least the children and their parents who responded so positively to our requests

for co-operation and who ensured that we had such an exceptionally high response rate.

Finally, the authors would like to thank Heidi Hillman and Clare Morgan for typing and word-processing the manuscript.

The research study has been made possible by grants from the following three organisations: the Rees Jeffreys Road Fund, the Department of Transport, and the Anglo-German Foundation. We are most grateful to them for their support. The conclusions drawn and the views expressed are, of course, those of the authors.

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Introduction

How safe are our children? One answer to this question is provided by a recent government road safety campaign poster. It depicts a child about to step off the kerb into the street. Superimposed on the picture is the message:

> **'One false move and you're dead.'**

The message is deliberately stark and frightening, and honest. On today's heavily trafficked streets, impetuousness, lapses of concentration, carelessness, misjudgments - the sorts of behaviour characteristic of children - can be, and all too often are, punished by death.

The government offers a second, more reassuring answer.

> 'Over the last quarter of a century, Britain's roads have become much safer. Road accidents have fallen by almost 20% since the mid-1960's; the number of deaths is down by one third'.[1]

This encouraging view is also taken by the police. A secretary to the safety committee of the Association of Chief Police Officers, commenting on Britain's road accident record, observed that

> 'This is now the safest country ... in Europe'.[2]

Those responsible for the formulation and implementation of road safety policy are saying apparently contradictory things. On the one hand, they offer encouragement and reassurance, claiming that impressive progress has been made; Britain's roads are now safer than those of any other country in Europe. On the other hand, they depict a Britain that is terrifyingly dangerous. How can these contrasting views be reconciled?

The basis of the reassuring message is statistical. Despite large increases in traffic, Britain, judged by its road accident statistics, has become very much safer, especially for children. Figure 1 shows that there are now about half as many children killed in road accidents

every year (per 100,000 children) as there were in 1922, despite the fact that there are now about 25 times more motor vehicles on the road. The decrease in the child road accident death rate per vehicle since 1922 is over 98 percent.[3] Put another way, the Figure also shows that the average motor vehicle in 1922 was more than 50 times as likely to kill a child than the average motor vehicle in 1990.

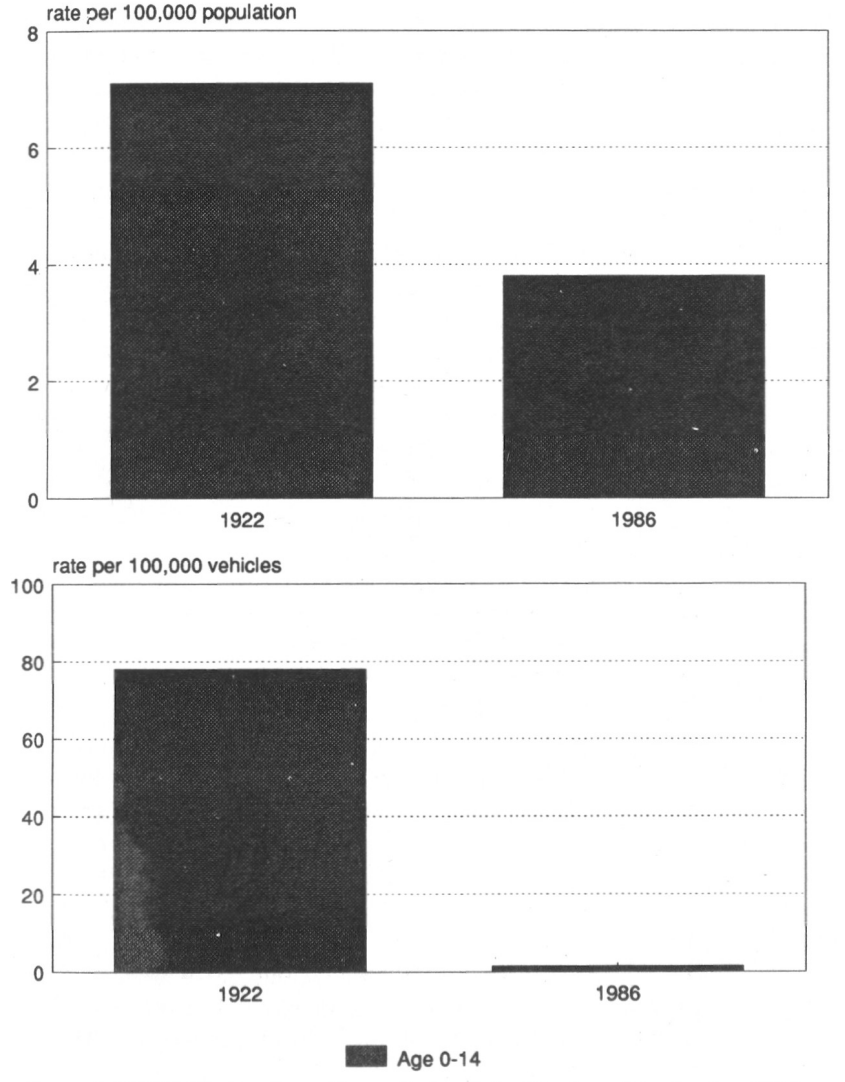
How have these remarkable reductions in death rates been achieved? Before attempting to answer this question, let us consider a different view: that Britain's roads have not become safer for children, but much more dangerous. This view is expressed in the following passage, taken from an account by Roald Dahl of his childhood in Glamorgan in 1922.

> 'I can remember very clearly the journeys I made to and from school because they were so tremendously exciting. Great excitement is probably the only thing that really interests a six-year old boy and it sticks in his mind. In my case, the excitement centred around my new tricycle. I rode to school on it every day with my eldest sister riding on hers. No grown-ups came with us and I can remember, oh so vividly how the two of us used to go racing at enormous tricycle speeds down the middle of the road and then, most glorious of all, when we came to a corner, we would lean to one side and take it on two wheels. All this you must realise, was in the good old days when the sight of a motor-car on the street was an event, and it was quite safe for tiny children to go tricycling and whooping their way to school in the centre of the highway.'.[4]

The childhood reminiscences of 'the good old days' of most people over the age of 40 have a similar flavour. The reduction in private motoring during the Second World War, and the period of austerity following, resulted in low levels of traffic, and streets that were considered safe for children. As a result most children then had far more freedom to roam the neighbourhood and play in the streets than they do today.

The 'good old days' of reminiscence and the 'good new days' depicted by the accident statistics are reconciled by the loss of children's freedom. The streets have not become safer; they have become, as the government's poster proclaims, extremely dangerous. It is the response to this danger, by both children and their parents, that has contained the road accident death rate.

Figure 1 **Road accident death rates per 100,000 children and per 100,000 motor vehicles. in England and Wales, 1922 and 1986**



Source: OPCS, *The Registrar General's Statistical Review of England and Wales 1922 and Mortality Statistics: Cause*, DH2, No.13, 1986.

Note: Motor vehicle figures were not available for England and Wales in 1922, so in both years the motor vehicle populations used are those for Great Britain.

Measures of safety and danger

One of the main messages of this study, which has been discussed in earlier studies,[5] is that road accident statistics are a very bad, and often misleading, measure of safety or danger. Where danger is perceived, the perception is acted upon - people try to get out of the way if they see that something is about to hit them. If certain areas or situations are seen as dangerous they are avoided, or entered with a high level of vigilance, with the result that the danger is not reflected in the accident statistics.

Yet, the only 'proof' that many highway authorities will accept that a road is dangerous, and merits measures to slow or divert traffic, is a large number of accidents. People are frequently told that their fears are groundless because their road has a good accident record. The 'good' accident record is usually explained by the fact that children are forbidden to play in the street or even cross it, old people are afraid to cross it, and fit adults cross it quickly and extremely carefully. This point is routinely missed by many road engineers to whom people complain that the roads on which they are living are dangerous.

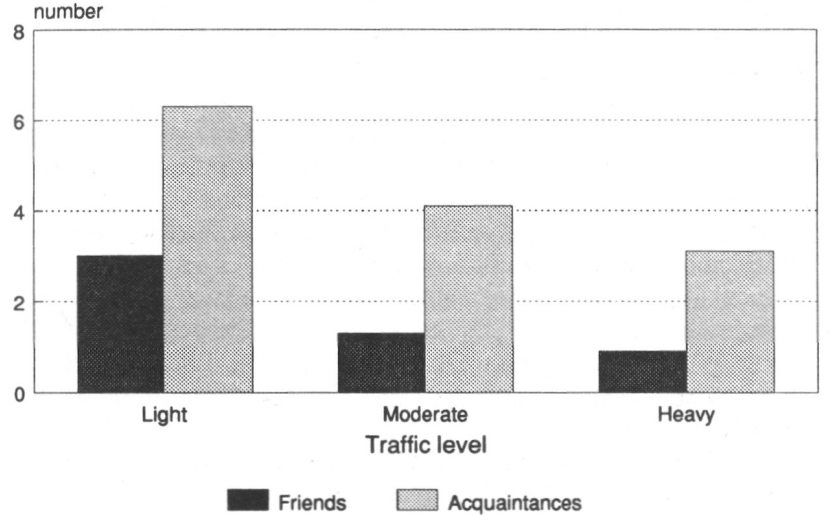
Road traffic is dangerous because it consists of heavy machines under the control of fallible humans. If these machines collide with each other, or with other objects or people in their surrounding environment, physical damage is caused.

One simple and direct *physical* measure of traffic danger is traffic volume. Other physical measures relate to the characteristics of the traffic. Vehicle weights, speeds, variability of speeds, and traffic densities are characteristics which correlate positively with traffic danger - the greater the variability in the speed of traffic, and the denser the traffic, the greater the likelihood of collisions; the heavier the vehicles, and the greater their speed when they collide, the greater the damage that will be done. Judged by such direct physical measures, traffic danger has clearly increased throughout the whole of this century. Every year there is more heavy metal circulating on the roads.

Another set of measures of danger are *behavioural*. These measures reflect the desire to avoid danger and were clearly demonstrated by a study of the effect of traffic volumes on the amount of neighbourly interaction in residential streets.[6] Figure 2 shows the way in which the number of local friends and acquaintances in three streets in San Francisco diminished as traffic on the streets increased.

The study found that knowledge of neighbours across the street decreased sharply as traffic increased, suggesting that a good accident record is often purchased at the cost of community severance.

Figure 2 **The effect of traffic volumes on the number of friends and acquaintances per person in three residential streets**



Light – 2,000 vehicles per day; Moderate – 8,000 vehicles per day; Heavy – 16,000 vehicles per day

Note: The Figure is constructed from numbers in Donald Appleyard, *ibid.*

Considerable evidence already exists about the physical danger of traffic. Surveys of traffic and its characteristics are conducted widely and routinely, although they are rarely interpreted as physical measures of road traffic danger. There is, however, comparatively little evidence relating to people's responses to traffic danger. One of the aims of the surveys conducted in this study has been to devise a set of behavioural indicators of this danger to children. This was proposed in the PSI study referred to earlier.[7]

We refer to our principal set of indicators as 'licences'. At the age of 16 in Britain one can get a licence to ride a moped, and at 17 a licence to ride a motor cycle or drive a car. These age limits are usually justified on the grounds that a certain degree of maturity of judgement and physical competence should be attained before a person can be

permitted to put his or her own life, and the lives of others, at risk on the public highway. They represent both an official acknowledgement of the danger of traffic, and a response to it. In addition to these official licences, a variety of other parental licences to get about independently are issued at younger ages. The ages at which these parental licences are issued reflect parental judgements about the degree of maturity and competence required by their children to cope safely with the perceived dangers that lie outside the home.

The principal focus of this study is the independent mobility and safety of children. The statistical evidence on traffic accidents upon which we rely comes mainly from published sources[8] and from our own surveys. The first of our surveys was conducted by Political and Economic Planning (PEP) in 1971 and the results were described in considerable detail in two subsequent reports.[9] The 1971 surveys were conducted in junior schools in Islington (a London Borough), suburban Nottingham, the post-war new town of Stevenage, the small city of Winchester, and rural Oxfordshire. For the 1990 surveys, we returned to the same junior schools and also went to the secondary schools to which most juniors transfer in their 12th year, and asked many of the same questions. Appendix 2 contains the questionnaires used in 1990 for both the children and their parents.

The German dimension

In addition to changes over time in England, we have explored differences between England and West Germany in 1990. For many years there has been a large and persistent difference in the road accident death rates of West Germany and England. In 1988, the rate in West Germany was over 40 per cent higher - 13.0 per 100,000 population compared to 9.2 in England. But, interestingly for this study, the road accident death rate for child pedestrians in West Germany was 33 per cent lower than in Britain[10] – 1.71 per 100,000 in West Germany compared to 2.57 in Britain.[11]

Our English surveys were repeated in Germany. The questionnaires were translated into German and the identical format retained. They were used in a survey of 10 German schools in areas chosen to match as closely as possible the characteristics of the areas surveyed in England in terms of population size and settlement density. With their English counterparts, they are:

Islington, London	Köln (Innenstadt)
Nottingham	Bochum
Stevenage New Town	Chorweiler New Town (Köln)
Winchester	Langenfeld/Schwelm (Wuppertal)
Oxfordshire	Witten

Chapter 1 discusses the inadequacy of road accident statistics as measures of safety and danger, and the need for an alternative. Chapter 2 sets out the main results of our surveys in England, and compares them with those of the PEP surveys in 1971. Chapter 3 presents the same evidence for Germany and describes the most important differences between the two countries. In Chapter 4, we consider the implications of this evidence for road safety and transport policy. Chapter 5 outlines the theory of risk compensation, as our data on the reduction in children's independent mobility are a prime example of this mechanism at work, and demonstrates the need to consider safety measures from this perspective. Chapter 6 contains our conclusions, and a proposal for a new set of behavioural measures of road safety.

Notes

1. Department of Transport, *Safety on the Move*, 1990.
2. Letter to *The Times* on 27 March 1989, from the Chief Constable of Warwickshire writing in his capacity of secretary to the Safety Committee of ACPO.
3. Estimates of traffic are not available for 1922. But the distance travelled annually by the average motor vehicle has almost certainly increased substantially since that time.
4. Roald Dahl, *Boy*, Penguin, 1986.
5. Stephen Plowden and Mayer Hillman, *Danger on the Road: the Needless Scourge*, Policy Studies Institute, 1984, and J.G.U. Adams, 'Evaluating the effectiveness of road safety measures', *Traffic Engineering and Control*, June 1988, pp.344-352.
6. Donald Appleyard, *Liveable Streets*, University of California Press, 1981, p.21.
7. Stephen Plowden and Mayer Hillman, *op.cit.*, p.237.
8. Department of Transport, the two statistical series published annually of *Road Accidents Great Britain* and *Transport Statistics Great Britain*. *The National Travel Survey* carried out

intermittently by the Department of Transport contains detailed information on travel behaviour, most recently for the years 1985/86.

9. Mayer Hillman, Irwin Henderson and Anne Whalley, *Personal Mobility and Transport Policy*, 1973, and *Transport Realities and Planning Policy*, 1976. Both were published by PEP (Political and Economic Planning), a precursor to the Policy Studies Institute from which this present study has been conducted.
10. Unfortunately, because of the way in which the statistics are published, some figures relate to England and some to Britain. Generally rates per 100,000 population are slightly lower for England. For example, total road deaths per 100,000 in 1988 for England were 9.2, and for Britain as a whole, 9.3; for pedestrian fatalities, the Figures respectively are 3.0 and 3.1.
11. Our principal source of evidence for West German road traffic accidents is Verkehrsunfälle 1988, Statistisches Bundesamt, (*Verkehr, Fachserie 8, Reihe 7.*)

1. Danger on the Roads

Road accident statistics are the traditional measure of road safety success and failure. They are virtually the sole one used both in this country and internationally, and in most road safety literature. They serve as the basis of the government's claim that Britain's roads have become much safer over the past 25 years.[1] They are also used in the formulation of its strategy aimed at reducing road casualties by one third by the year 2000.[2] As we have seen in the Introduction, road accident statistics on their own are an inadequate, and often misleading, measure of safety or danger. However, because they are still the most commonly-used measure, we examine them here in greater detail.

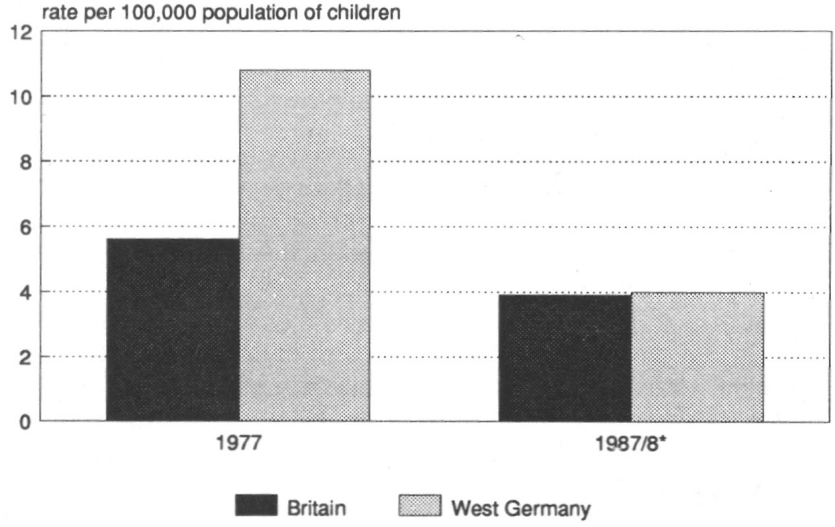
Road accidents statistics

Figure 1 in the Introduction showed that since 1922 there has been a large decrease in the road accident death rate per 100,000 children, and an enormous - 98 percent - decrease in the child road death rate per 100,000 motor vehicles. Equivalent figures going back to 1922 are not available for West Germany. However, more recent data set out in Figure 1.1 show that over the past ten years the child road accident death rate for Britain has continued to decline, while the rate for West Germany has declined much more rapidly. The total child road accident death rates for the two countries are now very close. The lower child pedestrian death rate in West Germany, noted in the Introduction, is offset by the greater numbers killed in cars.[3]

Figure 1 in the Introduction and Figure 1.1 above present data on death rates per 100,000 children. In order to establish whether or not they demonstrate a road safety improvement from the perspective of the child, one needs information about the *exposure* of children to traffic. The fact that no children were killed last year while driving cars does not indicate that it is a safe activity for them. On the contrary, it indicates that it is considered so dangerous that they are forbidden

to do it, and their level of exposure to this particular danger is, as a consequence, very low.

Figure 1.1 · Road accident death rates per 100,000 children in Britain and West Germany, 1977 and 1987/8



* The rate for Britain is for the year 1988.

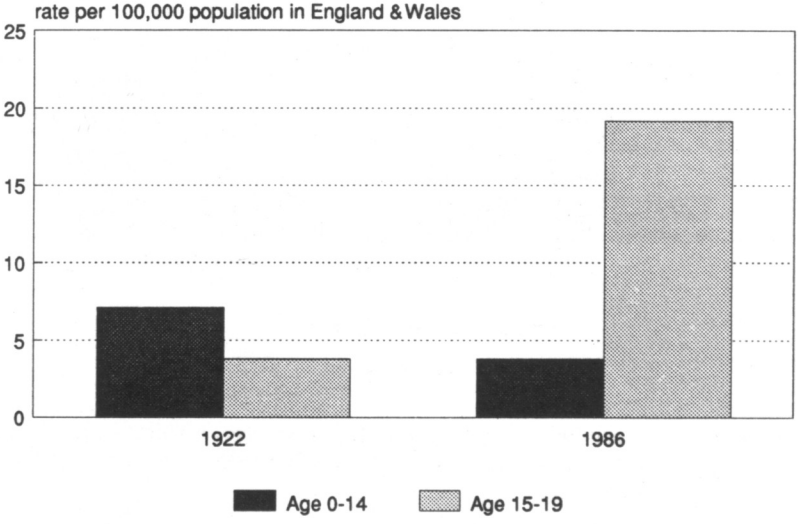
Increases over time in traffic volumes are fairly well documented, but they provide only one part of the necessary exposure measure. The missing part is the amount of time that children spend in the streets. Historically, this has been very poorly recorded.

Our study is concerned primarily with children, usually defined for statistical purposes in both Britain and West Germany as people under the age of 15 years. It is, however, important to know what happens to them when they grow older. A question that needs to be asked is whether the reduction in the number of children killed in road accidents represents lives saved or deaths deferred to a later age group.

A recent government leaflet on road safety education is entitled *Lesson for Life*.[4] It is based on the fundamental assumption common to all forms of road safety education that the skills, attitudes and habits acquired by children have a powerful influence subsequently on adult behaviour on the roads. Another government safety leaflet refers to the importance of establishing '... a firm foundation of safe habits

[which will make children safer] later in adult life'.[5] Figure 1.2 raises questions about this assumption. It shows that the impressive reductions in children's road death rates since the 1920s have been more than offset by increases in the next higher age band as more teenagers have gained access to motorised transport. While the death rate for children has almost halved, the rate for 15 to 19 year olds has increased four-fold.

Figure 1.2 Road accident death rates in England and Wales per 100,000 population in age groups 0-14 and 15-19 years, 1922 and 1986

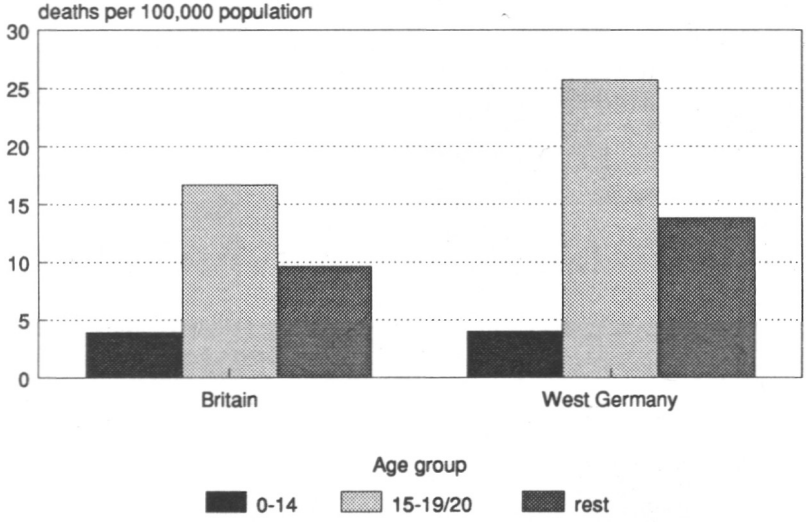


Data were not available for the same period to permit a similar examination of change over time in West Germany. However, Figure 1.3 shows a comparison for the most recent year available which indicates that the increase in the death rate, as children move into the next age band, is much higher in West Germany than in Britain.[6] This suggests that the reductions achieved in child fatalities, particularly for German pedestrians, might represent not lives saved, but deaths deferred. This possibility is explored in Chapter 4.

Figure 1.4 shows the relatively decreasing significance, with age, of walking and cycling accidents.[7] Although accurate data for these modes of travel per kilometre do not exist, this distribution of fatalities almost certainly reflects the decrease in walking and cycling, and the

increase in travel by motorised means, as children grow older and then become old enough to drive.

Figure 1.3 Road accident death rates per 100,000 population in Britain and West Germany, in age groups 0-14, 15-19/20, and over 20 years, 1988



Notes: in Britain, the middle age band is 15 to 19, and in West German 15 to 20 years. The German figures are based on 1988 fatality data and 1987 population data.

There are two problems with the cycling and walking exposure data. There is little accurate information about the characteristics of cyclists and the pattern of cycling. For instance, comparison of cycle mileage in Britain each year reported in *Transport Statistics Great Britain*[8] and as can be calculated from the latest published National Travel Survey.[9] reveals a total in the former which is 50 per cent higher than the latter. Moreover, although statistics on walking as a mode of travel are collected in the National Travel Survey, none are collected on a comprehensive and routine basis on the amount of time children spend playing in the streets, in spite of the fact that many accidents occur when they are doing so.

Social class correlates highly with mortality for all ages by all causes of death. Figure 1.5 shows that child pedestrian death rates

Figure 1.4 **Road accident death rates per 100,000 population in Britain and West Germany for walking, cycling, and all modes, in age groups 0-14, 15-19 and 20-29 years, 1987**

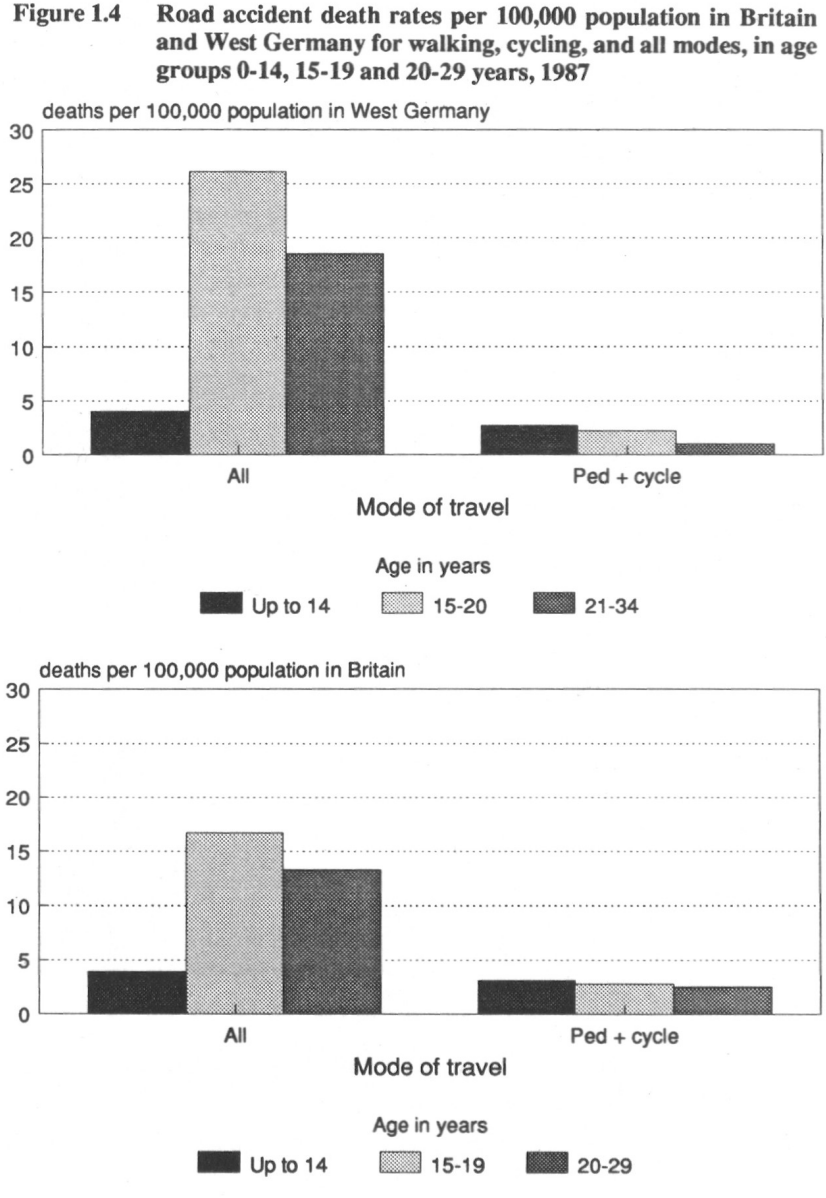
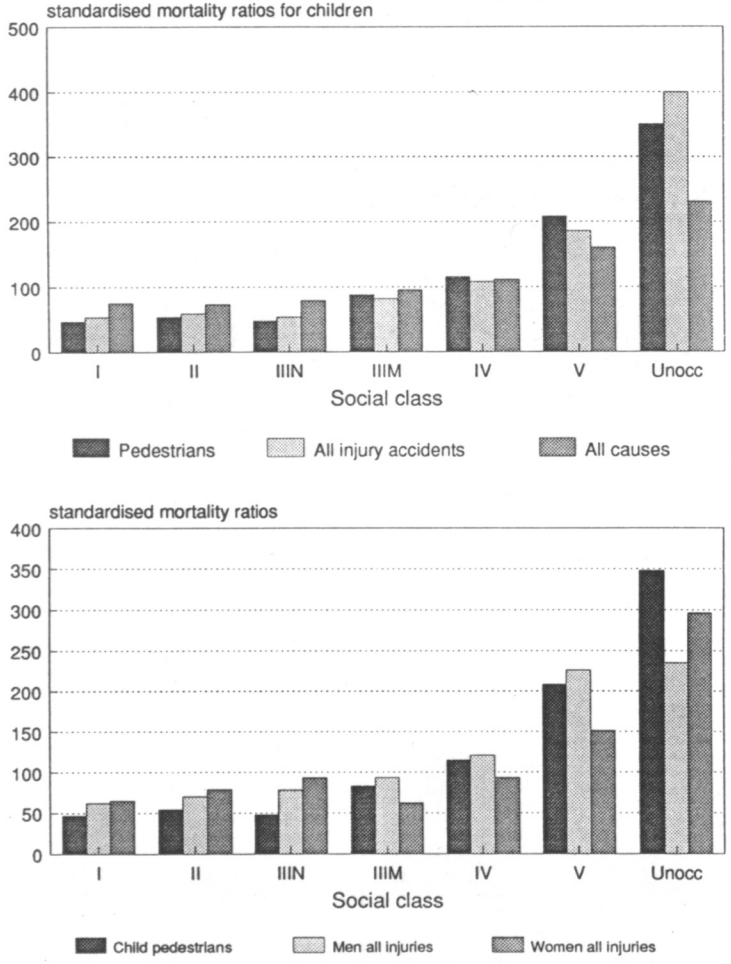


Figure 1.5 Standardised mortality ratios for children by cause of death, and for child pedestrians and all accidents among men and women, according to social class, England and Wales, 1986

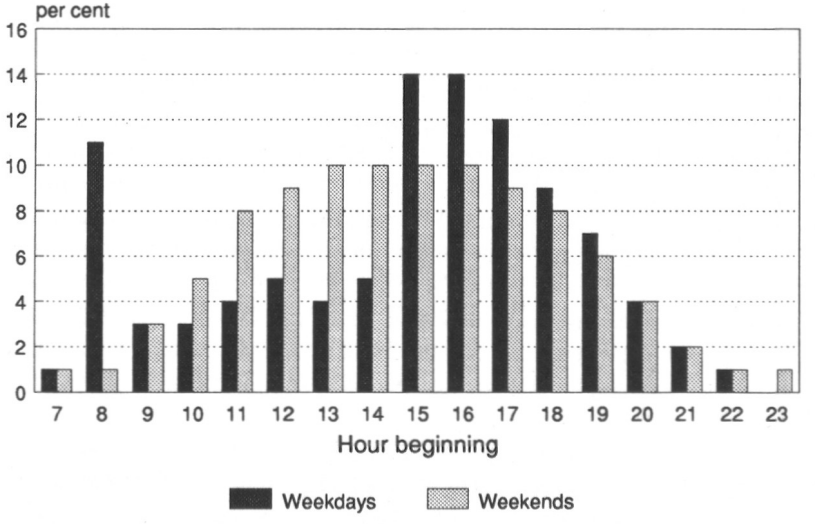


Source: OPCS, Occupational mortality, 1978-80 and 1982-83, *Decennial Supplement Nos.6 and 8*.
The ratios for children are for child pedestrians, all causes of injury, and all causes of death.
The ratios for adults are for all external causes of injury among men aged 20 to 64 and for women aged 20 to 59 years.

correlate closely with all causes of child deaths. It also shows that the pattern for child pedestrian deaths coincides fairly closely with the pattern for adult accident deaths. These patterns reflect the work of many interrelated cultural and environmental factors.[10]

The graph of child road accidents in Figure 1.6 displays clear peaks on weekdays that coincide with the times at which children are going to, or coming home from school. This has led to a concentration on the journey to school as a major area of safety concern. Many local authorities have responded with 'safe routes to school' programmes or with the provision of school-crossing patrols. However, despite the fact that accident peaks occur during the hours immediately before and after school, only 11 per cent of child road accident fatalities occur on school journeys.[11] This may reflect the success of past efforts at making the school journey safer, especially the increase in escorting children. It also indicates that the problem of children's road safety is a diffuse one. Much of the time that children spend outside their homes is spent not on purposeful travel to and from school but on other journeys, and in play, a much more random, dispersed and unpredictable activity.

Figure 1.6 Proportion of child road accident casualties in Britain according to hour of day, on weekdays and weekends, 1988



Road fatalities and injuries

Discussion of road accident statistics in this study is confined to fatalities. Because of their seriousness they are reported with a high degree of accuracy, and there is an agreed international definition - death within 30 days - that makes it possible to compare fatality rates between countries with confidence.

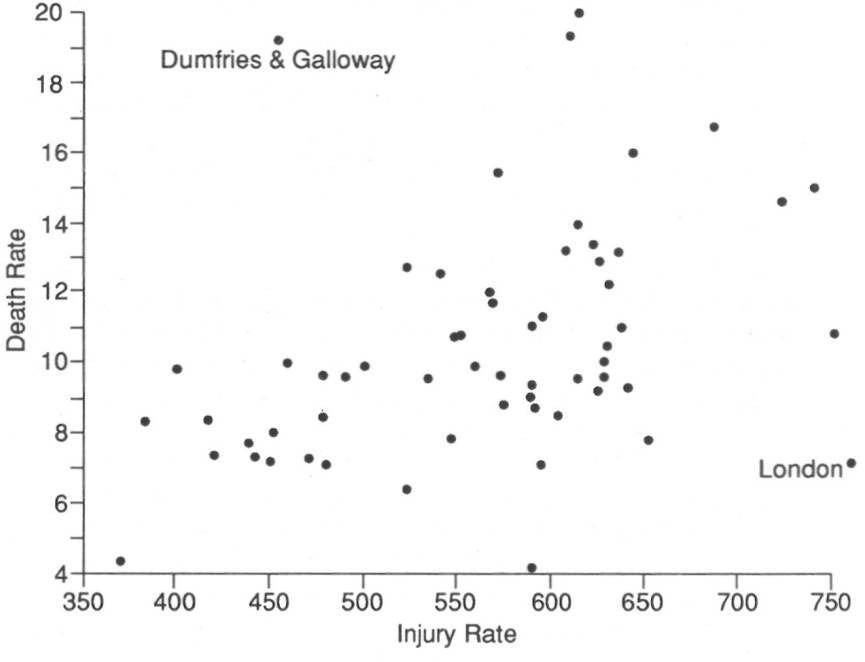
On the other hand, the reporting of non-fatal injuries is fraught with uncertainty. Within Britain there is wide geographical variation in the proportion of injury accidents that are fatal and, as Figure 1.7 shows, virtually no correlation between fatalities and injuries. London, for example, has the highest rate of road accident injuries and one of the lowest rates of road accident fatalities. This variation is caused in part by differences in traffic conditions; where congestion is bad, average speeds are likely to be low and accidents more frequent and less severe. But almost certainly, it also reflects variation in the reporting of injuries. In London, with its relatively high level of policing, minor injuries stand a better chance of becoming official statistics than they do in rural areas, such as Dumfries and Galloway, where one has to travel much further to find a policeman to whom to report. What is not known is the degree to which this geographical variation reflects real differences, and the extent to which it is a recording phenomenon.[12]

The same doubts attach to the time series data for injuries and fatalities. According to the official road accident statistics, the fatality rate in Britain now is about 20 per cent below the level of the mid-1920s, while the injury rate has almost doubled.[13] These could be real differences, explained in part by faster and better medical treatment for road accident casualties. Alternatively, they could be accounted for in part by more thorough recording of minor injuries by the police, and in part by increased incentives, perhaps for insurance reasons, for people to report their injuries. No one appears to know how influential are each of these factors. In West Germany the variable under-recording of accidents has also been a recognised problem, acknowledged in the road accident literature by the term '*Dunkelziffer*' - dark numbers.

Even if all reporting inaccuracies could be removed, the interpretation of the statistics would still not be straightforward. If, for example, Dumfries and Galloway could be transformed in such a way as to make its road accident record more like that of London -

with far more, but less serious, accidents - would that represent a road safety improvement? Or if we could revert to the accident record of the 1920s - with more fatalities but far fewer injuries - would that represent a road safety improvement? Until it can be agreed how many injuries, and of what severity, equal one life, such questions cannot be answered.

Figure 1.7 Road accident death and injury ratio per 100,000 population



Source: J.G.U. Adams, 'Evaluating the effectiveness of road safety measures', *Traffic Engineering and Control*, June 1988.

Safety for whom?

Modern cars, as a result of vehicle safety regulations, are much safer than their predecessors: they have better brakes, tyres and suspensions. They are also more crashworthy - with crumple zones, stronger passenger compartments, padded dashboards, and safety glass. Modern roads are also safer - with longer sight-lines, more skid

resistant surfaces, wider traffic lanes, and margins cleared of dangerous objects. Every year many millions of pounds worth of new road construction is justified, using the government's cost-benefit formula on the grounds that it will save lives and injuries.

Most of this regulation and expenditure is for the benefit of people inside motor vehicles. Comparatively little money or legislative time is spent on the safety of vulnerable road users - pedestrians and cyclists. Despite this emphasis on the welfare of people in vehicles, the ratio of vulnerable road user fatalities to vehicle occupant fatalities has been steadily decreasing for over 60 years. In 1927, the first year allowing for analysis, the ratio of pedestrians and cyclists killed for every vehicle occupant killed was 4.7 to 1. By 1988, the ratio had fallen to 0.8 to 1; but for children, the ratio was 3.6 to 1.

These differences reflect the large increase in the number of people in cars in which it is safer to have crashes, and the fact that cars are being driven on roads that are more forgiving of heedless driving. In addition, a rising proportion of adults have forsaken walking and cycling for travel by car. Children, on the other hand, except when they are chauffeured by adults, have been left with little choice but to get out of the way of the traffic. The evidence of the next chapter suggests that this is indeed how they have been responding.

Notes

1. Department of Transport, *Safety on the Move*, 1990.
2. Department of Transport, *Road Safety: the next steps*, 1987.
3. The higher percentage of child road accident deaths in cars in West Germany is not surprising given that the level of car ownership is 34 per cent higher.
4. Published by the Department of Transport in 1990.
5. Department of Transport, *Children and Roads: a safer way*, 1990.
6. It should be noted that Figure 1.2 is based on the Registrar General's statistics for England and Wales in 1986, and Figure 1.3 on Stats 19 data (police statistics) for Great Britain in 1988. The Registrar General's figures tend to be slightly higher because they relate to death within one year, rather than death within 30 days which is the Stats 19 definition. The data for Great Britain include Scotland which tends to have higher death rates than England and Wales. However, the differences are not sufficient to affect the argument.

7. At the far end of the age range, pedestrian accidents again become important. Above the age of 70, they account for about 70 per cent of all road accident deaths.
8. Annual series published by the Department of Transport.
9. Department of Transport, *National Travel Survey 1985/86, Report - Part 1, An Analysis of Personal Travel*, HMSO, 1988.
10. See Chapter 2 for discussion of the relationship between social class and indicators of independent mobility.
11. Private communication with the Directorate of Statistics of the Department of Transport following the running of a special tabulation.
12. J.G.U. Adams, 'Evaluating the effectiveness of road safety measures', *Traffic Engineering and Control*, June 1988, pp.344-352. .
13. Annual series published by the Department of Transport.

2. The Surveys in English Schools

One of the purposes of this study was to determine the levels of independent mobility and patterns of travel of English schoolchildren aged 7 to 15 years, in 1990. These were to be compared with those of English schoolchildren in 1971, and those of their German counterparts in 1990. This chapter reports on the findings of the 1990 English surveys and on the comparison of these with the findings of the 1971 surveys. The next chapter reports on the findings of the 1990 surveys in German schools, and compares them with the 1990 English survey results. A full description of the survey areas in England and Germany, the survey methods used and the response rates can be found in Appendix 1, and copies of the questionnaires are included in Appendix 2.

Responses from the junior and senior schoolchildren

We selected two sets of measures of independent mobility. The first relates to the four 'licences' that, in due course, children obtain from their parents to get around predominantly on foot *on their own* - to cross roads, to go to places other than school, to come home from school, and to go out after dark. The second set relates to the only two 'licences' of mechanised mobility open to children under the age of 16 years - cycling on public roads, and using buses.

As expected, the number of 'licences' that schoolchildren are awarded increases with age, with the result that the seniors aged 11 to 15 enjoy much more independence than the juniors.[1] The licence most widely held - by half the juniors and nearly all the seniors - is that of being allowed to cross roads on their own. Somewhat surprisingly, nearly half the restricted juniors and one in four of the restricted seniors said they did not mind this limit on their freedom, perhaps reflecting their appreciation of the risks involved.[2]

'Licence-holding' for independent travel

Junior schoolchildren:

51 per cent allowed to cross roads;
37 per cent allowed to go on their own to places other than school;
35 per cent allowed to come home from school alone;
2 per cent allowed to go out after dark.

Senior schoolchildren:

97 per cent allowed to cross roads;
84 per cent allowed to go on their own to places other than school;
87 per cent allowed to come home from school alone;
24 per cent allowed to go out after dark.

It would appear that the 'test' set by parents for permission to travel independently becomes stricter the further children are likely to have to travel. Compared with the one in two juniors allowed to cross roads on their own, just over one in three was allowed to come home from school or to go to other places alone.[3] Hardly any of the juniors were allowed to go out after dark. Just over five in six of the seniors were allowed to come home from school and to go to other places on their own. However, a major limitation on the independent mobility of the seniors was the fact that only one in four was allowed to go out after dark.

We also enquired about whether the children were allowed to travel on buses on their own, and whether they had access to a bicycle as this mode can in theory provide the only form of mechanised, and therefore relatively fast travel that the law allows them to use on a door-to-door basis on their own. We found that one in seven of the juniors and five in six of the seniors were allowed to use buses on their own.

'Licence-holding' for mechanised travel

Junior schoolchildren:

15 per cent allowed to use buses.
25 per cent of cycle owners (91 per cent own cycles) are allowed to ride on main roads.

Senior schoolchildren:

84 per cent allowed to use buses.
77 per cent of cycle owners (76 per cent own cycles) are allowed to ride on main roads.

The children have a very high level of ownership of bicycles, especially the juniors, but only a quarter of the juniors and three-quarters of the seniors said that they were allowed to use them on main roads. However, it should be noted that two in five of the junior and one in two of the senior cycle owners said that they did not mind the restrictions imposed by their parents.[4]

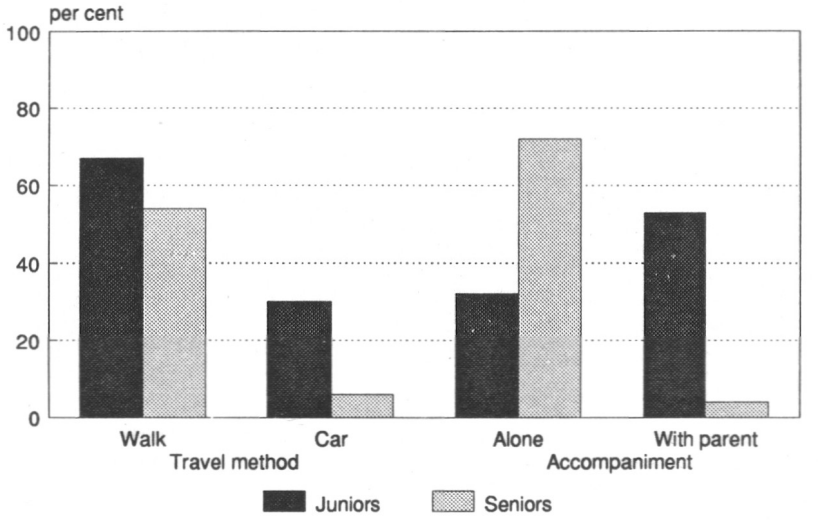
Younger children claimed a greater degree of independent mobility in terms of permission to cross roads on their own and to use buses than that stated by their parents.[5] The difference might be attributed to the children boasting, the parents' ignorance of what their children get up to, or the parents exaggerating their 'responsibility'. The greatest difference was found in the younger age groups. As will be seen later in this chapter, these are the ages which experienced the greatest decrease in 'licence-holding' over the two decades between our 1971 and 1990 surveys. It appears to be the age band within which the argument between children and parents over their right to a licence is most hotly contested.

We examined the children's patterns of travel starting with their journeys to and from school and then looked at those activities which involved going out during the weekend. The responses of the juniors on their school journey can be seen in Figure 2.1. This shows that nearly two in three of their journeys are made on foot, one in three by car, and very few by bus or bicycle - in spite of the very high level of cycle ownership.[6] The pattern on the return journey from school hardly differs - a slight increase in the number walking is matched by a slight decrease in the number travelling by car. This reflects the fact that a few of the children are taken to school by parents on their way to work, but that this chauffeuring facility is not available for the return journey in mid-afternoon.[7]

The seniors typically have longer journeys to school. They are therefore less able to make them conveniently on foot. Compared with the juniors, half the number of seniors live within one kilometre of their school, and four times as many live more than two kilometres away.[8] This is because comprehensive schools have much larger numbers of children compared to junior schools and serve much larger catchment areas. Accordingly, there is a decline from two in three of the juniors to one in two of the seniors going to school on foot.[9] Well over a third of the seniors go by bus, which is more than six times as many as are taken by car. But the increased licence to use their

bicycles does not result in a significant increase in their cycling to school.[10]

Figure 2.1 Travel method and level of accompaniment of English junior and senior schoolchildren on the journey home from school



In the case of the juniors, the Figure also shows that the pattern of accompaniment on the school journey is strongly associated with car use with, of course, all those travelling by car being taken by an adult, normally the parent, and two in five taken home on foot by a parent.[11] The seniors are much more independent: nearly three-quarters travelled on their own or with someone of their own age, and few were escorted by an adult. Over half walked home from school, the great majority of them on their own or with someone of their own age.[12]

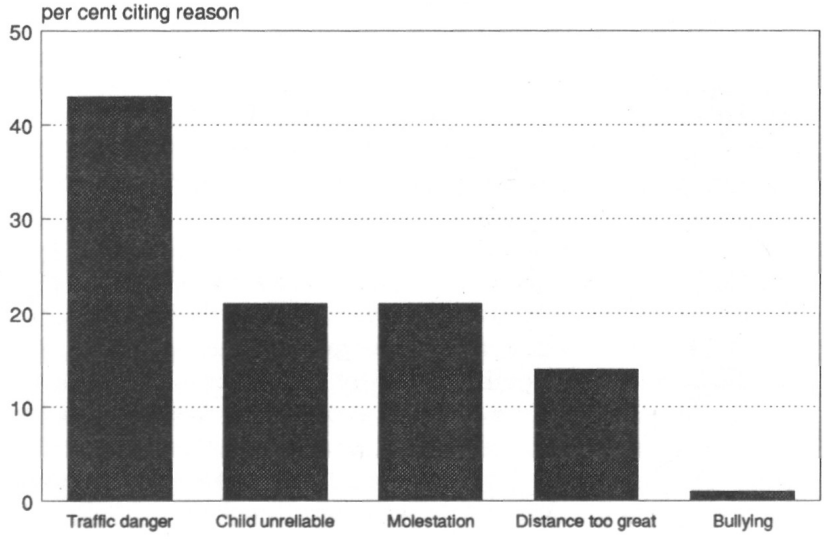
The children were also asked to record all the activities set out in the questionnaire's lengthy check-list (together with space for additional 'write-ins'), involving travel outside the home which they had undertaken during the previous weekend, and to indicate whether these were made on their own, or whether they were accompanied. The surveys in all the schools were conducted on a Monday to minimise the difficulty of recall. Analysis of the aggregation of their activities shows that, on average, the juniors went out on 3.6 occasions,

almost half of them on their own, whereas the seniors went out on 4.5 occasions, four in five of them on their own.[13]

Responses to the parents' questionnaire

This questionnaire was concerned with finding out more about parents' restrictions on their children's independent mobility, why these were imposed, and the extent of their involvement in their children's travel.[14] Figure 2.2 focuses on the reasons cited for imposing the restrictions on their children coming home from school on their own. It can be seen that the primary concern of the juniors' parents is the danger from traffic to which they feel their children are exposed, though fear of molestation also features significantly,[15] and is the predominant reason for not allowing them to go out after dark.[16] The main reason given by parents for restricting the three in four seniors who are not allowed to go out after dark is, even more than for the juniors, their fear of their children being molested - a reason cited by over three-quarters of these parents.[17]

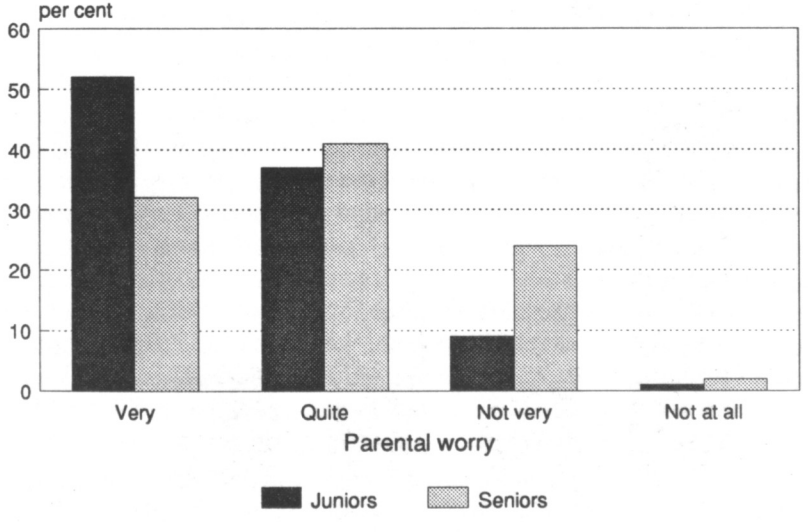
Figure 2.2 Reasons given by English parents for restricting junior schoolchildren from coming home alone from school



Parents' concerns about road safety are also apparent in the response given to the question about their attitudes to the risk of their child being injured in an accident when crossing the road. Figure 2.3 shows that half of the parents of the juniors and a third of the parents of the seniors are very concerned, and that only one in ten of the parents of the juniors and one in four of the parents of the seniors are not very or not at all worried.[18] In total, nine times as many parents of the juniors and nearly three times as many parents of the seniors said that they were 'quite' or 'very' worried as were 'not very' or 'not at all' worried about this risk.

These concerns are also reflected in the pattern of involvement in escorting children. More than half of the parents of the juniors take them to and from school although, as noted earlier, a slightly smaller proportion is involved in the latter journey.[19] Most school escort journeys are made every day. In spite of the seniors' longer journey, only about one in twenty of their parents take their children to and from school.

Figure 2.3 Concern of English parents about the risk of their schoolchild being injured in a road accident when crossing the road



For non-school escort purposes, roughly five round trips are made by the parents of the juniors and just under four round trips are made by the parents of the seniors each week.[20] And, as would be expected, significantly more of these round trips are made by parents who said they are very worried about the risk of their child being injured in a road accident when crossing the road, and less by those not worried at all.[21]

Further insight into the extent of parental involvement in children's travel can be gained from the record of the children's weekend activities which they reported. Whilst it is apparent that some of these activities which were made in the company of their parents were made because it was a family trip rather than a trip exclusively for their children's sake, the juniors reported that they were 'taken' on one in two of these trips in contrast to only one in five of the trips reported by the seniors.[22]

Responses to the questionnaires for Head teachers

As one factor influencing the juniors' and seniors' patterns of travel to and from school was thought likely to be the attitudes of the Head teachers and the rules that they institute, we sent a short questionnaire to each of the schools surveyed asking them about various issues relating to their schoolchildren's travel.

In the main, the Heads judged the traffic fairly high in the areas surrounding their schools but considered that the risk of a road accident was low if care was exercised by the children, though the Heads of the schools in the two city areas judged the roads to be very dangerous. In fact, nine in ten Heads reported that at least one child had been injured on the way to or from school in the previous five years, and some reported several.

Nearly all the schools have some form of road safety instruction as part of their timetables during the year but only four have road crossing patrols outside the school. Although four in ten of the Heads said that cycle proficiency instruction was available, it is clear that cycling is not encouraged, and this may go some way towards explaining why, in spite of the very high levels of cycle *ownership* among both juniors and seniors, use of the bicycle on the school journey is remarkably low. The Heads expressed a range of concerns on this topic, including the shortage or unavailability of storage space for cycles, general worries about theft or malicious damage and

especially the high risk of accidents among cyclists. In fact, there was a unanimous view among the junior Heads that it is not safe to cycle to school before the age of 12, that is after they have left primary school.

The influence of age

Junior schoolchildren

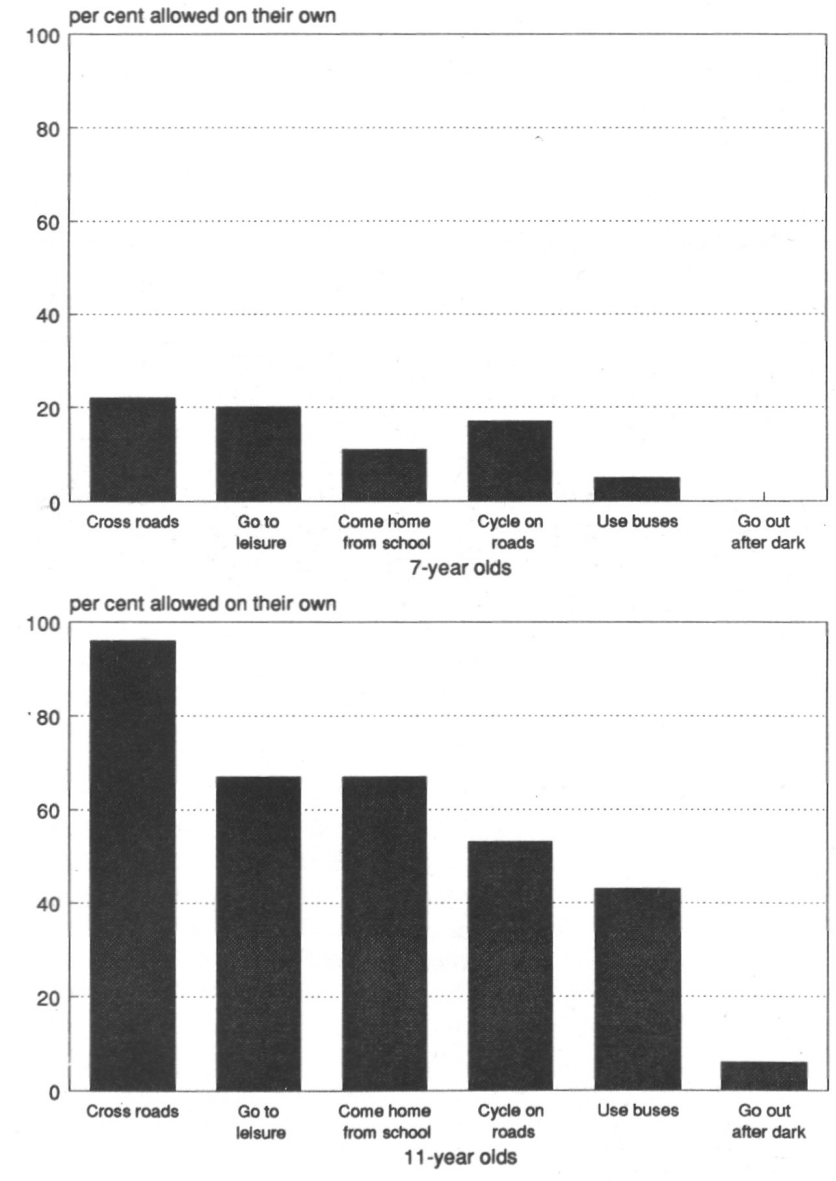
The principal variable explaining the level of restriction on children's independent travel is their age. Indeed, in respect of each of the juniors' holding of 'licences' to get around on their own, there is a progressive increase with age. It can be seen in Figure 2.4 that the increase is highest for crossing roads alone: by the age of 11, few are restricted from doing so. On the other hand, at this age, the majority are still not allowed to use buses on their own.[23]

Although the level of cycle ownership among the juniors is very high, there is in fact a slight fall-off with increasing age. The Figure shows that one in 14 of the 7 year olds does not own one, in contrast to about one in 10 of the 11 year olds. But only one in six of the 7 year old cycle owners said that they are allowed to use their bicycle on main roads, and only one in two of the 11 year olds.

Age also influences the children's travel. On the school journey, there is a fairly steady increase in the proportion of juniors walking to school as they grow older,[24] from half of the 7 year olds to three-quarters of the 11 year olds. This is matched by a decrease in the proportion being taken by car, from just under half to just over a quarter respectively.[25] This pattern is reflected in a marked change in the level of accompaniment: nearly three-quarters of the younger juniors are escorted on the school journey by their parents, in contrast to only one in three of the older juniors. There is a steady increase in the proportion travelling to and from school alone, or with another child of their own age. Very few of the 7 year olds do so on their own, in contrast to well over half of the 11 year olds.

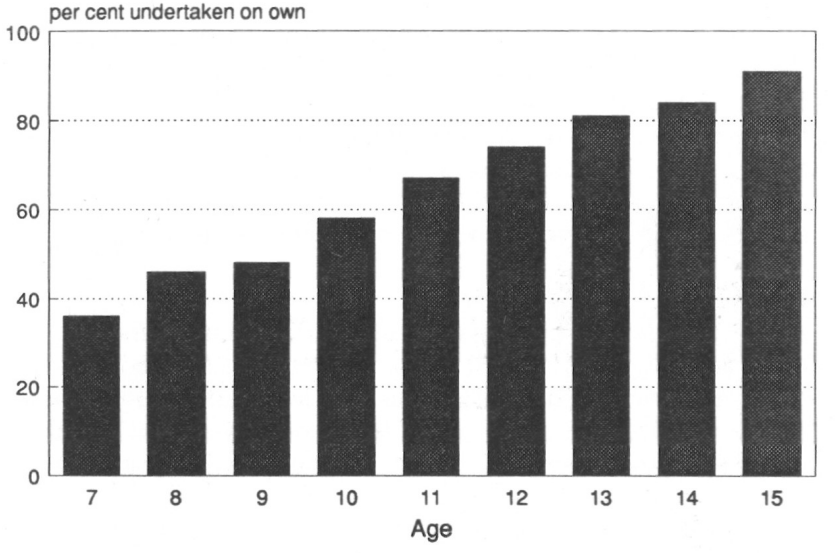
Whilst the number of travel-dependent activities in which the juniors engaged during the weekend does not appear to bear much relationship with their age, Figure 2.5 shows that the proportion of these activities which they undertook on their own rises progressively from just over a third of the 7 year olds to just under two-thirds of the 11 year olds.[26] Similarly, the number of friends that the juniors said they could visit on their own also rises progressively with age, from

Figure 2.4 'Licence-holding' among English schoolchildren aged 7 and 11



only three friends cited by the 7 year olds to seven cited by the 11 year olds.[27]

Figure 2.5 Proportion of English schoolchildren's weekend activities undertaken on their own, according to age



The higher level of restriction on the younger junior's independent school-related travel might be expected to be associated with a higher level of parental escorting on non-school journeys. However, neither the extent of non-school parental escorting nor the travel method used on these journeys varies with age,[28] perhaps because extra-curricular activities increase with age, and this increase counter-balances the reduced extent of escorting.

Senior schoolchildren

The move to secondary school coincides with an increase in both 'licence-holding' and, as noted earlier, in the length of the journey to school. Most of the younger seniors are allowed to cross roads on their own and, by the age of 14, all of them are allowed to do so.[29] Most restrictions on independent mobility appear to be lifted at about the same age for a given child. However, even by the age of 14, restrictions still exist for some children, and this is particularly marked

in terms of cycle owners, one in four of whom said they were not allowed to cycle on main roads.

Given the greater freedom enjoyed by the seniors, it is not surprising to find that a year-to-year increase in age has much less influence on their patterns of travel. Apart from the fact that most of them have to travel further to and from school and are therefore more likely to depend on public transport, neither the travel modes used nor the pattern of their accompaniment alter significantly with age.[30] Similarly, the incidence of their weekend activities does not appear to be age-related, although there is a fairly steady rise in the proportion of these activities which they undertake on their own: three-quarters of the activities of the 11 and 12 year olds and nearly nine in ten of the activities of those aged 14 and 15 are undertaken independently.[31]

Reasons for parental restrictions

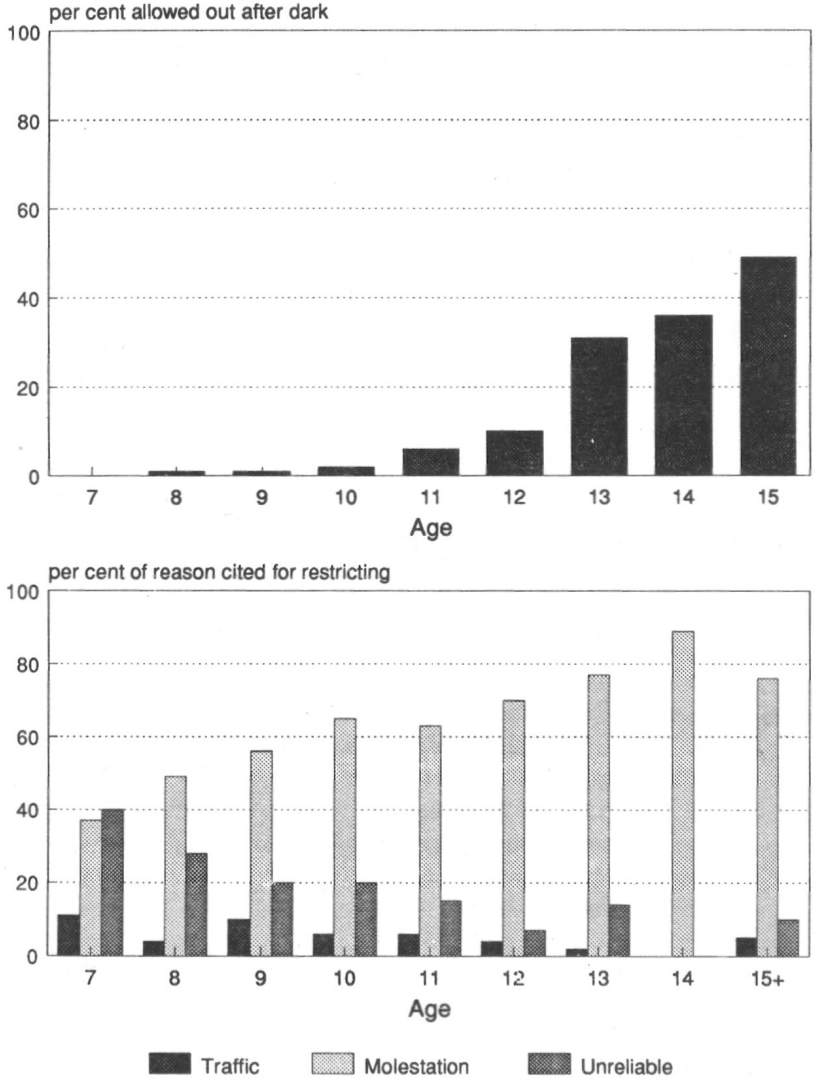
As the restrictions imposed by parents on their children's independent travel are progressively lifted, so the reasons given for the imposition of the restrictions also change, though far less dramatically. Parents of older children cite traffic danger less frequently and are less likely to say that they are very concerned abut the risk of their child being injured in a road accident.[32]

However, the proportion mentioning the fear of their children being assaulted or molested by an adult is more often cited by the parents who restrict the older children. As noted earlier, and as Figure 2.6 shows, it is most frequently mentioned as the reason for restricting children from going out after dark.[33] No parents of the 7 year olds allow their child to go out alone after dark and this restriction is only removed for six per cent of the 11 year olds and between a third and a half of the oldest seniors.

The influence of gender

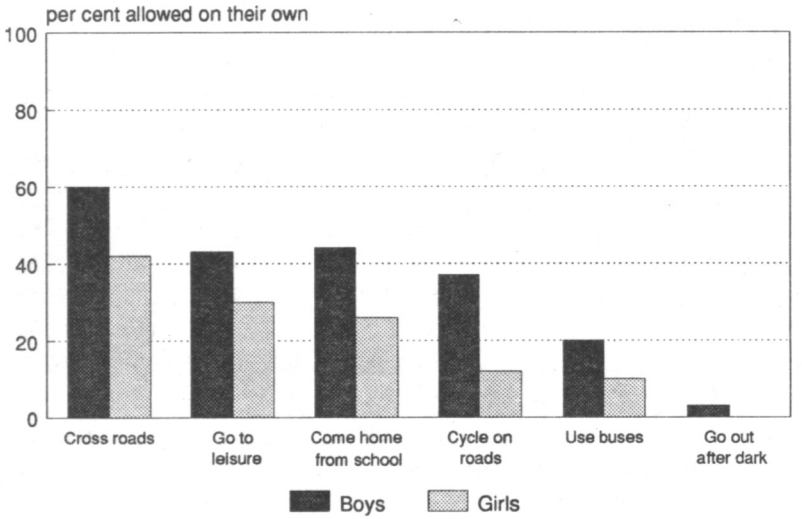
There are some marked differences in the independent mobility and patterns of travel of junior and senior boys and girls, and in the attitudes of their parents. Figure 2.7 shows that, without exception, junior boys enjoy far more independence than junior girls. This can be seen in relation to each of the 'licence-holding' variables that we examined, including the ownership of bicycles and permission to use them on the roads.[34] Two in five of the girls, but three in five of the boys said that they are allowed to cross roads on their own, and although just over a

Figure 2.6 **Proportion of English schoolchildren allowed to go out after dark, according to age and main reason for parental restriction**



third of the cycle-owning boys are allowed to use them on the roads, only about one in nine of the girls may do so.

Figure 2.7 Variables of 'licence-holding' among English junior girls and boys



There are striking differences in the attitudes of the boys and girls to the mobility restrictions that their parents impose on them. Two-thirds of the junior girls, in contrast to under half of the boys, said that they do not mind being restricted from crossing roads on their own. Three-quarters of the girls, but again under half of the boys, said that they do not mind about the parental prohibition on the use of their bicycles on the main roads.[35]

However, the gender differences almost disappear among the seniors except in two respects. First, the boys remain more likely to own bicycles and to be allowed to use them. Secondly, although the proportion of senior boys and girls allowed to go out after dark seems remarkably low, the parents of the senior boys are more permissive than those of the senior girls. The parental reasons for the restrictions on their children indicate more concern about the boys being involved in road accidents, and more about the girls being assaulted or molested.[36]

The patterns of travel of the boys and girls, the incidence of activities in which they engaged on their own during the weekend, and the average number of friends they said they could reach on their own, reflect their levels of independent mobility.[37] Junior boys are twice as likely as the girls to make the school journey on their own or with someone of their own age and, conversely, junior girls much more likely to be accompanied by a parent.

The parents of the junior boys reported the same number of escort trips for non-school purposes as those of the junior girls.[38] However, the parents of the senior boys made significantly more of these trips than the parents of the senior girls, perhaps because of the boys' greater involvement in extra-curricular activities.

During the course of the study, we also obtained more detailed evidence on schoolchildren's patterns of travel by commissioning special tabulations from the 1985/86 National Travel Survey. These tabulations provide an additional opportunity for examining the influence of age and gender and the different travel methods used for particular journey purposes according to these variables.[39]

Figure 2.8 Number of weekly journeys by travel method and journey purpose, according to British junior and senior schoolchildren's age and gender

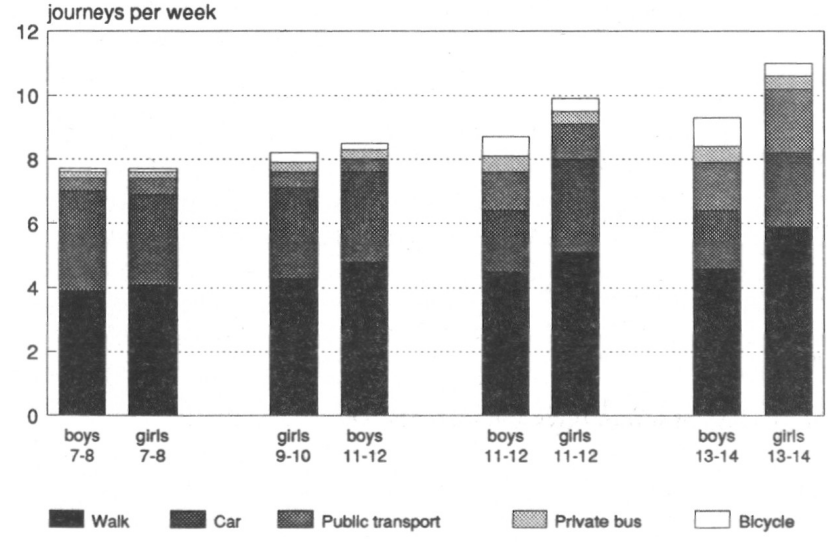


Figure 2.8, drawn up from the NTS tabulations, shows a fairly steady increase with age among boys and girls in the frequency of both educational and discretionary trips. The difference attributable to gender is not marked, although it can be seen that girls generally make somewhat more journeys for discretionary reasons each week. Walking is the primary method of travel used by boys and girls of all ages on most journeys, especially on the school journey. The exception lies with trips for leisure purposes where the car has the predominant role until boys and girls reach their teenage years. It is at this age that children usually prefer the company of their peers for social and recreational activities and have the parental licence to travel on their own. In addition, and as a consequence, more journeys are made by public transport - but walking remains the predominant mode. The bicycle is infrequently used other than for the leisure trips of older boys.

The influence of independent mobility

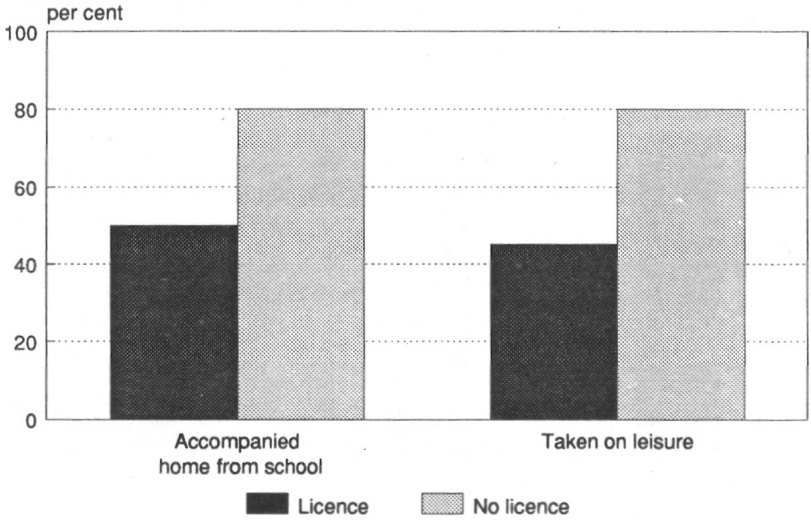
One of the purposes of the study was to examine the influence of the children's level of independent mobility on their travel and activity. It might be expected that those granted the various 'licences' for travel on their own would be more likely to travel to and from school on their own and to take part in more discretionary activities involving travel. Our analysis of this influence concentrated on the travel patterns and activity of the juniors, where we found the greatest variation in independent mobility.

It will be recalled that half the juniors said that they were allowed to cross roads on their own, but that only one in three said that they would be going home from school on their own on the day of the survey. Figure 2.9 shows that, as would be expected, those allowed to cross roads on their own were much more likely to make the school journey on their own,[40] and therefore the journey was more often made on foot.[41] Those with the licence were also less likely to be escorted to places other than school.[42] They engaged in far more weekend activities involving travel on their own and in more weekend activities in total.[43]

The holding of 'licences' to go to places other than school on their own, to use buses, to cycle on the roads,[44] and to go out after dark is also associated with more weekend activities.[45] However, in considering the significance of this analysis, it needs to be borne in

mind how strongly the juniors' 'licence-holding' is related to age, especially in respect of bus use and going out after dark.[46] Nevertheless, there was a positive correlation between the number of 'licences' held, the extent of independent travel, the number of activities engaged in outside the home, and dependence on walking.

Figure 2.9 Extent of adult accompaniment of English junior schoolchildren to school and other places, according to parental 'licence' to cross roads

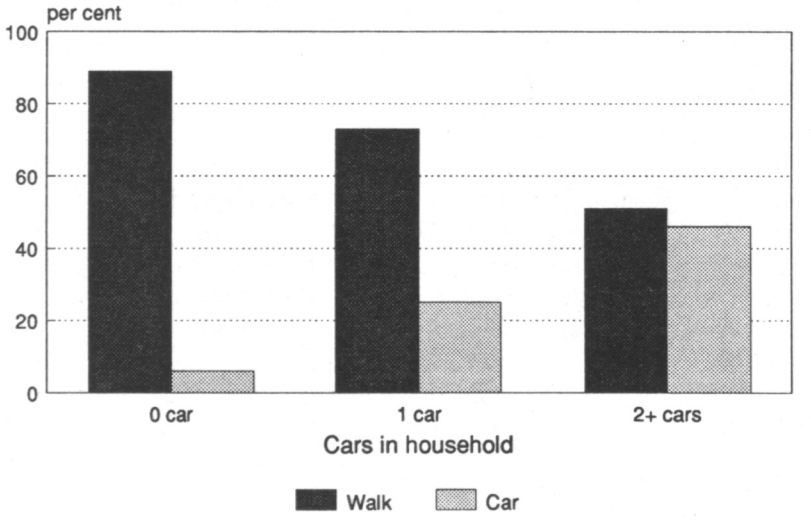


The influence of household car availability

The parents' questionnaires also incorporated questions on their level of household car ownership, number of driving licence-holders in the household, and on the social class of the head of household. The responses to the questions about the availability of cars show that only about one in six of the households had no car, just under a half had one car, and just over a third had two or more. However, there is no very obvious association between car availability and restriction on children's independent mobility, except with regard to the use of buses by juniors which is permitted to approximately twice as many children in non-car as in car-owning households.[47]

Whilst proximity clearly affects whether children can conveniently walk to school, another factor is the availability of a car to ferry them. Figure 2.10 shows that nearly half the juniors in multi-car households, and a quarter of those in one-car households are driven home from school, whereas nine in ten of those in non-car households walk home.[48] It is interesting to note that juniors in households without cars engaged in more activities, both on their own and overall, than did those in households with cars.[49]

Table 2.10 Journey home from school by English junior schoolchildren on foot and by car, according to household car ownership



The influence of social class

We also wished to establish if patterns of travel and attitudes vary by social class. Since social class, household income and car ownership are closely linked, we were not surprised to find that two-thirds of the children with a professional head of household lived in multi-car-owning households. Half of the households where the head was unemployed were non-car-owning.[50]

No obvious pattern could be determined from examining social class differences with regard to levels of restriction imposed by

parents. Patterns of travel to and from school and type of accompaniment on this journey appear to be explained more by differing levels of household car ownership.[51] Similarly, the incidence of journeys made for the purposes of escorting children on their discretionary journeys, and the travel method used on these journeys, do not reveal any strong relationship with social class, apart from that explained by its link with car ownership.[52]

Nor does any clear picture emerge from an examination by social class of the reasons given by parents for the restrictions they impose on their children,[53] although working-class parents, whose children are more likely to go to school on foot, expressed substantially more worry about the risk of road accidents than did middle-class ones.[54]

The influence of areal characteristics

Analysis was also made of the variations in the responses according to the five areas in which the children lived and the distance they had to travel to school. This gives a better understanding of the influence of these factors on the levels of children's 'licence-holding', their patterns of travel, their parents' attitudes to their children's independent mobility and, related to this, their involvement in escorting their children.

In considering these factors, account must be taken of the size of settlement in terms of population and geography, and the distances that have to be travelled to reach facilities that are likely to be used more than occasionally. Appendix 1 provides the demographic, social and planning characteristics of the five areas in which the surveys were carried out.

They range from Inner London to a small rural community. At the one extreme, there is the relatively high density of population in a London borough which contains a wide variety of local shops and other facilities easily accessible on foot or by bus. However, it has little public open space and relatively high volumes of traffic rendering it a dangerous place for children to get about on their own. It also has a fairly high proportion of working-class families living in rented accommodation. At the other extreme, there is the village in the heart of Oxfordshire with a low density of population, few local facilities, and a poor bus service, but with a high proportion of home-owning and multi-car-owning middle-class households.

The mean age and gender distribution of children in both junior and senior schools is fairly similar, except for the low proportion of boys in the inner London borough of Islington.[55] On the other hand, the proportion of middle-class and working-class households and, to a large extent associated with this, the proportion of single and multi-car-owning households, vary considerably in the five areas.[56]

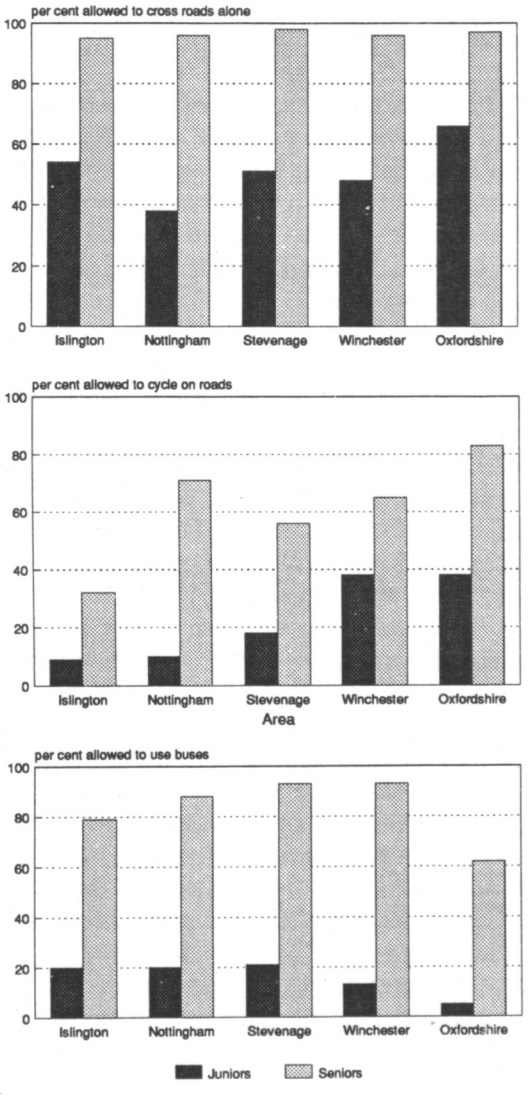
Both the juniors and seniors living in Winchester and the juniors in *Hook Norton* were more than twice as likely as those living in *Islington* and *Nottingham* to come from professional and managerial households, and the junior and senior schoolchildren in *Islington* and *Nottingham*, and the seniors in *Stevenage*, were far more likely to come from working-class households.[57] These class differences are reflected in the levels of household car ownership. Levels of adult licence-holding not surprisingly correlate positively with levels of household car ownership: the great majority of multi-car-owning households have two or more adults holding a licence.[58]

Whilst only one in seven households is non-car-owning, this level varies from one in three and one in two among the juniors and seniors respectively in *Islington* to almost universal car ownership in *Hook Norton.*[59] Indeed, in this latter area, well over two-thirds of the juniors live in multi-car-owning households, in marked contrast to the one in ten in *Islington.*

In view of the fact that junior schools serve much lower numbers of children than do senior schools, and are therefore much more widely distributed, it would be expected that more of the juniors would live close to their school. This is borne out by the findings of the survey: one in two of the juniors live within a *half a kilometre* of their school but only two in five of the seniors live within *one kilometre* of their school. In addition, the higher residential densities, and therefore the larger number of children living within a defined area, result in a higher proportion of children in the two city areas of *Islington* and *Nottingham* living close to their school.[60] However, the highest proportion of the juniors living close to their school is in fact in *Hook Norton*, the Oxfordshire village, which is relatively isolated and, since the completion of a large new housing estate on its edge, has a very self-contained population.

Figure 2.11 shows the variations in the levels of 'licence-holding' among the children according to the area in which they live. Juniors living in *Hook Norton* have the most freedom to get around on their

Figure 2.11 'Licence' to cross roads and to cycle among English junior and senior schoolchildren, according to area



own in their immediate locality.[61] This may reflect the greater confidence that parents have about the safety of their children on its roads: they carry little through traffic and little local traffic which, in any case, in view of the configuration of the streets, moves relatively slowly.

However, the Figure shows that in comparison with parents in the other areas, those in *Hook Norton* allow their young children least freedom to use the bus service on their own. This may be because the bus service is poor and also that it takes the children to 'foreign parts'.

Although *Hook Norton* is the area with the highest proportion of juniors living close to school, this is not associated with a relatively high proportion walking there.[62] As has been seen, it has by far the highest level of multi-car-owning households and this leads to it having the second highest proportion of juniors being taken by car, a proportion somewhat inflated by the fact that it also serves a rural, mainly farming, hinterland. As a result of this, it also has the highest proportion - albeit still relatively low - travelling by school bus.

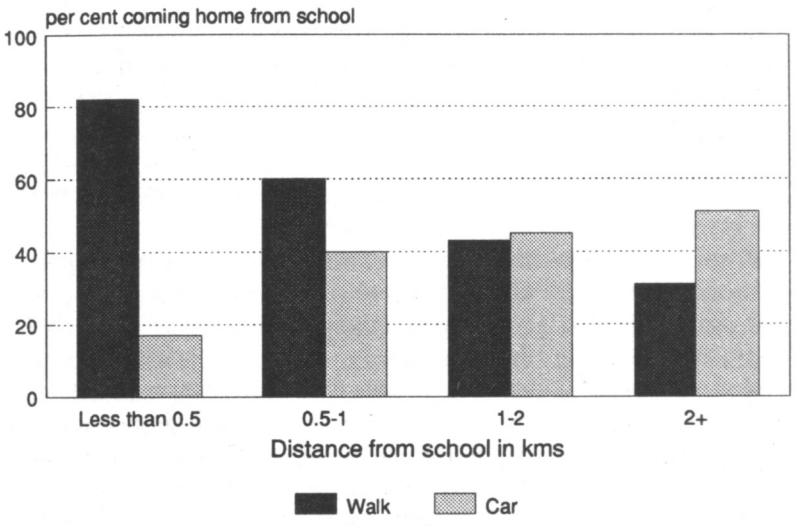
Nevertheless, distance plays a major role. It has been noted that half of the junior schoolchildren live within half a kilometre of their school, but over four in five still live very close, that is within one kilometre, and only one in ten have to travel more than two kilometres.[63] By contrast, less than one in four of the seniors live within half a kilometre, and nearly a half live more than two kilometres away.[64]

Figure 2.12 shows that the proportion of juniors going home on foot falls from over four in five of those living within half a kilometre of the school to less than one in three of those living over two kilometres away.[65] The greater the distance to school, the more children are likely to travel by motorised means. Half of those living over two kilometres away travel by car and one in six by bus. The proportion of juniors cycling to school hardly varies by distance, and is in any case extremely low.[66]

Of course, the degree and type of accompaniment is influenced both by how the children travel and by the distance to school. In the closest distance band, one in two is accompanied by an adult, generally a parent, on the journey back home, whereas where the school is more than two kilometres away, five in six are accompanied by an adult.[67] This pattern is again reflected in the proportion coming home on their own or with a child of about their own age. Two in five of those in

the closest distance band, but only one in ten in the furthest band do so.

Figure 2.12 Journey home from school by English junior schoolchildren on foot and by car, according to distance



As far as the seniors are concerned, the combination of the greater distance to school and their greater degree of independent mobility is reflected in the pattern of their journeys. Where they live within one kilometre of it, the great majority walk on their own or with another child. However, where the school is further away, there is a marked decrease in the amount of walking matched by a sharp increase in the amount of public transport use. As noted earlier, there is relatively little travel by car, probably reflecting these older children's preference for independence and their parents' greater confidence in their children's general reliability and ability to cope with traffic. With the exception of *Chipping Norton*, with its few leisure outlets, and to a lesser extent *Winchester*, there is not much difference in the five areas in the number of weekend activities entailing travel.[68]

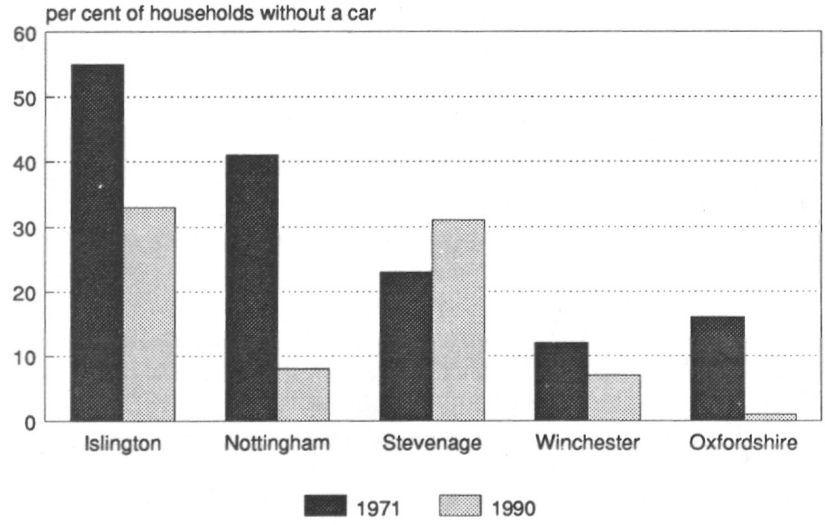
Most concern about the danger of road traffic was expressed by parents living in the two city areas. Two to three times as many of those in *Islington* and *Nottingham* as those in Chipping Norton said that they were very worried about this.[69] The degree of concern is

also reflected in the restrictions imposed on children's independent mobility, most obviously in the context of their freedom to get around on foot on their own and of use of their bicycles: by far the lowest proportion of children allowed by their parents to use them on the roads was in the city areas.[70] Much the lowest proportion of children in the city areas minded about this restriction, and indeed about the restriction imposed by their parents on crossing roads on their own,[71] perhaps reflecting their greater appreciation of the risk of accidents there.

English junior schoolchildren: comparison of the 1990 and 1971 surveys

Before comparing the findings of the 1990 surveys of junior schoolchildren with those of the surveys we undertook in the same five areas in 1971, it is of course important to establish what social and planning changes have occurred in the areas in the intervening period. Analysis of available records on planning matters indicates that there were few substantive alterations which were likely to explain any of the variations we identified other than an increase in the area

Figure 2.13 Proportion of English junior schoolchildren living in households with cars in five areas, 1971 and 1990



of new housing which the schools served, especially in *Stevenage* and *Hook Norton*. Although questions were not asked about social class in the 1971 survey, it has been seen that the levels of independent mobility, patterns of travel, and parental attitudes do not appear to be strongly influenced by this characteristic, other than through its association with household car ownership.

In comparison with the 1971 survey data, the proportion of households without a car had halved by 1990 with the result that six in seven of the households are now car-owning.[72] As can be seen in Figure 2.13, with the exception of one area, the number of households without a car has fallen sharply, particularly in *Hook Norton* where only one per cent of the children's households is non-car-owning.

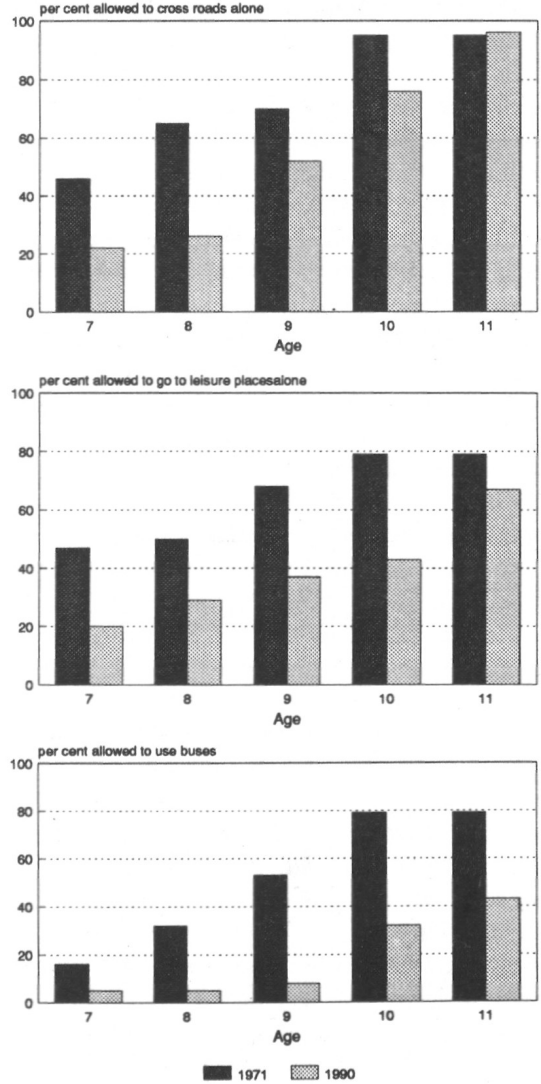
The exception to this general trend of rising household car ownership is in *Stevenage* where, as the Figure shows, the proportion of children in non-car-owning households has risen, possibly because, as noted earlier, the school in this area now serves an additional housing estate which contains a relatively high proportion of low income households.

Identical questions on several aspects of the juniors' independent mobility were included in both surveys. Whereas nearly three-quarters were allowed to cross roads on their own in 1971, the proportion had fallen to a half by 1990.[73] Figure 2.14 shows that this proportion has fallen most sharply for the younger children, and that by the age of 11 there is little difference. There is a similar though more marked decline in the proportion of children allowed to go on their own to places other than school: only about half of the 7 to 10 year olds who were allowed to go to these places on their own in 1971 were allowed to do so in 1990. There was an even more marked decline in the proportion of the juniors allowed to use buses on their own. Whereas half were allowed to do so in 1971, only one in seven was allowed to do so in 1990.[74]

In comparing the 1990 levels of permission to cycle on the roads with those available to the juniors in 1971, it should be noted that more juniors now own cycles: whereas two-thirds owned one in 1971, ownership had increased to nine in ten by 1990. However, in 1971, two-thirds of cycle owners said that they were allowed to use them on the roads: by 1990, this proportion had fallen to only a quarter.[75]

The reduction in children's independent mobility is reflected too in changed patterns of travel. Figure 2.15 shows a marked increase in

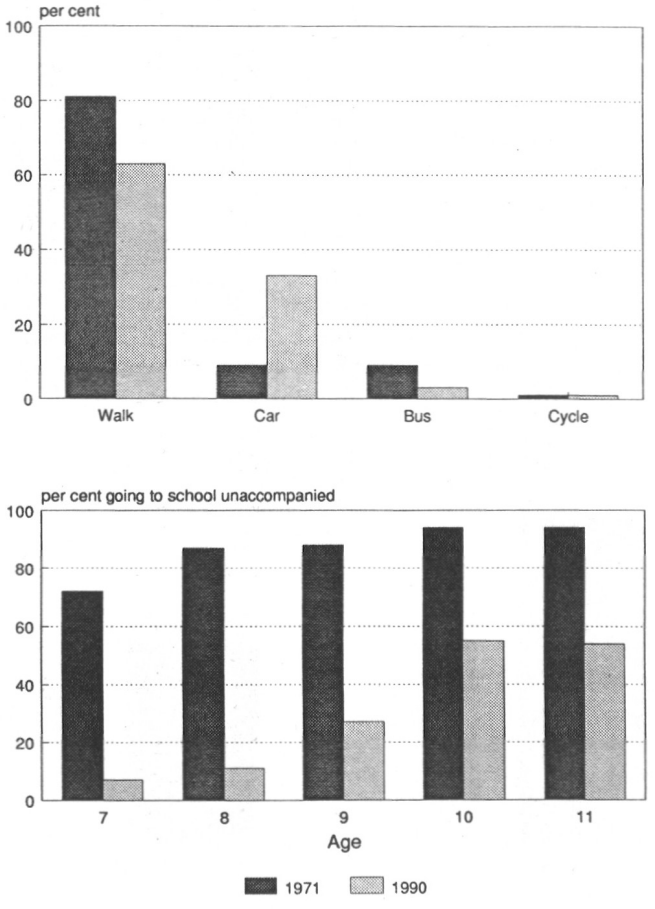
Figure 2.14 Independent mobility of English junior schoolchildren according to age, 1971 and 1990



Note: In the 1971 survey, children aged 10 and 11 were grouped together and thus the percentages for 10 year olds are recorded as identical to those for the 11 year olds.

the proportion being driven to school by car and fall in the proportion going on foot. Associated with this is a steep rise in the proportion of children, especially in the younger age groups, being accompanied by an older person.[76]

Figure 2.15 Method of travel to school by English junior schoolchildren and whether unaccompanied by an older person, 1971 and 1990



Note: See footnote to previous Table.

Our 1971 and 1990 surveys also reveal a marked decline in the number of activities that the juniors reported in the weekend preceding the Monday of the surveys. Although change in the nature of children's activities over the past 20 years makes a strict comparison difficult, Figure 2.16 shows that the number of activities that they undertook on their own was reduced by almost a half, and that this was not compensated for by an increase in the number that were made accompanied, which also fell, in this instance, by a quarter. Some of the reduction is no doubt accounted for by changes in social, cultural and economic circumstances which have led to more home-centred lifestyles. Clearly, the wider availability of, for instance, colour television and choice of channels, videos, toys and other computer games, and centrally-heated homes, could be expected to result in the home presenting a more attractive location for children's leisure than it used to. But the strong link that we have identified between the restrictions on independent mobility and travel patterns suggests that these restrictions have contributed significantly to the reduction.

Figure 2.16 Number of accompanied and unaccompanied weekend activities among English junior schoolchildren, 1971 and 1990

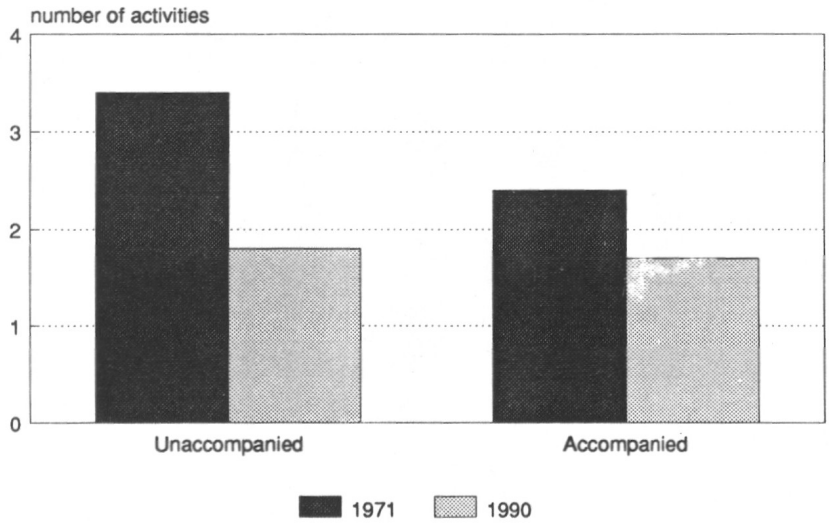
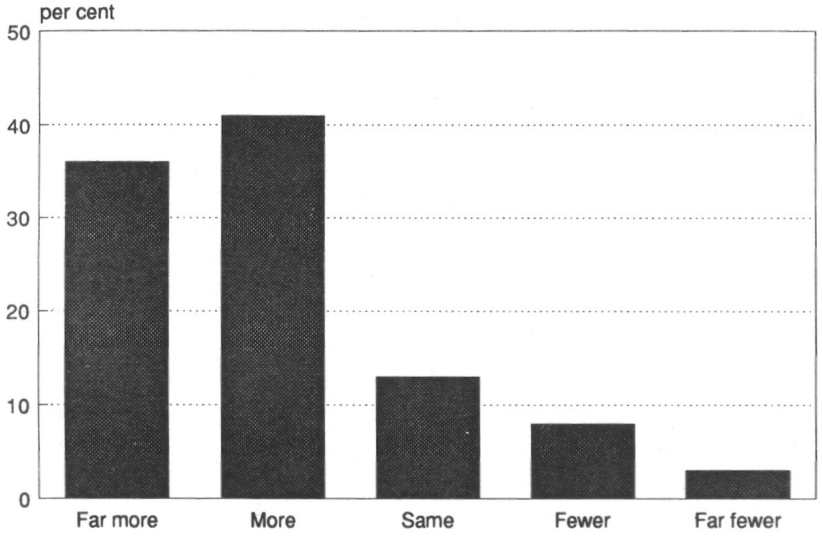


Figure 2.17 English parents' judgement about their opportunities for going out on their own as children as compared with those of their junior schoolchild in 1990



Comparison of the relative freedoms of children in 1990 with those of almost a generation ago can also be determined from the answer to the question we posed to parents in the 1990 survey. Figure 2.17 shows that the parents generally thought that they had far more opportunities for going out on their own when they were children than their children now enjoy.[77]

Notes

1. See Appendix 3, Table 1.
2. See Appendix 3, Table 2.
3. See Appendix 3, Table 1.
4. See Appendix 3, Table 3.
5. See Appendix 3, Table 1.
6. See Appendix 3, Table 4.
7. See Appendix 3, Table 6.
8. See Appendix 3, Table 7.
9. See Appendix 3, Table 4.
10. *Ibid.*
11. See Appendix 3, Table 6.

12. *Ibid.*
13. See Appendix 3, Table 8.
14. See copy of the questionnaire in Appendix 2.
15. See Appendix 3, Tables 10 and 11.
16. See Appendix 3, Table 12.
17. *Ibid.*
18. See Appendix 3, Table 13.
19. See Appendix 3, Table 13.
20. See Appendix 3, Table 14.
21. See Appendix 3, Table 15.
22. See Appendix 3, Table 8.
23. See Appendix 3, Table 1.
24. Comparison of Tables 4 and 5 in Appendix 3 shows that the characteristics of the return journey home from school in terms of travel method and level of accompaniment is very similar.
25. See Appendix 3, Table 6.
26. See Appendix 3, Table 8.
27. See Appendix 3, Table 9.
28. See Appendix 3, Table 14.
29. See Appendix 3, Table 1.
30. See Appendix 3, Tables 4 and 5.
31. See Appendix 3, Table 9.
32. See Appendix 3, Tables 2,10,11,12 and 13.
33. See Appendix 3, Table 14.
34. See Appendix 3, Table 16.
35. See Appendix 3, Table 17.
36. See Appendix 3, Tables 18-21.
37. See Appendix 3, Tables 22-24.
38. See Appendix 3, Table 25.
39. See Appendix 3, Table 26.
40. See Appendix 3, Table 27.
41. *Ibid.*
42. See Appendix 3, Table 28.
43. See Appendix 3, Table 29.
44. See Appendix 3, Tables 30-32.
45. See Appendix 3, Tables 30-32.
46. See Appendix 3, Table 1.
47. See Appendix 3, Table 34.
48. See Appendix 3, Table 35.

49. See Appendix 3, Table 36.
50. See Appendix 3, Table 37.
51. See Appendix 3, Table 38.
52. See Appendix 3, Table 39.
53. See Appendix 3, Tables 40-42.
54. See Appendix 3, Table 43.
55. See Appendix 1.
56. See Appendix 3, Table 37.
57. See Appendix 3, Table 44.
58. See Appendix 3, Table 45.
59. See Appendix 3, Table 46.
60. See Appendix 3, Table 47.
61. See Appendix 3, Table 48.
62. See Appendix 3, Table 49.
63. See Appendix 3, Table 7.
64. *Ibid.*
65. See Appendix 3, Table 50.
66. *Ibid.*
67. *Ibid.*
68. See Appendix 3, Table 51.
69. See Appendix 3, Table 53.
70. See Appendix 3, Table 48.
71. See Appendix 3, Table 3.
72. See Appendix 3, Table 46.
73. See Appendix 3, Table 1.
74. *Ibid.*
75. *Ibid.*
76. See Appendix 3, Table 4.
77. See Appendix 3, Table 54.

3. The Surveys in German Schools

During the early stages of the development of our proposal to compare the survey responses of schoolchildren in 1990 with those in 1971, it was recognised that a further important source of data for comparative purposes could be obtained by conducting identical surveys among children in another country with similar geographical and social characteristics but with a different culture. We were fortunate to obtain funding to carry out this other facet of the study in Germany. A full description of the five areas in the German surveys, and the survey methods used, are included in Appendix 1. Other than the translation into German, the questionnaires for the children and their parents were the same as to those used in the English surveys. The main findings are reported in this chapter.

The procedure adopted in the reporting of the findings is identical to that used in the last chapter. Few references are made to any comparison with the findings from the English surveys other than in a section at the end of this chapter which is devoted to this theme. As will be seen, many of the findings are similar in character, though there are some fundamental differences.

Responses from the junior and senior schoolchildren

As with the English schoolchildren, there was a significant increase in the reporting of all levels of 'licence-holding' among the seniors, aged 11 to 15, as compared with the juniors aged 7 to 11 years.[1]

The only exception to this relates to the schoolchildren's permission to come home from school alone: whilst more seniors than juniors are allowed to do so, this applies to the great majority of both groups.[2]

'Licence-holding' for independent travel

Junior schoolchildren:

75 per cent allowed to cross roads;

70 per cent allowed to go on their own to places other than school;

91 per cent allowed to come home from school alone;

5 per cent allowed to go out after dark.

Senior schoolchildren:

96 per cent allowed to cross roads;

92 per cent allowed to go on their own to places other than school;

99 per cent allowed to come home from school alone;

37 per cent allowed to go out after dark.

As with the English children, the 'test' set by parents for permission to travel independently becomes stricter the further children are likely to have to travel. Compared with the three-quarters of juniors allowed to cross roads on their own, a somewhat smaller percentage is allowed to come home from school or to go to other places alone.[3] Hardly any of them are allowed to go out after dark. However, the great majority of seniors enjoy a considerable degree of independence other than in this one respect, namely that only just over one in three is allowed to go out after dark.

As far as permission to use mechanised travel on their own is concerned, we found that a large majority of the German juniors and seniors own bicycles, but of these only about a third of the junior owners and four in five of the senior owners, is allowed to use them on the roads. It should be noted that about half of these restricted cycle owners said they did not mind.[4] One in three of the juniors, and nearly nine in ten of the seniors are allowed to use buses on their own.

'Licence-holding' for mechanised travel

Junior schoolchildren:

31 per cent allowed to use buses;

34 per cent of cycle owners (86 per cent own cycles) are allowed to ride on main roads.

Senior schoolchildren:

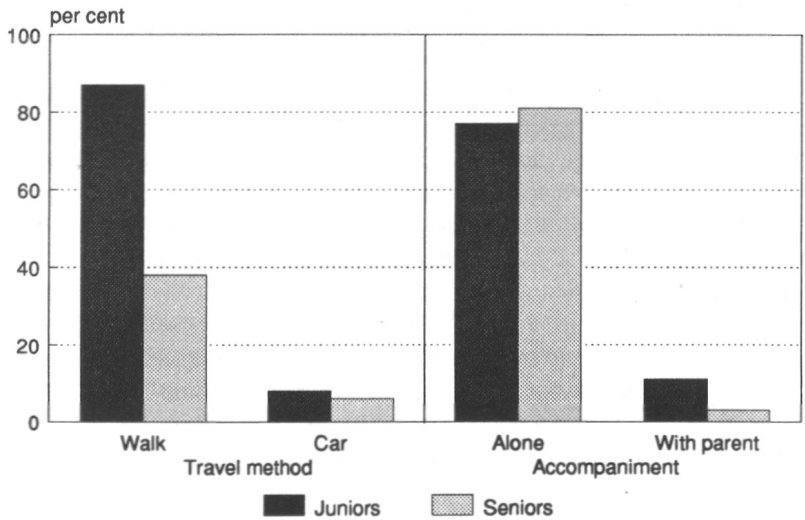
87 per cent allowed to use buses;

81 per cent of cycle owners (88 per cent own cycles) are allowed to ride on main roads.

As with the English juniors, and probably for similar reasons to those we posited in the last chapter, the German juniors also claimed a greater degree of independent mobility in terms of permission to cross roads on their own and to use buses than that stated by their parents. The greatest difference was found in the younger groups.[5]

The responses of the juniors on their school journey can be seen in Figure 3.1. This shows that the great majority of their journeys to school are made on foot, only one in ten by car, and few by bus or bicycle - in spite of the high level of cycle ownership.[6] The pattern of travel on the return journey from school hardly differs 6.5 See Appendix 3, Table 6.

Figure 3.1 Travel method and level of accompaniment of German junior and senior schoolchildren on the journey home from school



Most seniors have longer journeys to school. They are therefore less able to make them conveniently on foot: compared with the juniors, only one in three of the seniors live within one kilometre of their school, and far more live more than two kilometres away.[7] As in the comparison of English junior schools to comprehensive schools, German upper schools also have much larger numbers of children and serve much larger catchment areas. This is reflected in the fall from five in six of the juniors to only just over one in three of the seniors going to school on foot.[8] However, half of seniors went by bus, that is five times as many as were taken by car. But the increased licence to use their bicycles does not result in a significant increase in their cycling to school.[9] Only one in ten of the juniors was accompanied on the school journey, the great majority of them being taken by car.[10] The seniors are even more independent. Just under two in five went on foot, over a half by bus, and very few were accompanied by an adult.[11]

Analysis of the aggregation of their activities shows that, on average, the juniors went out on 3.5 occasions, half of them on their own, whereas the seniors went out on 4.0 occasions, four in five on their own.[12] In answer to the question, "How many friends can you visit on your own?", the survey found that, on average, the juniors could visit 5.2 friends, whereas the seniors could visit 8.6 friends.[13]

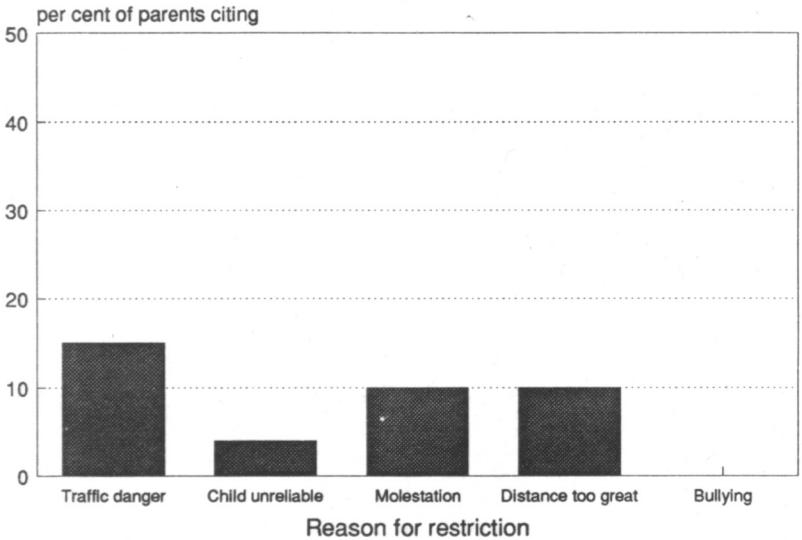
Responses to the parents' questionnaire

Given the limits on children's independent mobility recorded above, Figure 3.2 focuses on the reasons cited by parents for imposing the restrictions on their children travelling on their own to places other than school. The primary concern of the juniors' parents is the danger from traffic to which they feel their children are exposed.[14] As far as the restrictions on their children going out after dark is concerned, fear of molestation or assault is the predominant reason.[15] This is also the predominant reason for restricting the two in three seniors who are not allowed to go out after dark.[16]

Figure 3.3 shows that half of the parents of the juniors and two in five of the parents of the seniors stated that they were very concerned about danger on the roads, and that only one in five of the parents of the juniors and one in three of the parents of the seniors were not very or not at all worried.[17] However, these concerns are not reflected in involvement in escorting children to and from school in the great

majority of cases where this occurs every day: one in eight of the parents of the juniors and hardly any of the parents of the seniors do so.[18]

Figure 3.2 Reasons given by German parents for restricting junior schoolchildren from coming home alone from school



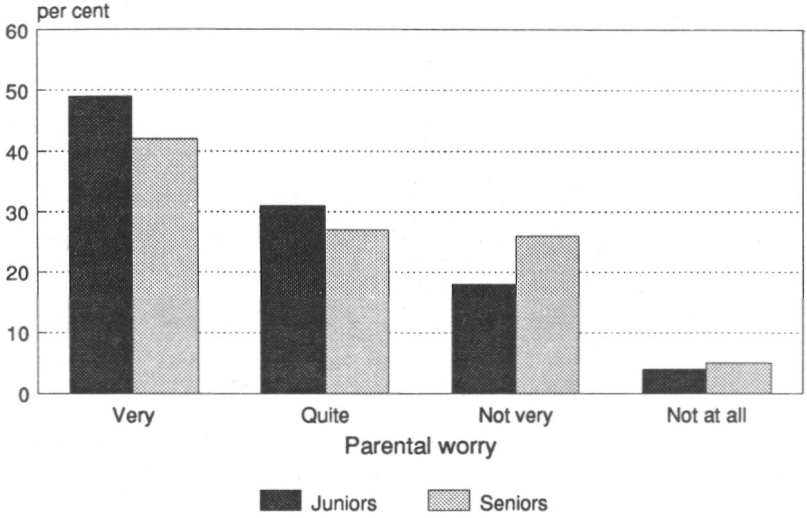
For non-school escort purposes, roughly four round trips are made by the parents of the juniors and just under three by the parents of the seniors each week.[19] As has been noted in the previous chapter, some of the weekend activities in the company of their parents are made because it is a family trip rather than a trip exclusively for their children's activity. The juniors reported that they were 'taken' on one in two of the 3.5 of these trips in contrast to only one in five of the 4.0 seniors' trips.[20]

Responses to the questionnaires for Head teachers

The responses of the Head teachers to the short questionnaire on various issues relating to their schoolchildren's travel show that, with one exception, *Langenfeld,* traffic is judged to be fairly high in the areas surrounding the schools in which the surveys were carried out. And all but one of the Heads reported at least one child having been injured on the school journey in the previous five years. Nevertheless,

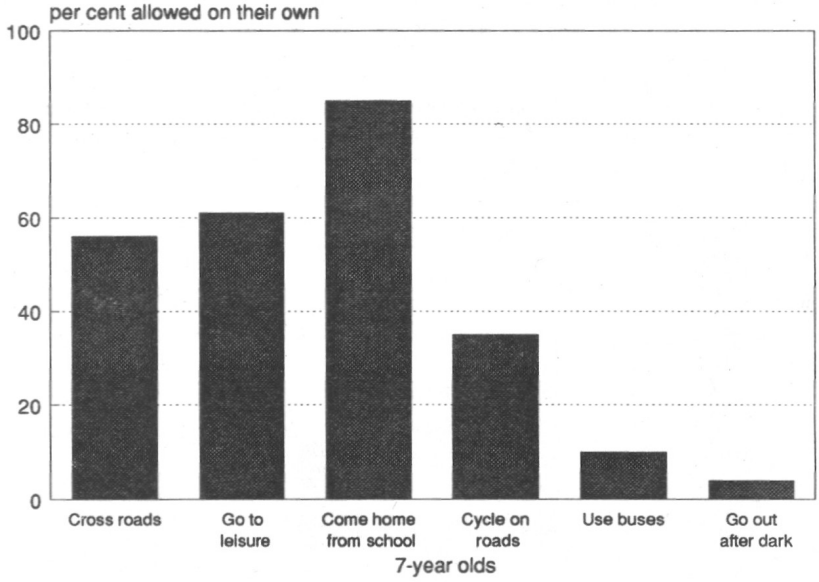
the average age at which it was felt safe for the juniors to travel to school on their own was between 6 and 7 years. Nearly all the schools have some form of road safety instruction as part of their timetables during the year.

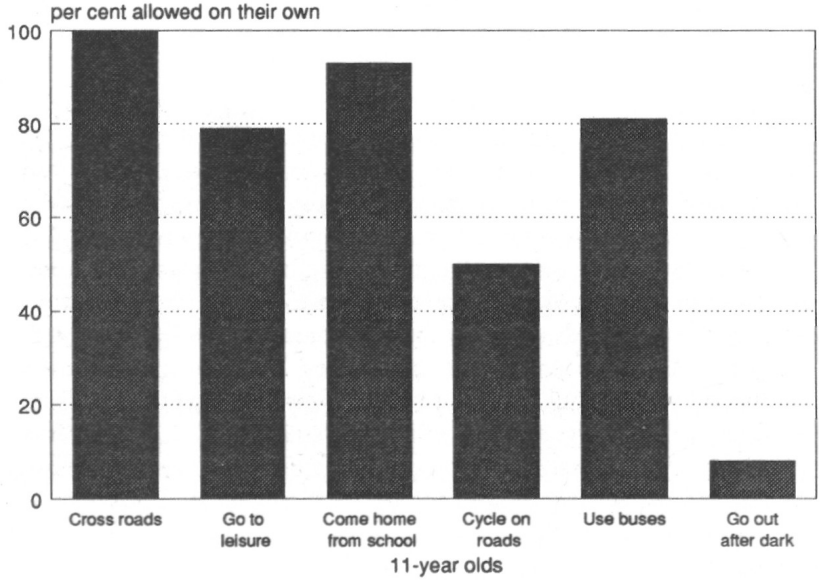
Figure 3.3 Concern of German parents about the risk of their schoolchild being injured in a road accident when crossing the road



Although two-thirds of the Heads reported that they have cycle proficiency instruction in the schools, cycling does not appear to be encouraged for a variety of reasons. They go some way towards explaining the low level of use on the school journey in spite of the very high levels of cycle ownership among both juniors and seniors. In response to a question on their attitude to the children cycling to school, several Heads said that they discouraged this because of the danger and the absence of cycle routes. Other considerations mentioned were a concern about the roadworthiness of the children's bicycles, security, the absence of storage space and, in one instance, that cycling could not be contemplated as the town did not provide insurance for cyclists in case of accidents. None of the Heads of either the junior or senior schools thought it safe to cycle to school before the age of 11 years.

Figure 3.4 'Licence-holding' among German schoolchildren aged 7 and 11





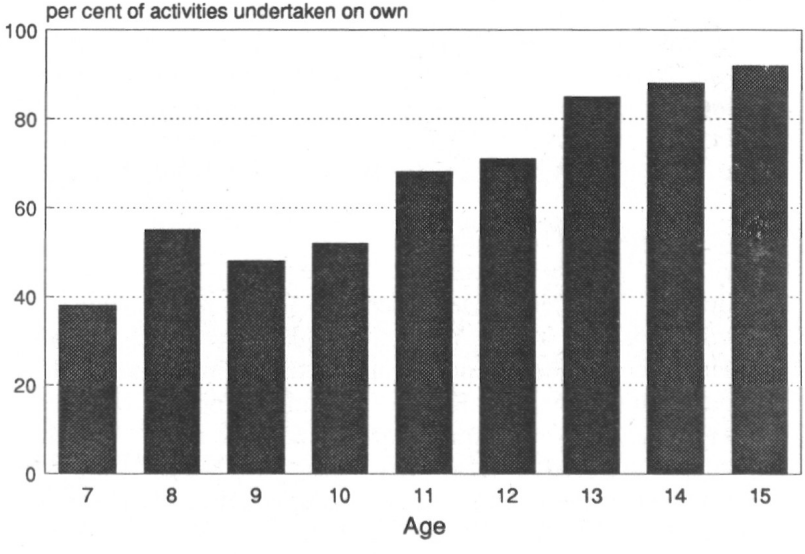
The influence of age

Junior schoolchildren

There is a progressive increase with age in the ownership of the independent mobility'licences'. While just over half the 7 year olds said that they are allowed to cross roads on their own, by the age of 11, all of them are allowed to do so. It can be seen in Figure 3.4 that the increase in 'licence-holding' is highest for bus use: whereas only one in ten of the 7 year olds are allowed to do so on their own, by the age of 11, the proportion has risen to four in five.[21]

Whilst the level of cycle ownership among the juniors is high, the Figure shows that one in three of the 7 year old cycle owners said that they are allowed to use their bicycle on main roads, and one in two of the 11 year olds. There is no strong influence with age on the juniors' travel method on the school journey.[22] However, the level of accompaniment by an adult or older child falls, and of travelling alone rises sharply, with age, with the result that, whilst half of the 7 year olds go to school on their own, by the age of 11 nearly all of them do.[23]

Figure 3.5 Proportion of German schoolchildren's weekend activities undertaken on their own, according to age



There is also a marked increase with age in the number of travel-dependent activities in which the juniors engaged during the weekend preceding the day of the survey. Figure 3.5 shows that there was both an increase in the number of these journeys that the children did not make on their own and even more so those that they did make on their own, with over twice as many being made by the older juniors than the younger ones.[24] Similarly, the number of friends that the juniors said they could visit on their own also rises with age from 3.4 cited by the 7 year olds to 7.5 cited by the 11 year olds.[25]

Senior schoolchildren

The move to secondary school coincides with an increase in both 'licence-holding' and the length of the journey to school. As has been seen, nearly all the seniors are allowed to cross roads, to come home from school, and to go to places other than school on their own, and only one in seven is not allowed to use the buses.[26] The licence to use bicycles does, however, vary with age: two-thirds of the senior cycle owners are allowed to cycle on the roads, and this proportion rises to nearly all of the 15 year olds.

With most seniors enjoying a high level of 'licence-holding' the age of the seniors is associated with much less variation in patterns of travel on the school journey than has been noted among the juniors.[27] The same holds true with regard to the number of their weekend activities, although there is a progressive fall in the incidence of those in which they were taken by their parents.[28] As with the juniors, the number of friends they said they can visit on their own rises with age.[29]

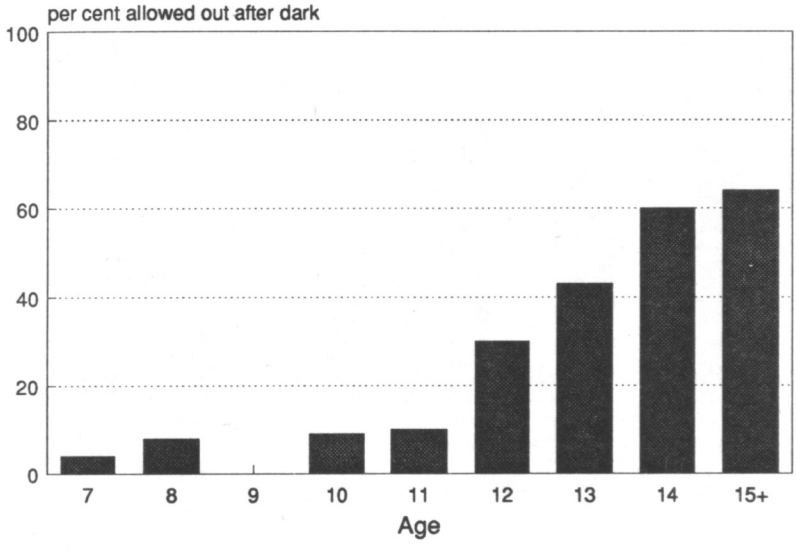
Reasons for parental restrictions

Detailed analysis of the reasons given by the parents of the seniors for restricting their children's independent mobility is not possible as so few German parents impose restrictions other than going out after dark. However, for the parents of juniors, the main reason cited for restricting their children is traffic danger. Indeed, four in five of these parents said they are very or quite worried about the risk of their child being injured in a road accident when crossing the road.[30]

Few parents of the 7 and 8 year olds, rising to a third of the younger seniors, and nearly two-thirds of the older ones, allow their children to go out after dark. As Figure 3.6 shows, fear of their children being

assaulted or molested is by far the most frequent reason cited by the parents of both the juniors and the seniors.[31]

Figure 3.6 Proportion of German schoolchildren allowed to go out after dark, according to age



The influence of gender

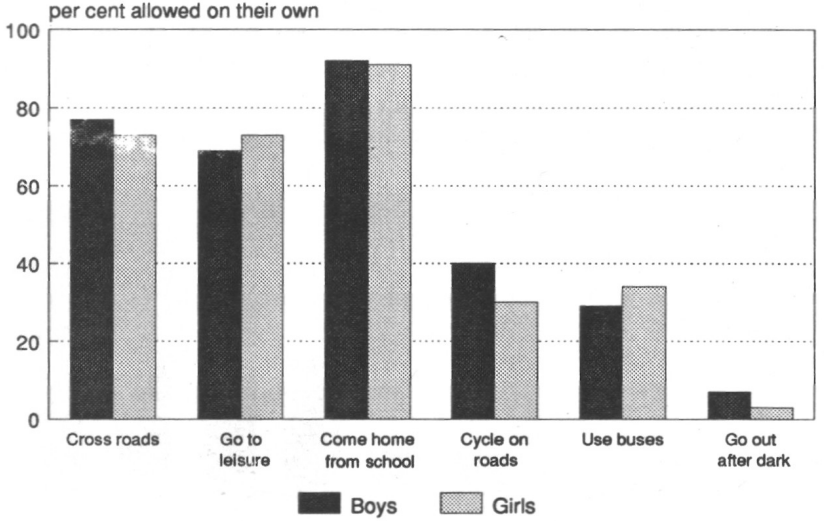
Figure 3.7 shows that there is remarkably little difference between the levels of 'licence-holding' of the boys and girls other than in two respects. First, more of both junior and senior boys own bicycles and are allowed to use them on the roads, and secondly, the parents of both groups of boys compared with those of the girls, are much more permissive regarding their children going out after dark.[32]

There are some differences in the attitudes of the boys and girls to the mobility restrictions that their parents impose on them. Whereas the junior boys who are not allowed to cross roads on their own are somewhat more likely than the girls to mind about this restriction, the proportion of boys disliking the restriction on using their cycles on the roads is noticeably higher.[33]

Although the parents of the girls are slightly more worried about danger on the roads, the reasons for the restrictions on the juniors and seniors going to places other than school or going out after dark indicate more concern about the boys because of fear of them being

involved in road accidents, and about the girls being assaulted or molested.[34]

Figure 3.7 Variables of 'licence-holding' among German junior girls and boys



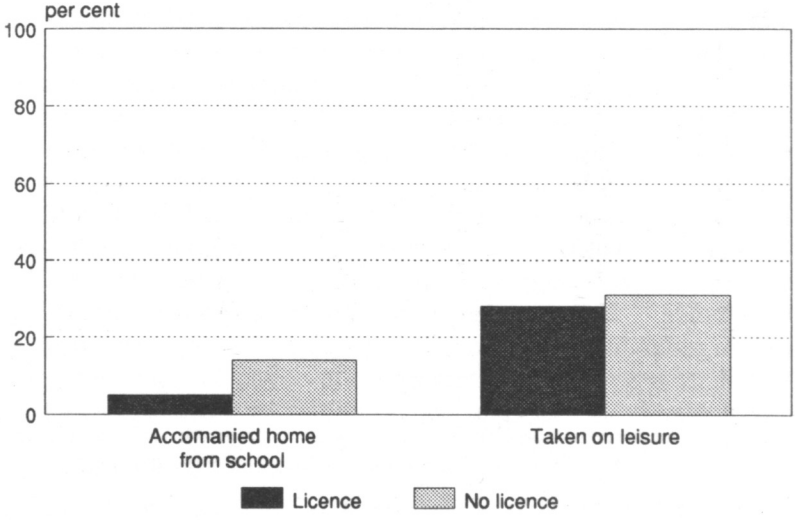
Whilst in most respects the levels of 'licence-holding' among the girls and boys do not differ very much, this is not wholly reflected in their patterns of travel. The junior boys are somewhat more likely to make the school journey on their own, and the senior girls somewhat more likely to make this journey by bus.[35] The junior boys, and even more so the senior boys, also engaged in more activities involving travel in the weekend preceding the survey, largely by virtue of the fact that they made more of them on their own.[36] They also reported slightly more friends that they could reach on foot than the girls did,[37] but there was little difference according to gender in the number of escorting journeys that the parents made other than for school purposes.[38]

The influence of independent mobility

Those granted the various 'licences' for travel on their own made more of their school journeys on their own and took take part in more discretionary activities involving travel. Figure 3.8 shows that, not

surprisingly, the juniors allowed to cross roads on their own were much more likely than those restricted from doing so to come home from school alone and the journey was more often made on foot.[39]

Figure 3.8 Extent of adult accompaniment of German junior schoolchildren to school and other places, according to parental 'licence' to cross roads



They also engaged in far more weekend activities involving travel on their own.[40] But, the total number of activities of the restricted children was not compensated for by being 'taken' more often. Similarly, the holding of 'licences' to go to places other than school on their own, to use buses, to cycle on the roads,[41] and to go out after dark,[42] was associated with more weekend activities made both independently by the juniors and overall. However, in considering the significance of this analysis, it needs to be borne in mind how strongly the juniors' 'licence-holding' is related to age, especially in respect of bus use and, in the case of both juniors and seniors, of going out after dark.[43]

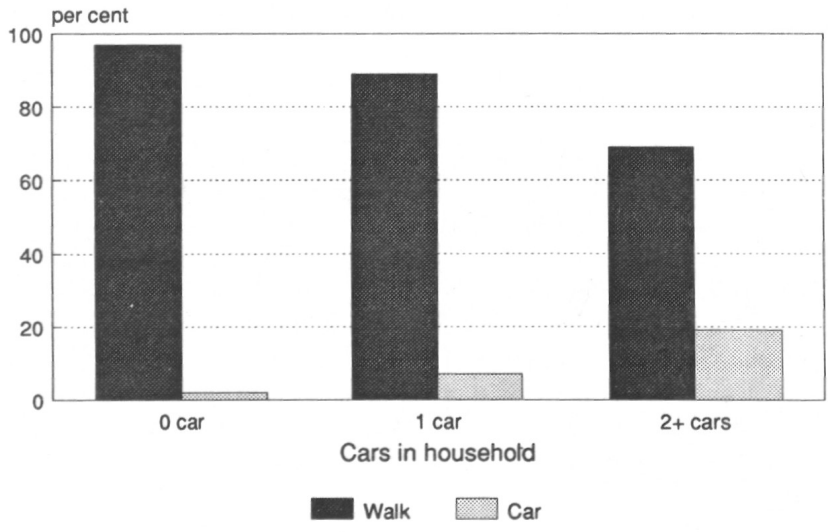
Thus, as was found in relation to the English schoolchildren, there was a positive correlation between the number of 'licences' held by

the German children, the extent of their independent travel, the number of their activities engaged in outside the home, and their dependence on walking.

The influence of household car availability

Whilst proximity clearly affects whether children can conveniently walk to school, another factor is the availability of a car to ferry them. The parental responses to the questions about the availability of cars show that about one in six of the children's households had no car, three in five had one car, and just under a quarter had two or more. However, there is no obvious association between car availability and restriction on children's independent mobility.[44] Figure 3.9 shows that both the juniors and seniors in households without a car were more likely to have made the school journey on foot,[45] and that whilst 1 in 14 of the children from one-car households were driven home from school, the ratio rises to 1 in 5 of those in multi-car-owning households.[46] However, there is not very much difference according to car availability in the generally high proportion of seniors making the school journey by public transport.[47]

Figure 3.9 Journey home from school by German junior schoolchildren on foot and by car, according to household car ownership



Analysis of the differences according to household car availability shows that both juniors and seniors in households without a car engaged in more activities involving travel on their own, and that in the case of the juniors in car-owning households, this was not compensated for by a higher number of activities on which they were taken, and in the case of the seniors, in only a small increase.[48] As a result, the total number of activities of the juniors in non-car households is higher than that of those in car-owning households, but that of the seniors in non-car households is hardly different from that of those in car-owning households.[49]

The influence of social class

In view of the close link between social class, household income and car ownership, we were not surprised to find that three in five of the children with a professional head of household lived in multi-car-owning households whereas a significant minority of those from working-class households were non-car-owning.[50]

However, no obvious pattern emerged when examining social class with regard to levels of restriction imposed by parents, nor on the patterns of travel to and from school and type of accompaniment on this journey.[51] The differences in patterns appear to be explained far more by more by differing levels of household car ownership.[52] Similarly, the incidence of journeys made for the purposes of escorting children on journeys other than to and from school, and the travel method used on these journeys, do not reveal any strong relationship with social class, apart from that explained by its link with car ownership.[53]

As the number of German children restricted in their independent mobility is relatively small, examination by social class is not possible other than in one respect, namely going out after dark. But neither the reasons given for restricting children in this way,[54] nor the degree of concern the parents expressed generally about the risk of their child being injured in a road accident, varies significantly by social class.[55]

The influence of areal characteristics

The geography of the areas selected for both the English and German surveys has an influence on basic travel behaviour, particularly distance travelled and the frequency with which different facilities are used.

As detailed in Appendix 2, the German areas range from the inner city of one of Germany's largest cities, *Köln* (Cologne) to the small rural community of Herbede (near Witten). The spread of areas covers substantially different population densities and density of facilities such as shops. The central area of *Köln* is well provided with both shops and public transport, though open space is not so plentiful. Recreational areas for children and impressive traffic-calming do provide a quality of local environment which is lacking in the English paired area of the London Borough of Islington. High traffic volumes and high vehicle speeds on the main arterial roads which run through this area make it a dangerous place for children. Its working-class population (*Arbeiter*) represent 32 per cent of the employed total, and its non-German population (*Ausländer*) is 19 per cent of the total population. Rented accommodation is the norm.

At the other extreme in regard to areal characteristics is the small village which, though administratively part of Stadt *Witten*, is a rural community surrounded by extensive open land and woodland. There are few facilities in this village, though it is connected by a bus service to the local centre in *Witten*. Home-owning is high by West German standards and, whilst car ownership is high, including 62 per cent of the households in which the senior schoolchildren live, there is an interesting disparity in the case of multiple car ownership. The households of English juniors in the matched area show a 71 per cent rate compared with the German juniors 48 per cent in this rural area.

The mean age and gender distributions of children in both junior and senior schools in the five areas were fairly similar. On the other hand, the proportion of middle-class and working-class households and, to a large extent associated with this, the proportion of no car and multi-car-owning households, vary considerably among the five areas.[56]

There is no strong social class pattern in the households of either the juniors or the seniors in the five areas, except for a higher working-class population in the larger urban areas, and a higher proportion of state employees without tenure (Angestellte) in the two smaller areas.[57] To a certain extent, social class differences are reflected in the levels of household car ownership. Whilst, as we have seen, only one in six of the households is non-car-owning, this level varies from one in three and one in four among the juniors and seniors respectively in *Köln Innenstadt* to almost universal car ownership in

Witten.[58] Indeed, in this latter area, three times as many juniors live in multi-car-owning households as do so in *Köln Innenstadt*. Levels of adult driving licence-holding not surprisingly match the levels of household car ownership: nearly all of the multi-car-owning households have two or more adults in them holding a licence.[59]

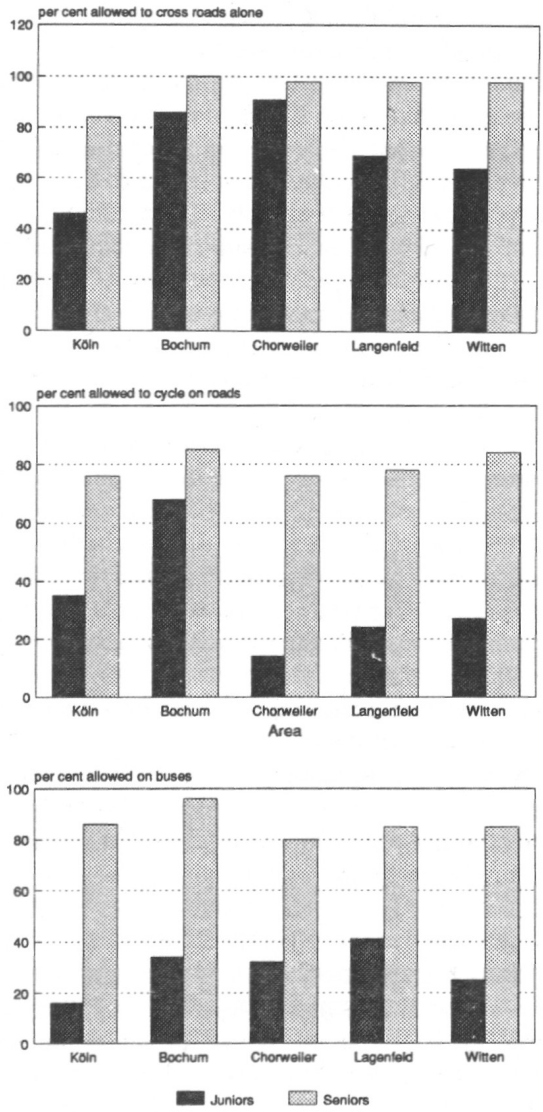
As would be expected, more of the juniors than the seniors live close to their school: three in five of the former live within a *half a kilometre* of their school, in contrast to only one in three of the latter living within *one kilometre* of their school. In addition, the higher residential densities, and therefore the larger number of children living within a defined area, result in higher proportions of children in *Köln Innenstadt* and *Langenfeld* living close to their school.[60]

Figure 3.10 shows the variations in the levels of 'licence-holding' among the children according to the area in which they live. No area stands out markedly in terms of restrictions on the juniors' freedom to get around on their own except for *Köln Innenstadt* which contains the highest proportion of mobility-deprived children, including over a half who are not allowed to cross roads on their own, and a quarter who are not allowed home from school alone - all much higher proportions than in the other areas.[61] The Figure shows that this area's parents are also most restrictive about their young children using the bus service. This cannot be because the bus service in this city is poor. It seems to be explained by a general concern about safety in the city.

The level of ownership of bicycles and the extent of parental licence to use them on the roads appear to be negatively correlated with the amount of traffic in the area: in both these respects, the juniors living in *Köln Innenstadt* and *Bochum* have by far the lowest levels of cycle 'licence-holding'. Cycle use among the juniors is most restricted in *Chorweiler*, though for the journey to school there is not much call for it as such a high proportion live very close to their school. On the other hand, this area also contains the highest proportion of seniors living close to their school and the highest proportion cycling to school. This is probably explained by the fact that the area has a separate cycle network.

Parents in all five areas are apprehensive about their children going out after dark. Few of the juniors are allowed to do so and even among the seniors, the highest proportions, in *Langenfeld* and *Chorweiler* are well below one in two, and only about one in three in the three other areas.

Figure 3.10 'Licence' to cross roads and to cycle among German junior and senior schoolchildren, according to area



There is a wide difference in the proportion of children living within the various distance bands from home to school,[62] with the junior school in *Langenfeld* and the senior school in *Bochum* being poorly sited. Both junior and senior schools in *Köln Innenstadt* and *Chorweiler* are well placed to serve their population catchments as is the senior school in *Chorweiler*. The two junior schools with the highest proportion of their children living within half a kilometre of home - *Köln Innenstadt* and *Chorweiler* - also have the highest proportion of children walking to school.[63]

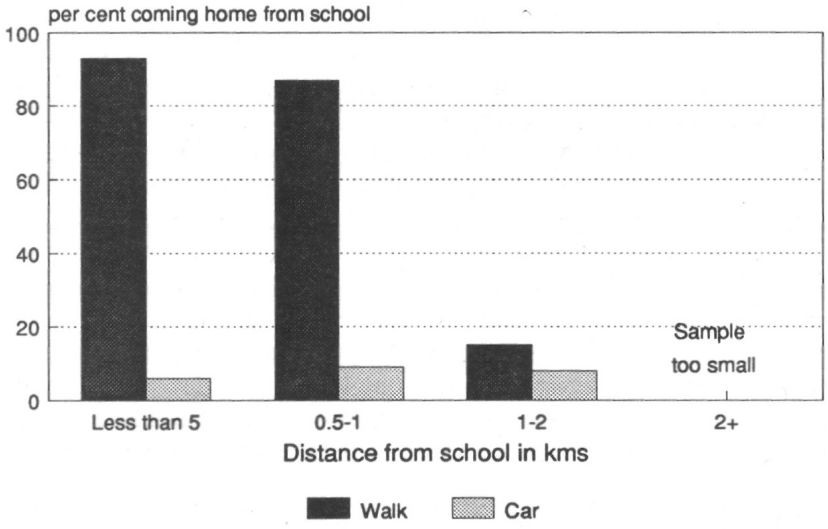
It is clear that distance plays the major role in patterns of travel to school. In fact, nearly two-thirds of the juniors live within half a kilometre of their school, and nearly all of them within one kilometre.[64] By contrast, two-thirds of the seniors live more than one kilometre away, including two in five who live beyond the two-kilometre distance band.[65] Figure 3.11 shows that the great majority of the juniors and seniors living within one kilometre of the school come home from school on foot, but that the use of this mode tails off with distance, with the bus catering for the majority of these journeys where the distance exceeds one kilometre.[66] The amount of escorting by car is small and does not seem to be affected by the distance to school. Cycling features as a mode of transport only for the seniors in the convenient distance band of one to two kilometres where one in seven travel in this way.[67]

There is no strong association between the extent and type of accompaniment on the school journey. In the case of juniors, this is partially accounted for by the fact that so many of them live close to their school and, in the case of the seniors, because those living further away are very likely to travel by school bus and therefore to be 'effectively' accompanied.[68]

The highest number of weekend activities involving travel by both juniors and seniors were in *Chorweiler*, though some differences emerge if the total is broken down into independent trips and those which involve being taken.[69] *Köln Innenstadt* had the highest rate of independent trip-making by juniors, and *Chorweiler* the highest rate by seniors. The highest rates for being taken were for juniors in *Chorweiler* and for seniors in *Langenfeld*. The lower incidence of activities of the juniors getting around on their own is partially compensated for in all areas by an increase in the incidence of them

being taken by the parents. There is no obvious pattern in the degree of independent and accompanied travel from area to area.

Figure 3.11 Journey home from school by German junior schoolchildren on foot and by car, according to distance



Parents' worry about the danger from road traffic varies from place to place. For both juniors and seniors, the highest reported level of being 'very worried' was in *Chorweiler*, and the lowest in *Langenfeld* and *Witten*.[70] The degree of concern is also reflected in the restrictions imposed on children's independent mobility, most obviously in the context of their freedom to get around on foot on their own and of their use of bicycles. In the case of bicycles, the highest reported rates of those not allowed to use them was in *Chorweiler* for the juniors. On the other hand, the area with the highest proportion of both juniors and seniors allowed to use their bicycles on the roads was *Bochum*.[71]

It could have been expected that parents living in areas subject to higher levels of traffic would be generally more worried about the risk of their child being injured in a road accident and in the areas where parents were less worried, this would be reflected in lesser restrictions on their children's independent travel. The findings noted above indicate no such clear picture. The paradox may be explained by the fact that when asked about their concern, parents are less likely to

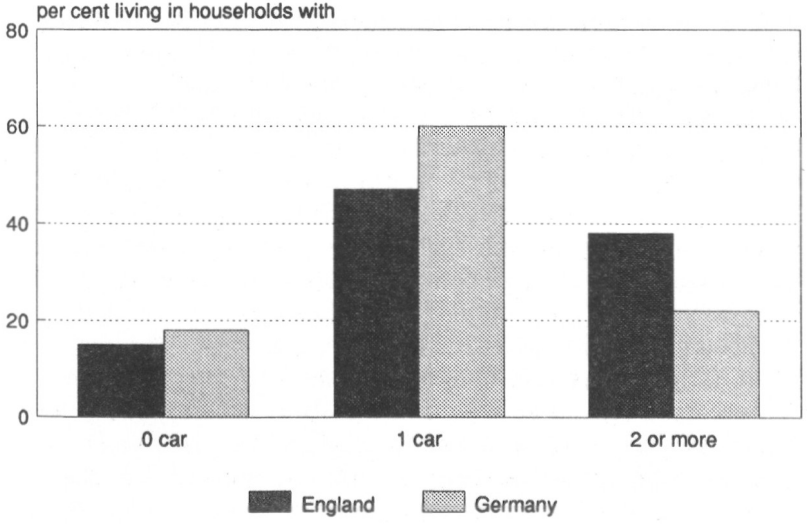
express their worry if they escort their children because by escorting they are reducing the risk whereas those who do allow their children to go out alone are more worried because the *real* risk is higher.

Comparison of the English and German surveys

This section sets out the main findings of the comparison of the responses of the English and German schoolchildren and their parents. It will be recalled that the areas in Germany were chosen to match those chosen in England on the basis of an analysis of settlement size, residential density and other socio-demographic factors. It transpired too that the proportion of girls and boys, the age distribution and the mean ages of children in the five survey areas of the two countries were also well matched.[72]

Figure 3.12 illustrates the differences in levels of household car ownership of the two samples. It can be seen that the proportion of households without a car - about one in six - was very similar.[73] However, the proportion of English households which are multi-car-owning are two-thirds higher than that of German households. The average household car ownership for our German

Figure 3.12 Household car ownership among English and German junior and senior schoolchildren, 1990



survey areas was 423 per 1000 population compared to 395 per 1000 population for the five counties containing our English survey areas.[74] This suggests that our German sample was relatively less affluent and/or our English sample relatively more affluent than the areas from which they were taken.

Comparison of the different levels of 'licence-holding' among the English and German children is very revealing. In respect of the six variables examined - parental permission to cross roads, to come home from school alone, to go to places other than school on their own, to use buses to go out after dark, and to use their bicycles on the roads - German children are far less restricted.

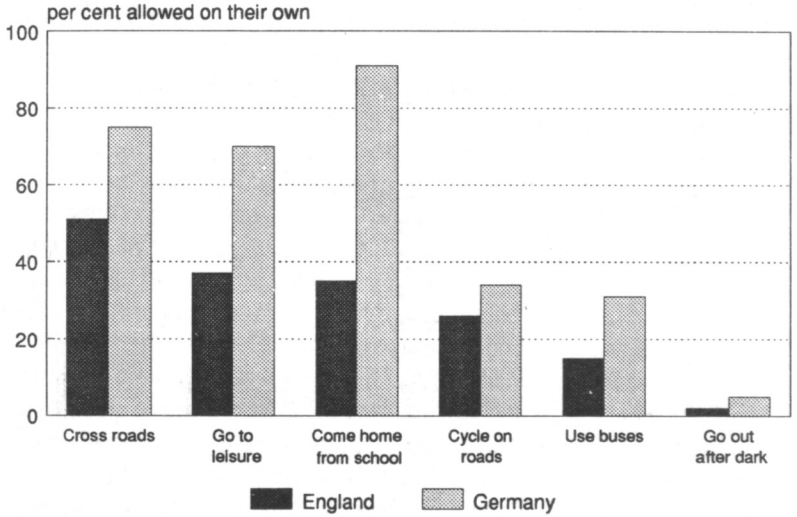
This is true for all age groups, with the difference in the levels of licence-holding narrowing with age simply because, for instance, as can be seen in Figure 3.13, in terms of parental permission to cross roads on their own, nearly all children in both countries are allowed to do so by the age of 11.[75] On average, German parents allow their junior schoolchildren to cross roads on their own at a much earlier age. Indeed, at the age of 7, the ratio between the two samples is eight to one. The differences between the two samples are somewhat sharper in terms of the children's licence to go to places other than school on their own, and even sharper in terms of parental permission to use buses. Indeed, compared with the English juniors, the German juniors in both instances are twice as likely to be allowed to do so. It can be seen that both samples are very restricted in terms of going out after dark, but again the German children somewhat less so.

Comparison of cycle ownership among the children in the two countries shows a slightly higher level among the English juniors than among the German seniors. However, analysis of the levels of permission to use their bicycles on the roads shows that German juniors and seniors in each age group enjoy much more freedom, though again the difference between the two samples declines as the children get older, up to the age of 15 when nearly all the seniors in both countries are allowed to do so.[76]

A further significant difference in the two samples' levels of 'licence-holding' can be seen in the analysis according to gender. Whereas it will be recalled that the English boys have much more freedom to get around on their own than the English girls, there is generally very little difference between the levels enjoyed by the German boys and girls.[77] The only exceptions to this relate to cycling

where the German junior and senior boys are more likely to own a bicycle and to use it on the roads, and in both instances are more likely to be allowed to go out after dark.[78]

Figure 3.13 Comparison of the 'licence-holding' variables among English and German junior schoolchildren, 1990



The much greater freedom that the German schoolchildren enjoy is reflected in their travel patterns. It will be recalled that nearly a third of the English juniors were collected from school by car. Comparison of the travel patterns of the two samples shows that this was almost four times the proportion of German juniors.[79] Conversely, the great majority of German juniors came home from school on foot in contrast to two-thirds of the English juniors. Neither the bicycle nor the bus featured much in either sample. However, part of the explanation for the difference in the travel method used is probably accounted for by the fact that a higher proportion of the German juniors live close to their schools, thereby making it more likely that the journey can be conveniently made on foot each day.[80]

As would be expected with greater car use, the level of adult accompaniment on the school journey was greater among the English juniors. However, there was also far more accompaniment on their journeys on foot. Indeed, analysis of this journey according to the

level of accompaniment shows that over three-quarters of the German juniors came home on their own or with a child of about the same age in contrast to only a third of the English juniors.[81] Comparison of the patterns of travel of the two samples of senior schoolchildren on this journey shows that few children in either sample are collected by car but that the English seniors walk more, and the German seniors use the bus more.[82] One very likely reason for this is the fact that the German seniors typically have longer distances to travel to school and are far more likely to have bus services provided for them.

The German seniors also cycle more, though this mode still accounts for only a small proportion of all school journeys. Analysis of the difference in the patterns of accompaniment shows that, in continuation of the 'tradition' of the German juniors travelling more on their own, a higher proportion of the German seniors compared with the English seniors do so. The difference is largely accounted for by English seniors being more likely to travel with another older child. Very few parents collect these older children in either sample.[83]

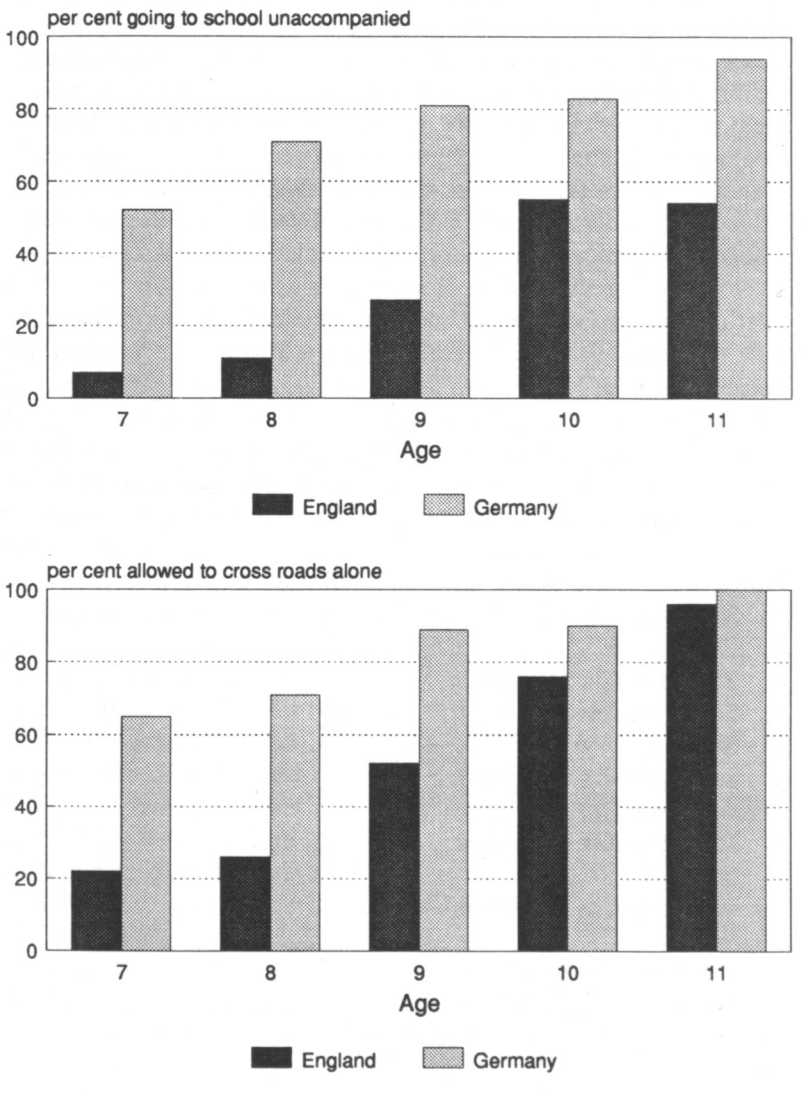
In the weekend preceding the Monday surveys in both countries, there was not a very marked difference in the average number of activities involving travel reported by either the English and German juniors or seniors, and moreover for both the juniors and the seniors, the proportion of these activities where they made the journeys on their own was also very similar in both samples.[84]

Comparison of parental involvement in their children's travel on journeys other than to and from school shows that the parents of both the English juniors and seniors made about a quarter more and a seventh more journeys respectively than did their German counterparts.[85]

In view of the far greater freedom to get around on their own that German children enjoy, it is interesting to compare parental attitudes to road safety and the reasons cited for restricting children. Slightly fewer of the parents of the German juniors as compared with the English juniors expressed worry about the risk of their child being injured in an accident when crossing the road, but the parents of the German seniors more often said that they were very worried about this.[86]

Comparison of the reasons cited for restricting their children from getting around on their own is only meaningful in the context of the junior schoolchildren, as few of the seniors in both countries are

Figure 3.14 Comparison of English and German junior schoolchildren going to school alone and holding 'licence' to cross roads alone, 1990



restricted except in respect of going out after dark. More of the parents of the English juniors than those of the German juniors gave the unreliability of their children and their fear of them being assaulted or molested by an adult as the grounds for restriction, whilst traffic danger was more frequently cited by the parents of the German juniors.[87] As far as the restriction on going out after dark is concerned, there was no very marked difference in the reasons given both by the two samples of the parents of juniors and seniors for restricting their children: both sets of parents cited their fear of their children being assaulted or molested as the predominant reason, and this was more frequently mentioned in connection with older children.[88]

Figure 3.14 shows that, in spite of the considerable growth of traffic in the two decades between the two English surveys, and the fact that the levels of household car ownership, traffic and road accidents generally are much higher in West Germany, the German juniors have more freedom to get around on their own than the English juniors.[89] It can be seen that the difference is marked in respect of being allowed to cross roads alone and going to school unaccompanied especially in the younger age groups.[90]

Notes

1. See Appendix 3, Table 1.
2. *Ibid.*
3. See Appendix 3, Table 2.
4. See Appendix 3, Table 3.
5. *Ibid.*
6. See Appendix 3, Table 4.
7. See Appendix 3, Table 7.
8. See Appendix 3, Table 4.
9. *Ibid.*
10. See Appendix 3, Table 6.
11. *Ibid.*
12. See Appendix 3, Table 8.
13. See Appendix 3, Table 9.
14. See Appendix 3, Tables 10 and 11.
15. See Appendix 3, Table 12.
16. *Ibid.*
17. See Appendix 3, Table 13.
18. See Appendix 3, Tables 4 and 5.

19. See Appendix 3, Table 14.
20. See Appendix 3, Table 8.
21. See Appendix 3, Table 1.
22. Comparison of Tables 4 and 5 in Appendix 3 shows that the characteristics of the return journey home from school in terms of travel method and level of accompaniment are very similar.
23. See Appendix 3, Table 6.
24. See Appendix 3, Table 8.
25. See Appendix 3, Table 9.
26. See Appendix 3, Table 1.
27. See Appendix 3, Tables 4 and 5.
28. See Appendix 3, Table 8.
29. See Appendix 3, Table 9.
30. See Appendix 3, Tables 2,10,11,12 and 13.
31. See Appendix 3, Table 14.
32. See Appendix 3, Table 16.
33. See Appendix 3, Table 17.
34. See Appendix 3, Tables 18-21.
35. See Appendix 3, Table 24.
36. See Appendix 3, Table 22.
37. See Appendix 3, Table 23.
38. See Appendix 3, Table 25.
39. See Appendix 3, Table 27.
40. See Appendix 3, Table 29.
41. See Appendix 3, Tables 30-32.
42. See Appendix 3, Table 33.
43. See Appendix 3, Table 1.
44. See Appendix 3, Table 34.
45. See Appendix 3, Table 35.
46. See Appendix 3, Table 35.
47. *Ibid.*
48. See Appendix 3, Table 36.
49. *Ibid.*
50. See Appendix 3, Table 37.
51. See Appendix 3, Table 38.
52. See Appendix 3, Table 39.
53. *Ibid.*
54. See Appendix 3, Tables 40-42.
55. See Appendix 3, Table 43.

56. See Appendix 3, Table 37.
57. See Appendix 3, Table 44.
58. See Appendix 3, Table 46.
59. See Appendix 3, Table 45.
60. See Appendix 3, Table 47.
61. See Appendix 3, Table 48.
62. See Appendix 3, Table 47.
63. See Appendix 3, Table 49.
64. See Appendix 3, Table 7.
65. *Ibid.*
66. See Appendix 3, Table 50.
67. *Ibid.*
68. *Ibid.*
69. See Appendix 3, Table 51.
70. See Appendix 3, Table 53.
71. See Appendix 3, Table 48.
72. See Appendix 1, Tables 1-3.
73. See Appendix 3, Table 46.
74. See Appendix 1, Table A1.3 and Department of Transport, *Transport Statistics Great Britain 1978-88*, HMSO, 1990, Table 2.25.
75. See Appendix 3, Table 1.
76. *Ibid.*
77. See Appendix 3, Table 16.
78. *Ibid.*
79. See Appendix 3, Table 5.
80. See Appendix 3, Table 7.
81. See Appendix 3, Table 6.
82. *Ibid.*
83. *Ibid.*
84. See Appendix 3, Table 8.
85. See Appendix 3, Table 52.
86. See Appendix 3, Table 13.
87. See Appendix 3, Tables 10 and 11.
88. See Appendix 3, Table 12.
89. *Ibid.*
90. See Appendix 3, Table 4.

4. Discussion

The findings of our surveys in England and Germany have revealed the wide range of factors influencing the independent mobility and travel patterns of schoolchildren. This chapter considers some of the implications of the findings of the surveys.

The role of personal mobility

Travel has been described as 'a barometer of personal independence'.[1] The definition was used in a statement about the role of the car in today's society. Measured by this barometer, there has been a marked improvement in personal independence over the last two decades for those adults who have acquired cars; during this period, there has been an increase of over two-thirds in the number of licenced cars on the roads of Britain.

However, the definition could be applied not only to adults with cars, but also to children. Soon after they have learned to walk, children seek to assert their independence by toddling away from their parents. Gradually they go further until, typically, they are granted a 'licence' to visit friends or neighbours or go on an errand that does not entail crossing a road. The acquisition of progressively more personal autonomy through greater independent mobility is an aspect of 'growing up'. It promotes self-esteem in children by permitting them to do things on their own.

We have documented this process through our surveys. As children grow older, they are granted permission to cross roads alone, to go to school unaccompanied, to go to more distant places, and then to use buses and to ride bicycles on main roads. By the early teenage years, they are often treated as fully-fledged independent road users who are judged by their parents to have equipped themselves with sufficient skills to 'read' traffic and respond in sensible ways. By their mid-teens, virtually all of those who are physically fit have 'licences' to get around on their own, suggesting that there is a strict limit to

parents' powers to curb the freedom of their children in the interests of safety. However, the fact that the road accident death rate rises steeply at this age does not support the view that teenagers from the age of 15 have by then equipped themselves with the skills necessary to avoid injury. As we have shown in Chapter 1, road fatalities rise sharply in this older age group. Nevertheless, their mobility is clearly more limited than that of adults with cars, as our survey analysis has shown in Chapter 2, despite the increased levels of household car ownership, half the journeys of English schoolchildren in the age range of 7 to 14 are still made on foot.

The near-doubling of traffic in the last two decades and the increased speed and acceleration of motor vehicles have led to the need for both children and adults to exercise ever more vigilance. We hypothesised that parents' concern about the risks of their children being injured in a road accident or of being molested would have resulted in a rise in the age of children's mobility licences between 1971 and 1990. Comparison of the results of the findings of our two English surveys in these years provides ample support for our hypothesis. As has been seen in Chapter 2, we found a loss of independence among children at all ages, most dramatically among younger children.

A further source of evidence on changes in children's independent travel can be found in the findings of a survey carried out in 1969 which recorded 90 per cent of 7 year olds being judged capable of crossing roads outside their homes by themselves.[2] Some reflection of the changes that have occurred in public attitudes on this subject can be gained by reference to the fact that by 1989, the Secretary of State for Transport at the time felt able to say that he was 'appalled' that one in three children claimed to be crossing roads on their own at this age.[3]

Children's loss of independent mobility by bicycle has been particularly marked. The availability of bicycles for children has increased since 1971 and is now higher than the availability of cars for their parents. In an environment catering for cycling, it is an ideal way for children to get around. But, in practice, that environment does not exist, and cycling by children has become a recreational activity rather than a mode of transport.

In this country, the bicycle has never been as common a form of travel as walking for any age group, though it should be noted that in

the Netherlands which has higher levels both of household car ownership and use, and not a markedly different settlement pattern or typography where the general population lives, cycling accounts for over 50 per cent of all 'education' journeys.[4]

Children's play territory has also been reduced as roads - and pavements - have become progressively more dangerous. No survey evidence exists about the amount of time children spend playing in the streets. However, the increasing restrictions on their independent travel, and the fact that the principal reason given by parents for these restrictions is fear of traffic, suggests that the geographical scope of this play territory has been much reduced, along with the amount of unsupervised time they spend outside the home. Many roads now have so much traffic on them that playing in the street is not only dangerous but a practical impossibility.[5]

Similar concerns about the children's loss of freedom and independence are reflected in a description of the changes that occurred earlier in the century in the United States:

> 'Where could the Indian children travel across Fitzgerald's landscape [a neighbourhood in Detroit]? Everywhere. By the time of late farm days the fences were spreading yet children could still safely use most of the roads and wander in considerable open spaces like Holman's Woods. Today, the children can move almost nowhere. They are more and more caged. Expressway fences and property fences continue to go up. These fences are often built with the excuse of protecting the children from the machines, especially the automobile, but it is the machines which are being given the space taken from the children'.[6]

Over three-quarters of children's waking hours every year are spent outside school. Previous generations of children spent much less of this time under adult surveillance. Journeys to and from school and street activities provided unsupervised opportunities for getting to know their environment, and for interacting with friends - and enemies. They were freer to make, and learn from, their own mistakes. They now have fewer opportunities for occupying themselves independently outside their homes and, given the findings of our surveys on the decline in the average number of weekend activities involving travel recorded in 1990 as compared with that in 1971, it might be argued, a less active lifestyle.

As we noted in Chapter 2, changes in lifestyle associated with the widening availability of television, central heating and so on, may

explain some of the retreat from street-based leisure activities. But the relationship also works in reverse: the lack of a safe environment enabling opportunities for informal play and socialising outside the home has almost certainly led to an increase in indoor leisure activity. The question arises as to whether this matters? Has it been having any adverse effect on children's development?

These questions may be answered by reference to two commentaries on this issue. Children's play has been referred to as:

> '... a rewarding experience... [an opportunity to] take and overcome risks... to learn to use lethal tools with safety. Life demands courage, endurance and strength... We continue to under-estimate the capacity of children for taking risks, enjoying the stimulation of danger, and finding out things for themselves';[7]

A child's cultural identity has been described in a study of child development as:

> '... the end product of a series of interactions between himself and the various surroundings in which his life is spent'.[8]

The study concludes that the need for independence, in the sense of the capacity to satisfy one's material and spiritual needs by oneself, is common to all children and that, in this complex age, the loss of a private life and the diminishing of psychological identity have emerged as fundamental problems.[9]

Child psychologists stress the importance of facilitating the development of children's independence by allowing them new freedoms when they are ready to cope with them. From a position of total dependence at birth, there is a gradual detachment from the carer until a point is reached at which the child/adult is reckoned to be able to make his own decisions and run his own life. If the child has insufficient opportunity for independence in his early years, he will, paradoxically, remain dependent for longer than would be normal. If he is not able to avail himself of opportunities for independent action as and when they arise - is 'overprotected' - his horizons may be narrowed and he may find himself in difficulties when he is no longer protected.

Much of the literature regarding children's independence focuses on the question of emotional and physical dependence. Responsibility is essential for the development of self-esteem. The practical ways in which the world outside the home may impinge on children's development are less well documented. In particular, the question that

interests us here is how children's independent travel relates to their opportunities for time and activity free from adult supervision.

A further question is how increased confinement affects the whole family. Opportunities for each member of the nuclear family to get away from the others provides breaks from the claustrophobia that can result from the small number of rather intense relationships in the average family. This claustrophobia can be particularly acute where housing is cramped or where there is only one parent, and where the opportunity to 'just go out and play' no longer exists. It is considered by some psychologists that television provides a substitute for physical space in that, at least mentally, it removes the individual from his immediate family environment and gives him the chance to enter another 'world'.[10] It seems to be the case that many parents accept that their children view more television than the parents would like in order to give themselves some of this 'space'. But whilst this may be better than no escape from the family, we would argue that it is a poor substitute for free social play and other activity outside the physical confines of the home.

As we have seen, children's lives are increasingly monitored around the clock, at home, at school and out of school hours. On school days, they are likely to make their journey to school in the company of an adult and there to be passed on to the control of teachers, to be collected from school, and then to be taken to places sanctioned by their parents rather than going to places of their own choosing. Likewise, on non-school days, their choice of independent activity has become increasingly restricted by the limits on their independent mobility identified in our surveys. We can only speculate on what this might mean in terms of normal development of independence and initiative, but our surveys of the differences between the level of activities of those with and without the various 'licences' to get around on their own, the differences in the holding of these licences among children in our surveys in 1971 and 1990, and our reading of the child development literature, suggest that the effects are much more likely to be adverse than beneficial. Indeed, many children have lost what for adults could be called a basic right.

It must be acknowledged that children's loss of independent mobility has been somewhat compensated for by the substitution of other activities. An increasing proportion of children have benefitted considerably from being able to be taken around by car. As has been

noted, we found a marked rise in household car ownership since 1971 in the areas we surveyed, and now about five in six children living in car-owning households in England and in Germany. Many children enjoy the comfort and convenience of being 'chauffeured' to and from school and to other sometimes remote places which children of earlier generations had little opportunity to visit.

However, it is important to note that these benefits have been purchased not only at the cost of restrictions on children's autonomy and increases in the amount of parental time spent escorting them but also in indirect damage to their health. A recent study suggests that the increasing pressures entailed in complying with the school curriculum are leading to a reduction in the time that can be allocated to physical recreation.[11] Other research on British children has concluded that they have surprisingly low levels of habitual physical activity.[12] Given the fact that walking as part of the daily routine is recognised as a straightforward means of maintaining fitness,[13] but that, as we have shown, walking is playing a decreasing role as children's means of travel, consideration of this disturbing impact of rising motorised mobility needs also to be weighed in the balance in considering the costs and benefits for children of an increasingly motorised society.

Differences in mobility and independence of English and German children

The concluding section of the last chapter revealed quite unexpected differences in the freedom of English and German schoolchildren to get about independently. The differences that we found merit further investigation. At this point, we can only offer speculation that seems plausible from our own observations in Germany and from replies from a group of German transport specialists to a request for comments on our survey findings. The explanation appears to lie in three main areas - namely those related to spatial and structural elements; organisational factors; and social and cultural constraints.

Spatial and structural elements

Our selection of urban and rural areas in the two countries fails to match some important social and spatial characteristics. In West German cities, and to a lesser extent villages, population densities are higher, and more people live in rented flats with insufficient space for

child-centred recreation. The fact that there are fewer private gardens in Germany accentuates this difficulty. The availability of recreational space, swimming baths and so on is much wider in a West German urban area than in a comparable area in Britain. Under these circumstances, it is not surprising that we found activities outside the home much more common in Germany.

Where outside activities are more the norm and facilities are denser on the ground, independent trips are more likely. The larger number of children using the facilities also gives parents greater confidence in allowing their children to venture out on their own.

Public transport provision in German urban areas is also of a much higher standard than in Britain. In addition, there are more people around - the public transport system is very well used by British standards - and this promotes confidence, particularly in parents' minds. This effect is less pronounced in rural areas where public transport is not so good.

The combination of better public transport, the provision of more facilities, including schools, close to children's homes, and the large number of people about creates a situation which is far more conducive to independent travel.

Organisational factors

Schoolchildren in Germany also have more time for activities outside the home because of the early afternoon finish from school. Schools start earlier at 8 am, and finishing times vary from day to day, for juniors in particular, sometimes without warning. Juniors may be on their way home at any time from midday to 2 pm and are therefore at home in the afternoon much earlier than their British counterparts.

Schools in Germany also have no legal in *loco parentis* function as they do in Britain, and working people start their day much earlier, normally around 7.30 am, and finish at around 3.30 pm or 4 pm. The mismatch of work and school times presents parents with very real problems of organising the delivery and collection of children and encourages them to give their children independence at a relatively early age. As a result, there are more children around, and this gives parents a sense of 'security in numbers' which does not exist in England. Indeed, it would be strange if they did not develop an independent activity pattern given the prospect of a summer afternoon after school beginning at 2.30 pm and stretching ahead to supper or

bedtime. It would be interesting to reflect on the reasons why schooling in Britain usually continues just long enough to make it impossible to initiate much meaningful activity before evening television, meal and bedtime.

There is another element of organisational mismatch apparent in our findings. We found a marked restriction on children's freedom to go out after dark. This restriction stems more from fear of crime than fear of road accidents. However, some part of this problem could be relatively simply alleviated by clocks being re-set to achieve a better match than exists at present between daylight and waking hours.

Given the associations between time of day and activity patterns, the transfer of an hour of daylight from the morning to the evening throughout the year would have the effect of reducing the impact of the restriction on going out after dark. It would result in an increase in the number of 'accessible' daylight hours for social and recreational activity after school and before sunset by 40 per cent on the half of the days of the year which are school days and by a smaller, though significant, proportion on the other days of the year - weekends, holidays and half-terms.[14]

Social and cultural constraints

There are differences in attitude and in legal prescription between the two countries that signify important divergences. The German language contains the words *Kinderunfreundlichkeit* and *Kinderfeindlichkeit* which do not have an English equivalent. The first describes a general unfriendliness towards children and the second a downright dislike. The words identify an attitude which, though by no means universal, is observable. German children out alone are much more under the general supervision of adults on the street whom parents know can and will, if necessary, act in loco parentis. In parks, on buses and trams, and en route to any destination, children will be observed and 'guided' if their behaviour falls short of the standard expected. This serves as a powerful control mechanism and undoubtedly generates a feeling of security for parents, and others who operate this mutual surveillance network.[15]

A further factor accounting for some of the differences in the behaviour of English and German children is that German law forbids children to use the street for play purposes. This gives ammunition to those acting in *loco parentis* and, more importantly, sets up a general

expectation that trips will be purposeful rather than an end in themselves. The German child's request for permission to go out alone for a purposeful trip to a designated recreation area or swimming pool is more likely to win parental support than is one from an English child to "go out and play".

Children's reliability

We have noted several times how the German schoolchildren in our surveys have far more independence than their English counterparts. It is of some interest to identify, where possible, if this difference is the result of their parents sharing the fears and doubts of English parents but reacting to an environment which is less threatening, or the result of basic differences in the way in which children's freedoms are perceived and granted.

In our questionnaire, the English and German parents were asked if they allowed their children to come home from school alone and, if not, to indicate the reasons for restricting them. As we have seen in the last two chapters, German children are considered more reliable than English children.

Parental judgements of their children's reliability are almost certainly shaped by perceptions of the risks their children face. Evidence concerning the relative safety for children outside the home in England and Germany is inconclusive. Aspects of the German environment - such as shorter journeys to school and superior public transport and recreational facilities - encourage more independent mobility at a younger age. But more generally, the German road accident statistics depict a more lethal road environment, and the apparent independence of German children is not unqualified. The legal prohibition on German children playing in the streets, and the greater readiness of German adults to discipline other people's children in public, suggest that perhaps German children are freer to venture independently into a less free world.

The role of planning

The surveys in the two previous chapters have shown very strong correlations between the pattern of schoolchildren's journeys and the distance they have to travel to school. Not surprisingly, those living closer to school were more likely to walk and less likely to be accompanied by an adult. Indeed, some of the explanation for more

German than English juniors walking to school on their own is the fact that, on average, the German children live closer to school.

The surveys have also shown more cycling among the seniors in the areas where some provision is made for it. Nevertheless, with a maximum of only 10 per cent of seniors cycling in the German new town, which has a cycle network, it would appear that, for a variety of reasons, this mode is not encouraged in either England or Germany. One of these reasons may be the fact that the cycle networks are not fine enough.[16] It is apparent too that significantly more children living in the areas with smaller populations and, in all likelihood less traffic, are allowed to get about on their own. Associated with this, it has been seen that the level of parental worry about road accidents tends to be lower, though not always so, in these areas.

These findings are relevant to several aspects of planning policy. Because, as has been seen, the journey to school accounts for almost half of all schoolchildren's journeys, planning decisions affecting the size and geographical catchments of schools should seek to promote independent travel to school. The same holds true with respect to other facilities, such as places for sport and recreation which children use, if policy is to enable more children to reach them on their own.

The planning of school provision is also important. Already many children are commuting quite long distances to school, often by car, where parents have opted for private education. Within the State sector, the notion of 'local catchment' areas began to be undermined with the legislation in England of 1980 which allowed parents to express a preference for any school of their choice, in or outside their own local authority. The increased availability of cars as a standard means of taking children to and from school removes a constraint on parents' choice.

As more households acquire second cars, parents' perceptions of choice encompass ever larger areas. The school that was just too far to be a possible alternative to the inadequate neighbourhood school becomes a real alternative. The five-minute local walk is then translated into a five-minute car journey, taking the child to the more favoured school. Legislation in 1988, not yet in force for primary schools, reinforces and strengthens the 1980 legislation. It is not yet clear whether, in practice, it will have much effect on choice of school, but it further erodes the concept that essential services of a high quality should be provided within easy walking distance of the user.

We see one of the roles of planning as encouraging walking not only because it fosters children's independence but because it is the most environmentally benign form of travel. In addition, it will have been noted that our surveys have shown a very high level of cycle ownership among schoolchildren. Cycling is an ideal form of independent travel for journeys beyond easy walking distance and also promotes healthy exercise; it should be given a much higher priority through the provision of a fine network of routes for cyclists and safe and secure parking places for bicycles.

Escorting children

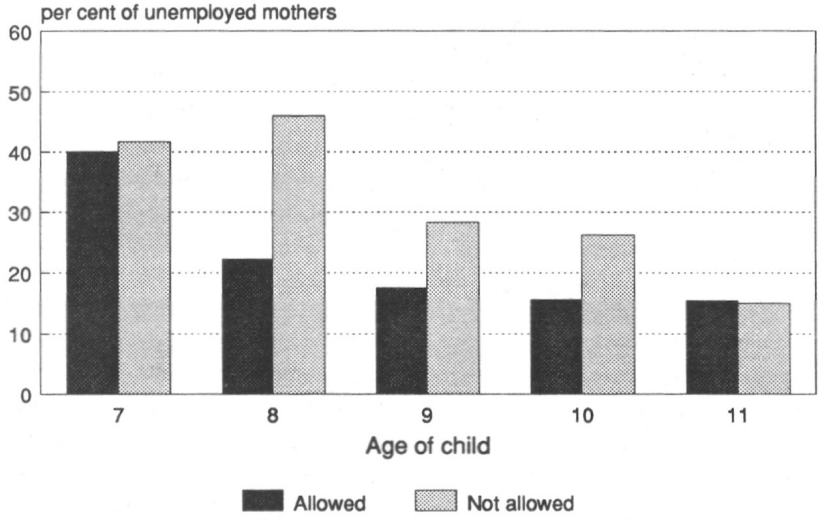
The principal focus of this study has been the impact of traffic danger on the independent mobility of children. But the increasing restrictions placed on children's mobility have also affected the lives of their parents. The most direct and obvious effect has been the additional demand on parental time. In Appendix 4 we have estimated that in Britain over 900 million hours were spent during 1990 escorting children.

Doubtless many of these hours were spent willingly and cheerfully. In part, they reflect the increased availability of cars and a wider range of more distant opportunities which are only accessible by car. In many cases, it might be argued, the escort journey is a benefit that promotes closer contact between children and their parents. However, the large increase in escorting since our surveys in 1971 - a near-quadrupling of the proportion taken to school by car - and the fact that most escorting was stated by parents to be a necessary response to the perceived risk of their children being injured in a road accident if they travel on their own, suggest that most of this time can be fairly described as an inescapable cost imposed by our present system of transport. To the hundreds of millions of hours spent escorting children can be added numerous other costs.

Because of the priority given by parents to their children's safety, escorting requires that the timetables of adult escorts defer to those of the children. Thus, in a great many ways, the demands of child escorting constrain adult opportunities, including employment opportunities. Figures 4.1 and 4.2 describe the relationship between the employment status of female parents (or guardians) and their children's licence to come home from school alone. It can be seen that the numbers not in employment decrease as their children grow

older. This reflects the response of parents to the needs of their children. Escorting is but one of these needs; indeed, in Germany, despite a far larger proportion of children being allowed to come home from school on their own, a much smaller proportion of mothers works in any form of paid employment.

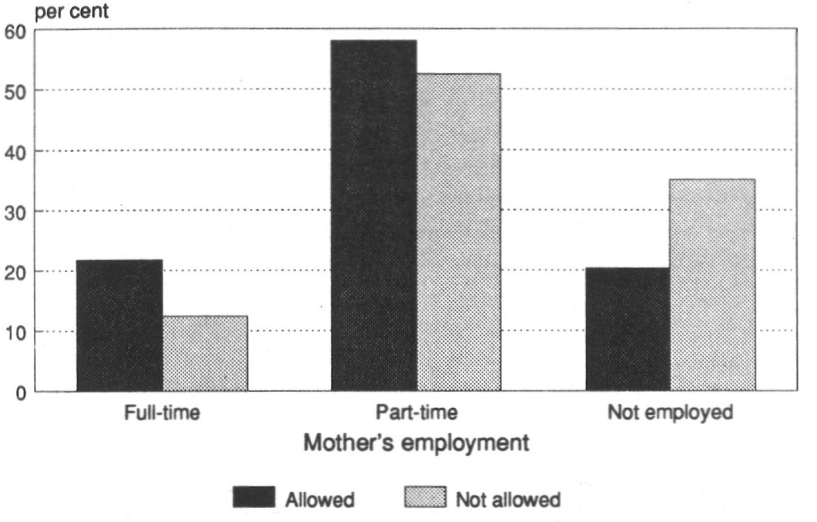
Figure 4.1 Proportion of unemployed mothers according to whether their junior schoolchild is allowed to come home from school alone, by age of child



In fact, our English surveys found 16 per cent of female parents or guardians of junior schoolchildren in full-time employment, and 54 per cent in part-time employment; in Germany, only 8 per cent were in full-time employment, and 40 per cent in part-time employment.

However, taking a job involves crossing an important threshold in terms of both the amount of time parents can devote to their children, and the flexibility with which they can respond to their needs. In our sample, the number of women in employment rose from 58 per cent for mothers of 7 year olds to 79 per cent for mothers of 11 year olds. Figure 4.1 above suggests that, while the need to escort is not the primary impediment to female parents taking jobs outside the home, it does influence the age at which the threshold is crossed.

Figure 4.2 Association between employment status of mothers and whether their junior schoolchild is allowed to come home from school alone



The Figure also shows that at the age of 8 years, 46 per cent of children who were not allowed to come home from school alone had mothers who were not employed, while only 22 per cent of those who were allowed to come home from school had mothers who were not employed.[17] By the age of 11 this difference disappears. Figure 4.2 suggests that, at the margin, the need to escort also influences whether the job taken is full-time or part-time; 21.7 per cent of children who were allowed to come home alone had mothers in full-time employment, while only 12.4 per cent of those not allowed to come home alone had mothers in full-time employment.

The clash between full-time employment and the requirements of the escorting timetable is at its most acute at the end of the school day. Whilst it is often possible to make arrangements for after-school child-minding, getting children from school to the minders frequently presents a more difficult problem. This problem has been described in a report on the subject of women seeking employment as 'very common' and 'of considerable importance at the margin'.[18] Further support for the view that the conflict of timetables inhibits women seeking employment is contained in the survey findings of this report

which show that the improvement that working mothers most desired is greater flexibility in working hours.[19]

An attempt has been made in Appendix 4 to value in money terms the time cost and 'opportunity cost' of escorting, using methods and values commonly employed in economic analyses of transport problems. The total comes to many billions of pounds. The meaning and significance of the money values generated by such methods, are the subject of much dispute.[20] We prefer a more direct description of the human consequences of the danger, inconvenience and inefficiency imposed by the nation's transport system on its citizens. But whether described in the language of the Treasury, or in plain English, the costs of coping with the danger on our roads are enormous.

'Stranger Danger'

Chapters 2 and 3 have shown the remarkably low percentage of children allowed out alone after dark and the reasons given by parents for this restriction. In contrast to the reasons for the other restrictions imposed on children, the main one for not allowing children to go out after dark is the fear of assault or molestation. After dark, traffic danger decreases markedly as a perceived threat compared to the threat posed by malevolent adults.

Whilst we have seen that more of the older children are allowed out after dark, the dominance of this latter reason for restricting children *increases* with their age. In answering the question, the parents in our surveys presumably imagined the older children travelling farther from home and, apparently, into ever more dangerous territory. For the younger children, the dangers visualised in answering the question were probably closer to home and less anonymous.

This study has shown the numerous ways in which children have been progressively withdrawn from the streets as traffic and traffic danger have increased. However, this withdrawal is not confined to children. The elderly also retreat as increasing traffic makes streets more difficult to cross and more unpleasant to walk along. It has also become more difficult for the elderly to shop locally on foot, as many small shops have been driven out of business by superstores. In the age groups in between, there have been even larger decreases in the numbers of people walking about on the streets, as a result of the substantial rise in car use. More of our lives are now spent in the

cocoons of house and car, and the outside world has become more impersonal. As the streets fill with traffic, they tend to empty of people, and as street-life retreats, and public transport declines, the world outside also becomes more menacing. In many parts of the country, public transport, especially after dark and especially for women, is now seen as dangerous. Bus drivers increasingly shelter, like bank tellers, behind protective screens.

'Stranger Danger' was the theme of a campaign run with the support of the police and the Home Office in Leeds in 1988. The city was saturated with the message - on posters, in shops, libraries, sports centres, commercial vans, buses and on one million milk cartons - warning children not to trust strangers, the explicit aim of which was to inculcate in young children a mistrust of people that they did not know. Like the 'One false move and your're dead' campaign, it was designed to encourage both children and their parents to be more cautious in this respect. Although we are unaware of any study of the outcome of the campaign, it seems to us that its effect is likely to have been the imposition of yet more parental restriction on children's freedom. It is also likely to have engendered greater acquiescence by children in this restriction. It is ironic that a society which values initiative and a sense of adventure should be impeding the development of these characteristics by inculcating fears that deter children from wanting to extend their horizons and capacities.

Whose responsibility?

Adults are generally held responsible for their own safety, and the safety of infants is considered to be the responsibility of their parents. Our surveys have shown that the age at which responsibility for safety is handed over from parent to child is increasing as the perceived threat of traffic has grown. How should this responsibility for the safety of children be shared among children, parents and motorists?

> 'Society, and those who act on society's behalf [the police], consider that in less than 10% of these accidents [to young pedestrians] is the driver of the striking vehicle a major contributor to the cause of the accident.'[21]

This conclusion is drawn from surveys of motorists and the police. Only 1.8 per cent of motorists attributed the cause of the accident in which they were involved entirely to their own driving and 75 per cent placed the blame entirely on the pedestrian. The police blamed the

pedestrian in 93.1 per cent of cases, and the driver in only 5.4 per cent of cases.

This apportionment of blame should be viewed in the context of the following two descriptions of children from recently published road safety leaflets:

> 'Children of ALL ages are - immature * impulsive * unpredictable * lacking in skill and experience * not able to judge speed and distance * not always doing what they're told.':[22]

> 'However sensible your child may seem, even at 15, he or she is still a child.'.[23]

In the police reports referred to above, the causes attributed to accidents to young pedestrians are overwhelmingly characteristic of 'childish' behaviour. In 57.8 per cent of cases, the pedestrian is described as running into the road without looking, in 4.5 per cent as weaving between vehicles to cross the road or misjudging speed, in 3.5 per cent as playing in the road, including 'horseplay', and in 1.9 per cent as chasing after something. In the remaining 19.6 per cent of cases, there is no characterisation of behaviour: they are described as 'on pedestrian crossing', 'other' or 'not known'. If the characteristics of children are as described in the leaflets cited above and, as we believe them to be, then children are being blamed for behaving like children. This is characteristic of much of the literature on children's road safety. It has been observed that the low priority accorded to children's rights, and a tendency to blame the victim, are often betrayed by the language used in discussing the accidents in which they are involved.[24] A category commonly used in the safety literature for the classification of child pedestrian accidents is 'dartouts'. It has been suggested that a more appropriate label might be 'children'.[25]

A remarkably high percentage plead guilty. In the report quoted above, 51.3 per cent of children injured in road accidents held themselves at least partly to blame and 41.1 per cent accepted complete responsibility.[26] This is not surprising given that virtually all the road safety education that they have received will have placed heavy emphasis on the *Green Cross Code*, which equates responsible behaviour with deference to traffic. The *Lesson for Life* leaflet referred to earlier stresses that even when they are exercising their 'rights' on a Zebra or Pelican crossing they should be prepared to defer to traffic that might not respect these rights. All this is sound advice

for surviving in traffic, but predisposes children to assume that if they are hit, it must be their fault. Again, children are being blamed for what the leaflet acknowledges to be childish behaviour. Indeed, in another recently published report on urban road accidents, the 'failure of a pedestrian to yield to traffic' is virtually equated with responsibility for the accident. It concluded that 78 per cent of child pedestrian accidents were attributable to the child failing to yield to traffic, and that only '11% of child pedestrians were found to be innocent victims of others' mistakes.'.[27]

Most young pedestrian casualties were unaccompanied at the time of their accident: in the police reports referred to earlier, 13.1 per cent of the casualties in the age group 5 to 9 and 6.7 per cent of those in the age group 10 to 14 were unaccompanied.[28] *Lesson for Life* seeks to encourage parents to assume greater responsibility for the safety of their children - and a greater share of the blame if things go wrong. For ages 5 and 6, it says 'make sure your child is taken to and from school'. For ages 7 to 9, it recommends, in effect, that parents become child licencing authorities: 'Test them before you allow your child to cross these roads alone.'

Safety through restriction has long been a theme of child safety campaigns. The journal of the principal organisation with the sole brief of preventing accidents contained a valedictory article from one of its longest-serving contributors. The theme chosen for the article was the necessity of keeping young children on reins. The author expressed amazement at the attitude of people who objected to reins because it is 'necessary for children to be free' and insisted that this was 'a grave misunderstanding of the idea of freedom'.[29] Such exhortations, combined with rising traffic levels, are likely to extend still further the trends in increasing restrictions on children's independence reported on in Chapter 2.

The allocation of blame for child pedestrian accidents by the police, the courts, and society generally, is likely to have a profound impact on both casualty rates and the freedom of children. Ten years ago, a way was suggested whereby children's road accident casualties might be reduced while at the same time increasing their freedom. It was proposed that the law be changed so that if a driver injures a child on a residential road he will be presumed negligent unless he can prove otherwise.[30] Such a law would rest on the assumption that children should be able to live in residential streets and to behave like children

- and that to assume otherwise is irresponsible. We find the logic and the morality of the proposal difficult to fault. Increasing the negative consequences for motorists of injuring a child would encourage more careful driving.

A lobby on behalf of children

Children's rights are fairly well catered for with respect to matters such as nutrition, protection from illness and physical and mental abuse. But the deprivation associated with their loss of autonomy, the threat to their lives owing to the growth of traffic, and the loss of the street as accessible communal playspace have been largely overlooked in the development of transport and planning policy. There are several reasons for this.

First, understandably in view of the inherent risks from traffic, parents do not wish to encourage their children to go out on their own. In our surveys, we found children, especially girls, remarkably acquiescent to these restrictions on their freedoms, partly because the widespread availability of television and formal play activities has reduced the need for both parents and children to look for alternative activities and places outside the home. This acquiescence also probably stems from a combination of not knowing what they are missing, and a commonsense appreciation of the need for the restrictions. Most of them have never experienced the freedom to play in the street enjoyed by their parents and even more so by their grandparents, and the obvious dangers of heavily trafficked streets today make it unsurprising that they do not question their parents' restrictions on playing there. There is probably also a tendency on the part of parents not to foment discontent by letting them know the extent to which they are disadvantaged in this respect.

Secondly, children's issues in transport planning have been marginalised by policies concerned with accommodating the growth in the demand for motor transport. Walking and cycling are not seen to be of much relevance. This is demonstrated by the neglect in published statistics of data on journeys under one mile.[31] The main source of statistics guiding transport and land-use planning in Britain leaves out about 80 per cent of walking and 40 per cent of cycling journeys. Yet in spite of their parents' high levels of car use, our study confirms that children still depend heavily on walking to get about and, judging by their high levels of cycle ownership, would make far

more use would be made of their bicycles if there were proper provision for them. In the Netherlands, for example, where there this provision is made, 60 per cent of all the journeys of boys and girls aged 12 to 15 are made by bicycle,[32] compared with about 6 per cent in Britain.[33]

Thirdly, child road accident statistics have been widely interpreted as showing that roads have become safer for children. Such measures, however, cannot account for the retreat from the streets that has been necessitated by the increasing danger from traffic. Furthermore, the focus of concern with regard to children's safety has been on school journeys, but these account for less than half of all journeys made by children and for only about one in ten of their deaths in road accidents.[34]

Children could not have been ignored in this way were there an adequate lobby acting in their interests, as for instance Age Concern acts for the elderly. Existing institutions, such as the National Society for the Prevention of Cruelty to Children, the Children's Legal Centre, the National Children's Play and Recreation Unit, and Child Care, the umbrella body of voluntary child care organisations, virtually ignore the issue of children's rights and freedoms which are the subject of this study. This may explain why children have lost out in these significant respects without society apparently noticing.

Notes

1. In a speech by the Right Hon. Paul Channon, at the time Secretary of State for Transport.
2. Judy Sadler, Children and Road Safety: a Survey amongst Mothers, OPCS Social Survey Division, HMSO, 1972.
3. The Right Hon. Paul Channon, Secretary of State for Transport, Press Notice, Department of Transport, 26 January 1989.
4. Central Bureau of Statistics, *De mobiliteit van de Nederlands bevolking in 1989*, Den Haag: Staatsuitgeverij, 1990.
5. The 1969 survey of children's behaviour noted earlier recorded nearly half of children in the age group from 5 to 8 using the street, pavement or cul-de-sac as outdoor playspaces and two-thirds being allowed, on occasion, to play on streets classified as 'fairly busy' (Judy Sadler, *op.cit.* p.15).
6. W Bunge, *Fitzgerald: Geography of a Revolution*, Schenkman Publishing Company, Cambridge Mass., 1971.

7. Marjorie Allen (Lady Allen of Hurtwood), *Planning for Play*, Thames and Hudson, 1968.
8. *From Birth to Eight*, Proceedings of a Conference of the Council for Cultural Co-operation Conference, organised by the School Education Diversion of the Council of Europe, NFER/Nelson, 1979.
9. *Ibid.*
10. Personal correspondence with David Campbell, Institute of Family Therapy, 17 October 1990.
11. Secondary Heads Association, *Enquiry into the Provision of Physical Education in Secondary Schools*, 1990.
12. Neil Armstrong et al, 'Patterns of physical activity among 11 to 16 year old British children', *British Medical Journal*, Vol.301, 28 July 1990, pp.203-205.
13. Adrianne Hardman, *Exercise and Health: A Rationale*, Department of Physical Education and Sports Science, Loughborough University, 1990.
14. Mayer Hillman, *Making the Most of Daylight Hours: the costs and benefits of moving an hour of daylight from the morning to the evening*, Policy Studies Institute, 1988. This study has shown that children are typically home from school at 4 pm with an *average* period therefore throughout the year of 2.5 hours before sunset; the transfer would increase this to 3.5 hours, with negligible consequences for early morning activity.
15. Andrea Waind, 'Don't talk about the *Kinderfeindlichkeit*', *The Independent*, 18 September 1990.
16. As noted earlier, in the Netherlands, where such networks exist, over 50 per cent of school journeys are made by bicycle.
17. At the age of 7, only five children were allowed to come home alone, with the result that the percentages in various employment categories are too small to be reliable .
18. Ros Ang, referring to a survey of members of the Working Mothers Association, in a personal communication, 29 October, 1990.
19. *Ibid.*
20. See, for example, John G.U. Adams, *Transport Planning: vision and practice*, Routledge and Kegan Paul, 1981; *London's Green Spaces: what are they worth?*, a report for the London Wildlife Trust and Friends of the Earth, 1989; and 'Unsustainable

Economics', *International Environmental Affairs*, Vol.2, No.1, 1990, pp.14-21.
21. Stephen D. Lawson, *Accidents to young pedestrians: distributions, circumstances, consequences and scope for countermeasures*, AA Foundation for Road Safety Research and Birmingham City Council, 1990, p.147.
22. Department of Transport, *Speed = Life or Death*, 1990.
23. Department of Transport, Lesson for Life, 1990.
24. F. Haight and R.A. Olsen, 'Pedestrian safety in the United States: some recent trends', *Accident Analysis and Prevention*, 1981, pp.43-55.
25. *Ibid.*
26. Stephen D. Lawson, *op.cit.*
27. O.M.J. Carsten, M.R. Tight, M.T. Southwell and B. Plows, *Urban accidents: why do they happen?*, Institute for Transport Studies, University of Leeds and AA Foundation for Road Safety Research, 1989, p.v.
28. Stephen D. Lawson, *op.cit.*
29. D. Pummel, 'Mind that Child', *Care on the Road*, Royal Society for the Prevention of Accidents, September 1984.
30. C.I. Howarth and A. Lightburn, 'A strategic approach to child pedestrian safety', in H.C. Foot, A.G. Chapman and F.M. Wade (eds.), *Road Safety: Research and Practice*, Praeger, 1981.
31. Department of Transport, *Transport Statistics Great Britain 1978-1988*, HMSO, 1989.
32. Central Bureau of Statistics, *De mobiliteit van de nederlandse bevolking in 1989*, *op.cit.*
33. See Appendix 3, Table 26.
34. Private communication with the Road Safety Statistics Division of the Department of Transport.

5. Risk Compensation and Safety Measures

Are roads becoming safer or more dangerous for our children? We noted in the Introduction that two diametrically opposed answers are frequently given to this question. In subsequent chapters, we have observed that the evidence from road accident statistics appears to be inconsistent with the evidence that we have revealed by comparing the findings of our surveys in 1971 and 1990 on the behaviour of children and their parents. In this chapter, we explore the inconsistency and introduce a theory that may account for it.

There is much dispute and confusion in the road accident literature about the impact of various safety measures. The long-term editor of one of the most highly regarded scientific journals in the field[1] has observed:

> 'One sees time and again large sums of money spent [on road safety] in industrialised countries, the effect of which is so difficult to detect that further sums must be spent in highly sophisticated evaluation techniques if one is to obtain even a clue as to the effectiveness of the intervention.'[2]

Another highly respected authority on the subject expressed the view that:

> 'When it comes to managing road safety, we're in the Dark Ages. There's a lot of arm waving but very little knowledge of what works.'[3]

The road safety literature is full of claims for the efficacy of a wide range of safety measures. Seat belt legislation, compulsory crash helmets, 'lights-on' laws, speed and alcohol limits, vehicle safety regulations, accident blackspot treatment, and road safety training are some for which substantial reductions in accidents have been claimed. But none of the claims stands uncontested. Advocates of engineering solutions are dismissive of the claims made by advocates of behaviour modification, and vice-versa, and some are critical of both.[4] As we have seen in Chapter 1, because injury and fatality statistics so often

move in different directions, there is not even agreement about what 'success' would look like if it were achieved.

Road safety measures

Current road safety policy aimed at reducing child road deaths is based on a range of steps that have been taken or are proposed.[5] These include:

- **Safer roads** - measures to slow traffic near schools and in residential areas by means of speed limits and road humps, high visibility guard rails, and measures to 'engineer out' the accident potential of roads.
- **More careful driving** - publicity to make drivers more aware of their responsibility to drive more carefully.
- **Pre-school training** - supported by commercial sponsors and with monitoring by the TRRL on its effectiveness.
- **Pedestrian training** - schemes in schools using the Green Cross Code, and involving more parents.
- **Safer cycling** - encouragement of improved cycle education and training and promotion of the use of cycle helmets.
- **Education** - development of responsible attitudes to safety, including the introduction of road safety into the National Curriculum, and promotion of a 'Safe Journey to School' project.
- **Conspicuity** - encouragement of the use of brightly coloured fluorescent and reflective clothing for school uniforms and other children's clothing.
- **Safety in cars** - compulsory wearing of seat belts by children in rear seats (which became law in September 1989)'.
- **Safety in buses** - regulation that all buses and mini-buses are fitted with seat belts after reaching agreement with the EC.
- **Riding safety** - encouragement of better training for riders and protective headgear use.
- **Publicity** - campaigns to raise awareness of the importance of road safety.

Education and training form a major component of road safety policy. Justification for such measures is claimed on the grounds that

'commonsense suggests that [they] must be in the interests of road safety', but it is conceded that 'no-one has yet been able convincingly to prove it.'[6]

Publicity forms another major part of the programme, though again there is a dearth of evidence that it has any effect on casualty numbers. In 1986, special publicity campaigns were held in Britain, as part of its contribution to European Road Safety Year, to heighten public awareness of road traffic danger, but the number of road accident fatalities in that year increased by four and a half per cent.

A recent study has drawn similar conclusions about the value of publicity and education campaigns. It reports:

> 'from contact with some "front-line" police and road safety officers, a sense of frustration at the traffic safety profession's inability to effect change in the behaviour of young pedestrians has been detected. This, combined with the fact that it is also remarkably difficult to assess the efficacy of education, training and publicity, or implement effective engineering remedial measures for young pedestrians, and the repetitiveness and similarity in the pattern with which these accidents occur, induces a sense of futility in those involved'.[7]

The other road safety measures in the government's current programme are all likely to encounter the behavioural response known as 'risk compensation.'

Risk compensation

This is a term used to describe people's propensity to respond to perceived changes in risk. One of the ways in which they respond to perceived danger is simply by getting out of the way. The evidence from our surveys indicates that this is what children, at their parents' insistence, have been doing.

The theory of risk compensation suggests that accident rates are mainly determined by the propensity to take risks. This varies from individual to individual and has been described as being like the setting of a thermostat. If this propensity remains unaltered, safety measures which reduce risk to levels below the setting of the risk thermostat will be obviated by behaviour which reasserts the levels with which people were originally content. If the propensity, or willingness, to take risks is the principal determinant of the accident rate then this rate can only be reduced by measures that reduce the propensity. Parents of young children attempt this all the time.

The safety of infants is guarded by engineering methods. They are kept behind bars in cots and playpens, and their surroundings rendered as foolproof as possible by doing things like covering electrical outlets and removing dangerous objects. Children quickly outgrow such safety solutions. Then begins a protracted and anxious period of training and attitude inculcation during which children are led to assume a steadily growing share of responsibility for the safety of themselves and others. This process involves the establishment of norms of acceptable behaviour and the use of punishments for violating these norms. Gradually parental authority weakens. The most dangerous time, measured by the accidental death rates, is between the ages of 15 and 20, a period during which full responsibility is usually handed over.

To the extent that children of primary school age are, as our English surveys have shown, more closely controlled than they used to be, it will mainly be parents' willingness to take risks, rather than children's, that will determine child road death rates. The reduction in the death rates of primary schoolchildren and the sharp increase thereafter, suggests that parents' risk-taking propensities on behalf of their children are lower than those of the children themselves.

In the case of seat belt legislation, there is now substantial evidence that the effect of risk compensation has been to shift part of the burden of risk from people in vehicles to vulnerable road users outside vehicles, leaving the total number killed in road accidents little changed.[8]

There is reason to suppose that risk compensation will also frustrate the expectations associated with that part of the current road safety programme aimed at requiring seat belts in buses and mini-buses. In Germany, risk compensation has been enshrined in the law governing the permitted speed of coaches. Those fitted with belts are allowed to travel faster than those without.[9]

In the case of very young children in the back seats of cars, risk compensation is obvious to every parent/motorist. Anyone who has ever driven with a very young unrestrained child on the back seat is aware of the need to drive as though one had a crate of eggs on the bonnet. Too sudden acceleration, braking, or turning would cause the child to topple over. With the child secured, however, most drivers revert to their more 'normal' - less gentle - style of driving.

The case for risk compensation resulting from the wearing of helmets for cycling or riding was in effect made in the promotion of a Bill in the House of Commons requiring the compulsory wearing of helmets by all horse riders under the age of 14. The effect of wearing a new protective helmet was described in the following terms:

> 'It was comfortable, felt safe and gave extra confidence to this rider, as I am sure that it could to everyone else. I commend the Bill to the House.'[10]

Confidence in safety devices - whether they be helmets, seat belts, safety ropes for climbers, or safety nets for trapeze artists - affects behaviour. People respond in a way that tends to nullify the intended effect of the device. Safety measures that ignore this tendency almost always disappoint their promoters.

With respect to fluorescent or reflective clothing, risk compensation suggests that cyclists and pedestrians, confident of being seen, might cycle or walk in places and in ways in which they would not otherwise if they felt invisible to motorists. It also suggests that as such clothing becomes more widely used, and more widely anticipated by motorists, those without it will be placed in relatively greater danger.

Finally, attempts to 'engineer out' the accident potential of roads also have a record of dubious achievement. Anti-skid treatment, for example, is sometimes proffered as a successful engineering measure,[11] but there exists very clear evidence that drivers do compensate for slippery road surfaces.[12] Perhaps the most compelling evidence of all is the large drop in road accident fatalities that occurs in winter at times when road conditions are at their worst and skid resistance at its least predictable. More generally the case that modern road engineering standards have saved lives has been challenged[13] and, as far as we are aware, remains unanswered.

The Lawson report referred to earlier on the effectiveness of education, training and publicity identifies pedestrian accidents as 'one of the most difficult types of road accident for which an engineering treatment can be found.'[14] It is argued that this is 'because it is so difficult to curb or control the pedestrian's flexibility in movement, manoeuvrability and direction, agility and acceleration.' On minor roads, pedestrian accidents are extremely widely scattered, and where concentrations are found on major roads, suitable treatment is inhibited by 'the competing needs of keeping the traffic flowing'.[15]

It may be asked why the number of children killed in road accidents has fallen so markedly during the two decades between our surveys although traffic volume has nearly doubled. We are unaware of evidence showing that any of the measures described above deserve much credit for the reduction. The findings of our surveys set out in Chapters 2 and 3 suggest that the most important causes of the decrease have been:

a) the increased confinement of children in secure areas, such as homes, gardens, schools and playgrounds;
b) the increased escorting of children by adults when they are outside these secure areas; and
c) the increased use of cars on these journeys.

The evidence from Germany calls for a partial caveat. Our surveys show that German parents feel more confident about allowing their children to get about on their own, and that they allow them considerably more independence. This confidence is supported by lower German child pedestrian fatality rates.

However, as we have seen in Chapter 4, our 'licence' measures do not capture a significant aspect of the restraint imposed upon German children. It has been suggested to us that German parents are more willing to let their children out because they know that the whole German nation will "tut-tut" if they do anything wrong. In England, child supervision appears to be a more private family affair, whereas in Germany it seems to have been 'collectivised' to a much greater degree.

Nevertheless, as we have seen in Chapter 1, in both countries as this supervision - private or collective - comes to an end in the mid-teen years and young people acquire access to cars and motorcycles, there is a massive increase in road accident death rates.

Notes

1. The journal *Accident Analysis and Prevention*
2. F.A. Haight, *The developmental stages of motorization: implications for safety*, Pennsylvania Transportation Institute, Penn. State University, 1985.
3. E. Hauer, quoted in the *Toronto Globe and Mail*, 12 November 1986.

4. See, for instance, J.G.U. Adams, *Risk and Freedom: the record of road safety regulation*, Transport Publishing Projects, 1985, Chapters 3 to 7; discussion of the paper by A.C. Harvey and J. Durbin, *Journal of the Royal Statistical Society A*, Vol.149, Part 3, 1986, pp.217-219; 'Objectives for Road Safety Research', Proceedings of Seminar D, *PTRC Summer Annual Meeting*, 1987; 'Risk homeostasis and the purpose of safety regulation', *Ergonomics*, Vol.31, No.4, 1987, pp.407-428; 'Evaluating the Effectiveness of Safety Measures', Chapter 10 in J. Handmer and E. Penning Rowsell (eds.), *Hazards and the Communication of Risk*, Gower, 1990.
5. Department of Transport, *Children and Roads: a Safer Way*, 1990.
6. Department of Transport, *Road Safety: the Next Steps*, 1988, p.13.
7. Stephen D. Lawson, *Accidents to young pedestrians: distributions, circumstances, consequences and scope for countermeasures*, AA Foundation for Road Safety Research and Birmingham City Council, 1990, p.147.
8. An early internal report by the Department of Transport which examined the effects of seat belt legislation in eight West European countries concluded that "it has not led to a detectable change in the death rate." (See J.E. Isles, April 1981, *Seat Belt Savings: Implications of European Statistics*, STG Division of Department of Transport, and *New Scientist*, 7 February, 1985.)

   A more recent independent Dutch study arrived at the same conclusion:

   > "Time-series analysis was performed on car driver [and passenger] fatality rates for eight West European countries that passed seat belt legislation in the seventies. There was "no discernible effect of the legislation on the fatality rates". (See W.H. Janssen, 'The effect of seat belt legislation on fatality rates in a number of West European countries', *Report Number IZF, 1989-13*, TNO Institute for Perception, Soesterberg, Netherlands).

   There is also compelling evidence that the small and temporary departure from the trend of road accident fatalities in Britain in the year that seat belt legislation was introduced was associated with the campaign against drinking and driving in the same year, and not with the seat belt law (See J.G.U. Adams, 'Road Safety: Problems of Evaluation', *Inroads* the Journal of the Institute of Road Safety Officers), Vol.12, No.1, 1990.)

9. Reported in *Care on the Road*, Royal Society for the Prevention of Accidents, March 1987.
10. Harry Greenaway, MP, *Hansard*, 27 April 1990, col.677.
11. Stephen D. Lawson, *op.cit.*
12. See J.G.U. Adams, *Risk and Freedom*, *op.cit.*, pp.42-43.
13. J.G.U. Adams, 'Evaluating the effectiveness of road safety measures', *Traffic Engineering and Control*, June 1988, pp.344-352.
14. See *Inroads*, *op.cit.*
15. *Ibid.*, p.148.

6. Conclusions

> 'The government welcomes the continuing widening of car ownership as an important aspect of personal freedom and choice.'

(*This Common Inheritance: Britain's Environmental Strategy*, September 1990).

Our analysis suggests that the increase in the personal freedom and choice arising from widening car ownership has been gained at the cost of a loss of freedom and choice for children. In our English surveys in 1971, we found that 80 per cent of 7 and 8 year old children were allowed to go to school on their own. By 1990, this figure had dropped to 9 per cent. Personal freedom for children a little older has also declined. At the age of 9 children long out of infant school are becoming independent and capable in many respects. But we found that even at that age only half are allowed to cross roads on their own, only about a third are allowed to go on non-school journeys without an adult, and less than one in ten is allowed to use buses. Twenty years ago, most 9 year olds were free to do all these things.

We have referred to these freedoms in our report as 'licences', and have recorded a strong link between the licences and children's activity both in England and Germany. In comparing the findings of the 1971 and 1990 English surveys, we found that the median age at which the licences are granted had increased by about 2.5 years. The 'personal freedom and choice' permitted a typical 7 year old in 1971 are now not permitted until children reach the age of about nine and half.

Our surveys suggest that it is principally the increase in motorised travel that has been responsible for the decrease in children's independence. Paradoxically, for parents of young children, the benefits of wider car ownership have been substantially offset by the constraint imposed on their freedom owing to the increased need to escort their children because of the rise in traffic danger.

Escorting is one of the duties implicit in the traditional approach to children's road safety exemplified by the government's *One false move and you're dead* campaign. Clearly this approach - focused as it is on the restraint of children and on the responsibility that they and their parents must bear - is essential in the present traffic environment. Its most recent embodiment can be seen in the teaching materials distributed by the Children's Traffic Club, a commercially-sponsored programme supported by government.

There is no mention in the aims and objectives of these teaching materials of children's *rights* as road users. The central message for both parents and children is the *normality* of traffic danger, and the importance of deferring to it; parents, it is argued, should be taught to 'know when and how children should be controlled to keep them safe from or in traffic'.

The theme of parental control is also the one featured in the most recent official publication on children's road safety.

> 'Our aim is to educate parents so that they understand more fully the risks involved and therefore take responsibility for the safety of their children.'
> (*Children and Roads: a safer way*, Department of Transport, 1990.)

The message has changed very little over the years. Occasionally, the impact of traffic on children's independence and freedom is acknowledged, but only by way of pointing out the anachronistic nature of such concerns in the modern world.

> 'The seeds of these accidents [to children in traffic] are sown in traditions of independence and freedom; sometimes also in thoughtlessness and lack of care. Parents and children alike need to be educated in the dangers and the means to reduce them; the government have launched a campaign to bring home to parents their own responsibility for teaching their children this lesson for life ...'
> (*Transport Policy: a consultation document*, Department of the Environment, 1976.)

A secondary message contained in the Children's Traffic Club teaching materials is that it is unsafe for young children to be out on their own. Occasionally this message is given top billing, as in the 'Stranger Danger' campaign referred to in Chapter 4. The rise in the volume of traffic and its accompanying noise, pollution, danger and unpleasantness have contributed to a feeling of insecurity owing to the continuing decline of street life and, at the same time, to a rise in the

proportion of people outside the home who are strangers. As a result, the fear of molestation has increased, especially after dark. Our survey evidence has revealed that in England 98 per cent of the junior schoolchildren and 76 per cent of the senior schoolchildren are not allowed out alone after dark. Thus, not only have children lost playspace and independent mobility, they have also lost the independent use of a significant part of the day.

It would be possible through a variety of measures to limit the impact on children's freedom of some of the parental restrictions that we have identified. In Chapter 4, we noted how the transfer of an hour of daylight from the morning to the evening would partially counter the loss of freedom resulting from the restriction on children going out after dark. In addition, it would benefit other groups in the population, such as the elderly, who also dislike going out after dark.

Other actions can and are being taken to make parts of the outside world safer, for instance by slowing traffic or diverting it. West Germany is substantially in advance of England in the implementation of such measures. 'Traffic calming' in residential streets, cycle lanes, school crossing guards, and safe routes to school are examples that reduce the threat of traffic in some places and at some times of day. Their effectiveness requires some way of ensuring that children do not stray outside these safe areas and times of day. If traffic in Britain increases by the 142 per cent forecast by government for the year 2025, the extra road space required for cars will almost inevitably result in a reduction in those areas that are safe for children, who will be even more confined to small traffic-calmed non-combat zones. In a finite world, if more space is taken by traffic, there will be less for other purposes.

Moreover, within the zones, opportunities for activity and adventure - the spice of life for children - will be further reduced. As car ownership and use increase, as public transport declines, as land use and activity patterns become more dispersed, and as neighbourhood shops and services accessible on foot and by bicycle disappear, the country becomes more dependent on the car. Nearly all cars are 'home-based', and parked overnight in garages or car-ports or on the street close to home. As a consequence it is difficult, even in new developments, to segregate motorised traffic from pedestrians and cyclists using the same streets. In most of the existing built environment, it is impossible.

Many of the costs of increasing dependence on the car are becoming well known in Britain and Germany. They range from the loss of local facilities to climatic change at the global scale. One of these costs, hitherto neglected by those responsible for road safety and transport policy, is children's freedom. This cost has been masked by a reliance on traffic accident statistics that have persuaded those with this responsibility that our roads have become safer for children.

Road accident statistics are an inadequate and misleading measure of road safety. The welcome fact that child road accident death rates are now much lower than in the 1920s has not come about because roads have become safer. Clearly they are far more dangerous. If children played in the street today with the heedlessness that they displayed then, there would now be mass slaughter. The primary explanation for the reduced death rate has been the withdrawal of children from the threat rather than the withdrawal of the threat from the children.

What measures of road safety might be used? It is not possible to give a simple answer. There can be no single definitive measure of danger on the roads. We have shown that increases in danger levels can be demonstrated by a variety of indicators of behaviour. In the light of this study, we propose that the following indicators, derived principally from our licence measures, should in future be published as an accompaniment to the road accident statistics and the other measures of physical danger such as traffic volumes and speeds that are already available. They are measures of both safety and freedom.

Proposed measures of safety and freedom

- The proportion of children of selected ages who are allowed to
  - i) cross roads on their own
  - ii) come home from school on their own
  - iii) use buses on their own
  - iv) cycle on main roads.
- The average time that a random sample of pedestrians takes to cross roads of various classes in peak and off-peak hours.
- The annual number of hours spent escorting the average child.

The last of these measures - time spent escorting - is perhaps the best overall indicator of the adverse impact of increasing car

dependence on both children and parents together. The National Travel Survey (NTS) already collects the necessary data on escorting. Now that it is conducted every year, it would be a straightforward matter to produce this figure and thereby monitor change.

The NTS could also incorporate additional questions allowing for the derivation of the other measures. The time taken for a pedestrian to cross a road will vary according to the speed and volume of traffic, the width of the road, and the speed of the pedestrian. These times could be determined by survey for a range of these variables. Average crossing times could then be calculated from the speed and flow data for various classes of roads which the Department of Transport already collect. As shown by our surveys, the remaining measures could be provided by adding a few questions to the annual NTS.

Since 1971, there has been a large increase in the number and extent of children escorted to all destinations, especially by car. The main escort burden is associated with getting children safely to and from school. Now, for instance, in mid-afternoon, a mother can no longer stay at home playing with her toddler and making tea while her 8 year old son or daughter comes home with friends. Come rain or shine, she must bundle the toddler into a buggy - or, increasingly, into the back of a car - and go and fetch her child. In 1990, there were three and a half times more children taken to and from school by car than in 1971.

While many children may enjoy the convenience and comfort of being accompanied, especially if that means being taken by car, and many parents may not be unwilling to do so, we have identified five adverse consequences:

it entails substantial resource costs;
it constrains adult opportunities;
it contributes significantly to traffic congestion;
it removes a routine means for children to help maintain their physical fitness; and
it limits opportunities for the development of their independence.

It is the last of these consequences with which our report has been mainly concerned. Children in Britain appear to have lost considerably more independent mobility than their counterparts in Germany, but even in Germany the losses have been substantial. Britain and Germany are not unique in this respect. Transport policies

in all motorised countries have been transforming the world for the benefit of motorists, but at the cost of children's freedom and independence to get about safely on their own - on foot and by the bicycle that most of them own. This change has gone largely unnoticed, unremarked, and unresisted.

We have created a world for our children in which safety is promoted through fear. The message of campaigns such as '*One false move and you're dead*' is one of deference to the source of the danger. That such a world can be advertised without apparent embarrassment by those responsible for the safety of children, and without provoking public outrage, is a measure of how far the unacceptable has become accepted.

The justification offered for such campaigns, and the reason for their public acceptance, is that they are a response to a real and present danger; to ignore the danger, it is argued, would be irresponsible, and certainly would not make it go away. We are not proposing that it should be ignored. On the contrary, we have been concerned to identify the source of the danger, and have proposed that it should be, and can be, greatly reduced.

The source of traffic danger is traffic. The increase in traffic has been encouraged over many decades by transport and land use policies that have fostered dependence on the private car. Many of the social, economic and environmental costs of these policies have become widely recognised, but their impact on the lives of children has, until now, been neglected.

The *United Nations Convention on the Rights of the Child** defines children as 'individuals with inalienable rights of no less value than those of adults', and embodies the principle that 'the lives and normal development of children should have first call on society's concerns and capacities.' The global environmental crisis is compelling a re-examination of our capacities and a re-ordering of our concerns. As a consequence, throughout the world, governments are beginning to explore ways of reducing dependence on the car. We hope that the benefits that we have identified, for both children and their parents, of reducing this dependence will provide an additional spur to these endeavours.

* This Convention is now binding in law for all Member States of the United Nations, having been adopted by the UN General Assembly at the end of 1989 and having been ratified in September 1990.

Appendix 1
English and German survey methods, areas, and response rates

England

Survey method

The surveys of the junior schoolchildren, aged from 7 to 11 years, were carried out early in 1990 in the same junior schools selected for the 1971 surveys. These had been chosen to provide geographical and social diversity. The surveys of the senior schoolchildren, aged from 11 to 15 years, were held in the secondary schools to which the juniors typically passed after they had reached the age of 11 years. A questionnaire was designed for the children, with the main questions matching those of the 1971 survey.

The length of the questionnaire was determined by the need to ensure adequate time for the children, particularly the younger ones, to answer all the questions within one class session. It was focused on obtaining findings which could not be obtained from the NTS (National Travel Survey) - the extent of children's independent mobility and accompaniment on their day-to-day travel - although special tabulations were obtained from the NTS on the methods of travel used on the journeys of children in the same age group to complement those recorded in our own survey.

At the end of the school day, the children were given an envelope containing a questionnaire for one of their parents or a guardian to complete, together with covering letters both from the school Head and from the research co-ordinator for the study setting out the reasons why it was important to respond to the request to complete this questionnaire. The parents were asked to give this to their child, sealed in an envelope provided, and to return it to the school teacher on the following day.

This adult questionnaire was focused more on parental reasons for permitting, or not permitting, their children to get about on their own. It also included questions about the extent of parents' involvement in escorting their children both to and from school and for other purposes, and basic data on household car ownership, licence-holding, social class and occupation. Copies of the two questionnaires are included in Appendix 2.

The weather around the days when the surveys were carried out was unexceptional for the time of year, with top temperatures of 9 to 11 centrigrade, scattered rain and a little sunshine.

The five areas in which the surveys were conducted are:

Islington, an inner London borough;
Nottingham, on the outer edge of a provincial city;
Stevenage, one of the first post-war new towns;
Winchester, a free-standing provincial country town; and
Oxfordshire (*Hook Norton and Chipping Norton*), a parish and small town in rural England.

The data for the survey areas on population, persons per hectare, and percentages of households in owner-occupation and rented accommodation, and those which are car-owning, as recorded in the 1981 Census, are set out in Table A1.1.

Table A1.1 Summary of demographic and socio-economic characteristics of English survey areas

		persons	% of households		
	pop(ths)	per hectare	owner-occupied	rented	car-owning
Islington					
ward	9123	19	53	36	
district	161	108	17	56	35
Nottingham					
ward	16	52	38	59	55
district	301	37	37	50	45
Stevenage					
ward	5	40	22	77	61
district	75	29	35	62	67
Winchester					
ward	4	7	75	2	86
district	86	1	57	24	75
Oxfordshire (Hook Norton - j)					
parish	2	1	71	17	79
Oxfordshire (Chipping Norton - s)					
ward	5	5	52	37	68
district	81	1	57	21	78

Source: Office of Population Censuses and Surveys, 1981 Census, HMSO.
j = junior school area and s = senior school area.

Description of the English survey areas

Islington

This is predominantly a working class area of inner London containing a mixture of residential accommodation, including 19th century houses in multi-occupation and both pre- and post-second World War blocks of flats. The residential density is very high. There is a wide range of local shops and other facilities but little public open space. Frequent bus services link the area to adjacent boroughs and to Central London. Of all the areas surveyed, this one suffers from the greatest intrusion of traffic as several of its main roads are through-routes from the outer suburbs and beyond to the central area. However, it has the most traffic signals, pedestrian crossings and parking restrictions, all reflecting an attempt at achieving some measure of compromise between local people getting around on foot and the demands of traffic. (See Map 1 in Appendix 5.)

Nottingham

The survey area is on the outskirts of this Midlands city which has a population of 300,000. The district in which the schools are situated consists of an older area of public housing separated by open space from a large private development to the south. Within the district, there are small parades of shops with large-scale shopping facilities about a kilometre away on either side of it. The district is located adjacent to bus routes radiating from the city centre about five kilometres away which offers an extensive range of cultural and leisure activities. (See Map 2 in Appendix 5.)

Stevenage

This new town in the Home Counties was built predominantly in the two decades after the war. It has a population of 75,000. It contains a network of cycleways and relatively good bus services. The district in which the schools are located was conceived as a neighbourhood with an appropriate scale of shops and community facilities. The junior school in which the survey was based also serves the children from a large housing estate constructed during the 1970s which is over two kilometres away. The town centre is one to two kilometres away. Although designed to be self-contained, the improved transport infrastructure, both road and rail, linking it to London, has resulted in

a significant proportion of its workforce commuting there. (See Map 3 in Appendix 5.)

Winchester

This a small free-standing provincial town in southern England has a very good range of facilities because it is an administrative capital and centre for an extensive rural hinterland. The district in which the schools are situated is very low density and consists of both public and private suburban estates. There are few local shopping and leisure facilities but the town centre is about three kilometres away and can be reached by bus. (See Map 4 in Appendix 5.)

Hook Norton and Chipping Norton, Oxfordshire

The small parish of Hook Norton in which the junior school is located has a population of about 2,000. It has grown significantly in the last 20 years with a large housing estate having been built on the edge of the village. The village is poorly served with shops, other facilities and public transport. Older children have to travel to schools at least seven kilometres away. The city of Oxford is over 10 kilometres away. (See Map 5a in Appendix 5.)

The main secondary school serving this area is located in the small town of Chipping Norton which has a population of about 5,000. It has a broader range of shops and public facilities and a better public transport service linking it to Oxford. (See Map 5b in Appendix 5.)

Response rates from English junior and senior schoolchildren and parents

The running of the surveys had been agreed in advance with the local education authorities. Thus, with the co-operation of the school Heads and class teachers, a class session was incorporated into the school timetable. As a result, a 100 per cent response rate was obtained from the schoolchildren. Table A1.2 shows that the response rate from the parents of the junior schoolchildren varied from 85 per cent to 100 per cent, and from the parents of senior schoolchildren from 52 per cent to 93 per cent. The total parental response rate was a rewarding 89 per cent.

Table A1.2 Numbers of junior and senior schoolchildren and their parents responding to the English survey, according to area and school class

	Class								
	1		2		3		4		parents
	ch	p	ch	p	ch	p	ch	p	respond-ing
Islington									
Junior	23	19	24	22	21	16	19	17	85%
Senior	24	17	25	14	18	9	16	3	52%
Nottingham									
Junior	28	28	29	28	28	26	27	25	96%
Senior	17	15	20	10	23	20	18	17	85%
Stevenage									
Junior	25	25	22	22	27	26	22	20	96%
Senior	26	21	28	27	24	17	30	27	85%
Winchester									
Junior	39	39	26	26	36	36	39	38	99%
Senior	28	28	27	27	32	26	24	22	93%
Hook Norton and Chipping Norton									
Junior	29	29	30	30	23	23	27	27	100%
Senior	30	29	18	16	23	21	20	17	91%
All	269	240	249	231	255	220	242	213	904
Parents responding	89%		93%		86%		88%		89%

'ch' refers to the children and 'p' to the parents.
All the schools were administered by a local education authority.

The proportion of girls in the survey of both English junior and senior schools was 48 per cent of the total number of children responding. The mean age of the juniors was 8.9 years and that of the seniors was 12.9 years. In view of the strict regulations on the age of entry into schools, these averages hardly varied in the five areas. Of the responding parents of the juniors and seniors, 46 per cent and 39 per cent respectively were in social classes I and II, and 32 per cent and 35 per cent respectively in social class III.2. (See Appendix 3, Table 44).

Germany

Survey method

The survey method employed in Gemany was identical to that used in England. The questionnaires were first translated into German by a native German and then piloted in a large school in Bochum. Suitably revised to take account of German circumstances and cultural/linguistic differences, the questionnaire was then run in the German schools. The interviewers were students undergoing teacher training at the Institut für Waldorf-Pädagogik in Witten-Annen and were German nationals. They had been briefed in English and Geman in the presence of translators to ensure clear communication and the absence of ambiguity.

The questionnaires used in Köln Innenstadt were slightly modified with the addition of pictograms to assist the large proportion of Turkish children who had some difficulty with the German language.

The selection of schools followed the selection of areas and the official list of schools in NRW (North Rhine Westphalia) was used as the sampling framework. A number of schools were contacted and their Heads asked if they would be willing to co-operate. The first replies in the target areas were accepted. After discussions with teachers, it was decided to go for the middle-range of schools in terms of academic orientation and to exclude the German version of the English grammar school, the 'Gymnasium' as there is some diversity in the German system of secondary education. This produced four 'Realschule' and one 'Hauptschule'. All schools are well-equipped and well-funded by English standards.

In common with the surveys in England, the weather around the days when the German ones were carried out was unexceptional.

The five areas in Germany in which the surveys were conducted were:

Köln Innenstadt, an inner residential area of Cologne;
Bochum, an outer suburb of the city;
Köln Chorweiler, a new town settlement north of Cologne;
Langenfeld, a district in Wuppertal, and Schwelm, an adjacent district;
Witten, a town in a rural area in the south of the Ruhr, with an adjacent village.

Description of German survey areas

The German survey areas were selected to correspond with the English areas in terms of population density and a range of urban and rural environments. In practice, there is some drift away from a close correspondence as refusals to co-operate from German schools necessitated a search procedure into adjacent areas for willing schools. The drift is, however, not great and a comparison of the German and English areas in Tables A1.1 and A1.3 shows that a good match in basic characteristics has been achieved.

The data for the survey areas on population, persons per hectare, and percentages of households in owner occupation and rented accommodation, and those which are car-owning are set out in Table A1.3.

Table A1.3 Summary of demographic and socio-economic characteristics of German survey areas

	pop(ths)	persons per hectare	% of households owner-occupied	rented	cars per 1000 population
Köln Innenstadt)					
North (j)	19	89	8	92	465
South (s)	29	140	8	93	393
District	135	93	8	92	413
Bochum					
'Ward'	13	43	-	-	-
District	401	28	21	80	426
Langenfeld					
Langenfeld Süd (j)	6	8	35	65	432
Schwelm (s)	30	15	24	76	464
District	23	10	18	82	367
WU	387	22	20	80	380
Köln (Chorweiler)					
'Ward'	4	34	0.3	97	286
District	73	11	8	92	413
Witten					
'Ward'	15	6	-	-	560
District	107	15	23	77	484

'-' means no data available

j = junior school area and s = senior school area.

Housing markets and levels of car ownership differ greatly between the two countries, as does any measure of social class, and these differences must be borne in mind when making inferences from tabulations.

All the German areas are in the State of NRW which is Germany's largest state (population 16.7 millions in the 1987 census). With its state capital in Düsseldorf and an area which includes Bonn and Köln, as well as all the Ruhr cities, NRW is the original industrial power house of Germany still responsible for over 25 per cent of West Germany's pre-unification industrial output. It is a state with a remarkable diversity of industrial and agricultural landscape, and a wealth of recreational facilities and regenerated industrial areas. It has lively, modern town centres and a record of innovation in employment generation (eg Emscher Park) and improvements to residential areas. There are pockets of urban and economic decline as in Duisburg, but none of the areas selected for study here are either pockets of decline or areas of above average growth in employment or income.

Köln Innenstadt

The centre of Köln, a city of about 900,000 people, was largely reconstructed after extensive wartime bomb damage and still retains a very high residential population density in comparison with British cities. Most residents are housed in 4/5 storey apartment blocks which front onto busy streets and are served by a dense network of underground and on-street tram lines. Innenstadt is an inner suburb with a population of 135 thousand. In common with other of these suburbs, it has a large Turkish population who tend to make more use of street space than their German neighbours. Environmental quality is generally poor, with high capacity roads very near the residential areas. Traffic-calming schemes have improved many residential streets and recreational/cultural facilities are well provided. Open space does exist, particularly along the Rhine, but it is not easily accessible. (See Map 6 in Appendix 5.)

Bochum

Bochum is a traditional Ruhr city. Its population of 400,000 displays considerable liveliness, cleanliness and prosperity in spite of the decline of coal and steel on which it was founded. Its city centre and traffic-calmed areas give an environmental quality that would be

envied in most English cities of this size. It has extensive green spaces easily accessible to the population and an excellent bus and tram system. It has a well-developed system of local shopping centres, a thriving traditional city centre shopping area and one of the few examples of out-of-town shopping areas in Germany (Ruhr Park). It is well provided with recreational facilities. The study area also has good public transport services linking it to the city centre and other points of interest. (See Map 7 in Appendix 5.)

Köln Chorweiler

Chorweiler is a new town settlement with a population of about 75,000, and is approximately 10 kilometres from the city centre. It consists of a mixture of housing types but is dominated by large tower blocks which house thousands of its residents. It has a largely working class population with one in six of non-German origin. It is well-connected to the city centre by public transport and has generous open space and lakes for public use as well as local shops and a range of social and recreational facilities. It also has a fairly unique pedestrian and cycle network incorporated when the new town was built. (See Map 8 in Appendix 5.)

Langenfeld/Schwelm

Wuppertal, with a population of over 350,000, is a strung-out valley bottom settlement. It has two distinct city centres and a number of district shopping centres as in the study area of Langenfeld-Süd which has a population of just under six thousand. It is famous for its 'Schweberbahn' (monorail) which provides high quality public transport for the whole urban corridor. It is well provided with bus, trolley-bus and S-bahn transport, in addition to the monorail, and is well-endowed with green space. For the purposes of the survey, the adjacent area of Schwelm, which has a population of 30,000 and is administratively independent, is regarded as an extension of the urban area. Schwelm has its own shopping centre and is well connected with adjacent areas by frequent public transport. It also has generous green space provision. (See Map 9 in Appendix 5.)

Witten

Witten is an attractive town with a population of 106,000. It lies in the south of the Ruhr area very close to the River Ruhr and has

exceptionally large areas of woodland, recreational areas and green space. It has an attractive town centre and a good tram and bus system connecting it to adjacent centres including Bochum. One of the schools selected in this area (the secondary one) is very near the town centre, and the other (the junior one) is in a rural area on the other side of the River Ruhr. The setting of the junior school is in a small village with approximately three thousand inhabitants, a frequent bus service to Witten centre, but it has only very basic shopping facilities (See Map 10 in Appendix 5.)

Response rates from German junior and senior schoolchildren and parents

As with the surveys in the English schools, the co-operation of the local education authorities, school Heads and class teachers enabled the running of the surveys to be incorporated into the school timetable so that again a 100 per cent response rate was obtained from the schoolchildren. As can be seen in Table A1.4, the response from the parents of the classes of junior schoolchildren varied from 82 per cent to 98 per cent, and from the parents of the classes of senior schoolchildren from 79 per cent to 95 per cent. The total parental response rate was encouragingly high at 91 per cent.

The proportion of girls in the German junior and senior schools was 49 and 52 per cent respectively of the total number of children responding. The mean age of the juniors was 8.3 years and that of the seniors 12.6 years. Of the responding parents of juniors and seniors, 10 per cent and 12 per cent respectively were classified as Selbständige (self-employed), 28 per cent and 30 per cent respectively were classified as Angestellte (state employees without tenure), and 44 per cent and 46 per cent were classified as Arbeiter (blue collar workers). (See Appendix 3, Table 44).

Table A1.4 Numbers of junior and senior schoolchildren and their parents responding to the German survey, according to area and school class

	Class								
	1		2		3		4		parents
	ch	p	ch	p	ch	p	ch	p	responding
Köln Innenstadt									
Junior	19	15	15	14	*	*	13	12	87%
Senior	23	23	27	19	19	14	27	24	83%
Bochum									
Junior	23	22	17	17	26	25	16	16	98%
Senior	29	29	29	28	25	24	29	26	95%
Köln Chorweiler									
Junior	22	18	19	18	20	15	16	12	82%
Senior	23	19	27	25	22**	22	24	19	79%
Langenfeld/Schwelm									
Junior	16	16	16	16	22	21	19	18	98%
Senior	24	23	28	27	29	27	20	19	95%
All	234	216	227	208	200	184	208	187	795
Parents responding	92%		92%		91%		90%		91%

'ch' refers to the children and 'p' to the parents.
All the schools were administered by a local education authority.
* This class was not interviewed owing to severe time constraints in a school with a large Turkish community.
**Three of these returns were lost.

Appendix 2 HOW YOU GET ABOUT

A questionnaire for schoolchildren from 7 to 15 years

Please answer each question by putting a tick in the box like this ☑
or where asked write in a number, like this 4

---

1 **How did you get to school this morning?**
(tick only one box)

- walked all the way ☐ a1
- cycled ☐ 2
- came by bus or train ☐ 3
- came by car ☐ 4

2 a) **Did you travel with someone else?**

- yes ☐ b1
- no ☐ **SKIP TO 3**

b) **If YES, who was that?**
(tick only one box)

- parent ☐ c1
- another adult ☐ 2
- older child ☐ 3
- child of same age or younger ☐ 4

3 **How are you going home?**
(tick only one box)

- walk all the way ☐ d1
- cycle ☐ 2
- bus or train ☐ 3
- car ☐ 4

4 a) **Will you travel home with someone else?**

- yes ☐ e1
- no ☐ **SKIP TO 5**

b) **If YES, who will that be?**
(tick only one box)

- parent ☐ f1
- another adult ☐ 2
- older child ☐ 3
- child of same age or younger ☐ 4

*5 **How far do you live from school?**

- up to half a km ☐ g1
- half to one km ☐ 2
- one to two kms ☐ 3
- more than two kms ☐ 4

6 a) **Do you have a bicycle?**

- yes ☐ h1
- no ☐ **SKIP TO 7**

b) **If YES, are you allowed to cycle on main roads?**

- no ☐ i1
- yes ☐ **SKIP TO 6d**

***c) If NO, would you like to be allowed to?**

no ☐ j1
yes ☐ 2

NOW SKIP TO 7

***d) Write in the box how old you were when you were first allowed to cycle on main roads.**

age ☐ k

7 a) Are you allowed to cross main roads by yourself?

no ☐ l1
yes ☐ *SKIP TO 7c*

***b) If NO, would you like to be allowed to?**

no ☐ m1
yes ☐ 2

NOW SKIP TO 8

***c) If YES, write in the box how old you were when you were first allowed to do so.**

age ☐ n

8 Do you go on buses by yourself?

no ☐ o1
yes ☐ 2

***9 Write in the box the number of friends you can visit on your own.**
(answer only if you are allowed to do so on your own)

number ☐ p

***10 Which, if any, of these activities did you do, yesterday or on Saturday:**
(tick in the first column if you did these things on your own)
(tick in the second column if you were taken by an adult on the journey)

	on own	taken		on own	taken
playground	☐	☐ q	visited your own friends	☐	☐ x
park or playing fields	☐	☐ r	visted grown-ups	☐	☐ y
swimming	☐	☐ s	shops	☐	☐ z
played outside your home	☐	☐ t	library	☐	☐ aa
went for a walk	☐	☐ u	club	☐	☐ ab
cycled around	☐	☐ v	cinema	☐	☐ ac
sunday school	☐	☐ w	football match	☐	☐ ad

write down any other places you went to	on own	taken
.....	☐	☐ ae
.....	☐	☐ af
.....	☐	☐ ag

11 Write in the box your age.

age ☐ ah

12 Tick in the box if you are:

girl	boy
☐	☐ ai

Thank you very much for your help **THE END**

HOW YOUR CHILD GETS ABOUT

A questionnaire for the parent of schoolchildren from 7 to 15 years

Please answer each question by putting a tick in the box like this ☑

or where asked write in a number, like this 4

THE FOLLOWING QUESTIONS ARE ABOUT YOUR CHILD

1 a) **Is your child usually allowed to come home from school alone?**

no ☐ a1

yes ☐ **SKIP TO 1e**

b) **If NO, write in the box the number of days a week your child is collected.** number ☐ b

c) **What is the main reason for not allowing your child to go alone?**
(*tick only one reason*)

traffic danger ☐ c1

child unreliable or too young ☐ 2

fear of assault or molestation by adult ☐ 3

school too far away ☐ 4

fear of bullying by other chidren ☐ 5

d) **Write in the box the age at which you are likely to allow your child to go alone.** age ☐ **SKIP TO 1g**

e) **If YES, write down the age when your child was first allowed to go alone.** age ☐ e

f) **What was the main reason for not allowing your child to go alone at an earlier age?**
(*tick only one box*)

traffic danger ☐ f1

child unreliable or too young ☐ 2

fear of assault or molestation by adult ☐ 3

school too far away ☐ 4

fear of bullying by other chidren ☐ 5

g) **How worried are you about the risk of your child being injured in a road accident, when crossing the road?**

very ☐ g1

quite ☐ 2

not very ☐ 3

not at all ☐ 4

h) **How long (in minutes) would it take you to walk to the school.** time taken ☐ h

2 a) **When your child goes to places other than school that are within walking distance, is he/she allowed to go alone, or is he/she taken?**

taken ☐ i1

alone ☐ **SKIP TO 3a**

*c) If NO, would you like to be allowed to?

no ☐ j1
yes ☐ 2

NOW SKIP TO 7

*d) Write in the box how old you were when you were first allowed to cycle on main roads.

age ☐ k

7 a) Are you allowed to cross main roads by yourself?

no ☐ l1
yes ☐ SKIP TO 7c

*b) If NO, would you like to be allowed to?

no ☐ m1
yes ☐ 2

NOW SKIP TO 8

*c) If YES, write in the box how old you were when you were first allowed to do so.

age ☐ n

8 Do you go on buses by yourself?

no ☐ o1
yes ☐ 2

*9 Write in the box the number of friends you can visit on your own.
(*answer only if you are allowed to do so on your own*)

number ☐ p

*10 Which, if any, of these activities did you do, yesterday or on Saturday:
(*tick in the first column if you did these things on your own*)
(*tick in the second column if you were taken by an adult on the journey*)

	on own	taken		on own	taken
playground	☐	☐ q	visited your own friends	☐	☐ x
park or playing fields	☐	☐ r	visted grown-ups	☐	☐ y
swimming	☐	☐ s	shops	☐	☐ z
played outside your home	☐	☐ t	library	☐	☐ aa
went for a walk	☐	☐ u	club	☐	☐ ab
cycled around	☐	☐ v	cinema	☐	☐ ac
sunday school	☐	☐ w	football match	☐	☐ ad

write down any other places you went to	on own	taken
.....	☐	☐ ae
.....	☐	☐ af
.....	☐	☐ ag

11 Write in the box your age.

age ☐ ah

12 Tick in the box if you are:

girl	boy
☐	☐ ai

Thank you very much for your help THE END

HOW YOUR CHILD GETS ABOUT

A questionnaire for the parent of schoolchildren from 7 to 15 years

Please answer each question by putting a tick in the box like this ☑

or where asked write in a number, like this 4

THE FOLLOWING QUESTIONS ARE ABOUT YOUR CHILD

1 a) **Is your child usually allowed to come home from school alone?**

no ☐ a1

yes ☐ **SKIP TO 1e**

b) **If NO, write in the box the number of days a week your child is collected.**

number ☐ b

c) **What is the main reason for not allowing your child to go alone?**
(tick only one reason)

traffic danger ☐ c1

child unreliable or too young ☐ 2

fear of assault or molestation by adult ☐ 3

school too far away ☐ 4

fear of bullying by other chidren ☐ 5

d) **Write in the box the age at which you are likely to allow your child to go alone.**

age ☐ **SKIP TO 1g**

e) **If YES, write down the age when your child was first allowed to go alone.**

age ☐ e

f) **What was the main reason for not allowing your child to go alone at an earlier age?**
(tick only one box)

traffic danger ☐ f1

child unreliable or too young ☐ 2

fear of assault or molestation by adult ☐ 3

school too far away ☐ 4

fear of bullying by other chidren ☐ 5

g) **How worried are you about the risk of your child being injured in a road accident, when crossing the road?**

very ☐ g1

quite ☐ 2

not very ☐ 3

not at all ☐ 4

h) **How long (in minutes) would it take you to walk to the school.**

time taken ☐ h

2 a) **When your child goes to places other than school that are within walking distance, is he/she allowed to go alone, or is he/she taken?**

taken ☐ i1

alone ☐ **SKIP TO 3a**

b) **If taken, what is the main reason for not allowing your child to go alone?**
(*tick only in one box*)

traffic danger ☐ j1
child unreliable or too young ☐ 2
fear of assault or molestation by adult ☐ 3
fear of bullying by other chidren ☐ 4

c) **Write in the box the approximate number of <u>round</u> trips made each week for the purpose of accompanying your child -excluding school trips.**

number ☐ k

d) **What is the method of travel most frequently used?**
(*tick only one box or if 'Other' write in space provided*)

walk all the way ☐ l1
cycle ☐ 2
bus or train ☐ 3
car ☐ 4

.....

3 a) **Is your child usually allowed to cross main roads alone?**

no ☐ m1
yes ☐ **SKIP TO 3c**

b) **If NO, write in the box the age at which your child will be allowed.**

age ☐ **SKIP TO 4a**

c) **If YES, write in the box the age your child was first allowed.**

age ☐ o

4 a) **Is you child usually allowed to go out alone after dark?**

no ☐ p1
yes ☐ **SKIP TO 5a**

b) **If NO, what is the main reason?**
(*tick one box only*)

traffic danger ☐ q1
child unreliable or too young ☐ 2
fear of assault or molestation by adult ☐ 3
fear of bullying by other chidren ☐ 4

5 a) **Is your child usually allowed to travel on buses alone?**

no ☐ r1
yes ☐ **SKIP TO 5c**

b) **If NO, write in the box the age at which your child will be allowed.**

age ☐ s

c) **If YES, write in the age at which your child was first allowed.**

age ☐ t

THE FOLLOWING QUESTIONS ARE ABOUT YOURSELF

6 **When you were a child, how did you travel to school at the age of about 8 or 9 years?**
(*tick only one box or if 'Other' write in space provided*)

walked all the way ☐ u1
cycled ☐ 2
went by bus or train ☐ 3

.....

7 **Write in the box the number of people in your household, including yourself, with a full driving licence.**

number ☐ v

8 **Does your household have the use of a car?**

no ☐ w1
yes, 1 car ☐ 2
yes, 2 or more cars ☐ 3

0 0011

9 **Do you think you had more or fewer opportunities for going out on your own compared with your child today?**

far more ☐ x1
more ☐ 2
the same ☐ 3
fewer ☐ 4
far fewer ☐ 5

10 **Write in each box the number of people living in your home apart from yourself.**

child(ren) aged 10 years or less ☐ y
child(ren) aged 11 or 15 years ☐ z
spouse/partner and other adults ☐ aa

11 **Does your family own your home or is it rented?**

own home ☐ ab1
rented home ☐ 2

12 **What is your age?**

under 30 ☐ ac1
30 to 44 ☐ 2
45 and over ☐ 3

13 **Please tick box.**

female ☐ ad1
male ☐ 2

14 a) **Are you in paid work?**

	parent/guardian male	parent/guardian female
yes, full-time	☐	☐ ae
yes, part-time	☐	☐ af
no	☐	☐ ag

b) **If paid work, do you work at home or elsewhere?**

home ☐ ah1
elsewhere ☐ 2

15 **What is the name or title of the job of the main earner in your home** (*please write in*)

ai

.....

16 **If the main earner works for an employer, what is made or done at the place of work?** (*please write in*)

aj

.....

Please seal this completed questionnaire in the envelope and give it to your child to take back to the school tomorrow or the following day at the latest

Thank you very much for your help THE END

Appendix 3

Tables of findings of English and German surveys footnoted in the text

ALL FIGURES CONTAINED IN THE TABLES ARE EXPRESSED AS PERCENTAGES

In referring to their contents, the following points should be noted:

(i) where percentages in Tables do not total 100, this is because not all variables are listed; in a few cases, where the total number of responses to a particular pre-code is less than 15, the percentages are bracketed;

(ii) rows **ej** and **es** in the Tables contain the findings from the English junior and senior schools, and rows **gj** and **gs** from the German junior and senior schools, respectively;

(iii) abbreviations used in the Tables analysed by area are as follows:

the first row refers to the English schools in **Isl**, the London Borough of Islington; **Not**, the outer suburb of the City of Nottingham; **Ste**, the post-war new town of Stevenage; **Win**, the county town of Winchester; and **Oxf**, which includes Hook Norton parish for the junior schoolchildren, and the small rural town of Chipping Norton for the senior schoolchildren, both in Oxfordshire;

the second row refers to the German schools in **Köl**, Innenstadt, an inner suburb of Köln; **Boc**, the outer suburb of Bochum; **Cho**, the new town of Chorweiler near Köln; **Lan**, the district of Langenfeld in Wuppertal and the adjacent district of Schwelm; and **Wit**, the rural environs of the town of Witten;

(iv) where there are comparable data with the surveys carried out in the same English junior schools in 1971, these figures are given in rows with the date 1971 adjacent to it, and the date 1990 adjacent to the next row and for pursuant rows;

(v) in the Tables analysed by the schoolchildren's age, the overlap of figures for 11 years is explained by the fact that there were 11-year olds in both junior and senior schools;

(vi) in the Tables analysed by social class for the English sample, the standard classification is used but with 9 for households where the head is unemployed;

in the Tables analysed by social class for the German sample, the classification is as follows: Sel (Selbständige - self-employed); Bea (Beamte - civil servants with permanent tenure); Ang (Angestellte - state employees without tenure); Arb (Arbeiter - blue collar workers); and And (Andere - others).

(vii) in the Tables analysed according to type of accompaniment, the term 'alone' covers children travelling either on their own or with another child of about their own age or younger;

(viii) in the Tables on travel method, 'bus' includes school bus and some rail.

List of Tables

Table 1. Variables of children's 'licence-holding' according to age

	age in years									
	7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
Children allowed independently/alone to:										
cross roads										
1971 ej	46	65	70		95					72
1990 ej	22	26	52	76	96					51
es					93	93	97	100	100	97
gj	56	71	89	90	100					75
gs					94	94	98	98	100	96
leisure alone										
1971 ej	47	50	68		79					63
1990 ej	20	29	37	43	67					37
es					78	76	86	88	98	84
gj	61	73	73	80	79					70
gs					88	87	97	95	100	92
from school alone										
ej	11	25	33	51	67					35
es					93	84	97	88	85	87
gj	85	96	89	96	93					91
gs					99	98	99	100	94	99
use buses										
1971 ej	16	32	53		79					48
1990 ej	5	5	8	32	43					15
es					66	76	89	95	93	84
gj	10	19	34	58	81					31
gs					78	89	90	93	85	87
go out after dark										
ej	0	1	1	2	6					2
es					6	10	31	36	49	24
gj	4	8	0	9	8					5
gs					13	30	43	60	64	37
cycle owners										
1971 ej	75	63	64		61					65
1990 ej	92	92	89	88	89					90
es					87	76	81	73	62	76
gj	81	92	99	87	80					86
gs					89	95	90	86	87	88
cycle owners allowed on roads										
1990 ej	17	17	21	31	53					25
es					59	74	77	77	98	77
gj	35	27	33	46	50					34
gs					67	81	81	97	100	81

	age in years								
	7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*
Reporting of permission to cross roads alone:									
ej and es									
child	22	26	52	76	95	93	97	100	100
parent	8	12	21	30	73	82	92	96	100
Reporting of permission to use buses:									
child	5	5	8	32	56	76	89	95	94
parent	1	1	5	8	37	49	72	84	95

Table 2. Children's attitudes to restrictions on their independence, according to age

	age in years									
	7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
child minds about restriction on crossing roads:										
ej	54	65	50	39	(0)					52
gj	34	25	32	(40)	(33)					31
child minds about restriction on cycling:										
ej	48	66	58	65	68					60
es					46	39	59	(50)	(67)	48
gj	45	55	53	49	(22)					49
gs					63	58	40	32	(13)	50

Table 3. Children's attitudes to restrictions on their independence, according to area

	area				
	Isl	*Not*	*Ste*	*Win*	*Oxf*
	Köl	*Boc*	*Cho*	*Lan*	*Wit*
child minds about restriction on crossing roads:					
ej	26	43	47	60	50
gj	40	76	87	63	69
child minds about restriction on cycling:					
ej	25	34	41	46	56
es	41	12	59	(60)	80
gj	53	62	46	40	67
gs	59	43	54	35	45

Table 4. Travel method and level of accompaniment to school, according to age

Travel method		*age in years* 7	8	9	10	11	12	13	14	15+	*all*
walk	ej	49	57	61	77	70					63
	es					55	48	51	50	56	51
	gj	85	87	80	75	88					83
	gs					38	31	38	39	36	37
cycle	ej	0	0	1	2	0					1
	es					0	3	3	2	0	2
	gj	0	0	0	3	0					1
	gs					6	6	3	4	10	5
bus	ej	3	3	4	3	2					3
	es					35	43	41	38	29	38
	gj	2	4	8	8	0					5
	gs					44	53	53	51	45	49
car	ej	47	39	34	19	28					33
	es					9	8	5	11	15	9
	gj	12	9	12	14	13					11
	gs					12	10	6	6	10	9
Accompaniment:											
parent	ej	71	71	58	36	35					56
	es					6	6	4	8	13	6
	gj	16	12	8	13	6					12
	gs					8	7	5	3	5	6
other adult											
	ej	13	9	8	5	7					8
	es					3	1	2	0	0	1
	gj	9	3	5	3	0					5
	gs					3	3	1	1	2	2
older child											
	ej	9	9	8	3	4					7
	es					28	27	26	23	16	24
	gj	23	13	7	1	0					11
	gs					18	11	11	4	10	12
alone											
1971	ej	72	87	88	94						86
1990	ej	7	11	27	55	54					29
	es					64	65	67	78	71	69
	gj	52	71	81	83	94					72
	gs					70	78	83	91	83	79

Table 5. Travel method and level of accompaniment from school, according to age

		age in years								
Travel method:		*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
walk	ej	54	64	66	76	75					67
	es					57	48	52	56	65	54
	gj	89	90	84	84	94					87
	gs					36	33	40	40	36	38
cycle	ej	0	0	1	2	0					1
	es					0	3	3	2	0	2
	gj	0	0	0	2	0					1
	gs					6	6	3	4	10	5
bus	ej	3	2	3	3	2					3
	es					38	43	41	36	27	38
	gj	3	4	7	6	0					5
	gs					44	57	53	52	52	51
car	ej	43	34	31	19	23					30
	es					5	7	3	6	7	6
	gj	8	5	10	10	6					8
	gs					14	4	4	4	2	6
Accompaniment:											
parent	ej	76	68	53	33	30					53
	es					6	6	2	4	8	4
	gj	10	6	7	5	7					11
	gs					7	3	3	0	3	3
other adult/older child											
	ej	19	20	16	7	13					15
	es					20	28	28	27	11	24
	gj	23	12	16	3	0					12
	gs					18	16	18	8	8	15
alone	ej	5	11	32	60	57					32
	es					75	66	70	69	81	72
	gj	68	83	77	92	93					77
	gs					85	81	80	92	90	81

Table 6. Type of accompaniment and travel method on the journey from school

Accompaniment:		*walk*	*cycle*	*bus*	*car*
parent	ej	39	(0)	(50)	89
	es	0	(0)	1	89
	gj	4	(50)	0	88
	gs	0	0	0	76
other adult	ej	6	(0)	(21)	11
	es	-	(0)	1	11
	gj	1	(0)	0	12
	gs	0	0	0	14
older child	ej	11	(0)	(7)	0
	es	11	(11)	46	0
	gj	10	(0)	50	0
	gs	13	22	16	0
alone/same age	ej	44	(100)	(21)	0
	es	88	(89)	52	0
	gj	85	(50)	50	0
	gs	87	78	84	0

Table 7. Distance to junior and senior schools

		distance in kms.			
		<½	*½<1*	*1<2*	*2+*
junior school	ej	49	32	8	10
	gj	62	33	4	1
senior school	es	22	21	14	43
	gs	12	23	25	40

Table 8. Number of unaccompanied and accompanied weekend activities, according to age

		age in years								
		7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*
on own	ej	1.28	1.37	1.62	2.13	2.65				
	es					3.18	3.13	3.81	3.62	3.96
	gj	0.78	2.11	2.03	2.02	3.50				
	gs					3.02	3.04	3.29	3.54	3.18
taken	ej	2.28	1.62	1.79	1.51	1.47				
	es					1.58	1.12	0.91	0.68	0.41
	gj	1.26	1.73	2.24	1.89	1.81				
	gs					1.19	1.22	0.57	0.48	0.26
total	ej	3.56	2.99	3.41	3.65	4.12				
	es					4.76	4.24	4.71	4.30	4.37
	gj	2.04	3.84	4.27	3.91	5.31				
	gs					4.21	4.26	3.86	4.02	3.44

Table 9. Number of accessible friends according to age

	age in years									
	7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
ej	3.10	3.75	4.37	5.75	6.96					4.59
es					6.47	7.61	8.33	8.38	8.61	7.91
gj	3.40	4.71	5.88	6.82	7.50					5.16
gs					7.89	8.72	8.77	8.90	9.00	8.57

Table 10. Parents' reasons for not allowing junior schoolchildren to come home from school alone, according to age

		age in years									
		7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
danger	ej	32	46	39	35	33					43
	gj	33	(0)	(31)	(20)	(100)					15
molestation	ej	12	18	20	30	7					21
	gj	13	(40)	(31)	(40)	(0)					10
too far	ej	10	9	14	13	33					14
	gj	20	(20)	(31)	(40)	(0)					10
unreliable	ej	29	18	16	13	7					21
	gj	13	0	8	0	0					4

Table 11. Parents' reasons for not allowing children to travel alone for leisure, according to age

		age in years								
		7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
danger	ej	33	45	39	33	19					43
	es					32	8	25	(10)	33	15
	gj	63	57	45	(27)	(60)					62
	gs					59	53	(100)	(44)	(0)	25
molestation	ej	21	32	27	46	38					36
	es					42	50	56	54	67	38
	gj	13	32	20	(64)	(20)					27
	gs					24	40	(0)	(33)	(0)	17
unreliable	ej	30	17	19	10	13					21
	es					11	15	6	(0)	(0)	7
	gj	10	4	20	(0)	(20)					11
	gs					12	0	(0)	(22)	(0)	6

Table 12. Parents' reasons for not allowing children to go out after dark, according to age

		age in years								
		7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
danger	ej	11	12	10	6	6					11
	es					2	4	2	0	5	3
	gj	22	16	14	17	8					18
	gs					8	13	9	3	(0)	8
molestation	ej	37	49	56	65	63					61
	es					75	70	77	89	76	86
	gj	45	61	62	68	58					63
	gs					81	80	81	79	(100)	84
unreliable	ej	40	28	20	20	15					28
	es					14	7	14	0	10	10
	gj	20	14	14	11	(25)					17
	gs					7	6	7	9	(0)	7

Table 13. Parents' concern about road safety, according to child's age

		age in years								
Worry		*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*	*all*
very	ej	63	50	52	52	42					52
	es					30	30	34	30	40	32
	gj	52	48	47	43	64					49
	gs					38	50	35	43	39	42
quite	ej	30	38	40	37	42					37
	es					51	46	36	32	43	41
	gj	28	31	21	39	27					31
	gs					32	22	32	22	27	27
not very	ej	7	11	7	10	12					9
	es					19	23	27	33	13	24
	gj	13	17	27	15	9					18
	gs					22	26	29	28	24	26
not at all	ej	0	0	1	2	4					1
	es					0	2	2	4	5	2
	gj	6	3	4	4	(0)					4
	gs					7	2	4	7	9	5

Table 14. Number of escort round trips per week, other than for school, according to travel mode and to age

Escort round trips		*age in years*								
		7	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15+*
	ej	5.0	4.8	5.2	4.3	5.5				
	es					4.1	3.7	3.6	2.5	6.3!
	gj	3.6	3.5	5.3	3.7	3.0				
	gs					3.8	2.8	2.3	2.8	7.5
Travel method										
walk	ej	36	44	29	42	28				
	es					23	15	21	19	(0)
	gj	31	63	37	33	(67)				
	gs					24	18	29	47	(50)
bus	ej	2	2	1	1	5				
	es					12	12	29	31	(13)
	gj	13	0	4	4	(0)				
	gs					34	32	18	20	25
car	ej	61	53	66	53	62				
	es					12	71	50	44	(88)
	gj	47	28	52	46	(33)				
	gs					21	46	18	27	25

Table 15. Parents' concern about road safety, according to number of escorting round trips per week

Worry		*round trips*
very	ej	5.57
	es	4.26
	gj	3.95
	gs	3.16
quite	ej	3.97
	es	3.29
	gj	4.14
	gs	3.20
not very	ej	3.22
	es	3.47
	gj	3.50
	gs	3.86
not at all	ej	3.80
	es	2.50
	gj	3.00
	gs	4.00

Table 16. Variables of children's 'licence-holding', according to gender

Children allowed to:		*girls*	*boys*
cross roads	ej	42	60
	es	97	96
	gj	73	77
	gs	95	97
leisure alone	ej	30	43
	es	81	86
	gj	73	69
	gs	92	92
from school alone	ej	26	44
	es	83	90
	gj	91	92
	gs	98	99
use buses	ej	10	20
	es	84	84
	gj	34	29
	gs	87	87
go out after dark	ej	0	3
	es	19	29
	gj	3	7
	gs	25	50
cycle owners 1971	ej	60	70
1990	ej	91	91
	es	69	84
	gj	84	93
	gs	88	93
cycle owners allowed on roads			
	ej	12	37
	es	72	80
	gj	30	40
	gs	76	88

Table 17. Children's attitudes to restrictions on their independence, according to gender

		girls	*boys*	*all*
child minds about restriction on crossing roads:				
	ej	36	57	46
	gj	61	72	67
child minds about restriction on cycling:				
	ej	27	56	40
	es	43	62	52
	gj	44	60	52
	gs	46	54	50

Table 18. Parents' reasons for restricting children from coming home from school alone, according to gender

		girls	*boys*
danger	ej	35	42
	es	4	6
	gj	45	18
	gs	(10)	(0)
molestation	ej	23	13
	es	31	6
	gj	20	27
	gs	(40)	(100)
too far	ej	11	14
	es	46	78
	gj	10	36
	gs	(30)	(0)
unreliable	ej	18	19
	es	31	6
	gj	5	9
	gs	(20)	(0)

Table 19. Parents' reasons for restricting children from going out alone for leisure, according to gender

		girls	*boys*
danger	ej	29	46
	es	10	32
	gj	47	63
	gs	42	61
molestation	ej	36	26
	es	63	35
	gj	32	15
	gs	38	26
unreliable	ej	21	16
	es	12	6
	gj	6	15
	gs	15	9

Table 20. Parents' reasons for restricting children from going out after dark, according to gender

		girls	*boys*
danger	ej	7	12
	es	1	4
	gj	10	23
	gs	5	14
molestation	ej	57	51
	es	83	70
	gj	68	49
	gs	85	74
unreliable	ej	26	24
	es	7	10
	gj	13	18
	gs	8	6

Table 21. Parents' concern about road safety, according to gender

Worry		*girls*	*boys*
very	ej	52	53
	es	28	36
	gj	53	44
	gs	44	40
quite	ej	38	37
	es	40	42
	gj	24	35
	gs	26	28
not very	ej	10	8
	es	27	22
	gj	17	19
	gs	27	25
not at all	ej	0	2
	es	4	1
	gj	6	2
	gs	3	7

Table 22. Number of unaccompanied and accompanied weekend activities according to gender

		girls	*boys*	*all*
on own	ej	1.51	1.90	1.72
	es	3.22	3.80	3.52
	gj	1.65	1.85	1.75
	gs	2.65	3.79	3.20
taken	ej	1.82	1.65	1.73
	es	0.91	1.00	0.96
	gj	1.67	1.79	1.73
	gs	0.88	0.82	0.85
total	ej	3.34	3.55	3.45
	es	4.14	4.80	4.48
	gj	3.33	3.64	3.48
	gs	3.52	4.61	4.05

Table 23. Number of accessible friends according to gender

	girls	*boys*	*all*
ej	4.24	4.91	4.59
es	8.00	7.83	7.91
gj	4.97	5.33	5.13
gs	8.49	8.67	8.58

Table 24. Travel method and level of accompaniment *from* school, according to gender

Travel method		*girls*	*boys*
walk	ej	65	69
	es	53	55
	gj	86	89
	gs	36	40
cycle	ej	0	1
	es	-	3
	gj	1	1
	gs	4	7
bus	ej	3	3
	es	42	35
	gj	4	5
	gs	54	48
car	ej	33	28
	es	5	6
	gj	10	6
	gs	6	5
Accompaniment			
parent	ej	65	43
	es	4	5
	gj	11	5
	gs	3	3
other adult	ej	8	7
	es	2	-
	gj	3	1
	gs	2	-
older child	ej	7	9
	es	20	26
	gj	13	9
	gs	15	14
alone	ej	21	40
	es	73	68
	gj	74	84
	gs	80	82

Table 25. **Number of escort trips per week other than for school, according to gender**

	girls	boys
ej	4.9	4.9
es	3.2	4.4
gj	3.7	4.0
gs	3.4	3.3

Table 26. Schoolchildren's travel by method and journey purpose, according to age group and gender.

	journeys per week	walk	car	public transport	private bus	cycle
boys						
7-8	7.7	50	40	5	3	1
school	*3.8*	*65*	*23*	*5*	*6*	*-*
*shop**	*1.7*	*47*	*46*	*6*	*0*	*2*
leisure	*2.2*	*27*	*65*	*4*	*2*	*2*
girls						
7-8	7.7	54	36	6	3	1
school	*3.8*	*70*	*19*	*6*	*4*	*1*
*shop**	*1.6*	*46*	*46*	*6*	*-*	*2*
leisure	*2.3*	*33*	*58*	*5*	*2*	*2*
boys						
9-10	8.3	52	34	6	4	4
school	*3.9*	*68*	*16*	*7*	*7*	*2*
*shop**	*1.7*	*51*	*38*	*7*	*0*	*5*
leisure	*2.7*	*30*	*58*	*6*	*3*	*2*
girls						
9-10	8.6	56	33	5	4	2
school	*4.0*	*72*	*15*	*5*	*7*	*1*
*shop**	*1.9*	*48*	*42*	*6*	*-*	*4*
leisure	*2.7*	*38*	*52*	*5*	*3*	*2*
boys						
11-12	8.7	52	22	14	6	7
school	*4.5*	*61*	*8*	*18*	*10*	*3*
*shop**	*1.9*	*50*	*31*	*12*	*-*	*7*
leisure	*2.4*	*36*	*42*	*9*	*4*	*10*
girls						
11-12	9.9	52	29	11	4	4
school	*4.2*	*58*	*14*	*17*	*9*	*3*
*shop**	*2.7*	*55*	*31*	*8*	*-*	*5*
leisure	*3.0*	*42*	*47*	*6*	*2*	*4*
boys						
13-14	9.4	49	19	16	5	10
school	*4.4*	*51*	*8*	*22*	*10*	*9*
*shop**	*2.0*	*55*	*26*	*12*	*-*	*7*
leisure	*3.0*	*43*	*32*	*11*	*3*	*14*
girls						
13-14	11.1	53	21	18	4	4
school	*4.4*	*54*	*9*	*24*	*9*	*4*
*shop**	*3.2*	*57*	*24*	*15*	*0*	*4*
leisure	*3.5*	*49*	*33*	*13*	*1*	*3*

* includes personal business
Source: special tabulation from the National Travel Survey, 1985/86.

Table 27. Travel method and level of accompaniment *from* school, according to 'licence' to cross roads alone

Travel method		*licenced to cross roads* no	yes
walk	ej	59	74
	es	63	54
	gj	78	89
	gs	63	37
cycle	ej	-	1
	es	0	2
	gj	1	-
	gs	0	5
bus	ej	2	3
	es	31	39
	gj	5	4
	gs	32	52
car	ej	39	22
	es	6	6
	gj	16	6
	gs	5	6
Accompaniment			
parent	ej	69	40
	es	13	4
	gj	22	4
	gs	6	3
other adult/older child	ej	17	12
	es	33	24
	gj	18	11
	gs	11	16
alone	ej	14	48
	es	54	72
	gj	60	85
	gs	83	81

Table 28. Parents' restriction on independent travel and 'licence' to cross roads

		licenced to cross roads	
		yes	*no*
taken places other than school	ej	45	80
	es	14	(64)
	gj	28	31
	gs	7	(19)
not allowed home from school alone	ej	50	80
	es	13	21
	gj	5	14
	gs	1	6

Table 29. Number of unaccompanied and accompanied weekend activities, according to 'licence' to cross roads alone

		licenced to cross roads		
		no	*yes*	*all*
on own	ej	1.07	2.34	1.72
	es	2.50	3.57	3.54
	gj	1.01	2.05	1.79
	gs	2.05	3.28	3.23
taken	ej	1.97	1.52	1.74
	es	2.06	0.91	0.95
	gj	1.42	1.88	1.77
	gs	1.58	0.84	0.87
total	es	3.04	3.86	3.46
	es	4.56	4.49	4.49
	gj	2.43	3.93	3.56
	gs	3.63	4.12	4.10

Table 30. Number of unaccompanied and accompanied weekend activities, according to 'licence' to cycle on roads

		cycle owners allowed to cycle	
		no	*yes*
on own	ej	1.50	2.47
	es	3.37	3.61
	gj	1.60	2.28
	gs	2.72	3.36
taken	ej	1.86	1.48
	es	1.34	0.94
	gj	1.81	1.62
	gs	1.35	1.80
total	ej	3.36	3.94
	es	4.71	4.55
	gj	3.41	3.91
	gs	4.07	4.16

Table 31. Number of unaccompanied and accompanied weekend activities, according to 'licence' to go to leisure places alone

		allowed to go to leisure places alone	
		no	*yes*
on own	ej	1.49	1.97
	es	2.63	3.71
	gj	1.37	1.91
	gs	2.69	3.17
taken	ej	1.88	1.65
	es	1.61	0.90
	gj	1.48	1.68
	gs	1.33	0.79
total	ej	3.37	3.62
	es	4.24	4.61
	gj	2.85	3.59
	gs	4.03	3.96

Table 32. Number of unaccompanied and accompanied weekend activities, according to 'licence' to use buses

		use buses		
		no	*yes*	*all*
on own	ej	1.49	3.06	1.73
	es	3.00	3.63	3.53
	gj	1.49	2.79	1.90
	gs	2.77	3.28	3.20
taken	ej	1.82	1.27	1.74
	es	1.56	0.84	0.96
	gj	1.71	2.02	1.81
	gs	0.98	0.83	0.85
total	ej	3.31	4.33	3.47
	es	4.56	4.47	4.49
	gj	3.20	4.81	3.70
	gs	3.75	4.11	4.06

Table 33. Number of unaccompanied and accompanied weekend activities, according to 'licence' to go out after dark

		allowed to go out after dark		
		no	*yes*	*all*
on own	ej	1.62	3.25	1.65
	es	3.25	4.53	3.55
	gj	1.67	2.53	1.71
	gs	2.82	3.64	3.12
taken	ej	1.81	0.50	1.79
	es	1.13	0.69	1.02
	gj	1.66	1.18	1.65
	gs	0.92	0.68	0.84
total	ej	3.44	3.75	3.44
	es	4.38	5.21	4.58
	gj	3.34	3.71	3.36
	gs	3.75	4.33	3.96

Table 34. Variables of children's 'licence-holding', according to household car ownership

		household car ownership		
		0	*1*	*2+*
cross roads	ej	52	50	52
	es	93	98	95
	gj	84	76	75
	gs	95	96	98
use buses	ej	28	14	11
	es	82	81	86
	gj	26	34	28
	gs	83	89	84
go after dark	ej	4	1	1
	es	25	23	25
	gj	3	6	3
	gs	39	33	44
cycle owners	ej	83	90	96
	es	67	84	85
	gj	81	90	97
	gs	79	91	88
cycle owners allowed on roads	ej	32	17	35
	es	69	75	82
	gj	32	40	38
	gs	81	82	83

Table 35. Travel method and level of accompaniment *from* school, according to household car ownership

Travel method		*household car ownership* 0	1	2+
walk	ej	89	73	51
	es	72	54	43
	gj	97	89	69
	gs	44	40	29
cycle	ej	1	0	1
	es	2	3	1
	gj	0	1	0
	gs	3	6	4
bus	ej	4	2	3
	es	24	37	49
	gj	2	3	12
	gs	51	49	54
car	ej	6	25	46
	es	2	5	7
	gj	2	7	19
	gs	1	5	13
Accompaniment				
parent	ej	46	54	59
	es	0	5	8
	gj	4	8	15
	gs	0	3	6
other adult/ olderchild	ej	18	14	15
	es	9	27	33
	gj	9	11	16
	gs	10	17	16
alone	ej	36	32	26
	es	91	68	59
	gj	88	81	69
	gs	90	80	77

Table 36. Number of unaccompanied and accompanied weekend activities, according to household car ownership

		household car ownership			
		0	*1*	*2+*	*all*
on own	ej	2.34	1.67	1.41	1.66
	es	3.79	3.39	3.63	3.54
	gj	2.24	1.56	1.64	1.71
	gs	3.46	2.19	2.83	3.15
taken	ej	1.53	1.78	1.92	1.80
	es	0.62	0.91	1.32	1.01
	gj	1.68	1.63	1.68	1.65
	gs	0.56	0.86	0.99	0.84
total	ej	3.87	3.44	3.34	3.46
	es	4.41	4.31	4.95	4.56
	gj	3.92	3.19	3.31	3.36
	gs	4.03	4.04	3.82	3.99

Table 37. Household car ownership according to the social class of the head of household

English sample		*social class*					
		1	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
% in 0 car	ej	0	3	18	17	17	55
	es	6	7	23	12	20	48
% in 1 car	ej	31	44	61	57	46	41
	es	32	45	50	55	56	39
% in 2+ cars	ej	69	53	21	26	37	5
	es	61	48	27	32	24	13

German sample		*Sel*	*Bea*	*Ang*	*Arb*	*And*
% in 0 car	gj	3	0	7	23	50
	gs	2	0	7	18	53
% in 1 car	gj	35	61	62	66	50
	gs	29	77	66	69	35
% in 2+ cars	gj	61	39	31	11	13
	gs	69	14	26	12	12

See first page of this Appendix for description of the social classes

Table 38. Travel method and level of accompaniment *from* school, according to social class

English sample		*social class*					
Travel method		*1*	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
walk	ej	50	61	61	73	85	72
	es	42	45	52	60	60	60
cycle	ej	0	1	0	0	0	4
	es	0	3	4	1	0	3
bus	ej	6	2	11	1	5	4
	es	42	48	30	35	40	37
car	ej	44	37	29	26	10	20
	es	16	4	13	4	0	0
Accompanied:							
parent	ej	59	58	62	52	47	54
	es	17	5	5	4	0	0
other adult	ej	6	10	8	8	5	8
	es	7	0	5	2	0	8
older child	ej	11	6	8	7	0	13
	es	40	30	23	19	23	11
alone	ej	24	24	23	33	47	25
	es	36	65	68	76	77	88

German sample		*Sel*	*Bea*	*Ang*	*Arb*	*And*
walk	gj	73	82	79	91	100
	gs	33	32	34	37	53
cycle	gj	0	0	0	2	0
	gs	10	5	6	4	5
bus	gj	17	5	6	2	0
	gs	45	55	52	55	42
car	gj	10	14	15	5	0
	gs	12	9	8	4	0
Accompanied:						
parent	gj	4	9	14	8	5
	gs	6	5	3	3	0
other adult	gj	11	4	1	0	0
	gs	4	0	1	1	0
older child	gj	26	4	8	10	10
	gs	10	23	15	17	5
alone	gj	60	73	77	82	85
	gs	79	73	81	80	95

Table 39. Average number of escort round trips other than for school per week and travel mode, according to social class

English sample		social class					
Escort round trips		*1*	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
	ej	4.2	4.6	5.3	5.2	4.6	6.9
	es	2.5	3.5	4.7	3.8	3.0	7.8
Travel method:							
walk	ej	26	23	33	46	50	55
	es	17	3	(14)	14	(11)	(55)
bus	ej	0	1	6	1	0	9
	es	8	16	14	17	(44)	(19)
car	ej	74	75	61	49	46	32
	es	67	77	71	69	(44)	(18)

German sample						
Escort round trips	*Sel*	*Bea*	*Ang*	*Arb*	*And*
gj	4.4	6.8	4.3	3.0	3.8
gs	1.0	3.8	1.7	4.9	1.0
Travel method: sample size too small for analysis					

Table 40. Parents' reasons for restricting junior schoolchildren from coming home from school alone, according to social class

English sample		social class					
		1	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
danger	ej	51	26	30	46	65	31
molestation	ej	16	15	35	18	4	31
too far	ej	14	19	0	5	22	25
unreliable	ej	11	30	10	16	9	0

German sample too small for analysis

Table 41. Parents' reasons for restricting children from going out alone for leisure, according to social class

English sample		social class					
		1	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
danger	ej	58	32	18	42	42	32
	es	33	24		15		
molestation	ej	26	26	47	27	38	37
	es	56	52		50	45	
unreliable	ej	13	31	0	17	15	5
	es	11	5		15	0	

German sample too small for analysis

Table 42. Parents' reasons for restricting children from going out after dark, according to social class

English sample		social class					
		1	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
danger	ej	13	8	4	12	10	4
	es	0	1	0	6	0	0
molestation	ej	48	47	81	56	54	57
	es	84	84	68	69	78	73
unreliable	ej	20	35	0	21	31	13
	es	8	6	11	12	6	14

German sample		*Sel*	*Bea*	*Ang*	*Arb*	*And*
danger	gj	37	5	15	15	17
	gs	11	0	6	11	(9)
molestation	gj	53	77	60	52	56
	gs	81	88	84	76	(82)
unreliable	gj	7	9	19	18	22
	gs	7	6	6	8	(0)

Table 43. Parents' concern about road safety, according to social class

English sample		social class					
Worry		*1*	*2*	*3/1*	*3/2*	*4&5*	*unempl.*
very	ej	28	47	61	60	70	54
	es	23	28	43	35	36	38
quite	ej	59	44	32	29	18	29
	es	52	41	39	39	40	42
not very	ej	11	9	7	9	10	17
	es	26	29	9	24	24	19
not at all	ej	2	1	0	2	3	0
	es	0	3	9	2	0	0

German sample						
Worry		*Sel*	*Bea*	*Ang*	*Arb*	*And*
very	gj	61	30	41	51	48
	gs	24	32	39	48	37
quite	gj	19	43	39	28	24
	gs	33	41	30	22	32
not very	gj	19	22	19	14	29
	gs	35	27	25	26	21
not at all	gj	0	4	1	7	0
	gs	6	0	5	4	11

Table 44. Social class of head of household according to area

English sample		area					
		Isl	*Not*	*Ste*	*Win*	*Oxf*	*All*
% 1 and 2	ej	16	27	26	69	72	46
	es	30	31	36	58	29	39
% 3/2	ej	29	49	46	19	18	32
	es	19	43	36	26	48	35

German sample		area				
		Köl	*Boc*	*Cho*	*Lan*	*Wit*	*All*
% Selbständige	gj	6	10	6	11	14	10
	gs	18	10	8	12	11	12
% Angestellte	gj	6	29	12	35	39	28
	gs	31	31	17	32	37	30
% Arbeiter	gj	58	45	62	37	29	44
	gs	43	51	54	41	41	46

Table 45. Adult licence-holding according to household car ownership

Licence-holding:		*household car ownership*			
		0	*1*	*2+*	*All*
% with none	ej	65	1	0	8
	es	51	0	0	7
	gj	3	0	0	-
	gs	26	0	0	3
% with 2+	ej	5	57	89	68
	es	22	50	99	64
	gj	46	65	97	70
	gs	22	65	100	68

Table 46. Household car ownership according to area

		area					
		Isl Köl	*Not Boc*	*Ste Cho*	*Win Lan*	*Oxf Wit*	*All All*
% 0 car 1971	ej	55	41	23	12	16	31
% 0 car 1990	ej	33	8	31	7	1	14
	es	48	18	17	6	7	16
	gj	36	16	34	19	1	19
	gs	25	15	23	11	7	16
% 1 car	ej	56	62	47	46	28	47
	es	43	46	44	49	55	48
	gj	58	65	59	58	51	58
	gs	57	66	66	55	62	61
% 2+ cars	ej	10	30	23	46	71	39
	es	10	37	38	45	37	36
	gj	6	19	7	24	48	22
	gs	18	19	11	34	39	23

Table 47. Distance to school according to area

		area					
		Isl Köl	*Not Boc*	*Ste Cho*	*Win Lan*	*Oxf Wit*	*All All*
% within 0.5 km.	ej	55	57	34	41	61	49
	gj	82	61	89	29	64	62
% within 1.0 km.	ej	91	95	55	86	80	82
	es	37	94	38	27	32	43
	gj	96	100	100	94	83	95
	gs	41	12	72	32	25	35

Table 48. Variables of children's 'licence-holding', according to area

			area				
			Isl	*Not*	*Ste*	*Win*	*Oxf*
			Köl	*Boc*	*Cho*	*Lan*	*Wit*
cross roads	1971	ej	48	86	79	61	83
	1990	ej	54	38	51	48	66
		es	95	96	98	96	97
		gj	46	86	91	69	64
		gs	84	100	98	98	98
leisure alone	1971	ej	71	77	68	47	48
	1990	ej	36	27	38	35	49
		es	79	91	81	82	84
		gj	66	79	57	73	71
		gs	94	92	96	86	91
from school alone		ej	26	43	41	34	36
		es	93	96	87	89	73
		gj	73	99	94	97	85
		gs	99	99	98	99	99
use buses	1971	ej	30	57	58	58	32
	1990	ej	20	20	21	13	5
		es	79	88	93	93	62
		gj	16	34	32	41	25
		gs	86	96	80	85	85
go after dark		ej	1	2	1	1	2
		es	17	32	26	22	20
		gj	13	5	0	8	1
		gs	34	31	44	42	30
cycle owners	1971	ej	50	51	66	80	77
	1990	ej	79	91	95	91	100
		es	43	77	82	87	86
		gj	58	94	86	94	99
		gs	83	96	76	96	97
cycle owners allowed on roads		ej	9	10	18	38	38
		es	32	71	86	85	83
		gj	35	68	14	24	27
		gs	76	85	76	78	84

Table 49. Travel method and level of accompaniment *to* and *from* school, according to area

Travel method			*area* *Isl Köl*	*Not Boc*	*Ste Cho*	*Win Lan*	*Oxf Wit*
to school:							
walk	1971	ej	89	95	95	74	50
	1990	ej	76	71	76	44	57
		es	55	86	57	32	33
		gj	96	90	96	79	59
		gs	26	15	79	41	29
cycle	1971	ej	0	0	2	1	1
	1990	ej	0	0	2	1	0
		es	0	4	3	2	1
		gj	0	0	3	0	0
		gs	2	5	11	2	4
bus	1971	ej	6	3	2	1	39
	1990	ej	3	2	0	1	9
		es	39	4	22	59	63
		gj	4	0	0	3	18
		gs	71	65	9	39	58
car	1971	ej	6	3	1	23	10
	1990	ej	21	27	22	54	34
		es	6	6	18	8	3
		gj	0	10	1	18	23
		gs	1	14	0	18	9

		area				
		Isl Köl	*Not Boc*	*Ste Cho*	*Win Lan*	*Oxf Wit*
from school:						
walk	ej	74	70	81	57	57
	es	61	87	66	33	32
	gj	95	94	97	89	59
	gs	25	19	78	44	29
cycle	ej	0	0	2	1	0
	es	0	4	3	2	1
	gj	0	1	1	0	0
	gs	2	5	10	2	5
bus	ej	3	2	0	1	8
	es	37	4	20	61	63
	gj	5	0	0	1	21
	gs	72	67	11	40	61
car	ej	22	28	17	41	36
	es	2	5	11	4	4
	gj	0	5	1	10	21
	gs	1	9	0	14	5

Table 50. Travel method and level of accompaniment *from* school, according to distance to school

Travel method		*distance to school in kms.* <½	½<1	1<2	2+
walk	ej	82	60	43	31
	es	96	90	53	15
	gj	93	87	(15)	(50)
	gs	93	80	29	1
cycle	ej	-	0	2	2
	es	2	1	5	2
	gj	0	2	0	0
	gs	3	3	14	2
bus	ej	0	1	10	16
	es	1	5	34	76
	gj	1	3	77	(0)
	gs	3	13	50	89
car	ej	17	40	45	51
	es	1	4	8	8
	gj	6	9	8	(50)
	gs	0	4	7	8
Accompaniment					
parent	ej	44	63	54	71
	es	0	4	6	7
	gj	6	11	(0)	(33)
	gs	0	3	3	4
other adult	ej	7	5	12	13
	es	1	1	0	2
	gj	1	2	(0)	(33)
	gs	0	0	2	2
older child	ej	8	10	2	6
	es	12	9	22	37
	gj	8	11	(46)	(0)
	gs	10	15	15	16
alone	ej	41	22	31	10
	es	87	86	73	53
	gj	85	76	(54)	(33)
	gs	90	83	81	78

Table 51. Number of unaccompanied and accompanied weekend activities, according to area

		area					
		Isl Köl	*Not Boc*	*Ste Cho*	*Win Lan*	*Oxf Wit*	*All All*
on own	ej	2.09	1.86	2.32	1.40	1.12	1.71
	es	3.80	3.58	3.29	3.19	3.97	3.53
	gj	2.53	1.72	1.97	1.64	1.26	1.77
	gs	3.10	3.00	4.86	2.73	2.34	3.19
taken	ej	1.45	1.82	1.35	2.19	1.65	1.74
	es	0.84	0.83	0.86	1.23	0.95	0.96
	gj	1.63	1,78	2.53	0.85	2.03	1.73
	gs	0.64	0.74	0.36	1.60	0.92	0.85
total	ej	3.54	3.68	3.68	3.59	2.78	3.56
	es	4.64	4.41	4.15	4.41	4.91	4.49
	gj	4.16	3.50	4.51	2.49	3.29	3.50
	gs	3.74	3.74	5.23	4.33	3.26	4.04

Table 52. Number of escort round trips other than for school per week and travel mode, according to area

		area					
Escort round trips		*Isl Köl*	*Not Bos*	*Ste Cho*	*Win Lan*	*Oxf Wit*	*All All*
	ej	6.0	5.5	4.3	5.1	3.8	4.9
	es	5.0	3.6	4.8	3.4	3.0	3.8
	gj	2.8	4.2	3.3	3.3	4.8	3.9
	gs	2.8	4.2	2.8	2.9	3.3	3.3
Travel method							
walk	ej	57	49	40	20	27	37
	es	43	64	16	0	0	18
	gj	81	38	73	18	7	44
	gs	38	5	61	12	16	30
bus	ej	5	1	3	0	0	2
	es	36	7	12	7	32	19
	gj	11	8	0	11	4	6
	gs	33	53	7	24	32	28
car	ej	34	46	52	79	73	59
	es	7	29	72	93	64	61
	gj	0	46	9	68	86	41
	gs	14	37	7	53	47	29

Table 53. Parents' concern about road safety, according to area

Worry		*area* *Isl* *Kõl*	*Not* *Boc*	*Ste* *Cho*	*Win* *Lan*	*Oxf* *Wit*
very	ej	67	68	54	51	27
	es	44	45	42	23	16
	gj	51	51	63	46	35
	gs	48	43	56	26	39
quite	ej	26	21	33	41	59
	es	39	42	31	46	46
	gj	23	25	17	35	42
	gs	26	32	16	25	32
not very	ej	7	9	13	7	10
	es	17	13	24	29	33
	gj	11	18	19	17	20
	gs	21	23	13	47	26
not at all	ej	0	2	0	0	4
	es	0	0	2	2	6
	gj	14	5	2	1	3
	gs	4	2	16	2	3

Table 54. Parents' opportunities for going out alone when children compared with children today

	far more	more	same	fewer	far fewer
ej	36	41	13	8	3
es	24	35	12	20	9
gj	17	28	35	15	5
gs	12	19	37	22	10

Table 55. Parents' method of travel to school when they were juniors

	walk	cycle	bus	car
ej	87	3	9	1
es	81	4	14	1
gj	97	1	2	1
gs	95	3	2	-

Appendix 4
The Economics of Escorting in Britain

During 1990, 1,356 million hours per year were spent in Britain escorting children. The economic resource cost of this escorting using Department of Transport methods of valuation is estimated in this Appendix at between £10 billion and £20 billion annually.

Derivation of estimate of adults' time spent escorting

Tables 3.3 and 8.2 of the report of the findings of the National Travel Survey for 1985/86 records 0.6 educational escort journeys per person per week[1] With a population in Britain of 55.5 million, this translates to 33.3 million of these journeys made every week in 1985/86.

A comparison of the escorting reported in the PEP survey of 1971 and our 1990 surveys[2] show that there has been a four and a half-fold increase in escorting junior schoolchildren to school since 1971. In 1971 14 per cent were accompanied by their parents; by 1990 this figure had reached 64 per cent, an annual compound rate of increase over the 19 years between the two surveys of 8.3 per cent. If this rate prevailed for the years since the 1985/86 National Travel Survey, by mid-1990 the amount of escorting will have increased by 49 per cent,[3] bringing the total number of school escort journeys per week to 50 million.

The average parent of a junior schoolchild in our surveys in English schools made 9.8 escort journeys every week for non-educational purposes, in addition to the 12.8[4] made for school escort purposes, giving a total of 22.6 escort journeys per week. Thus for every 10 school escort journeys made there were another 7.66 made for non-educational purposes. Increasing the 50 million educational escort journeys a week estimated above by the same proportion - 76.6 per cent - brings the total to 88 million child escort journeys per week for all purposes. The average time taken on each of these journeys is 11.85 minutes,[5] giving a total of 904 million hours spent escorting children during 1990.

The economic value of escort time

When estimating the value of motorists' time savings attributable to new road schemes, the Department of Transport places a value of £2.56 an hour on 'non-working time'.[6]

£2.07 1.05 1.178 = £2.56 in 1990 prices[7].

This is the value that it would place upon most escorts' time because, with the exception of a few professional nannies, most of the escorts are not being paid for the job. At this rate, the value of the time spent escorting children in 1990 would be £2.3 billion.

However, applying the principles employed by the Department when assessing road schemes, there is a strong case for valuing escort time at the higher 'working time' rates. The job is not only largely involuntary, but is seen as necessary because of problems related to transport. This can be deduced from the reasons that parents give for escorting their children and for restricting their freedom to travel on their own.[8] While some parents may enjoy accompanying their children to and from school every day,[9] this is unlikely to account for the substantial increase in numbers doing so since 1971. Between 1973 and 1987 the proportion of women in full-time employment whose youngest child was aged 5 to 9 decreased from 18 to 14 per cent, while the proportion in part-time employment increased from 42 per cent to 48 per cent.[10] This shift from full-time to part-time employment could in part reflect the increase in a perceived need to escort children from school. Certainly the increase in escorting will have increased the number of conflicts between the travel schedules of children and those of their full-time working parents. The demands of the escortee's timetable dictate a form of employment which is effectively limited to a 9.30 am to 3.00 pm working day. The actual time required for escorting is a relatively trivial part of the problem. The principal difficulty is that the time-budget of the escort is determined by the schedules of the children who need escorting.

When valuing the time that a road scheme might save motorists, the Department estimates the fraction of the time savings that consist of working time. According to the COBA Manual:

> 'Working time is valued at its cost to the employer of the travelling employee, on the ground that the value of the output produced in working time must be at least equal to the cost to the employer of hiring labour for that time. This assumes that all savings in working time can be used for the production of output by the employee, and that the value of this output is measured by the gross wage of the employee. This is the resource value of the time savings used in COBA 9.'[11]

In the Manual, working time is considered to be between three and four times more valuable than non-working time. Working time lost

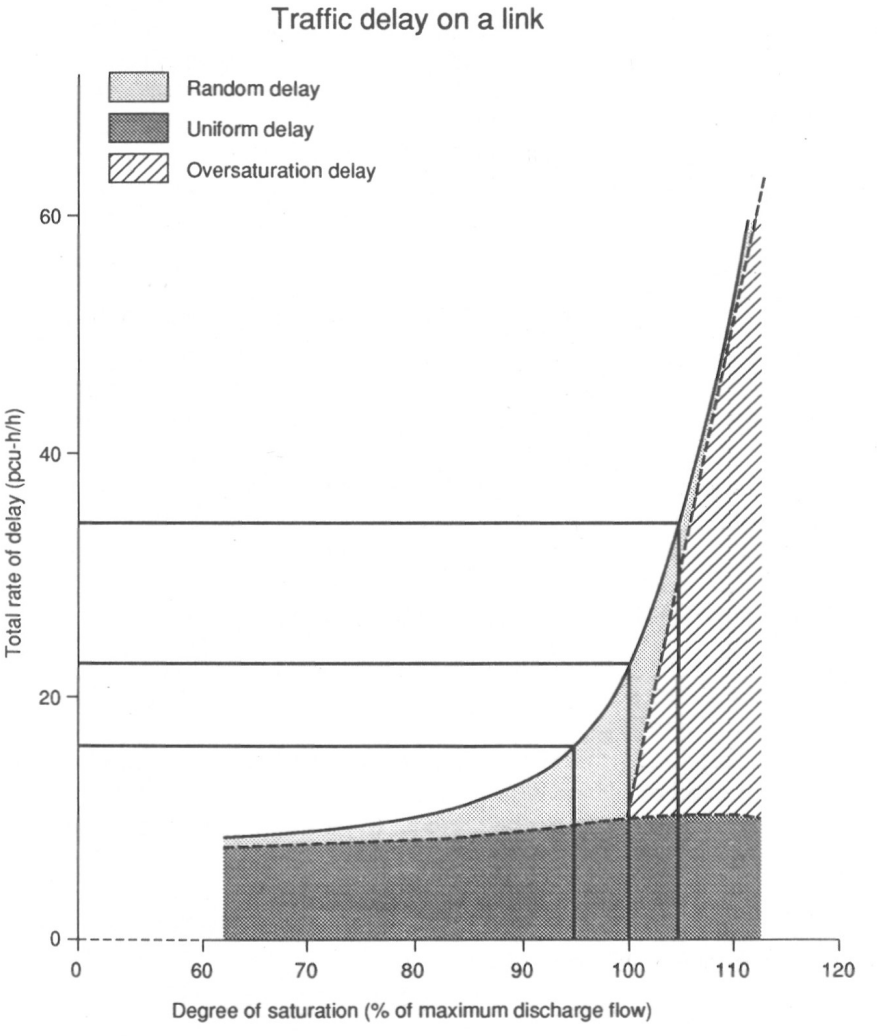
through congestion is deemed an irretrievable loss to the economy. Because escorting children is largely a job imposed by the nature of the country's transport system, and one which often precludes paid employment, it is reasonable to value escort time on the same 'opportunity cost' basis as congestion losses; that is, to treat it as time that, but for the deficiencies of the transport system, could be put to productive use. If the time of escorts were to be valued at the same rate as that of a professional nanny (£5.00 per hour) the value of the escort time calculated above would be £4.5 billion. But many escorts, if free to take full-time employment, would earn more than this. If their time were valued at the rate for lorry drivers (£7.70 per hour), the lowest working time rate given in COBA, the value of their escort time would be increased to £7 billion; if valued at the same rate as that for drivers of 'working cars' (£10.51 per hour) it would be worth £9.5 billion.

Congestion costs

According to the National Travel Survey, during the morning rush hour (7.30 am - 8.59 am), on days when schools are in session, 11.7 per cent of car journeys are for school escort purposes. These journeys are considerably shorter than the average commuting journey (on average 9.4 minutes compared to 19.5 minutes for all other journeys).[12] Based on time spent in traffic, school escort journeys account for 6.4 per cent of rush hour traffic.[13] These percentages may seem small, but their effects can be large.

Where a road network is operating close to its capacity, the addition of small amounts of extra traffic can cause major traffic jams. Conversely the subtraction of small amounts of traffic can virtually eliminate congestion. Figure A4.1 from a Transport and Road Research manual for optimising the settings of traffic signals shows why. In this example an increase in flow, from 95 to 100 per cent of a link's capacity results in a 42 per cent increase in delay; a further 5 per cent increase in flow results in an additional 57 per cent increase in delay. In complex, pervasively congested networks in which traffic jams interact with each other, such effects can be amplified.

Figure A4.1 The effects of increases in traffic flow on congestion



Source: Redrawn from Transport and Road Research Laboratory, *User Guide to Transyt (Version 8)*, LR 838.

The Confederation of British Industry has estimated the annual cost to the British economy every year of congestion to be £15 billion[14] Escorting children to school by car is a major cause of congestion. This can easily be seen in the marked reduction in congestion that occurs during school half-term breaks. If, conservatively, 10 per cent of congestion is attributable to school escort trips, this would add £1.5 billion pounds annually to the three hourly rates used in determining the economic costs of escorting, estimated above, bringing the totals to £6 billion, £8.5 billion, and £11 billion.

However, the CBI's estimate of the costs of congestion goes far beyond the value of the time spent by people and vehicles dealayed in traffic jams. It includes the extra margin of time that must be allowed, given the uncertainty of congestion, to meet guaranteed delivery and business schedules. It adds the cost of the extra vehicles and drivers, warehouses and stocks, that are required to maintain a congestion-free standard of service. It adds the costs of the extra fuel and maintenance and road repairs associated with the extra congestion generated by congestion. Beyond that it adds health costs and absence from work losses associated with stress-induced illness, and decreases in productivity caused by stressful working conditions.

Similar additions can be made to the costs of escorting:

a) the resource and pollution costs of all this extra travel,
b) the loss of the productive capacity of those who, but for the need to escort, would be in full-time work,
c) the disruption to efficient working practices caused by the need to defer to children's travel timetables,
d) the extra time that must be allowed to be sure of arriving at the school gate on time,
e) the time spent hanging around if lessons over-run,
f) the 'organisation time' spent rounding up one's own and other's children and equipment,
g) the stress associated with juggling work and escort schedules, and the fears and guilt that result if work commitments are allowed to over-ride the perceived need to escort.

If these additional cost were to add only 50 per cent to the costs already estimated, the cost of escorting would rise to between £9 and £16.5 billion per year.[15]

Estimates of the costs of both escorting and congestion are impossible to make with precision; both are based on 'heroic' assumptions. But data from the National Travel Survey, along with methods of estimation employed by the Confederation of British Industry and values used by the Department of Transport, suggest that the 'resource cost' of escorting the nation's children, in round but conservative numbers, is probably between £10 and £20 billion each year - 2 per cent to 4 per cent of GDP. This can be compared with the Department's present road building programme which is valued at £17 billion spread over the next 10 years.

The main justification that the Department offers for building new roads is the saving of motorists' time. There is no evidence that it actually achieves this. Certainly any time that might be saved on particular journeys is being more than offset by additional time spent travelling. According to the National Travel Surveys of 1975/76 and 1985/68, the amount of time that the average Briton spent travelling every year increased over the ten-year period by 16 per cent - from 340 to 396 minutes per week.[16]

Building new roads to relieve congestion generates traffic; it liberates what traffic engineers refer to as 'suppressed demand' and, therefore, as a means of relieving congestion, it is largely self-defeating. Worse still, as traffic increases, the streets become more dangerous for children, and parents respond by increasing the amount of escorting that they do. The extra time spent escorting, and the extra congestion it generates, almost certainly outweigh any time that motorists might be saved by the building of new roads.

Conclusion

The above exercise in conjuring with numbers is based on methods and money values commonly used in support of road building and in wider debates about transport policy. The methods and values assume that Gross Domestic Product is a meaningful measure of welfare and progress. We doubt this. But, for those who do subscribe to such measures, they indicate that the threat of traffic to children imposes a heavy economic burden on the nation.

Notes

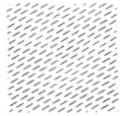
1. Department of Transport, *Report - Part 1, An Analysis of Personal Travel*, HMSO, 1988.

2. See Appendix 3, Table 4.
3. This assumes a constant rate of increase over the period 1971 to 1990. It is in the nature of such growth processes that they begin slowly, pick up speed and then slow down again as saturation is approached. Since 64 per cent is still some distance from saturation, using the average rate for the last five years is a crude, but probably fair, assumption.
4. On average, there were 4.9 escorted round trips for other purposes per week - see Appendix 3, Table 25 - and each round trip counts as two journeys. Regular escorting to school involves two round trips or four one-way trips a day, that is 20 per week. In our surveys in the English schools, 64 per cent of the juniors were escorted by an adult - see Appendex 3, Table 4. Thus, 64 per cent of 20 = 12.8 trips a week.
5. From special tabulations (Tables 1765 and 1766) supplied by the Department of Transport,
6. The COBA Manual gives a value of £2.07 in 1988 prices. This has been multiplied by 1.05 to allow for increased real earnings, and by 1.178 to allow for inflation to 1990.
7. Adjustments made in consultation with J. Knowles of APM Division, Department of Transport, 5 September, 1990.
8. Even in 1971, fear of traffic was the main reason give by parents for accompanying their children to school (see Mayer Hillman, Irwin Henderson and Anne Whalley, *Transport Realities and Planning Policy*, Political and Economic Planning [now Policy Studies Institute], 1976, Table VI. 8.
9. Over this period, educational practices have changed and there is now more encouragement for parents to meet teachers and become involved in school activities. But such involvment is unlikely to account for more than a small fraction of routine twice-daily escorting.
10. Office of Population Censuses and Surveys, *General Household Survey 1987*, HMSO, Table 9.11.
11. COBA 9, Assessment, Policy and Method Division of the Department of Transport (the manual that guides the cost-benefit analysis of proposed road schemes).
12. From special tabulations supplied by the Department of Transport.

13. This percentage will have increased since the 1985/86 National Travel Survey. Other sources indicate much higher levels of escorting than we found in our surveys or in the NTS:
    a) The 1981 Greater London Travel Survey reports that educational escort trips accounted for 8.95 per cent of vehicle mileage in Greater London between 7.00 am and 10.00 am (see K. Buchan and S. Plowden, *Potential Benefits from Traffic Restraint in London*, a report by the Metropolitan Transport Research Unit, for nine London Boroughs, August 1990). The same study estimated that escort journeys for all purposes, including work, formed 21.5 per cent of morning traffic between 7.00 am and 10.00 am. These figures also will have increased since 1981.
    b) The total primary school population of Inner London in 1988 was estimated by the London Residuary Body to be 166,000. The British Road Federation has estimated that '80,000 children [48 per cent] of those attending primary school in Inner London arrived by car' (BRF Press Release, 17 October 1988). Our survey in a part of Islington with low household car ownership yielded an estimate of 21 per cent.
14. *Trade Routes to the Future*, Confederation of British Industry, 1989.
15. The British Road Federation estimates the direct costs of urban congetion at £3 billion a year. All the extra costs associated with congestion - extra inventories, loss of productivity, stress and absenteeism, etc. - bring the total annual cost, according to the CBI, to £15 billion, or an additional 400 per cent. Our addition of 50 per cent is fairly rough and ready, but very conservative by CBI standards.
16. Stephen Potter and Peter Hughes, *Vital Travel Statistics*, Energy and Environment Research Unit, The Open University and Transport 2000, 1990, Table 5.

Appendix 5

Key



Residential

Open Space

• • •

Shopping

Ⓟ

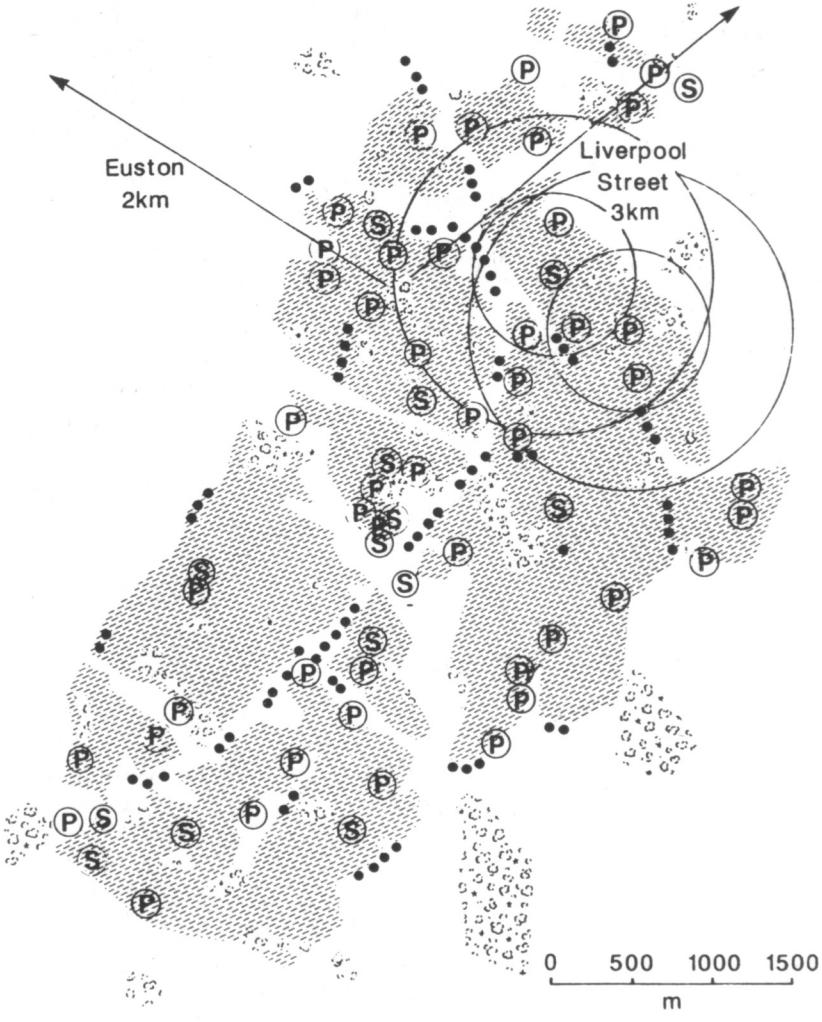
Primary school

Ⓢ

Secondary school

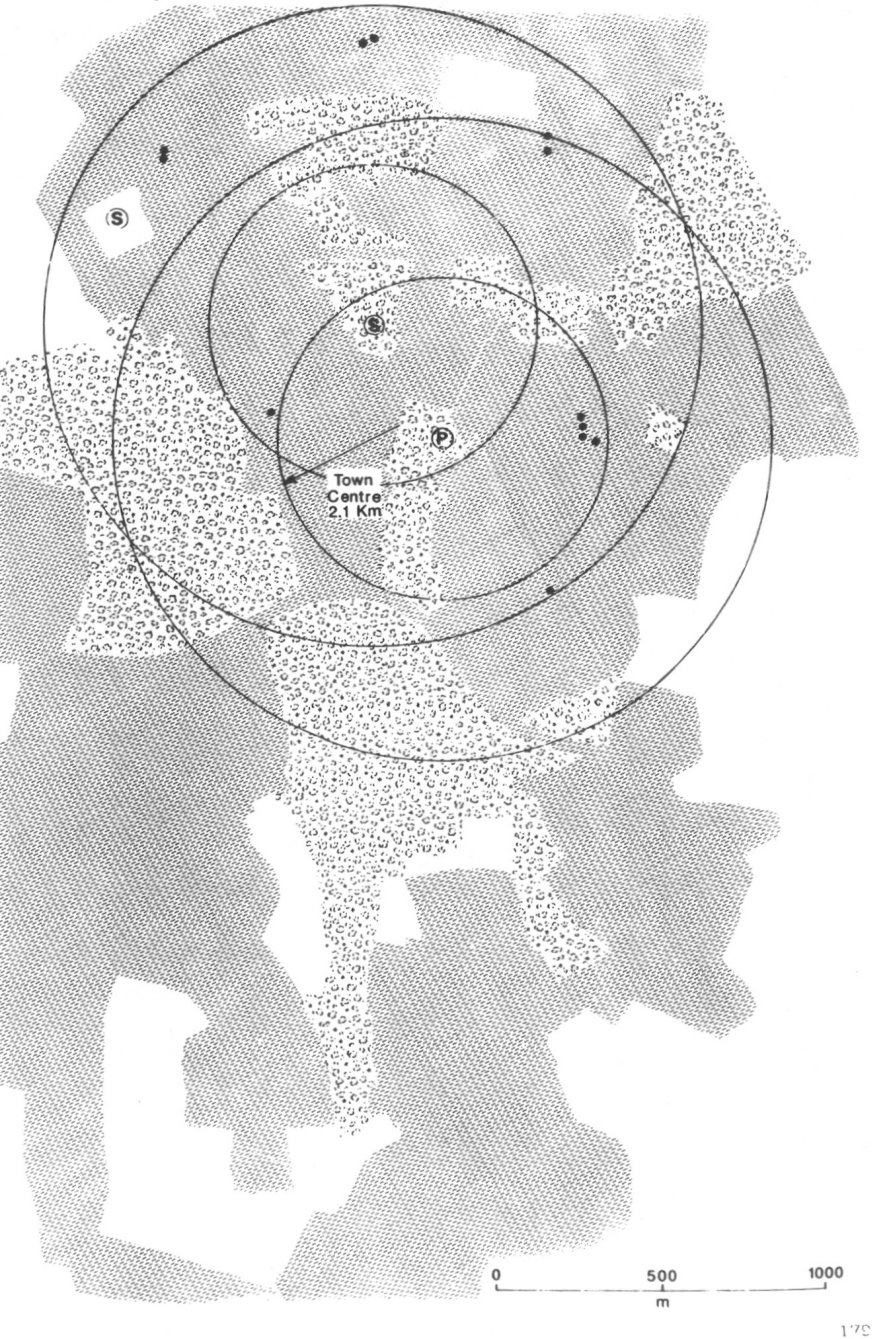
Concentric rings around the schools at 0.5km and 1km

Map 1 Islington, London



Map 2 Outer Nottingham

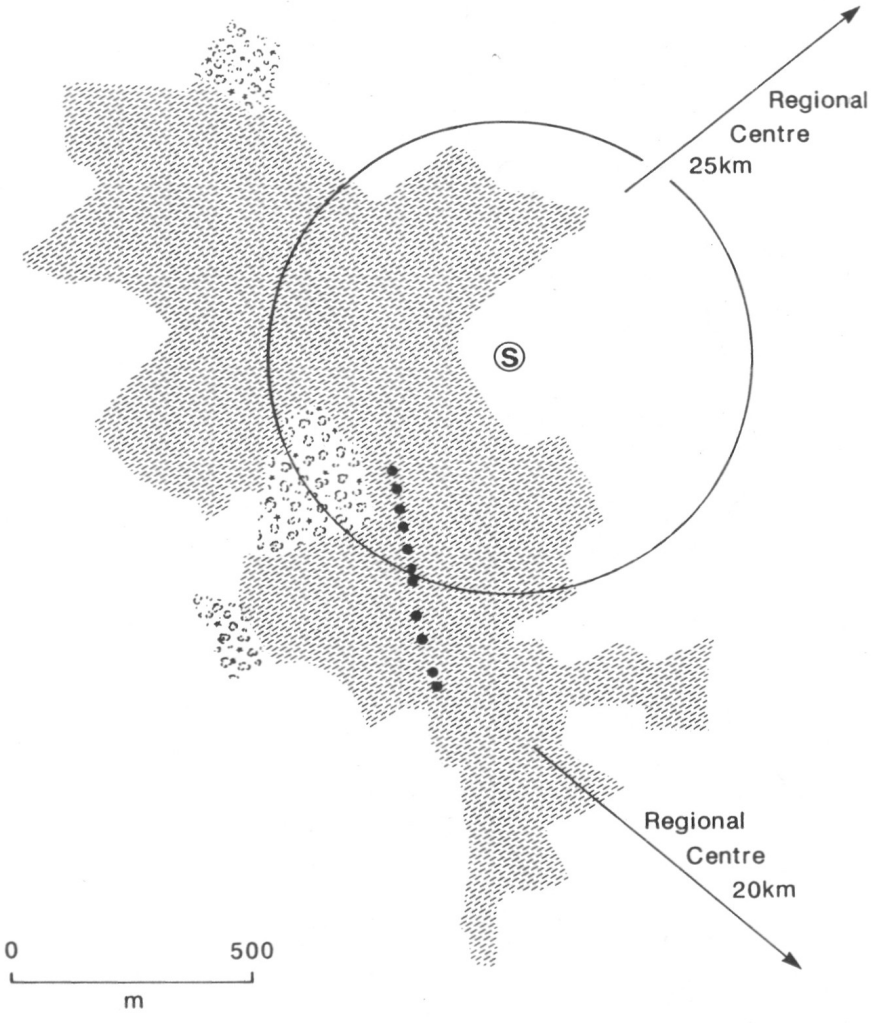
Map 3 Stevenage New Town, Hertfordshire



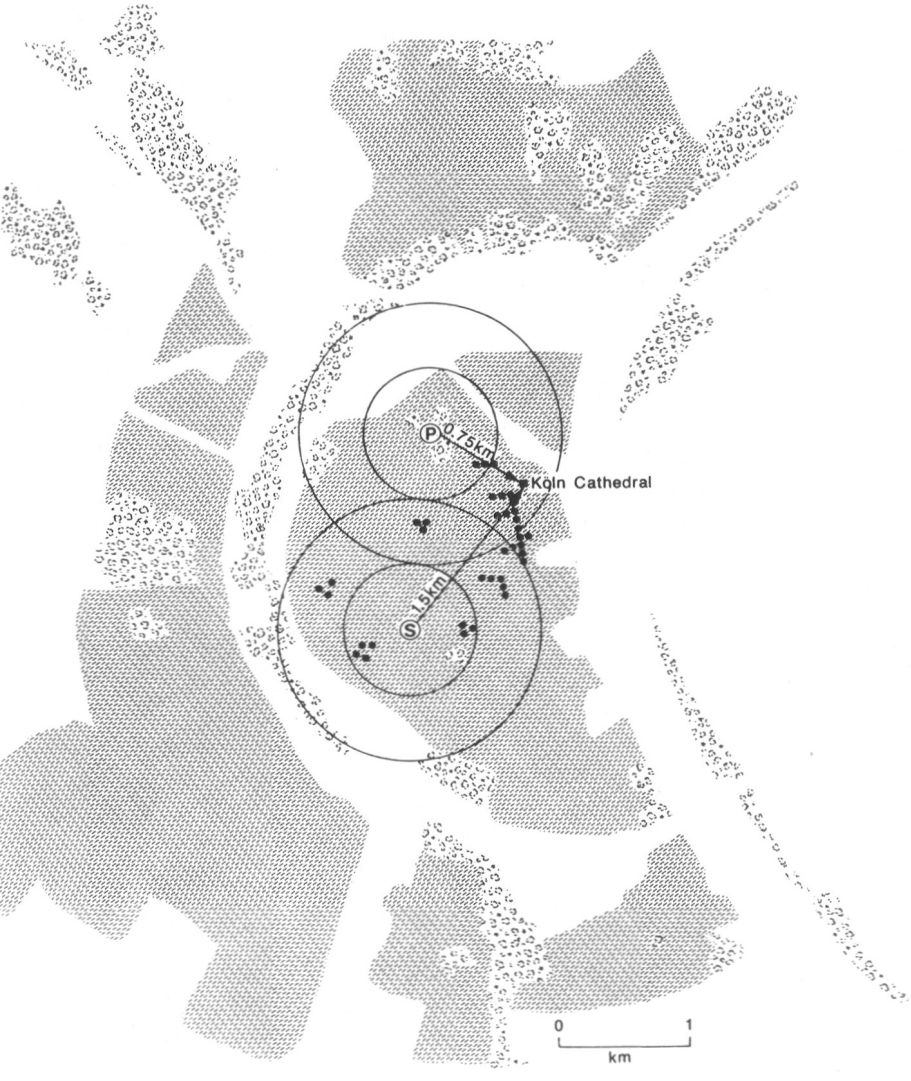
Map 4 **Winchester, Hampshire**

Map 5a Hook Norton Parish, Oxfordshire

Map 5b Chipping Norton, Oxfordshire



Map 6 Köln Innenstadt



Map 7 Bochum
District Centre 3km
City Centre 3km
City Centre 1km
P
S

Map 8 Köln Chorweiler (New Town)

Map 9 Langenfeld/Schwelm

City Centre
0.6km
Witten Centre
1.2km

One False Move...

A STUDY OF CHILDREN'S INDEPENDENT MOBILITY

MAYER HILLMAN, JOHN ADAMS & JOHN WHITELEGG

Over the past two decades, child fatalities from road accidents in Britain have nearly halved, while the volume of traffic in Britain has nearly doubled. On the one hand, government argues that the roads have become 'much safer'; on the other, it warns that they are extremely dangerous through campaigns with themes such as, *'One false move and you're dead'*. This study was inspired by the inherent contradictions in government's position. The analysis challenges the conventional orthodoxy that road accidents are a true measure of road safety.

In 1971, 80 per cent of seven and eight year old children were allowed to go to school without adult supervision. By 1990, this figure fell to 9 per cent. Road accidents involving children have declined not because the roads have become safer but because children can no longer be exposed to the dangers they pose. Systematic surveys were carried out of how children and their parents behave in response to the risk of accidents in ten areas in Britain and Germany. Clear evidence was found that restrictions on the independent mobility of children were a direct result of the fears of parents. In addition, parents have been steadily increasing the amount of time they spend escorting their children. This further contributes to traffic congestion and increased danger from traffic.

The study proposes new measures of road safety. They would result in the restoration to children of much of the childhood freedom and choice that they are being denied by danger on the roads.

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