Gender Divisions in Health: An Analysis of the 1982 General Household Survey.

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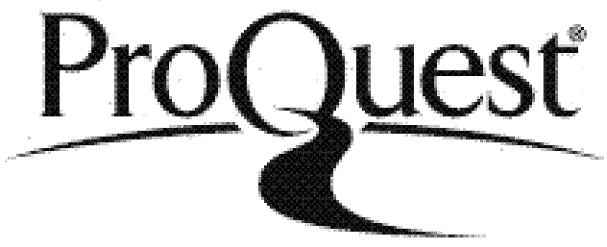

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Abstract

This thesis focuses on the different morbidity rates reported by men and women. Hypotheses are developed to account for this phenomenon, which are subsequently tested using the General Household Survey 1982.

Chapter one looks at the history of medicine, identifying the paradigms which have shaped the discipline. These paradigms whilst being theoretically complementary have at times been in dispute. The disputed area is that between the social and the organic.

Chapter two reviews the literature which suggests explanations for women's higher morbidity rates. These explanations stress the social differences between men and women. The adult roles of marriage, parenthood and employment are posited to be problematic for women, in terms of health, due to the gendered nature of child care and domestic tasks. It was felt that role overload for women would be exacerbated in a context of material deprivation. A number of hypotheses were then formulated which related adult roles and material deprivation.

The next three chapters deal with the methodology to be used in the testing of the hypotheses formulated above. Chapter three begins by defending our use of secondary analysis as appropriate for this purpose. It addresses the criticisms of survey techniques, discusses the benefits and limitation of this methodological approach and looks at the varieties of research made possible with secondary analysis.

Chapter four focuses on the origin and development of the General Household Survey. The quality of the data is discussed in terms of the sampling design and data collection.

Also in Chapter four articles are reviewed to assess the GHS's research contribution to the behaviours of drinking and smoking and to the debate over inequities in health service provision.

In Chapter five we operationalize our variables from the concepts generated in Chapter two. We also explain any data manipulation necessary to the analysis.

Chapters six and seven tested the hypotheses formulated in chapter two. Gender differences in health outcomes due to adult roles were found and these differences were often exacerbated by material deprivation.

With reference to the hypotheses in Chapter two and the findings of Chapters six and seven, Chapter eight uses logit analysis to address gender divisions in health.

The findings of the three analysis chapters are discussed in Chapter nine.

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Chapter One:

The Evolution of Social and Organic Medicine

I INTRODUCTION

In Britain today there is inequality between the sexes in many social, economic and political spheres. One such area is that of health outcomes, which show apparent inconsistencies between males and females in morbidity and mortality statistics. In all age groups the risk of premature death is greater for men than for women and this risk intensifies with age. Yet whilst women have the mortality advantage they overwhelmingly experience more morbidity than men.

The aim of this thesis is to understand this apparent inconsistency by assessing the various explanations put forward. These range from unsatisfactory morbidity measures to the increased propensity of women to report more illness than men. Further explanations cite the social and structural roles of men and women in creating these differing health experiences. This view does not find any inconsistency in the mortality and morbidity statistics since it is possible that the phenomenon of morbidity reflects a much broader range of social circumstances than mortality rates can capture. The latter view point will be developed in the next chapter when hypotheses will be posited and tested in later chapters using the General Household Survey.

This debate over gender divisions in health is part of a much larger concern about health inequalities between groups which exists despite the National Health Service. How to make sense of the disparities has been a theoretical challenge to which there are a variety responses. These have been in keeping with different paradigmatic responses or cultures of explanation which claim differing sources for health inequalities and therefore different solutions. This thesis will argue that the tradition of social medicine begun in the nineteenth century offers the most promising approach to an understanding of how gender might impact on health. Furthermore it suggests that sociology rather than epidemiology or social administration can provide the most fruitful theoretical framework within this approach.

In this chapter we trace the development of social medicine within the history of medicine, identifying two paradigms which have shaped the discipline; social medicine and organic medicine. This history is not simply the list of medical discoveries but a constantly changing set of ideals: ideals which are defined by the cultural, political and economic context. The cultural context defines the conditions that are recognised, the causes to be attributed to them and the persons who have legitimate authority to assess and define such conditions. Two paradigms have developed out of the

culture which, whilst being theoretically complementary, have at some times been in dispute. The disputed area is that between the social and the organic. The former attempts to link health to the political, social and economic conditions and investigates how these might impact on health outcomes. This is an important precurser to chapter two which addresses the various explanations of women's morbidity differences.

The latter paradigm is that of specific aetiology or a mechanistic approach and focuses on health restored by treatment of disease. This latter paradigm whilst able to explain in a more rational and scientific manner exactly why social medicine had such a dramatic effect on health outcomes, eventually developed into an emphasis on specific aetiology; the notion of illness having a simple organic cause, to be remedied by a magic bullet. The next section discusses the relative merits of the two paradigms and explores the claim that the specific aetiology paradigm has been the more successful.

Following this discussion we examine the differentiation of social medicine into three approaches including the sociological approach. The latter provides for analysis of health inequalities between groups to be addressed in terms of their relationship to production and consumption; a strategy which is examined throughout the thesis in terms of males and

females.

II SOCIAL MEDICINE

In the nineteenth century the enormous social reorganization which took place led to a realization of the social and economic origins of health outcomes. A study by James Philip Kay (1832) on the conditions of the workers in the cotton mills of Manchester had highlighted the physical degradation of the workers. In this study, vice, physical degradation, poverty and illness were all found to be connected. Despite this, neither Kay nor others at the time, felt that the socio-economic organisation of the country should be considered as a pivotal point to address the ills of the towns. In fact, few thought it should be a government concern at all until the development of factory production produced a population shift from rural to urban. This urbanisation process brought with it the problem of lack of hygiene which, although existing in rural areas, was exacerbated by the urban density. The inadequate sewage and sanitation conditions, the habit of keeping animals in cities, plus the overcrowding due to poverty made Victorian cities "brutish" places to live. In such conditions communicable diseases flourished until the unhealthiness of the towns put everyone at risk, even the non-poor.

It was not until Edwin Chadwick became secretary of the Poor Law Commission however that the 'sanitary idea' was given ideological importance. Chadwick used his position to sponsor a number of studies to investigate the connection between epidemic disease and environmental factors; investigations which included his "Report on the Sanitary Conditions of the Labouring Population of Great Britain", in 1842. He was aided in these enterprises by two factors. Firstly, by the cholera epidemics of 1831, 1848-49, 1853-54 and 1866, and, secondly, by the statistical work of William Farr. Farr was located at the office of the Registrar-General and represented the strong reformist tendencies of an early group of statisticians in the Statistical Society of London (Wohl 1983). Chadwick managed, over the period of time, to interest many other political leaders and aspiring politicians in a socially oriented view of health and disease. A view that was based on an increasing awareness that dirt bred disease. The exact method by which infections spread was still being argued about however. The 'contagionists' believed that diseases were spread by touch, whilst the 'miasmatists' (of whom Chadwick was one) believed that the emmission of smell or gas from filth caused the spread. (Even after the discovery by John Snow and William Budd that cholera was spread through a living organism carried in water, the miasmatism or pythorganic explanation remained, largely through Chadwick's continued promotion of it.)

Chadwick's sanitary reform movement, despite resting on miasmic theory, did advocate public investment in sewage systems and his incessant propaganda was undoubtably instrumental in the eventual passage of the Public Health Act of 1848. Chadwick had managed, through skilful writing of his report, to suggest that pauperism was an effect of much ill-health, while de-emphasising its role as cause. This was more congruous with the political context, especially as Chadwick also stressed the moral degeneration which accompanied those who lived on the margins of health. He strung together, in people's minds, the notion of immorality as an outcome of a short-lived, overcrowded population.

Despite the political environment of laissez-faire capitalism, which had flourished following Spencer and which promoted individualism, the government gradually became involved in social legislation. The public health movement gathered momentum, which culminated at the end of the century in a new 'civic pride' and produced much needed reform in local government. (An indication of this is the doubling in the numbers of Medical Officers Health between 1876 and the end of the century from 828 to 1,770).

The effect of this reorganization in the nineteenth century was to begin a trend towards greater government involvement in social organization. The trend produced public health

legislation and the factory acts in the nineteenth century and led eventually to the development of the welfare state in 1949.

The intention of the nineteenth century factory legislation was to promote maternal and child health but in doing so this legislation was responsible for the recasting of male and female roles. In the first half of the century women and children were just as likely as men to be in paid employment. By the latter part of the century, however they had been pushed out of the workforce by the programme of protective legislation. New social roles were created for women and children, those of the housewife and the schoolchild; but these new roles produced a divergence in the social expectations of men and women which may have been partly responsible for the growing divergence of male and female mortality. Although mortality was close in 1846 and throughout the rest of the century it diverged dramatically during the early part of the twentieth century as a result of the decrease in risk of death for women. We expect that the female excess in morbidity will also be partly accounted for by the change in social expectations of men and women. In chapter two we will show that male and female adult roles are very different and are carried out in different structural conditions and consequently produce different health outcomes.

III ORGANIC MEDICINE

We saw above that the recognition of the power of public authority to improve the health of people was largely facilitated by tecniques to aid understanding of the patterns of disease and its correlates in the environment. Chadwick's series of sanitary maps had a dramatic effect on government's willingness to intervene in health. This was contrary to the previous notion of evolutionary social theory whereby illness was not viewed as structural, but a product of the individual's adaptation to society. In this section we will show that organic medicine was also in the ascendancy in the nineteenth century. At first it showed clearly the mechanism whereby poverty and dirt could cause disease and so was complementary with the public health movement. Latterly, however, clinical medicine has been criticised for its doctrine of specific aetiolgy and thus the exclusion of broader sociological variables.

Between 1800 and 1840 there was a growing interest in the concepts of germ theory. Pasteur discovered that bacteria were the cause of fermentation, not the result, and began a process which established that public health problems were linked to the environment. Furthermore, this concept of the environment coupled with the statistical approach became what we now term epidemiology. After Koch, who demonstrated in 1876 that

specific bacteria could cause specific animal diseases, interest in the new field of bacteriology grew and discoveries followed one after another in rapid succession; Koch discovered the tubercule bacillus, Gaffky and Koch the cholera bacteria, Gaffky the typhoid, and later in 1884 Nicolaier isolated the tetanus bacillus.

These discoveries informed the public health movement. For example, the discovery of the cholera bacillus gave empirical justification to the connection between cholera and the water supply and undermined the miasma theory of disease contagion through noxious fumes. Clearly cholera was not contagious in the sense of diptheria so health policy implications dictated emphasis less on quarantine and more on sanitary control of water supplies. For diptheria the policy implications were the reverse. Also, quarantine regulations, where appropriate, could be modified in light of bacterial discoveries which gave the period of incubation for certain diseases.

Following the discoveries of specific bacteria it became possible, by direct innoculation of the modified bacteria, to encourage the body to produce its own antibodies, thus rendering an individual immune from the effects of specific bacteria. Pasteur showed this in 1880 in his accidental demonstration of immunology with chicken cholera after some older and thus less virulent bacteria were injected into fowl

who failed to die as expected. Pasteur had inadvertently stumbled across the notion that pathogenic organisms have a natural history which causes them to gain or lose virulency.

Thereafter came the successful preparation of vaccines against chicken cholera, anthrax and hydrophobia. The exact mechanisms whereby the body could protect itself was resolved by the development of the discovery of 'anti-bodies' by Paul Ehrlich. Behring injected immune animal serum into babies who were already ill with diptheria producing positive results and using the same technique, Pasteur was able to reduce the diptheria mortality from fifty to twenty-five percent.

Pasteur's demonstration that micro-organisms could cause disease, coupled with Koch's set of rules or postulates which could be used to identify the specific pathological bacteria responsible for specific illness, inevitably led to a search for cures, for the so-called 'magic bullets' that would combat the effects of these agents. Up to then the chief contributions made by bacteriologists had been in the sphere of preventative medicine, or social medicine, but by the end of the nineteenth century, in Berlin, the emphasis was changing from prevention to cures. Erlich was intent on finding a drug to combat the trypanosomes which he had isolated with anniline dyes. the result was the synthesis of salvarson in 1911, a drug that when applied to human

pathogenic micro-organisms in rabbits, proved effective. The organism which responded in humans was the cause of syphillis. The drug coursed through the body destroying only the trypanosomes and left the body cells unharmed. A magic bullet had been found through the long process of attribution of cause; research into immunisation had led finally to the notion of a specific cure for a specific pathogenic organism.

The 'science' of medicine was finally accorded the credibility which had so long evaded it. At last drugs could be trusted, and a new emphasis based on specific aetiology was begun. This emphasis, as we shall see, despite its earlier complementariness, was not always politically and ideologically congruent with the notion of social or preventative illness.

McKeown and Lowe (1966) have tried to assess the relative merits of the sanitary movement and medical science. They focus on three possible contributory factors in the reduction of mortality. Firstly, medical measures; secondly, a 'spontaneous' change in the character of infectious disease due to a shift in the balance between the virulence of an infectious organism and the resistance of the host; thirdly, a change in the environment due to the sanitary reforms. Their conclusions, by focusing on mortality rates by certain illnesses, show that only in the case of smallpox did specific

medical measures have an effect on mortality rates. The rising standard of living, with diet being of particular importance, was mainly responsible for the decline in tuberculosis and to a lesser extent typhus. The hygienic improvements of the sanitary reform movement were mainly responsible for the decline in typhus-typhoid and cholera groups. The decline in mortality due to scarlet fever, and to a lesser extent tuberculosis, typhus and cholera, came from a 'favourable trend in the relationship between infectious agent and human host. Consequently the diseases which are often thought of as causes of death are really an intermediate mechanism between starvation and mortality. Thus poor nutrition in the pre-industrial period produced high rates of mortality directly or indirectly through a decreased resistance to infection. If mortality rates improved due to better nutrition due to increased food production then what remains to be explained is the unevenness of this improvement.

Thus social medicine may have been largely responsible for the improved health outcomes in the last two centuries because of its social categories and the ability to use the environment as a source of independent and contextual variables. Therefore, it seems the most appropriate approach for investigating health inequalities between groups.

IV THE MIND-BODY DUALISM: EXPLANATIONS

We have seen in the last two sections the development of two paradigms; firstly, social medicine with its emphasis on prevention, and, secondly, that of specific aetiology which emphasises cures. We have also seen evidence of their complementarity in the prevention of many diseases. What has developed since then has not been so harmonious however, although the two paradigms remain institutionalised in the ideology of medicine. Dubos (1959) has encapsulated these two approaches which have developed discretely over the last two hundred years. The dual nature of medicine contains the notion of health preserved by way of life, and health restored by treatment of disease. The division of these two has been noted by many researchers who have criticised the dominance of the bio-medical model which developed separately to social medicine to the detriment of their compatibilty.

We noted above that the strategy of this thesis will be to examine how the structure of society in terms of gendered adult roles and structural conditions can explain gender divisions in health outcomes. The following maintains this position by reviewing the development of both social medicine and medical science. In other words, how useful are the two paradigms to an understanding of health inequalities in society?

Sigerist (1966) has proposed that medical science has become more technically orientated and more specialised in every field, but that this need not necessarily be inconsistent with the notion of social medicine. Nevertheless medical science has been unable to explain, within this paradigm, exactly how and why different groups have disadvantageous health outcomes by comparison to others.

It is claimed by many that this model is a mechanistic, single cause model (Fabrega 1974, Mechanic 1978, Mishler 1981) so that problem diseases are defined, diagnosed and treated by physicians from a specialised point of view. The definition of disease, rather than remaining broadly based and flexible enough to incorporate the social, becomes narrowly defined as "deviation from normal biological functioning" (Mishler 1981) It is claimed from this viewpoint that the doctrine of specific aetiology, together with its single cause and effect explanation of disease, effectively fends off any socio-cultural variables which may be aetiologically relevent.

Social factors, and their role in the aetiology of disease, have been left to epidemiology, social administration and sociology, (Blume 1982) as medicine assumes that the determinants of health and illness are predominantly biological. It is further assumed that medical science is

'objective' in the scientific sense and that because this paradigm is accepted unquestioningly this further reinforces the alleged dominance. The emphasis on curative rather than preventative medicine has also been levelled at medical science. Since medicine views illness and disease as a strictly biological and individual response to a "disease effecter", the focus remains on the individual rather than on reforming particular clinical services,

> "medical definitions of health are disease-centred and do not provide an adequate basis for social policy and action" (Illsley 1980 p.86)

So health resources should attempt to remedy, through social and political action, many of the conditions which give rise to illness, just as the public health movement of the nineteenth century had done.

Thus there are complaints of an ideological nature against medical science as it has evolved, but also that it is conspiratorial, callous, and its practice is irrelevent (Dollery 1978). There are also complaints that its development is a result of industrialisation (Illich 1977) or capitalism (Navarro 1977, Doyal and Pennell 1979) and that it contains an anti-feminine element (Oakley 1980, Smart and Smart 1978). We need now to address the relative merits of these criticisms.

Illich has claimed that medicine actually does more harm than good, that it breeds demands for its services which generate ill health (Illich 1977). Illich is particularly concerned with the growth of modern medical technology which, he claims, diminishes the capacity of the individual to deal with his/her own health problems and to face suffering and death in a dignified manner. He recommends cheap and easy medical procedures that the patients could apply themselves and assumes that any expensive medical procedures are unnecessarily complicated and, more importantly, useless.

This is a deceptively simple viewpoint which only recommends a therapeutic approach, albeit a simple one, and neglects that medicine ought to include, not just therapeutic measures, but nutritional, hygiene and health behaviour as well (McKeown 1965). This view of Illich also ignores the ability of medicine to relieve severe pain (Dollery 1978) arguing that all medical procedures are in form a kind of conspiratorial control over the individual's management of his/her own body. Yet as Dollery has counter-argued, experimental medicine does often lead to more effective forms of management and treatment. It may be uncomfortable and undignified to be attached to life-support machines following a major operation, but if the alternative is death, most people would choose to give up their individual bodily management (Dollery 1978).

The dominance of medical science has also been criticised as being irrelevent to the improvements in mortality rates over the last hundred years. Only in the case of smallpox did specific medical measures have an effect on the mortality rate. The rising standard of living, with diet being of particular importance, was mainly responsible for the decline in tuberculosis and, to a lesser, extent typhus. The hygienic improvements of the sanitary reform movement were mainly responsible for the decline in typhus-typhoid and cholera groups. The decline in mortality due to scarlet fever, and to a lesser extent tuberculosis, typhus and cholera, came from a favourable trend in the relationship between infectious agent and human host (see above). McKoewn and Lowe's viewpoint was that,

> "the effect of specific medical measures was restricted to smallpox and hence had only a trivial effect on the total reductions of the death rate" (McKoewn and Lowe 1966 p.13)

Dollery, however, claims that McKeown's statistical extrapolations seriously underestimate the contributions of drug therapy. He uses the case of tuberculosis as an example whereby McKeown, in his efforts to prove his hypothesis, extrapolates over and above the level that the data will allow.

Mckeown's criticism of medical science concentrates on

mortality rates, arguing that the improvement in life expectancy over the past 150 years had had very little to do with the role of medicine and medical science. Yet this is to ignore the improvement in morbidity. Dollery (1978) uses the examples of gout, rheumatic arthritis and osteo-arthritis which have only a modest effect on life expectancy. Yet these extremely painful conditions have been alleviated by drugs developed in the laboratory by medical science.

In summing up, Dollery suggests that many of the criticisms levied at medical science have been overstated, maybe in an effort to 'balance' the curative improvements of medical science. He suggests, furthermore, that excessive zeal may have swayed judgement, so that investigators were 'lured' into studies which were 'more in the interest of science than the patient' (Dollery 1978).

There are a variety of reasons put forward to explain why medicine has developed a bias toward curative medicine. Illich, as we have seen earlier, blames industrialisation, and assumes that in any industrialised nation, bureaucratic dynamics will inevitably 'taint' all institutions. Consumer control over the direction of medicine will be fraught because of the monopoly of this institution. The only strategy that will work for Illich is the de-industrialisation of society which will allow people to re-appropriate their own health.

Other explanations cite capitalism as supporting medical science. Under capitalism, it is claimed, health is defined in an individualistic way encouraging a view that individuals become sick, rather than individuals being subject to structural factors (Doyal and Pennell 1979). This would then reinforce a specific aetiological approach to medicine rather than a broader definition set in social medicine (Navarro 1977). Since any dominance of 'curing' over 'caring' presupposes the expansion of medical technology then this, in turn, spawns a profitable health industry in capitalistic terms. In the U.K. this is confined to equipment and drugs, but in the U.S.A. the majority of the medical infra-structure is in private hands and producing huge profits.

Another reason given for the dominance of medical science over social medicine is that the latter suffers from low status and thus has not attracted the necessary resources. Also, if resources were allocated to such areas as preventative medicine this would necessarily disperse resources outside the narrow management of medicine. This, according to some, has been thwarted by the medical profession itself in order to maintain autonomy and power inherent in the narrow definition of health in the bio-medical model (Illich 1977, Navarro 1977, Ehrenreich and English 1979). It is further suggested that the profession has historically used political and economic power

to maintain this autonomy and that this has been accomplished largely through the profession's alliance with the state and licensing procedures (Freidson 1970). The functions of licensure provide an occupation with a legal monopoly and, effectively, prevents free competition from other occupations. The professions usually offer an extended period of education, again controlled by the profession, providing an institution for licensure, registration or other exclusionary procedures (Johnson 1972, Freidson 1970). This training also allows for a socialisation period in which it is supposed that the values and beliefs of the profession can be transmitted to the newly initiated professional (Becker et al 1961). Thus accordingly, the most successful professions, in terms of monopoly, remain conservative and resistant to change. It is further suggested that these professional ideals have typically supported the bio-medical model so that, belief in the model has been reproduced in successive generations of medical students. This socialisation may have been successful enough to affect resource allocation within the National Health Service due to the British Medical Associations's determination to emphasise hospital based medical technology rather than community medicine (Stacey 1976, Illsley 1980).

Attempts to assess the relative merits of high-tech, hospital based care, have often used randomised controlled trials (RCT) for this purpose. An example is that conducted by Mather who

randomly allocated 450 heart attack patients to one of two groups. One group was cared for at home and the other in an intensive care unit. The results of the trial showed no significant differences in the survival rates of the two groups, either at 28 or 330 days following the heart attack. After some criticism of Mather's work another study with a more reliable sample was attempted by Hill; the findings also agreed with Mather's findings.

Thus questions arise as to the suitability of medical intervention in all situations. Furthermore, when RCT's are used as a form of medical evaluation, it is necessary to assess the length of medical intervention as well as its overall appropriateness (Navarro 1977 Illich 1977).

Butler and Vaile (1984) make some attempt to evaluate, and to formulate criteria for evaluation of medicine. They note that, although the basic idea of evaluation is simple, its application to health services, "raises difficult questions of definition, measurement and control". Although there does seem to be a hierarchy of values amongst those who control the use of resources, this is implicitly, rather than explicitly, operated upon, and they conclude that,

> "because of the absence of standard, commonly agreed ground rules for translating the benefits of different kinds of outcome into a common currency, judgements about relative need can never be entirely objective and incontestable"(Butler and Vaile 1984, page 149)

This analysis is again restricted to the evaluation between, and the length of, medical technologies and thus is still working within the constraints of a bio-medical paradigm. A more radical view would be one which evaluates the relative merits of medical science versus social medicine. This would seem to be almost an impossible task and more difficult even than the former since disease mediates between the effects of diet, housing, sanitation, and medical intervention. In summing up, Beeson reminds us of the following, using insights from a comparative study of recommended treatments for a large number of diseases both in 1927 and 1975 that,

> "substantial advances have been made along the whole frontier of medical treatment. A patient today is likely to be treated more effectively, to be returned to normal activity more quickly, and to have a better chance of survival than fifty years ago. These advances are independent of such factors as better housing, better nutrition or health education." (Beeson 1980 pp79-89)

V RECENT INSIGHTS FROM SOCIAL MEDICINE

In the following we look at how sociology offers the most useful theoretical strategy within social medicine in which to

examine gender divisions in health. Whilst we have suggested a disciplinary differentiation between medical science and social medicine, Stuart Blume has further differentiated social medicine into three different approaches. These are social administration, epidemiology and sociology all of which have a different focus in their attempt to explain health outcomes. An explanation of these differences shows that a sociological approach is most useful as a theoretical strategy in explaining health inequalities.

Firstly, the social administration approach which has typically focussed on unequal provision of services and different levels of usage between groups in society, especially between classes. The central concerns of social administration have been social justice (Titmuss 1974) and efforts to understand differential mortality and morbidity rates, resulting from unequal access to medical service. This emphasis, however, cannot provide an explanation of inequalities in health between groups based on class, gender, or race, where provision of services is held constant. This is a vital part of the analysis below which suggests that structural variables exacerbate sex inequalities.

Secondly, Blume refers to another branch of social medicine; that of epidemiology. This finds its roots in Chadwickian thought and seeks to show the effects of certain environmental

factors on health outcomes. An example of the evolution of epidemiological thought in the nineteenth century is shown by the eventual connection of cholera to the water supply. Even though Chadwick was mistaken aetiologically, he made the logical association between the environment and disease in this case cholera. Farr took the environmental variable 'altitude' as the cause of cholera based on ecological relationships similar to the sanitary maps of Chadwick's. His independant variable was spuriously correlated with cholera and it was left to Snow to hypothesize that the water supply carried the cholera bacteria. His experiment is now a classic in epidemiology using as it did two groups of people with different sources of water and therefore different rates of cholera. It showed that cholera was a water borne organism and therefore why clean water was so important. Thus began a relationship between epidemiology and organic medicine which we examine in the following.

With the decline of infectious diseases epidemiology has concentrated its attentions on the so-called diseases of affluence; ischaemic heart disease and cancers. The relationship created in the nineteenth century between the organism as agent and the manifestations of disease remains however, despite the latter having a more complicated 'multi-causal' aetiology. The emphasis remains on an understanding of the interaction between the environment, social status, and

the characteristics of the individual facilitated by clarity in the conceptualization of variables. Statistical correlations are yielded by survey data, but in order to be plausible from an epidemiological approach, must be legitimised by a clinical perspective. It is,

> "unable to provide any account of differential rates of disablement or death due to causes lacking any medically plausable intervening factor" (Blume 1982 p19)

Thus correlations require confirmation in terms of clinical or laboratory studies and bio-medical theories, which leads to what Blume has called the 'symbiotic relationship between epidemiology and clinical medicine' (Blume 1982). This relationship provides for a constraint, however, since research questions are framed in terms only of the ability of medical science to define the concepts and give explanations in terms of them; the solutions are similarly restricted to the medical frame of reference.

Whilst epidemiological studies report associations between diseases and possible risk factors based on the analysis of survey data, as we mentioned above the focus of epidemiology is now the chronic, degenerative diseases. The risk factor identified may be some type of behaviour which the individual can change. However, these illnesses do not tend to have a single cause but may have several contributing causes which

take many years to produce an effect. The problem for epidemiological methodology is both case-control studies and cohort studies may find it nearly impossible to find groups of people who are alike in every way except for the disease in question (Angell 1990). For example, some studies have shown that there is a relationship between prenatal care and lower numbers of premature births. Nutrition however may be one or more confounding variables which are associated with attendance at prenatal clinics.

A further problem exists which results from the modern focus of epidemiology on the chronic degenerative diseases. This produces an inherently individualistic approach to health whereby the individual is largely reponsible for his or her own health. This does not address however the issue of how broader social processes actually produce illness or affect the vulnerability to illness. Social class is a good example of the limited explanatory power of epidemiology in this regard. Whilst the latter has identified the variable as being implicated in illness it really functions as an indicative variable without any explanation as to the links between social class and health outcomes (Susser 1973). These links therefore, if not explicable from a medical point of view, are left unexplained. Likewise gross demographic variables when used as causal variables may conceal explanations about individual conditions which affect vulnerability to illness.

For example, research into the connection between life events and the onset of depression have shown that an intervening variable such as an intimate tie has a protective effect (Brown and Harris 1978). Thus in this case it is not simply social class which causes depression but the presence or absence of a vulnerability variable. These complex sociological concepts are missing from epidemiology since they are not considered to be plausible medical intervening variables.

Yet a further result of this restriction of epidemiological variables to those of medical science is that the consequences of sickness or disability cannot be dealt with (Blume 1982). If we implicate sociological variables in health outcomes then the solutions are very different to those offered by the paradigm of medical science and thus epidemiology.

VI SOCIOLOGICAL APPROACHES TO MORBIDITY

The focus for this thesis is health inequalities between groups and more specifically between men and women. This has also been one of the major health issues for sociology and has been approached in terms of how inequality of society is implicated in unequal health outcomes. Both social administration and epidemiology have shown different ways of understanding inequality in health as we have seen above, and

therefore we find sociological theory to be the most appropriate theoretical strategy. The following shows the sociological response to health inequalities in terms of structural conditions of society.

Sociology, in comparison to both social administration and epidemiology, offers numerous explanatory models which allow for varying foci. Firstly, sociology can focus on the workings of the health system towards an understanding of how this affects morbidity and mortality. As we have seen above, sociologists have tried to explain trends in the resource allocation of National Health Service funds in terms of the power the medical profession has to define the medical arena. Sociology also questions the definitions of health, illness and disease. The concepts are broadened to include the subjective assessment of health, and toward an understanding of the meanings that health has for individuals. Furthermore, in chapter five below, subjective health measures are shown to be valid when compared with medical diagnostic categories. Illness becomes a behaviour, which may, or may not, relate to the medical diagnostic category.

Health and disease as Dubos (1959) has noted, are not "entities" but socially defined concepts. These concepts, with their assumptions concerning what states of physical being are desirable and undesirable, damaging and benign, are used to

categorise a "process of adaptation to the changing demands of life and the changing meanings we give to living" (Mechanic 1978 p26). People are socialised during adaptational processes and thus conform more adequately to social, rather than physical, standards (Mechanic 1978). Health, according to sociology, therefore, becomes a social value and is judged relative to other social values. Parsons's role theory illuminates this point since sickness is seen as a social value relative to other functional social roles. Parsons (1952) proposed that sickness is not an objective evaluation but rather the sick role is created through an interactive process. The definition of health is formulated in functional terms as a state of optimum capacity for the effective performance of valued tasks. Again, normative prescriptions or rules guide the behaviour of patients, their families and physicians.

Within sociological paradigms the focus may include not only the workings of the health system, the health and disease norms, but explanation can also be in terms of broader social structural variables. Thus sociological theories offer a broader, rather than individualistic, account of health, against the epidemiological approach and also, a theoretical coherence which is lacking in the social administration.

The National Health System was set up after World War II to

provide equal access to health care but evidence has surfaced in recent decades which suggests a picture of widening health inequalities. The controversy was addressed by a working group set up by the secretary of state for social services under the chairmanship of Douglas Black. The 'Black Report' as it is generally referred to, was published in 1980. Evidence for health inequalities is controversial and carries with it implications for political action. The Report's findings indicated that there was considerable inequality in mortality between occupational classes and that the gap was widening over time. Class differences in mortality between children lessened in the 1950's and 60's due to many infectious diseases being conquered. However, differences in life expectancy associated with socio-economic position have been generally increasing since 1951 (Wilkinson 1986) at the same time as life expectancy has continued to increase (Blaxter 1990). Consequently morbidity or general health status are becoming more important as indicators of inequality while mortality statistics are becoming less so (Blaxter 1989). Inequalities in health however show different patterns to inequalities in death making the relationship of morbidity to mortality difficult to study. One problem is that morbidity statistics may show a less steep social class gradient than mortality statistics because the unwell die earlier from life threatening conditions and so do not appear in long-term morbidity data. Furthermore there is less data about

inequalities in morbidity, chronic disease and disability and more controversy about the validity and reliability of morbidity measures than there is for mortality.

The Black Report in its discussion of the explanations of the relationships between health and inequality could be divided into four categories; artefact explanations, theories of natural or social selection, materialist or structuralist explanations and, lastly, cultural/behavioural explanations.

The artefactual explanation suggests that the continued widening of health inequalities is largely due to the reduction in numbers of the population in the lowest occupational classes. Since those left in the poorer classes are likely to be older it produces a skewed age structure which artificially presents a picture of widening health differentials between classes. This viewpoint was discounted by the Black Report for two reasons. Firstly, the lower occupational classes had not contracted as sharply as had been supposed. Secondly, they note that indicators of relatively poor health show up in many other manual occupational classes besides those classified as unskilled. A gradient exists therefore in health outcomes, which could not be accounted for by a reduction in the numbers in social class V.

The second explanation is that of natural and social

selection. This view explains health as an independent variable which causally affects mobility throughout the social class structure. Thus the healthy are able to move upwards and the unhealthy move down the class structure. This explains the social class differentials in health outcomes, according to the selection thesis, since the occupational class structure is seen as a 'filter or sorter' of human beings.

The Black report favoured the third explanation which emphasized the role of economic and socio-structural factors in the distribution of health outcomes. Whilst it acknowledged the improvement in access to income and resources of those assigned to social class IV and V, it highlighted the continuing relative disadvantage of these classes. This relative material disadvantage becomes the independent variable, and effects the patterns of health and ill-health.

The fourth explanation explains these patterns as being determined by the individual's behaviour as it is influenced by the cultural context. It is implied that health outcomes are a product of the individual's awareness of, or willingness to, behave in ways which optimize health outcomes. Smoking and the use of alcohol are obvious examples of this. The focus is thus determinedly on the individual and is similar to the 'culture of poverty' thesis (Lewis 1967). This approach

has been criticized as 'blaming the victim' and the Report did not feel that such behaviours had an autonomous existence within materially inappropriate contexts. They cited the diffusion of family planning techniques, from the higher classes to the lower, as support for the refutation.

It is belief in the material structuralist explanation of health outcomes which has guided the hypotheses in chapter two and the analysis in chapters six, seven and eight. This is the reason we will propose using indicators of material circumstances such as income, housing, type of heating, and employment in order to understand sex differences in morbidity outcomes. We now turn to address some of the issues recently raised in the ongoing debate concerning the findings of the Black Report.

As mentioned earlier one of the explanations posited was that of statistical artefact. Recently Illsley (1986) and others (Morgan 1983, Jones and Cameron 1984) have questioned the validity of using occupational class as a measure of inequality. Illsley claims that a shift in the distribution of classes has in itself produced the phenomenon under study i.e. that of inequality between classes and also that the Black Report was premature in dismissing this explanation since the proportionate changes are greater than the Report cares to acknowledge. This is especially so at the extremes

which is where the comparison of relative health outcomes is usually made. He invites us to look at absolute numbers rather than rates, which show that the number of deaths increased greatly in Class I while falling in Class V.

The potential weakness of mortality rates has been the problem of incomparable numerators and denominators in the calculation of death rates. These rates are the number of deaths in occupations, stated on death certificates, by the number of people in each occupation as recorded at census. Longitudinal data do not support this position however, and show that published gradients were not grossly distorted by numerator denominator biases (Fox et al 1985). Furthermore, class differentials in health have been maintained, when the numerator/denominator problem is absent. An example would be the study by Marmot (1986) who followed the health outcomes of a cohort of civil servants. Instead of the usual social class categories he classified them by their occupational grades. His findings showed an even steeper gradient than the Registrar General's classification.

Both Illsley (1986) and the Black Report show that the largest death ratios between classes I and V occurred at the youngest levels. Both, however, interpret this finding differently. The Black Report used this as evidence against the artefact explanation. They expected that death ratios would have to be

greatest during old age if the artefactual explanation was correct. Illsley, however, claims that the artefactual assumption would be satisfied with the ratios being greatest at the younger age group because their occupational distribution always incorporates the greatest selective change. Nevertheless this does not explain the relational health change between some groups such as men and women highlighted in the Black Report.

The selection thesis has most recently been expanded by Stern (1983) and supported by Illsley (1986). The contention is that the comparison of social class mortality rates 'by achieved social class' is an invalid comparison and that these mortality rates should be supplemented by or replaced with mortality data based on 'class of origin'. Accordingly, if social mobility is a health selection factor then measuring health inequalities in the traditional way over-estimates the mortality disadvantage of people born into lower social groups. Illsley (1955) had previously shown that health could be an independent variable which improved the achieved social class of mothers in Aberdeen. However he only included those having their first child whilst national perinatal mortality data are based upon all births (Blane 1985). There is some evidence that any selective movement between classes of the sick and healthy will wear off after five years and also that for men over 50 years, selective health related mobility

between social classes will not contribute to inequality in mortality (Fox et al 1985).

In the selection thesis, apart from the methodological criticisms of using achieved social class, is an assumption about the nature of health which we disagree with. In this model health becomes an innate quality which propels the individual up or down the social classification schema. Social mobility, or a fluid society increases the chances of measured health inequalities while simultaneously improving the measurement of average health status. Health is not, however, fixed genetically or to be viewed as a stock of capital as Le Grand (1985) has suggested. The host of evidence going as far back as Chadwick in the nineteenth century suggests that health is not always an independent variable but rather a dependent variable whose causes can be attributed to the social, economic and political environment.

Winter's (1977) research underscores this explanation. He examined the relative health of the population during the first world war, noting that government measures to control the cost of necessities acted to improve the health of the poorest. Thus when class divisions, in terms of access to resources such as food and housing, are reduced there is a concommitant reduction in relative health outcomes.

A further problem with mortality statistics is the emphasis on men's social circumstances in terms of occupation and social class. Using occupation as a basis for social class is intended to be a rough indicator of a person's standard of living yet many women are housewives for a large part of their adult lives. This means that mortality measures for women may not accurately reflect the relationship between a woman's life circumstances and mortality (Pugh and Moser 1990).

Recently it has been argued persuasively that the other individualistic explanation, that of the behavioural/cultural explanations, may be structural rather than individual (Blane 1985). This view accepts the aetiological significance of health damaging behaviours, but sees them as being influenced by the social and material context. Consquently these behaviours lose their status as independant variables and become intervening variables between the social structure and poor health. Smoking is cited as an example of a behaviour with a materialist component (Graham 1986, Oakley 1989). and one which has typically been viewed in terms of the pathological culture of the poorest. Such a model claims that health-damaging behaviour is caused by inadequate knowledge and that education is needed to correct the situation (Oakley 1989). With the recent emphasis on the problems of smoking and pregnancy, the model suggests that women need to be educated out of the habit. Yet most women seem well aware of

the connection betweem smoking and pregnancy outcomes (Graham 1986).

When Oakley (1989) analysed data from the Social Support and Pregnancy Outcome study, the relationship between stress and smoking for women became clear. The results endorsed other findings (e.g. Graham 1986) which showed that mothers used smoking as a coping strategy. An association was found between "smoking and the number of children in the home, having an unemployed partner, life events in pregnancy, reported depression in pregnancy and after the birth, the extent to which women felt in control of their lives, and their worries about the baby six weeks after the birth." (p. 322). Thus smoking seems not to be so much a choice of the individual but may be a consequence of the individual's structural and material existence. Similarly, Rose and Marmot's (1981) Whitehall Study showed that the difference in risk factors for coronary heart disease (smoking and high blood fats) could only explain one-third of the variations among the grades studied.

It was Brotherstone (1976) who suggested the notion of inequalities based on culture and behaviour. He assumed that the greater mortality of babies in social class V was due to late attendance at ante-natal class. Thus the lower class culture of childbirth disadvantaging its members. This was

disputed by Hall et al 1980 who questioned the role of ante-natal care in overall survival rates and throws the weight of evidence again behind the material/structural accounts of health outcomes.

Materialist explanations are concerned with the way in which differences in the sphere of production and consumption explain differences in health outcomes. The social structure is therefore the independant variable and the task is to unravel the elements of the structure to explain health differences between groups. The following analysis, therefore, looks within the material context toward an understanding of gender divisions in health.

VII CONCLUSION

In the above we have established the credentials of social medicine by addressing its historical origins and the potential explanatory power it has for present day health outcomes. We have shown the complementariness of social and organic medicine and also how these two paradigms have been in dispute.

Sociological concepts within a social medicine model will enable us to develop the hypotheses to be tested in the

analysis in chapters six, seven and eight. A sociological approach is most useful for our purposes since we will be using subjective assessments of health in combination with social structural variables.

We saw above that social roles had changed for women and men firstly, as a response to factory production and secondly, because of the limitations of paid employment for women following the factory acts. This second change produced a divergence in social roles for the sexes which has implications for their health outcomes.

In chapter two, understanding different morbidity statistics for men and women is explained in terms of these social roles which allocate different responsibilities for the two sexes. We also expect that any disadvantage in health outcomes, as a result of social roles, will be exacerbated by structural factors of material deprivation.

Chapter Two:

Health Inequalities

I EXPLANATIONS OF WOMEN'S MORBIDITY RATES

We saw in chapter one that there are competing paradigms within medicine but that the focus of this thesis is that of social medicine. In this chapter we review the literature on the morbidity of males and females in an attempt to understand gender differentials in health and, also, to generate hypotheses which will eventually be tested using the General Household Survey. The literature focuses on the social expectations of women and men and especially how these expectations determine health experiences. Particular emphasis is given to the domestic labour usually assigned to women and how this interacts with paid employment to create different health experiences for women.

In recent years statistics have been interpreted as showing an apparent contradiction in the morbidity and mortality statistics for women and men. Life expectancy estimates show that in 1983 new-born girls could expect to live to 77 years while newborn boys only until 71 years (Central Statistical Office 1986). On the other hand women report more incidents of illness and utilize physician and hospital services more than males do (Hart 1985). The pattern of differences in morbidity thus seems to be reversed.

However, if the morbidity statistics are broken down by age, type of illness, social class and employment status then certain groups of females show a different pattern. For example, the National Survey of Health and Development showed that serious illness in 21-25 year olds was more common in young men than in young women and the relationship was independent of class (Wadsworth 1986).

This apparent contradiction between mortality and morbidity for females and males has led to a variety of explanations to which we now turn. Some researchers have suggested that it is appropriate to divide illnesses into those which lead to death and those which do not; that it is the higher rates of males in the chronic diseases which are the leading causes of death (Verbrugge 1976, 1977, Nathanson 1975, 1977) which may account for the contradiction. Verbrugge summarizes the data as,

> "most leading causes of death show male excess rates for both morbidity and mortality. The sicker sex does have the higher death rate." (Verbrugge 1977 p. 291.)

which means that the excess in female morbidity may be due to relatively minor illnesses (Verbrugge 1985). Female excess in morbidity has also been accounted for by relatively mild, if not clinically trivial, symptoms of distress (Newmann 1984) an excess which cannot be explained fully by menopausal or menstruation problems (Popay et al 1991).

If we assume that there is no biological predisposition to sex-related morbidity, even if the excess is made up by 'mild transitory disorders', then three plausible explanations of the sex differences in morbidity remain. The first explanation suggests that the data are artefactual and a result of gender norms either in terms of women's reports about their illness or else assumptions about women by the medical establishment. The former claims that women report more symptoms because they are reflecting norms which permit women to complain more readily. It is a viewpoint based largely on the research of Phillips and Segal (1969) who argued that illness is stigmatizing for men whilst being more gender appropriate for women. Phillips and Segal showed that identical behaviour patterns were rejected more strongly when the patient was male. Also, women were more likely to seek medical help for the same symptoms than men. The claim, therefore, is that there are no sex differences in morbidity, only sex differences in illness behaviour.

Cleary et al (1982) have suggested that one of the major unresolved issues in morbidity rates is the different ways in which men and women recognize and label symptoms. In a study designed to assess how proxy respondents (mainly women) may affect sex differences in morbidity, (by underreporting their husbands' illness) it was suggested

that women and men may experience symptoms differently (Briscoe 1984). The reason may be that women have a greater interest in health matters and are more knowledgeable (Hibbard and Pope 1983). Alternatively, women may not perceive more symptoms than men do, but, following Phillips and Segal 1969, are simply more willing to report them (Mechanic 1978).

Another variation of the 'artefactual' position is that it may not be gender norms determining the recognition and reporting of illness but medicalization of women by medical science. In this scenario medicine is seen as providing a sexist description of women as sick (Ehrenreich and English 1973, 1978) based on the myth of frailty established in the nineteenth century. It has been suggested that the high rates of hysterectomies in the United States is a direct function of this process (Scully 1980). This sex specific way in which doctors respond to women may also have produced the statistically higher susceptibility of women to depression since we know the diagnostic habits of doctors may identify similar symptoms as overwork in men but depression in women (Graham 1984).

Yet another explanation cites the differing flexibility of traditional social roles as contributing to the appearance of sex-related morbidity. This view is based on the premise

that women and men have social roles which provide different levels of compatibility between the sick role and other role obligations. The notion that males have more 'fixed' or 'immutable' roles, due to their role as breadwinner, whilst the homemaker role provides flexiblity for women (Verbrugge 1980, Marcus and Seeman 1981). It relies on the assumption that work in the home is relatively undemanding and, furthermore, ignores women's entrance into the labour market in recent years. The latter renders this explanation problematic since their 'flexible' roles become as 'immutable' as men's and perhaps even more so since they have tended to keep their traditional domestic roles also. Some researchers have suggested that women who are employed are likely to be concerned to maintain role efficiency and that for these women employment is associated with a higher incidence and prevalence of drug use (Zadoroznyj and Svarstad 1990) and more visits to the doctor (Nathanson 1980).

Much of the research into gender roles and health status has focused on the higher rates of mental illness in women found in modern western societies. As we have seen, one of the explanations for this suggests that the higher levels of mental illness among women is primarily a reflection of doctors' diagnostic practices. Yet other researchers have accepted the differential rates of mental illness and have

attempted explanations for the phenomenon. Certainly women have been socialised differently from men, provided with fewer opportunities as girls than boys and are also taught to control aggressive feelings and to be more expressive (Chesler 1972, Phillips and Segal 1969). Their self-evaluations are consequently undervalued vis-à-vis those of men (Pheterson et al 1971, Mirowsky and Ross 1984) and depression is often the expression of loss for something lost or never had (Chesler 1972). The resulting sense of powerlessness and helplessness is a salient characteristic of the learned-helplessness model developed by Seligman (1975). This approach has suggested studies which show that the belief in external control is an important factor in the development of depression (Wheaton 1980) and more importantly for our purposes, that females believe in external control more than males (Mirowsky and Ross 1983). This may cause some degree of fatalism (Ross, Mirowsky and Cockerham 1983) and perhaps lead to less ability to control stress (Pearlin and Schooler 1978, Brown and Harris 1978, Mirowsky and Ross 1989). Pearlin and Schooler suggest that out of "beliefs and values in the culture people are able to create a strategy for manageable suffering" and that these strategies seem to be unequally divided between men and women. Thus, female gender expectations discourage women's sense of control and may contribute to depression in women (Weitz 1982). It has even been posited that if we separate

'feminine' and 'masculine' from their supposed biological counterparts that an association remains between femininity and relatively poor health in both women and men (Annandale and Hunt 1990). Likewise for illness behaviour, measured by health related visits, more 'feminine' rather than 'masculine' women utilized services more (Thompson and Brown 1980).

Against the view that women are more psychologically vulnerable to mental illness or that they lack coping mechanisms or social support networks is the view that the vulnerability is due to the greater 'emotional involvement' of women in the lives of others (Kessler and McLeod 1984). This caring produces an emotional cost which is manifested in women's high rates of mental illness. This suggests that people from different groups such as race, sex and socio-economic categories may in fact be exposed to different amounts of stressful life events. Consequently it is not their lack of coping mechanism but the context of more exposure to negative events which produces the differential mental illness rates (Thoits 1987). This has been called the differential exposure hypothesis and assumes that women are exposed to a greater number of enduring life strains (Aneshensel 1981, Cleary and Mechanic 1983, Gore and Mangione 1983, Pearlin 1975, Ross et al 1983). Few studies

have been able to show that women's lives are more stressful than men's however, yet women in all social categories largely show higher rates of affective disorders and minor physical morbidity. This may result not so much from the occupancy of the social categories of class, income, marital status and work status but rather that the experience of a particular social position is different for men and women (Popay et al 1991). Increased vulnerability due to differential exposure may be manifested in symptoms of depressive disorder but the results may just as likely be greater emotional responsiveness in the face of difficulties (Newmann 1984). In examining the above hypothesis, Newmann (1986) found no evidence that women are more likely than men to suffer hardships such as absence of a spouse, social isolation, financial difficulties and chronic health problems but these hardships did produce a greater impact on depressive syndrome levels for women than for men.

Other explanations of women's greater morbidity generally have focused on the gendered nature of adult social arrangements and have stressed the link between role occupancy and health. In the past two decades there has been research on how social roles such as employment, marriage and parenthood are linked to the health status of men and women. This approach owes much to the functional perspective of sociology which posits that social

structural arrangements can produce dysfunctional as well as functional consequences (Kandel et al 1985).

Some research suggests that role accumulation is beneficial (Thoits 1983, Verbrugge 1983, Waldron and Jacobs 1989, Hibbard and Pope 1991) for health and especially if role occupancy includes an increase in power (Rosenfield 1989, and Thoits 1987) whilst others have stressed that role accumulation can produce role-overload and consequently poor health outcomes (Cleary et al 1983). Women's historically assigned expressive role obligations (Parsons and Bales 1955) may contradict with the norms of paid employment. In this scenario multiple and potentially conflicting roles disadvantage women more than men since women are required to predominate in the domestic sphere and also to participate equally in the work force (Kandel et al 1985). Thus adult gender roles have an important aetiological impact on morbidity rates and gendered expectations predispose women to higher morbidity rates, despite their mortality advantage. Furthermore, there is a large variety of ways in which the roles of men and women may affect their physical and mental health. This research guides the hypotheses of this research and will eventually be tested against the 1982 General Household Survey data.

II ADULT ROLES

a) marriage

Marriage is one adult role which has been posited to have a relationship to physical and mental health. Marital status is more accurately a set of roles but there has been a trend to examine marital status as a unitary variable with the following results.

In the overwhelming majority of the comparisons between the married and the unmarried, the married appear to be in better mental and physical health (Gove 1972, Hughes and Gove 1981, Pearlin and Johnson 1977, Verbrugge 1979). Even when other variables are 'controlled for' marriage seems to be powerfully associated with mental health (Gove et al 1983). In contrast, divorced and separated people have the worst health status (Arber 1990), followed by the widowed and lastly the single (Verbrugge 1979, Gove et al 1983). Married people are less inclined to suicide or other types of psychologically related mortality (Gove et al 1983).

It has been suggested that the quality of roles may be equally as important to health as the number (Hibbard and Pope 1991). For example, the quality of marriage may be important to health and produce less distress for marriage partners who perceive equity (Schafer and Keith 1980, Ross et al 1983). Partners are more satisfied if decision making

(Blood and Wolfe 1960, Safilios-Rothschild 1970) and finances (Delphy 1984, Stamp 1985, Wilson 1987) were equitable.

In his 1972 article Gove stated that, although the rates of mental illness showed lower rates for the married, closer inspection revealed that it was the relatively higher rates of mental illness found in married women which accounted for the higher rates of mental illness found among women generally. Gove is not alone in his explanation that married women are more likely to suffer mental illness because they find their role of housekeeper limiting and frustrating (Friedan 1963, Gavron 1966, Oakley 1974). Likewise, recent data have emphasized that in both non-married and married families, housewives had poorer health ratios, whether or not they had children (Blaxter 1990). However, controlling for social class, women with children had better outcomes than those without (Blaxter 1990). This was especially true for housewives without children who may have suffered from the even greater isolation than those with children. The results of one study shows that when single men are compared to single women, divorced men with divorced women, and widowed men with widowed women, the rates are higher for men (Gove 1972). Gove, therefore, concludes that since it is more advantageous for women to remain single in all categories, that it is the role

peculiar to the married position which is problematic for women. It is the singling out of the particular category of women which allows Gove to reject both biological and generalized sex role explanations of mental illness and to accept role theory.

One explanation is that the occupation of housewife is unstructured, unrewarded, invisible 'emotional work' designed to make others feel good (Graham 1983, Finch and Groves 1983, Bolton 1986, Popay and Bartley 1991). Whilst a married man has two major roles and thus two sources of gratification, his family and his work, a woman may have only one low status role. Oakley (1974) found that in her sample of housewives the perception of this low status was almost universally accepted. Along with the general dissatisfaction, women in the study also mentioned specific complaints about the monotony, inherent time limits and fragmentation. Although the housewives valued the theoretical autonomy which their status gave them, most women devised rules which structured the work in a similar manner to the situation of employed workers. Thus the role was subject to 'job enlargement' because of the high standards and repetitive routines which the women set for themselves. Furthermore, this dissatisfying lifestyle is often not consonant with the woman's educational and intellectual attainment. In Oakley's study one of the

women, Juliet Warren, was in this situation and had not adjusted after over a year as a housewife. As women become better educated and have more career opportunities we may expect more psychological adjustment problems in the future.

We can now extend the previous hypothesis to include the roles associated with the married state which are detrimental to women's mental health (and consequently their physical health). Following from this we would therefore expect to find few differences in morbidity between men and women who live alone. If this is the case then it refutes the notion of sex specific illness behaviour, which claims that all women, due to their gender socialisation, have a propensity to report illness more than men.

b) parenthood

One of the characteristics of the female role which distinguishes it from the male role is that women are obligated to care for others. It may be, therefore, that it is the caring role within marriage which produces the higher rates of mental and physical illness. This seems a plausible hypothesis since the higher rates of morbidity found in women tend to be mild forms of physical illness resulting from psychological distress associated with the characteristics of the female role.

There is a great deal of theoretical and empirical evidence which has addressed the issue of women and caring. If we accept a relationship between women's caring roles and both psychological and physical health then two explanations are possible. Firstly, women's predisposition to care is seen as psychologically inevitable, immutable and fixed in their biology so that gender roles become a natural extension of the female sex. Secondly, rather than viewing caring as part of an enduring personality it is viewed as emanating from the "particular way in which reproduction is organized" (Finch and Groves 1983). The major effect of parenthood, therefore is to 'set husband and wife on different paths; the roles are divided, the overlap between their daily lives reduced' (Oakley 1980). Thus the gendered nature of caring which is socially, rather than biologically prescribed, provides both the activity and the identity of women.

Whether women care for the disabled, the elderly or their own families, women's role in providing health care is of paramount importance to the family. Most health care takes place within the home rather than in the community and the scrutiny with which they monitor the families' health is such that women can quickly identify deviations from normality (Cunningham-Burley and Maclean 1991). It takes place by women despite the other commitments of domestic and paid labor but is a responsibility which women seem to

accept automatically (Hughes et al 1980), and which is felt in an acute and highly personal way. According to Oakley, this responsibility, and hence the time devoted to it, has increased rather than decreased in the last half century (Oakley 1974). Consequently health and illness become morally laden categories which are part of the assessment in our culture of maternal competence (Prout 1986, Graham 1984).

It has been suggested that task overload can directly affect the physical health of women, since it is often the length of time spent caring which is especially tiring. Women have typically complained that their domestic tasks require them to work harder than men for less recognition, thus reinforcing the low status of the housewife (Oakley 1974b). Working class women typically had working days of between twelve and fifteen hours, with relative calm and the prospect of relaxation often only available in the late evening (Cullen and Phelps 1975). It is inherent in the nature of caring that the carer be available at the times when families need to be cared for. These periods, however, are often at the times when the carer is at her most tired. These generate pressurised periods between 7 and 10am and between 4 and 8pm which, by comparison, are very different for those family members less involved in the caring role. For example, husbands' work activities peaked at 3pm and

continued in a downward trend thereafter. Women are also more likely to encounter sleepless nights with young children and handicapped relatives (Graham and McKee 1980, Nissel and Bonnerjee 1983) than are men. This tiredness results from physical labour inherent in women's experience of motherhood (Boulton 1983) and has been used as a measure of physical health states in a recent study (Popay et al 1991).

The intense responsibility which mothers often feel for the health of their families is, however, according to many, not matched by concern for their own health (Graham 1984, Spring-Rice 1939, Cornwell 1984). "Many women are ignorant of ill-health or ignore it due to family responsibilities" (Spring-Rice 1939) and exhaustion and tiredness were commonly reported symptoms among those who care for young children (Richman 1976, Graham and McKee 1980, Hipgrave 1982, Spring-Rice 1939).

As we have suggested earlier the division between physical and psychological illness is an arbitrary one. Either the psychological illness is reported as such or else it may lead to actual physical illness (Hinckle 1973). Evidence has been amassed showing the emotional cost of caring to be, potentially, equally as detrimental as physical activity in terms of health outcomes (Baruch 1987).

It has been found that children do not improve the psychological well-being of parents (Kessler and McRae 1982, McLanahan and Adams 1987, Baruch 1987) and that the highest rates of undiagnosed depression were among women who were obliged to care for others (Brown and Harris 1978). We know that women are generally responsible for children and for health care within the family. This might include escorting children to physicians, dentists and other sources of health services and in providing home nursing for ill children (Carpenter 1980). Mirowsky and Ross (1989) found in the Women and Work Study that women with young children had significantly higher rates of depression than their husbands but that this level was reduced when husbands shared the childcare (1989).

Caring for children is therefore related to parental health and may affect women's health more than men's. There is also a strong relationship between the health of children and their parents. The effect is not just based on increased exposure to childhood illnesses but to the additional demands of children with longterm illnesses (Popay and Jones 1991). Even if children are in good health the immersion in a world of children with its incessant demands and lack of adult interaction can be exhausting. The amount of time spent in this type of care, however, is a function of the

age and the number of children.

The presence of children may have a negative effect on mental health (Campbell 1975, Radloff 1975, Rollins and Feldman 1970). Gove and Geerkin (1977) studied the relationship between children, employment and mental health and found that in all three categories, employed husbands, employed wives and unemployed wives, the rate of demands increased monotonically with the number of children. This increase was particularly marked among the wives, yet the demands decreased monotonically for both the employed and unemployed housewives as the age of the youngest child increased. In support of the earlier hypothesis concerning allocation of caring responsibilities between husband and wife the age of the youngest child was largely unrelated to the experience of demands among husbands. They also add that the comparison of married men and women who are employed but do not have children experience almost identical demands. This finding has been more recently endorsed by Mirowsky and Ross (1989) who found that when the social roles of husbands and wives are similar, their depression levels are also similar. In Gove and Geerkin's study, overall comparisons of psychiatric symptoms, showed that husbands reported the fewest psychiatric symptoms, employed housewives reported somewhat more and unemployed housewives reported the most. Among employed wives,

symptoms increased monotonically with an increase in the number of children and with unemployed wives it was the simple presence of children. These results are again similar to those of Mirowsky and Ross except that for employed wives it was not children per se that produced problems but the difficulty in arranging child care and the participation of husbands in the child care. Those wives whose husbands did participate and had no difficulty arranging child care had depression levels as low as their husbands.

The isolation which often accompanies the caring role has also been shown to be a key variable in the onset of depression (Brown and Harris 1978, Evasan 1980, Graham and McKee 1980). In a survey of 200 mothers with young children, over 40% reported themselves to be lonely when their babies were 5 months old. This survey also showed how difficult it was for carers to get out without their dependents, (Graham and McKee 1980) a situation which probably exacerbated the loneliness and isolation and hence the predisposition to depression. If women with partners are isolated then the problem must be exacerbated in the case of lone mothers who are also more likely to be poorer than either couples or lone fathers (Popay and Jones 1991).

Alternatively, social support has been shown to mitigate the effects of isolation, and produce a health advantage (Warr

and Parry 1982). Social support has been viewed as an important intervening variable beteen life events and the onset of depression (Brown and Harris 1978). Also, women because of socialization, have developed a greater sensitivity to the needs of themselves and others leading to a greater capacity to provide support and also a greater dependence upon social support for psychological wellbeing (Flaherty and Richman 1989). Likewise, Oakley et al (1990) have shown in a controlled trial of a support intervention that extra social support in pregnancy was associated with a statistically significant improvement in some health outcomes.

The studies examined above, generate many hypotheses concerning the relationship between the caring role and the number and age of dependent children. The general hypothesis would be that women, whether employed or not, have the main caring responsibility in the family, and that any increase in the demands of the caring role, assumed to be dependent on the age and the number of children, is related to the health of the woman.

c) employment

Following the hypothesis above, if we cite the responsibilities of housekeeping and childcare as being prescribed by gender, then adding other roles such as

employment could produce health implications, especially as Verbrugge suggests, "women with multiple roles end up with more duties, time pressures and stress" (Verbrugge 1983). Also, since there is evidence that men do not share the domestic roles equally (Oakley 1974, Pleck 1984) paid employment may not be mitigated by a reduction in domestic or child care roles . Viewing employment as simply another role which has to be performed, of course, ignores the reasons for paid employment (economic necessity or psychic satisfaction), employment conditions (whether the work is full or part-time, temporary or permanent), and employment status. We know that these three are often a consequence of the social structural position of women, and is discussed fully in the next section of this chapter.

If we view employment, however, simply in terms of role overload there is some controversy over what this extra role means in terms of health outcomes. According to many researchers, currently employed people tend to have lower rates of acute illness, chronic conditions, restricted activity and physician visits than non-employed people (Marcus and Seeman 1981, Nathanson 1980, Jennings et al 1984, Verbrugge 1982, Welch and Booth 1977). They also have a longevity advantage and employment provides a good source of social support and interaction (Hibbard and Pope 1991). Those outside the labour force had the poorest health

(Madans and Verbrugge 1983) especially housewives. Since the sixties researchers have consistently found that housewives suffer from their position (Gove and Geerkin 1977, Kessler and McRae 1982, Arber 1987, Blaxter 1990, Bartley et al 1992, McKinlay et al 1990). Stress may result which is then manifested either psychologically or physically (Stellman 1977, Cleary and Mechanic 1983, Haavio-Mannila 1986). So employment within the role analysis model sees employment as accruing health benefits since it may be compensation for the socially devalued role of housewife (Gove and Geerkin 1977) and protection against the effects of isolation. Alternatively, employment has been viewed as a role which when added to paid employment, childcare and other domestic responsibilities may produce role strain, role conflict or role overload (Cleary et al 1983, Stellman 1977).

Within the parameters of role analysis there have been attempts to resolve the controversy over the relative health merits of employment by generating some conditions which have been posited to exacerbate or alleviate the health effects of employment. For example, it was formerly expected that only women with less than a high school education (i.e. to age 18) would be influenced by employment (Nathanson 1980). More recently, however, researchers have found evidence that the advantage of paid work is evident for all

women except for those in managerial or professional occupations (Brannen et al 1990, Arber 1987,1990, Bartley et al 1992). In an attempt to allow for the differing constellation of family and work roles it has been suggested that the number and age of children may be a factor (Aneshensel 1981, Warr and Parry 1982). Parental status in one study affected employed women and non-employed women differently. Having one child at home decreased the risk of ischemic heart diease among employed women (Hibbard and Pope 1991) although employment and parenthood may have little effect on mortality (Kotler and Wingard 1989). Connectedly, we know that lone mothers who are in full-time employment are in better health than those who are housewives or working part-time (Popay and Jones 1991) although this effect may be due to the extra income earned which mitigates against the poverty experienced by many lone mothers.

Marital satisfaction has been suggested as a possible mediating factor (Gove 1983, Warr and Parry 1982) since role strain for women may be dependant on the attitude of the spouse (Warr and Parry 1982, Kesslar and Mcrae 1982). Furthermore, the health effects of women's paid employment may be felt by both men and women, not because of any increased domestic burden on men but because women's paid employment may seem gender inappropriate to their partners given the cultural stress on the male breadwinner (Burke and

Weir 1976, Booth 1977, Kesslar and McRae 1982, Ross et al 1983).

Shehan (1984) has revised role theory to accomodate a range of other mediating factors including help with housework, child care, work satisfaction, participation in voluntary associations and found no significant difference between employed wives and housewives. Working part-time rather than full-time has also been considered crucial in addressing the health outcome controversy of women's paid employment, although this issue has tended to be ignored in the US literature. Arber et al (1985) examined the hypothesis that paid work is either a health benefit or alternatively produces poorer health in women. They found different health outcomes according to the type of work, domestic responsibilities and the number of hours worked. Full-time work for women under 40 with children had a detrimental affect on health, yet part-time work had modest beneficial effects. Thus, because of the sexual division of labour women may have multiple roles which mitigate against the positive health affects of full-time employment but allow some benefit from less arduous part-time employment. Likewise, Bartley et al (1992), using the Health and Lifestyle Survey, endorse the above findings, reporting that domestic conditions are important to a woman's experience of employment and that part-time work gave benefits in terms of

psychological wellbeing.

Some of the above factors said to improve the predictive power of role analysis would more appropriately be considered structural variables and proxies for social class and related variables. For example, level of education (Waldron 1980) is often used as a proxy for social class. Also education will help to assign workers to particular types of employment which may in turn determine such variables as work satisfaction (Warr and Parry 1982, Shehan 1984) and 'degree of personal control' (Rosenfield 1989).

We can account for these varied results in several ways. Firstly, this research does not always distinguish between males and females, sometimes just focusing on women or combining both sexes. Secondly, it is claimed that womens' health is only understandable within a structural context (Arber 1990b) and many of the studies examined the relationship between gender roles and health without taking into account the material context of women's lives.

The following analysis intends to focus, therefore, on the intersection between gender roles and the structural context in moving towards an explanation of gender divisions in health. Material deprivation must exacerbate any detrimental effect of multiple roles, whilst also making it impossible

to 'buy off' some of these roles. This may account for the sometimes contradictory findings noted above.

III MATERIAL DEPRIVATION AS IT AFFECTS HEALTH OUTCOMES

The above review has generated possible hypotheses based largely on the role of gender as an explanation of women's higher morbidity rates. However, we know that for both men and women deprivation is an important variable in the aetiology of both morbidity and mortality rates. We need now to address the relative importance of both domestic and formal labour conditions in shaping the experience of women's health (Popay and Bartley 1991). Women's domestic lives have often been the focus of research but the material aspects of domestic labour have received less systematic study. This section will therefore be concerned with generating hypotheses from the literature which not only pertain to material disadvantages in health but, also, suggest that women in similar situations face greater disadvantage than men due to gender role expectations. The literature on inequalities in health above connected health outcomes to inequalities in income and wealth as a result of social class location. This research, however, has not been complemented by research on gender inequities which has focused largely on women's social role in the family. Consequently, women's morbidity has not been viewed as a

result of the conditions of domestic labour.

This is compounded by class categories which tend to be based on male employment and are therefore less useful for the examination of gender health inequalities. It is now considered that measuring the effects of disadvantage is better achieved by measuring material circumstances directly rather than indirectly through class (Arber 1990,1991, Popay and Bartley 1991). Household variables such as income and housing may be more likely to affect health outcomes in women rather than individual level variables such as employment which in any case may be based on men's employment. Thus, in this part of the review we will explore the relative health effects for men and women of low income and housing. We also deal with employment again but this time not in terms of role-analysis but in terms of unemployment effects and the link for women between domestic and waged labour.

a) income

Income distribution is now the single best predictor of longevity among developed nations (Wikinson 1986, LeGrand 1987). National mortality rates are an expression of inequalities in mortality and through them of socioeconomic inequalities (Marmot

1989). Those who move to the lowest income bracket suffer a 30-40 percent increase in mortality (Wilkinson 1990) and the relationship between unemployment and social class with health may primarily be a reflection of low income (Blaxter 1990, Wilkinson 1990).

This section will be concerned with the income available to families which determines the family's housing, transport, nutrition, and the type, if any, of women's paid employment. Income and wealth are measures of an individual's or a family's command over economic resources and result in inequalities in access to consumption of food and housing (Hamnett et al 1989).

Furthermore, with reference to the previous section on role-analysis, these resources determine the ability of a family to 'buy off' roles and obligations. These roles, especially the ones allocated to women, may produce role overload and ultimately have a detrimental effect on the morbidity rates of women since the caring women do for others often disadvantages their own health.

The notion that a person's health outcomes are correlated to his or her position in the socio-economic structure has been a recurrent theme in much of the health literature. The number of government working parties and committees assigned

to the problem of health inequalities show evidence of this connection. The most famous of these in recent years has been the Black Report (1980) which showed clearly both social class and regional disparities in both reported ill-health and availability of services. Social class divisions have been criticised, however, as a less than adequate independent variable. This is because social class has been based largely on men's occupational class and such research has thus consistently failed to use measures sensitive to material disadvantage amongst women. As Townsend et al(1988) have recently noted, occupational class cannot be social class. Also, research has shown that if class is used as a measure of living standards then there is little homogeneity between classes (Wilkinson 1986). It seems that shifting the emphasis from these strata to the environment created by them must be more fruitful, with income being an important component. Furthermore, the apparently strong association of social class and health, may be primarily an association between income and health according to some (Blaxter 1990, Wilkinson 1986). Using the Health and Lifestyle Survey (1984/5) it has been shown that for most age groups, income was more a determinant of health than was social class (Blaxter 1990). These findings are of further interest to our research in that they showed clear gender differences in the effects of income on health. For example, women between the ages of 18-39 tended to have relatively poorer

health than men when on a low income. This may be a result of the caring role of women which we would expect to have most effect on this age group. This explanation becomes more likely when Blaxter's findings show that this relationship reverses for the 40-59 age group. Connectedly, one parent families makeup only 13% of households yet they constitute 50% of the families in poverty (Graham 1987). Consequently poor material circumstances have a stronger relationship to rates of longstanding illness among lone mothers than among couple mothers (Popay and Jones 1991) and sex differences in health are largest amongst lone parents.

Another dimension to familial poverty is the extent to which familial resources are distributed within the household. When women and children are dependent on a male wage-earner they are vulnerable to poverty even if the family is not classified as such (Pahl 1989). Households often separate control and management (Pahl 1980) which are in turn gender linked. Many studies have shown that women tend to meet the costs of housing and heat first and food last (Spring Rice 1939, Burghes 1982).This is the hidden poverty of caring and is highlighted by evidence from the Cleveland refuge which shows the extent of women's poverty in violent marriages (Homer, Leonard and Taylor 1984). Although the data from the General Household Survey used below in the analysis does not

contain this information, we might expect that any unequal intra-family distribution of income would be more devastating at the lower family income level. This in turn might help to explain the greater responsiveness of women's health to income, found in the Health and Lifestyle Survey.

A related factor is the chancellor role which traditionally assigns women the conflicting tasks of keeping the family healthy and out of debt (Graham 1987). When material resources are limited, however, expenditure in the domestic sphere becomes problematic, especially on items such as food. This is clearly because these items of the budget are more 'fluid' (Evason 1980). It is, however 'guilt provoking' for women not to be able to provide for their families because of lack of resources. Thus, making the 'money stretch' and the stress associated with it, is a recurrent theme for women (McKee and Bell 1986).

This situation is exacerbated by social expectations regarding food. The British tradition of the cooked dinner with meat and two vegetables topped with gravy becomes a financial burden for those on low incomes. Yet working class households, more than their middle class counterparts, adhere to the traditional, and more expensive, patterns of food consumption. Households adapt to food preferences of their male partners shown by the changes that lone mothers

make to their diet (Graham 1987).

To offset the guilt provoked by the inability to provide enough 'proper food' can mean that the woman herself goes without (Marsden 1973, Evason 1980, Oren 1974). Carers may even economize on their own food more than is necessary due to the stress associated with low income money management (Marsden 1973). This poor diet may translate into a loss of weight or alternatively obesity, both of which have health consequences (Evason 1980). Carers may also economize in other ways which may affect their health. For example there is evidence that the use of fuel is restricted to the time when the whole family is together (Adams, Ash and Littlewood 1969, Evason 1980).

Low income not only affects the health of the carer but also that of children which can be especially distressing for women who take on the socially defined familial task of childcare. It is, however, socially difficult for women to acknowledge that money is important to childcare given the centrality of the mother role for women (Oakley 1974, Boulton 1983). Yet management of money dominates the time of poor women; structuring their lives, producing considerable anxiety and squeezing out the time available for mothering (Popay 1991). Connectedly, discontent over the lack of power over money was felt intensely at all income levels by those

women who provide unpaid domestic labour (Popay 1991). When women are in paid employment their financial contributions, whilst considerable and vital, may not be considered as central to the household economy as those of men. Husbands are the dominant influence upon the way financial contributions to the household are defined (Brannen and Moss 1987) and they may prefer to interpret women as working for 'extras' to protect their position as breadwinner.

Thus the basic hypothesis which guides this section is that low income has a detrimental effect on women and men in morbidity outcomes. Following the literature above we would also expect income deprivation to produce different health outcomes for men and women given their different social roles.

b) housing

This section explores the relationship between housing and health outcomes. This literature has focused on both housing tenure and quality of housing and how this affects the individual's mental and physical health. As we show below there is undoubtedly a significant relationship to examine but for our purposes we would expect a stronger relationship between housing conditions and women's health for the following reasons. Housing policies have reflected and reinforced the view that the home is a haven and women are

the natural custodians of this haven. Housing isolates each family unit and thereby maximizes the domestic work assigned to women (McDowell 1983). This affects women whether or not they are in paid employment since they are generally responsible for the domestic sphere, despite other responsibilities. Thus, women are exposed for longer to domestic housing environments than men whether or not the women are in paid employment and/or have young children. In consequence, the health effects of housing are likely to disproportionately affect women's health.

Although we are most directly interested in the relationship between housing and health, other variables often correlate with housing measures, such as life chances and education. Housing is a means of accumulating wealth and is an aid in obtaining credit and capital. Furthermore, it is estimated that owner-occupier households receive slightly more in housing subsidies due to tax allowances on mortgages than council tenants receive through rent and rate allowances (OPCS GHS 1982). Housing is thus a material resource which is unequally allocated via the stratification system and which has been implicated as a cause of ill-health. In this section we will look at this relationship and how gender may exacerbate it.

One method of measuring housing deprivation is tenure which

is often used as an indicator of quality of housing, because standards of owner-occupied housing may be higher. Researchers have suggested that this variable may be a better proxy for lifetime income than social class (Stern 1983). Housing consumption, unlike the consumption of education or health services, is "directly concerned with the distribution of wealth" (Murie 1983). Housing tenure is a crucial resource which has created the basis for social cleavage quite distinct from class (Saunders 1984). These new divisions are based on the ownership of the means of consumption with housing being a major source of division (Hamnett 1989, Smith 1990). Those with consumption power, that is, those with choice within the housing market, do not want to be left socially and financially marginalised when owner occupier is the main tenure status for the economically active (Ball 1982).

It seems that this social cleavage based on housing consumption is a recent phenomenon and may have been created as a by-product of housing policy. Private renting was a socially heterogeneous tenure until the 1950's produced the expansion of council housing
and the rapid growth of owner occupation (Daunton 1977). The social marginalisation of groups in the council sector has been facilitated by two factors; firstly, the right to buy council housing by council tenants, and, secondly, with the

better paid working classes becoming owner occupiers. This has led to the widening of the division of income and tenure (Forrest and Murie 1987) so that the median income of council tenants has diverged from 1963 onwards (Bentham 1986) with the result that the semi-skilled, unskilled poor and supplementary benefit recipients have become increasingly marginalised (Hamnett 1989).

Others, however, claim that using tenure as a major variable in this way often obscures "important differences within tenures" (Murie 1983). If we look at the distribution of outrightly owned housing by head of household's weekly pay in the 1982 General Household Survey used below, we find that 65% of head of households earning less than 40 pounds per week, owned their own housing whilst only 21% of those earning 250 pounds or more did so (GHS 1982 Table 5.12 p.71). This is clearly distorted by pensioners living on low incomes often owning their own home. Age standardisation will eliminate this problem from our analysis in chapter seven and eight.

The statistics also show that in the highest socio-economic group the majority of families (89%) are owner-occupiers: in the lowest group, the majority are council tenants (44%) or tenants of private landlords (11%) (OPCS GHS 1982 Table 5.10 p.69). Moreover, owner occupiers are usually two-parent

families (Burnell and Wadsworth 1982) unless they are headed by a male. The health selective role of housing has also been emphasised recently (Smith 1990). If housing is the independent variable then housing circumstances can constrain labour market opportunities since housing systems apportion resources and opportunities selectively. In Fogelman's (1989) study subjects who were upwardly mobile between the ages of 16-23 in terms of housing tenure were healthier than those who had been downwardly mobile.

Housing, then, is an important dimension of social class and also represents individual's income, capital resources, and domestic environment. Since tenure will be one of our indicators we are interested in exploring its role in health outcomes and particularly any evidence of gender divisions in outcomes.

There does appear to be strong evidence that tenure can distinguish mortality within social classes (Fox and Goldblatt 1982) since owner occupiers have lower mortality than council or other tenants. Moreover, tenure, along with other consumption variables, may be more useful for researching women than the male occupationally based social class schemes (Arber 1990). Moser et al (1988) used tenure together with access to a car to classify women and Mercer

et al (1989) added household density and the number of children. A further example of the usefulness of this variable is in Oakley and Rajan's (1991) study of the association between social class and social support in health outcomes, in which tenure was used as a measure of social class. They found that it was the one measure most consistently associated with their measures of social support. Most importantly for our purposes they view tenure as being the "easiest and most direct way of tapping the unequal resource ....patterns associated with occupationally-based class".

In the Health and Lifestyle Survey owner occupiers had lower morbidity whether or not they had manual or non-manual occupations (Blaxter 1990). Furthermore, the difference in morbidity between owners and tenants was considerably greater for women than for men. For women there was a particularly large difference between non-manual respondents in owner-occupied housing and non-manual respondents in rented housing. For men, however, the determining factor in morbidity seemed to be the manual/non-manual division rather than whether they lived in rented or owned housing. Similarly, Arber (1990) found that the health disadvantage of non-employment differs according to housing tenure. Both women and men suffered this health disadvantage when unemployed, however, when other variables were added it

seemed that the effects of local authority housing were worse overall for women than for men. For men there are additive effects of occupational class, unemployment and housing tenure but the effects of marital and parental statuses were negligible for men (Arber 1991). A major gender difference is the association of women's health status with family roles since the most disadvantaged women were previously married, unemployed, living in local authority housing and in an unskilled manual class (Arber 1991) .

This gender division in health outcomes may be due to the domestic nature of caring which often relegates women and children to longer periods in the domestic environment. If this caring is conducted in poor housing conditions then greater levels of morbidity may follow. We now turn to housing conditions specifically, since tenure is likely to be an indirect measure of these conditions.

Researchers have explored the relationship between health and actual housing conditions of overcrowding, dampness, physical deterioration, type of heating and height above ground. The term "bad housing" is often defined, following the Housing Acts of 1957 and 1969, in terms of how aspects of bad housing are manifested in public health terms. This means that bad housing is usually measured by levels of

overcrowding and unfitness. There are, therefore, statutary minimum standards in determining whether a dwelling is fit for human habitation based on these criteria. In the case of 'unfitness' a dwelling is assessed on its level of repair, stability, freedom from damp, natural lighting, ventilation, water supply, drainage and sanitary conveniences, facilities for preparation of food and for the disposal of waste water and internal arrangements. Overcrowding is often measured by the bedroom standard which is used to estimate occupation density by allocating a standard number of bedrooms to each household according to its age/sex/marital make-up.

Overcrowding in the home is a factor which many researchers have focused on when suggesting a causal path to health consequences. Murie (1983) has suggested that it is the clearest housing factor contributing to health problems. It has been claimed that overcrowding in the home is analogous to overcrowding in animal studies (Galle et al 1972, Galle and Gove 1978) and therefore pathological consequences can also be expected in humans. This has been disputed by Booth (1976) who found that internal crowding had little effect on family relations and neighbourhood crowding and no effect on the health of families (Booth and Cowell 1976). Nevertheless overcrowding seems to have been a factor contributing most to health problems (Brennan and Lancashire 1978, Brennan

1978) and more specifically overcrowding has been linked to infant mortality (Schmitt 1955) and to an increase in pneumonia and tuberculosis (Benjamin 1953, Gerard 1979, Milner Holland 1965). Poor mental health has also been attributed to overcrowding. Gove et al in their analysis found that overcrowding explained more of the variance in poor mental health than the combined effects of race, sex, education, income, age, and marital status (Gove, Hughes and Galle 1979). This study is difficult to assess, however, because of the multi-collinearity between housing, income and social class. Also Rutter and Madge make cautionary comments generally against inferring that overcrowding influences mental health independently of housing history, housing composition and family characteristics (Rutter and Madge 1976). It also seems difficult to assess the "relative incidence" of different types of illness as a result of overcrowding. The causal path is fraught with possible antecedent and intervening variables. Nevertheless, the Milner Holland Report (1965) cited overcrowding as clearly contributing to the increased liability of home accidents, infections, risk of fire and mental stress.

If overcrowding does have a deleterious effect on either mental or physical health then it is plausible that women and children who spend longer in the domestic environment

will suffer more because of their subordinate position (Barret 1980, Oakley 1981) and the nature of the division of labour. Consequently internal overcrowding has been found to vary according to household composition and marital status (Gove and Hughes 1983) giving women living alone or in large households poorer scores on psychological tests than those in households of intermediate size (Gabe and Williams 1987).

Measures of bad housing other than overcrowding may also have an effect on health. According to the Bulding Research Establishment (1986) housing dampness affects two million homes and a variety of studies have related health outcomes to this aspect of poor housing. Keithley et al (1984) and McCarthy (1985) have studied council housing in Gateshead, Hunt (1986) a deprived area in Edinburgh and Burr (1981) housing in South Wales. These studies have documented the connection between respiratory symptoms and conditions of damp and poor ventilation. The majority of studies researching the effects of dampness indicate a detrimental effect on health (Martin et al 1987, Strachan and Elton 1986, Curtis and Hyndman 1989). In a recent study of Tower Hamlets (Curtis and Hyndman 1989) found that the residents were more likely to report symptoms of respiratory disease than a control population in a suburban area.

Connectedly, the type of heating avaiable to the household

may alleviate or alternatively exacerbate dampness and its health effects. The Black Report (1982) identified inadequate heating as a major source of ill health and Byrne et al (1986) showed that health problems in their study were most closely connected with structural defects and inadequate heating. Furthermore health perceptions were affected by poor housing, and children in 'difficult to let' areas were significantly more likely than their peers in better areas to have experienced a recent illness. The study also found a strong connection between distress and poor housing conditions. Since we know that symptoms of depression are related to a person's class position (Brown et al 1983) and that more women suffer from mental disorders (Aneshensel et al 1981, Kesslar and McRae 1981 Cleary and Mechanic 1983) then it may be that housing conditions provide a link in the causal chain between social class and health outcomes.

The Health and Lifestyle Survey also shows a relationship between lack of amenities and/or overcrowding and health indicators (Blaxter 1990). Poor health ratios were notable especially for the dimension of disease and disability. Again, as in the case of tenure, however, males and females responded differently to the domestic environment. Men seemed to be most affected in the middle years whilst for women the association was evident 'from the youngest years'.

Since most of these men and women were married with children, and following our previous comments concerning the time spent by women in the home, it adds further support to gender differences in health as an outcome of housing conditions.

The physical and psychological effects resulting from this increased exposure may in part contribute to the female morbidity rates. Poor housing has both direct and indirect effects since it causes a great many practical difficulties which in turn produce health concerns. For example babies and young children may develop poor sleeping habits to the further detriment of the carer's health since flat dwelling means that in order to respect neighbours, babies cannot be left to cry. This in turn creates bad sleeping habits and results in sleepless nights (Graham and McKee 1980, Nissel and Bonnerjea 1983). Also, poor housing may produce guilt in women since they feel an intense responsibility for the health of their families (Graham 1983, Spring-Rice 1939, Cornwell 1984).

Following the above we can generate hypotheses which will be tested in chapters seven and eight. We have seen that housing is a proxy for social class and does indeed have a relationship to health. We know from earlier in the chapter that women are more likely to spend longer in the domestic

environment due to the gendered nature of caring. Also, evidence in this section on health suggested higher morbidity rates for women than for men in poor housing. We may assume that increased exposure to poor housing is therefore a factor in women's higher morbidity rates.

Our hypothesis in this section is that standards of housing, measured by tenure, overcrowding and unfitness correlate with low income families. Furthermore, when these families have children, then they are likely to produce gender differences in health as a response to poor housing. If the relationship is sound, however, we should find the same results with men who are in similar caring, housing and income situations. Any support of this hypothesis would also tend to refute sex-specific illness behaviour as a rival explanation for women's poorer health.

c) employment

We have discussed the role of employment in relation to health earlier in the chapter. It has sometimes been considered a health advantage or alternatively a health disadvantage. In this section we try to understand how the role of employment interacts with material deprivation to produce health outcomes and to move beyond the traditional but artificial distinction between paid and unpaid work (Popay et al 1991). The work of Arber and her colleagues

(Arber et al 1985, Arber 1990, 1991) has argued that the relationship between paid employment and women's health depends on a number of different factors. Consequently we expect that the conditions of labour in the domestic sphere interact with those in other spheres to shape morbidity experiences of women and men. We expect different outcomes for women and men as a result of their different social expectations and the different conditions of labour.

The post-war spurt in labour force growth has been primarily due to the accelerated growth in the female component which is characterised by increasing participation, especially of married women, and has reduced the sex differential in the labour force in recent years. Unfortunately, women's employment experience is less likely than that of men's to reflect their labour market potential (Arber 1987) and they have primarily been located in what has been termed secondary sector employment.

The main attributes of workers in the so-called secondary sector are, firstly, that they are more dispensable than primary sector workers. This is facilitated by the probability of being either part time or temporary and so will have few statutory rights for retention. These workers often have fewer career aspirations and therefore are often more acquiescent to dismissal.

The second attribute of the female secondary worker is social differentiability which marks them apart from men's jobs. This sex categorisation of jobs which produces concentrations of women in certain jobs is often interpreted as proof that women have an aptitude for certain kinds of employment. Examples of this would be catering, cleaning, hairdressing, or other personal services.

Thirdly, the secondary worker is assumed to have a lower commitment to her job. Employers have assumed that women are more likely to be absent due to familial responsibilities; an assumption shared by insurance companies who charged around 50% more for Permanent Health Insurance for women than for men. This view has recently been refuted using data from the GHS which showed little difference between men and women in sickness absence (Arber 1990a). It is hard to determine which way causality lies in this case, however.

If women's commitment to the workforce is in question it may be that the types of jobs offered in the secondary sector are those which belie commitment, irrespective of sex. Occupational segregation is further segregated by sex, with females at the lower end of the hierarchy (Reskin 1989), so that women experience both horizontal and vertical segregation (McDowell 1989). Alternatively, lack of

commitment may be sex-specific since women may consider employment to be secondary to their domestic commitments (Porter 1982).

Labour market segmentation has gender dimensions since virtually all new jobs created in the UK since 1983 have been part-time (Hamnett et al 1989). These have largely been filled by women whose employment is often seen as secondary to that of the male breadwinner. The flexibility which enables women to fulfill familial roles as well as paid employment operates against them in the labour force but is useful to employers to whom the flexibility provides an incentive to maintain the divisions. Accordingly, differences in pay and conditions may not be due to skills, ability and productivity, but to the structure of labour markets (Hamnett et al 1989).

It is the linkage between family and job which helps to create the disadvantaged female worker. Women's domestic and caring responsibilities are constructed as their primary responsibility which for many women is a contradiction between their domestic roles and waged labour. The division of labour, both within the household and the labour force, may be as important as class divisions (McDowell 1989) and provides an essential role in social reproduction.

Women are disproportionately represented among part-time workers because of home responsibilities (Joshi 1987). If we look more closely at married women now in paid employment, their participation shows a direct relationship to the number of children (Joseph 1983, Dex and Shaw 1986, Martin and Wallace 1984) and that the older a child, the more likely that a woman will participate in the labour force (Joseph 1983). The trend seems to be toward a slight increase in participation of all women, irrespective of the ages of their children. Despite this trend, women's employment is characterised by interruptions due to birth sequence patterns. Dex and Shaw (1986) suggest that a, "continuum of experiences exist with continuous workers at one end and women wholly committed to domestic work on the other" but that the distribution of women's experiences has been moving towards the 'continuous worker' end of the continuum. The number and timing of these interruptions are important since they have implications for women's later work experiences and in particular their occupational status. More continuous employment may mean entrance into the primary sector employment, rather than the less desirable secondary market.

Joshi (1987) has calculated in monetary terms the opportunity costs to women of these gendered responsibilities. The price to men, Joshi claims is the

support of children and their mother. The price to the women is economic dependence and an increased risk of poverty. It is, therefore, not marriage but motherhood which marks the turning point in women's employment. Over 70% of mothers with pre-school children are not employed, among mothers with school aged children, only a third are without part-time or full time work (OPCS GHS 1982). To re-emphasize the work and home linkage there is an even stronger family and job linkage when husbands are no longer earning (Joshi 1987). Wives' retirement is often dictated by that of the husband. Also there is a low rate of employment among wives of unemployed men. The latter may be due to the structure of social security payments which denies women the chance to supplement the family income, but there may also be retrenchment into the traditional roles of male breadwinner and supportive wife during times of hardship (McKee and Bell 1986).

Although the primary focus for most women was the home, working class women were under constant pressure to earn money because of the inadequacy of the 'family wage' (Porter 1982, Brannen and Moss 1987). Yet the dual labour market as we have seen limits the contribution that women can make to the family income. Furthermore, women's claim to be unemployed is undermined by government policies which view seeking part-time work as an unreasonable restriction

thereby giving primacy to the male worker. Yet in two-parent families, women's earnings are often critical in keeping the family above the poverty line and in one parent families they may be the only source of income.

The old myth that women work for 'pin money' is clearly inappropriate at the lower end of the family income scale. Economic necessity provides little choice in many cases, especially in times of recession when there is a downward pressure on men's wages. Yet the myth is constantly being reproduced, since women's financial contributions, whilst vital are treated as less central to the household economy than men's (Brannen and Moss 1987). Men's earnings are often used to pay for essentials such as housing and regular bills while women's are used for childcare and shopping. This distinction between men's and women' financial contributions firstly reinforces the non-essential ideology of women's work and secondly provides a disincentive for women's paid employment. Remembering that women, whether employed or not, have the main responsibility for childcare and housework, a tension may be created between the work and home commitments. This tension may have greater implications for health in women on low family incomes than those on high incomes.

Some of the hypotheses have posited a positive effect and

others a negative health affect of employment. Since women are mainly responsible for the domestic sphere, role overload may explain women's higher morbidity rates. We have further suggested, however, that the negative health effects of employment are not just exacerbated by gender but also by material conditions. We can thus now begin to develop testable hypotheses for the health effects of employment, taking into account the combined influences of gender and the material context.

We have seen above that role analysis implicated marital status as a variable which affected gender divisions in morbidity. Married women however have been shown to have better health status than both previously married women and single women (Arber 1990). This may be a result of the disadvantage suffered by women in manual occupations since the type of occupation affects health also. There is a danger, however, in classifying women by the occupational structure which was formulated to take account primarily of men's occupations. Although there is certainly some correlation between the occupational structure, women's health is more likely to be affected by household based measures which become intervening variables separately from her employment (Arber 1990).

Employment and health are not as clearly defined as that of

men's and may not correlate throughout a woman's life. For example Blaxter (1990) found that women's health was worse than that of men's in junior non-manual, personal service, and manual workers, but that over 40, women's health did not appear to be strongly associated with their own occupations. There are two reasons for this; firstly, an occupational classification based on women's occupations rather than men's may have to be constructed to assess the link between health and work for women. Secondly, perhaps some of the domestic roles which we have posited to interact with employment, such as childcare, become less onerous in the later age groups. Also income might be more plentiful in older age groups producing less strain in terms of household management.

We have seen above that isolation in the home has been related to ill health. Consequently, many researchers have claimed that employment must have a positive effect on the health of those previously confined to the home. Based on the above, however, we may hypothesise that the positive effects may be mitigated by the economic need to work. The alternative hypothesis becomes that when employment takes place at the margins of poverty then employment has a negative effect on health. We might expect that this would be the case for both men and women; that the pressures created in these conditions would eventually be manifested

in physical illness for both sexes. It seems just as likely, however, that because gendered expectations leave women the responsibility of the domestic sphere, the domestic implications of low wages are not felt equally between the sexes.

When material resources are limited, expenditure in the domestic sphere becomes problematic. We have seen above in this chapter that this is the case for food and heating and that women may suffer disproportionately when these 'fluid' items are restricted. When paid employment is added to this household spending problem then our hypothesis seems to derive further theoretical support.

In conditions of low income the chances that paid employment will make the household responsibilities less arduous also becomes problematic. The higher the family income the better chance women have of being able to 'buy off' household and familial roles. This is yet another reason why we expect there to be an interceding class effect in the relationship between gender and health.

Up to now we have considered only employment in this chapter, yet research which has focused on the relationship between unemployment and health has been the subject of much debate. Unemployed men are more likely to report a variety

of health problems (Moylan and Davies 1980), yet in longitudinal studies of both men and women who were made redundant, no deterioration in health was evident during the period of up to two years following the event (Kasl 1982, Moylan et al 1984). However, unemployment is part of an overall susceptibility to material deprivation. It is a condition which produces income loss and therefore the economic circumstances are the most obvious factor affecting health (Hakim 1982). These may be in terms of nutrition, housing and loss of social relations (Miles 1987).

Brenner (1979, 1983,1987) has suggested that employment itself can determine mortality rates and that fluctuations in mortality can largely be explained by current and lagged unemployment. Furthermore, the effects of unemployment on mortality can persist for up to eleven years. Stern (1983) has questioned this finding claiming that the incidence of employment is not randomly distributed but disproportionately concentrated in certain groups. These groups are therefore already predisposed to unemployment by their marginality to the labour market and by the fact that they are much more likely than other groups to be poor before they become unemployed.

Brenner's position has nevertheless been extended by other researchers using the concept of stress to explain the

process whereby unemployment impacts on health (Fagin and Little 1984, Warr et al 1982, 1985, Ullah et al 1985). This has been further emphasized by the shame that men often experience, feelings which are closely related to states of depression and anxiety (Eales 1989). Connectedly, unemployment may not be a direct cause of illness but is an indicator of a pattern of labour force participation which puts people at risk of a cumulation of disadvantages over time (Robinson 1986, Bartley 1988). This is structurally determined through the social class system so that social class mediates the effects of not having a job (Payne 1984).

An alternative view suggests that unemployment does not cause poor health but, rather, the causality may be reversed and poor health and illness may cause unemployment. This alternative view has been conceptualized in terms of the selection thesis which views unemployment as being part of the downward mobility of people already in poor health (Stern 1983, Illsley 1986). So whilst the unemployed report more health problems than comparable groups of employed men in the general population, redundancy studies demonstrate no strong tendency for those who remain unemployed to suffer any increase in morbidity than those who remain employed or who are re-employed. This selection, however, may be subject to 'wearing off'(Fox et al 1990) since once a group has been

purged of the members who are predisposed to poor health and the high risk of death then the groups health prospects should fall back in line with other groups. Bartley (1990) prefers not to choose between the two approaches but to integrate the two into a framework which would allow examination of the concepts of labour market processes and the reproduction costs of labour power. This view expects that both stress and the cumulation of lifetimes of disadvantage would be placed in the context of changing social welfare and labour market policies.

Much of the literature relating health and unemployment has been based on the traditional centrality of the work role to men and the family role to women. The above posited relationships have been based on men's employment and unemployment and have shown that a key divide for men's health is between men with and without employment (Hakim 1982, Arber 1990). Some research has found that women suffer less in unemployment (Perucci et al 1985, Snyder and Nowak 1984) and it has recently been suggested that there are very few gender differences in health even when role configurations are the same (Ensminger and Celentano 1990). There is, however, some qualitative literature on how unemployed families cope with the unemployment of a household member which suggest that the sexes suffer differently and may therefore have different health outcomes

as a consequence.

Prolonged unemployment of one member of the household almost always leads to a reduced total income (Hakim 1982, Mckee 1987, Ensminger and Celentano 1988). The economic impact is further exacerbated by women giving up their employment to protect benefits (McKee and Bell 1986, Moylan and Davies 1981). Furthermore, there seems to be no evidence that families can automatically replace formal work with informal (Wallace and Pahl 1981, Pahl 1984) which casts doubt on the notion that alternative economic activities are open to the unemployed.

In periods of unemployment the caregiver task within the family becomes more difficult. In McKee and Bell's study (1986) there was no doubt that managing on unemployment benefit was women's work. There is also considerable diversity between families as to the kind of resources that can be called upon in an economic emergency (Mckee 1987). In some cases support was freely given from family and other social networks whilst in other cases unemployment served to polarize the unemployed household and the community.

Unemployment and the accompanying economic insecurity further serves to illuminate cultural expectations concerning the sexes. It is still a strong expectation that

men should be the bread-winner, an expectation that is reinforced through the welfare state (McDowell 1989) and one which may also contribute to women giving up employment when their partner is unemployed. In one study men were ranked above parents as providers and thus they and their marriages were considered failures if they could not provide financial support (McKee and Bell 1986).

To reinforce the above hypothesis, working class women were in no doubt that their real work was to maintain, service and take responsibility for the care of their homes, husbands and children (Oakley 1974a,1974b, Porter 1982). They are probably less likely, therefore, to relinquish work in the home to their husbands even if the offer was forthcoming. This was also the case for professional women who perceived housework and childcare as their own responsibility although this does not necessarily mean that they would not be prepared to buy off roles whilst still maintaining responsibility for them. Working class women also tended to view 'women's work' as housework rather than cooking or childcare. This is the reverse of usual middle class priorities of childcare first and tidiness second (Oakley 1974, Gavron 1968). Yet housework would seem to be the less satisfying aspect of 'women's work'. Also, as Oakley (1974) notes children are antithetical to the demands of the housewife role: they are neither tidy nor clean in

their 'natural' state. Furthermore, the expectancy that working class women have a close-knit supportive network to draw upon is refuted by research into community studies (Willmott 1986) and Oakley and Rajan (1991) which found that working class women were more likely not to have such a support system.

To conclude, paid employment has an economic and a social dimension for women at any level of family income. This is, of course, true for both men and women, but whilst home and work are separate places for men, this is not the case for women. The two are inextricably linked, marking off women's employment as different from men's employment.

At the lower income levels the tension between work and domestic responsibilities seems incompatible with good health, despite the possibility that work is perceived of positively. The inverse relationship between employment and health posited for women in low family income situations we would expect to reverse in higher family income situations. Employment in these conditions is more likely to have a positive effect on health. Firstly, employment may be in the primary sector and, therefore, less sporadic. Secondly, while many women in this category would consider their ability to contribute to the family income important, their contribution is not made at the desperate edges of

poverty. The function of two middle class incomes is generally to raise the families standard of living in a visible way, e.g. cars, holidays, etc. Women in higher income brackets can also 'buy off' many of the household roles which they are nevertheless still responsible for. In this way the hypothesis that role overload is detrimental to health, may be mitigated. Alternatively, we have evidence that professional and managerial women accrue some health disadvantage even though we would have expected them to be able to 'buy off' some roles and thus reap the health benefits of paid employment.

The general model would be that we would expect an inverse relationship between health and employment at lower levels of family income, changing to a positive relationship at higher income levels, whilst being mindful of the possibility of a health selection factors.

IV CONCLUSION

The hypothesis for this thesis is that gender divisions in morbidity are a result of a combination of gendered adult roles and the material context in which they are played out. This chapter has built on chapter one which showed that social roles and their context can affect health outcomes.

Research cited above found that women and men had different experiences of marriage, parenthood and employment which impacted health outcomes. The caring role with its associated health implications, was cited as usually belonging to women which when combined with paid employment made the likelihood of role-overload very high. This research on gender inequalities has been concerned predominantly with women's morbidity experience and has targeted the private world of the family rather than the material dimensions of the domestic environment.

Another and separate strand of research has focused on social class inequalities and the aetiological significance of paid employment and material circumstances, such as poor housing and low income. This was reviewed in both chapter one and above. The division of research in this way, however, has serious consequences for our understanding of the health implications of the material conditions of women's lives. Thus, the second part of the review focused on the material and structural context of these roles including occupational class and income. Studies suggested that the link between home and work, which was not apparent for men, led to different experiences for women and men and may consequently produce gender divisions in health.

From this chapter, therefore, we have been able to generate

hypotheses concerning the effects on health outcomes of the social roles of women and men whilst also taking into account the structural context. Hypotheses related to social roles alone will be examined in chapter six. Chapter seven explores the difference between the health outcomes of women and men when adult roles are analysed within the material and structural context. These two chapters build on theoretical propositions discussed above by using tabular analysis, to suggest which variables might have some explanatory value. Those which do are included in the logit analysis of chapter eight.

Chapter Three:

Secondary Analysis

I INTRODUCTION

The previous chapter reviewed the literature which purports to explain the different morbidity profiles of men and women. From this review we were able to develop hypotheses which will be tested in chapters six and seven. These hypotheses suggest that women's greater morbidity is a result of the gendered nature of caring which assigns this role to women irrespective of other role responsibilities such as paid employment. According to our hypothesis this role-overload is responsible for the divergent morbidity outcomes of men and women. Furthermore, when this role-overload is in the context of material deprivation the morbidity disadvantage is likely to be even more pronounced.

Whilst much of the literature in chapter two was qualitative, our research plan requires the use of survey data since we intend to perform a statistical analysis. Our methodological approach will be secondary analysis of an already existing data set. The data set to be used is the General Household Survey, a continuous survey collected annually by the Office of Population and Census Surveys. In chapter four we look in depth at the evolution of this survey and deal extensively with its appropriateness for our purposes.

In order to establish the credentials of secondary analysis, and thus the validity of our analysis of the 1982 GHS, three areas must be addressed. The first step is to focus on the debate over whether survey data is appropriate as a methodology in sociology. There have been criticisms that this approach is simply 'social bookkeeping' and as such cannot accommodate the level of subjectivity necessary for sociological analysis.

Having established the methodological validity of survey data the next step is to discuss the potential which secondary analysis holds for sociology, whilst acknowledging any possible limitations. This potential is that the researcher with few resources has access to a large quantity of good quality data. To emphasize this point, the final task of this chapter is to demonstrate the quality of the data available to the secondary analyst. In this task we will look at two types of data sets lodged at the ESRC Archive at the University of Essex; surveys in the explanatory mode, and those which are mainly descriptive. In the case of the latter we look in detail at the Family Expenditure Survey and the Labour Force Survey both of which are government sponsored surveys, as is the GHS. These two surveys show the value of this type of data and establish our claims for the GHS. We reserve the detailing of the GHS, however, until chapter four so that we can more fully chart its evolution and quality.

II CRITICISMS OF SURVEY DESIGN

a) positivistic criticisms

Before focusing on secondary analysis as a method of sociological research it is necessary to go one step backwards to a discussion of survey data. Although secondary analysis is theoretically possible using data collected from both quantitative and qualitative perspectives, our later analysis uses survey data only.

As with other methods of data collection, survey data is a method of collecting knowledge, or 'knowledge production' as Bateson puts it (Bateson 1984). It therefore requires a particular epistemological approach which has often been viewed cynically by sociology and most especially by British sociology.

The most persistent criticisms of survey techniques have been from those perspectives which claim that survey techniques are inherently positivistic and therefore unsuitable for accessing knowledge about human subjects. Phenomenologists, ethnomethodologists and symbolic interactionists believe that because of the meaning that subjects give to the social world, this should be the epistemological focus. The social world cannot be explained in causal terms and only an attempt to understand the social world can be attempted. In other

words the idea of a social science is an impossible contortion into which the stuff of sociology is forcibly "shoe-horned." Surveys in this context are relegated to the status of social bookkeeping since they are assumed to be atheoretical and hence invalid.

Surveys are assumed to be positivist in nature and, therefore, view some perception or experience of the world as the only valid knowledge gathering enterprise. Yet according to the philosophy of science there can be no knowledge on the pre-theoretical level. Rather knowledge is constructed in the social world (Berger and Luckman 1976) making a survey which is inherently positivistic an impossiblility. This is not to say, however, that the criticisms of crassness are not sometimes correct, but only that they are not inevitable. Subjectivity is evident at all levels in survey design, question construction, interviewing and interpretation. It is not just a collection of "facts" since facts cannot exist as data but are constructed, with reference to the social world.

The questions asked by the interviewer are intended to be the operationalisation of the concepts defined theoretically by the research project. These questions have been heavily criticised from an anti-positivist stance, because it is claimed that the meanings that the social world has for its members cannot be constrained by measurement. These meanings

are said to be lost when respondents are required to answer questions with only a limited number of response categories. The argument seems to be that human action is a result of conscious activity; that there is relationship between intentions and outcomes, (Marsh 1982). Yet the discipline of social psychology would belie this.

For example, a huge amount of research has been conducted which shows that attitudes and behaviour are not correlated. Attitudes and interviews simply do not predict action, which seems to suggest three explanations. Firstly, that people are misrepresenting themselves, or, secondly, much of human action is subconsciously motivated, as psychology would claim, or, lastly, that actions operate within contexts which may change the original intention, as sociology would claim. If the above is the case then the ethnomethodologists' claim, that subjects must speak for themselves, will not yield knowledge concerning the social world to the extent that they believe.

Questions asked in a survey form the variables which are the operationalised concepts of the phenomenon under scrutiny. It is the movement from the language of theory to the language of research, an attempt to measure hitherto abstract concepts such as health, poverty, attitudes, etc. The two criteria that must be adhered to in the process of operationalisation are validity and reliability. Validity, ideally, must

represent the abstract concept in all its subtlety, but in a measurable form. In practice researchers claim validity for one interpretation of a concept, acknowledging that the abstract world is not measurable exactly. Again this is one of the criticisms from qualitative methodologies and yet it seems this is exactly what is done within this methodological paradigm, but implicitly rather than explicitly. Operationalisation in qualitative research often goes unnoticed for what it is. If we exclude the ethnomethodologists, much qualitative work consists of in-depth interviews using 'focusing questions' rather than structured closed-ended questions as does the survey. These open-ended questions, whilst they do allow the respondent to express meanings, are nevertheless the operationalisation of the abstract concept. Yet often the operationalisation is not recognised for what it is, and, therefore, there is no imperative to defend its validity.

The qualitative researcher, whether the data is in the form of observed behaviour or 'in-depth' interviews, cannot make causal statements. Most qualitative research outside of phenomenology requires that the researcher either use the data in an investigative or descriptive way. In doing this the researcher is necessarily imposing an interpretation on the events observed or described in the interview. The very description of events or the cataloguing of items in the

interview are based on the subjective interpretation of the researcher just as survey researchers are not simply reflecting the properties of social phenomena but are using a common use understanding of the meaning of acts and the actors involved (Marsh 1982). This is, of course, not to say that the structured questions are always valid in methodological forms, but with sufficient thought, and adequate pretesting and piloting, many of the criticisms of survey research can be avoided.

b) causation

Causation has to be distinguished from correlation, and must be shown in process. One of the few features of causality which is generally agreed upon is the notion that the causal flow goes in one direction only. It is erroneous, however, to assume that a time sequence somehow proves causality, simply because we expect the action of the cause to come first.

This variability gives us the core notion from which researchers have made inferences. These inferences have been criticised, however, on the basis that it is chauvinistic of the researcher to impute these inferences and that these are much better left to the actor him or herself.

The Jones and Nisbett (1971) experiment is cited by March (1988) as refuting this chauvinism. The researchers used

money as the independent variable, and the willingness to show a visiting professor around the university as the possible dependent variable or effect. They were indeed able to show experimentally induced variance by varying the monetary incentive. The observed patterns were in line with the posited hypothesis so that very few of the low incentive group agreed, only half of the moderate group and most of the high incentive group agreed. The researchers inferences concerning the 'effect' of the monetary incentive, however, were not endorsed by the subjects. In questioning the students concerning their motivation, monetary incentives were never mentioned. It appears then that researchers have some advantage in causal explanations over the participants. Subjects may repress what they perceive to be socially inappropriate responses in favour of more acceptable reasons for variation in participation. We must still be cautious in claiming a causal relationship however.

The use of control variables gives more confidence in asserting causality since they can reveal a spurious relationship. If a relationship between two variables disappears when a third variable is introduced then causality is in doubt. Even if the introduction of control variables does not affect the relationship between variables, there still may be other reasons why an apparent relationship is being observed.

Campbell and Stanley (1966) noted in experimental design that internal validity may be affected by seven extraneous factors. Some of these factors may only be relevant to experimental research but others have a wider significance. One of these is so called 'maturation', which refers to biological, psychological and emotional processes which change subjects over time. We know that the ideas, beliefs and attitudes of individuals are different at different points in time and also that retrospective data may refer to past incidence and behaviours which have been 'recreated' in light of the present (Hage and Meeker 1988). We therefore must be tentative in assuming causality since the change in the dependent variable may be due purely to changes in the individual rather than the effects of the independent variable.

To complicate matters even more it is possible to observe reciprocal causation so that mechanisms whereby one event produces another at one time may be reversed at a different time. Reciprocal causation does not however violate principles of time and sequence because these relationships do not occur simultaneously, but at successive time periods or with different populations (Hage and Meeker 1988). This was the case in the study by Link, Dohrenwend and Skodal (1986) whose study addressed the association of mental illness and downward social mobility. Intuitively it seems likely that

the symptoms of mental illness would affect an individual's occupational performance resulting in downward social mobility. The authors wished to see if the causal flow was always in the one direction. Using retrospective data on the levels of stress in the individual's previous occupations they found evidence of this reverse causality. A statistically significant number of the subjects had had stressful occupations prior to the onset of mental illness. This suggests that in these respondents predisposed to stress, mental illness may have been triggered by occupations. This underscores the complex network which exists between variables which are posited to be causally linked.

Researchers who do not use experimental research always have a variety of extraneous factors which may complicate a possible causal link. There are always complex circumstances surrounding the events being studied which may confound the effects of the independent variable. Causality may be conceived of as a network with multiple causality, unlike Durkheim who saw only one cause for each effect. The links in this causal network may however be direct or indirect. Firstly, a direct causal link occurs when an independent variable directly causes an effect or dependent variable. It is not necessarily the only factor to produce the effect but its effect is direct. Where causal relationships are indirect there are intervening mechanisms between cause and effect.

Therefore the construction of causal models relies on searching backwards for ultimate causes and forward to the investigation of intervening variables. In this way previous direct causes may, with refined specification, be an indirect link in the causal chain; alternatively, any variable may be both a direct and an indirect link. For example, if we hypothesize that age and education have a direct effect on drinking alcohol we must also consider possible indirect effects. One of these may be that both age and education have an indirect effect through a third variable such a frequenting public houses. If this is the case, then both variables have an indirect effect and a direct effect.

Recent literature on causality, however, has been critical of the lack of attention to the problem of relating empirical evidence to causal assumptions. Weber asserted that explanations could only be useful if they were adequate at the level of both cause and meaning. March (1982) explains this position using Weber's own study 'The Protestant Ethic and the Spirit of Capitalism'. As she points out the mere fact of a high correlation between protestantism and capitalism is only a necessary part of the explanation. It is not a sociological explanation until the reason for the connection is made intelligible to us. Causal mechanisms have typically not been explicated sufficiently so that the linkages in the causal network have largely been ignored (Hage and Meeker 1988)

particularly in the deductive approaches to the construction of theory. Many of the processes are not observable, yet provide important inputs into the theoretical construction of a causal network.

For example many variables correlate with what have come to be known as 'background variables', and consequently are generally included in surveys (Davis 1979). Often the aim of statistical analysis is to find as many of these variables as will correlate with the independent variable, so that more variance is explained. These correlations are important in the inductive stage of theory construction as Rosenberg (1968) has shown, yet they remain unsatisfactory as sociological explanations if an attempt is not made to explain the 'meaning' behind such correlations. At best, ad hoc explanations are used to explain these relationships often using outside literature on the topic; "how it works mechanically or symbolically is not in the data but laid on top of it" (Marsh 1988). If we address some of the social psychological processes which occur along the various causal paths which form the network, then the resultant model will be more fully explicable. This is even more important if we consider that social intervention often relies on these models as a guide. Hage and Meeker (1988) use the sample of busing which had the manifest function of racial integration. The latent effect, however, of greater racial imbalance due to

many white parents removing their children from the public system, had not been anticipated. They go on to suggest that social psychological theory can provide some of the linkages in the causal network. In the above example of busing they cite the social psychological literature on aspirations as appropriate to an understanding of the countervailing causes which were unanticipated.

As we stated above, the quantitative researcher attempts to make causal statements about social phenomena unlike the qualitative researchers. This has been the subject of other criticisms of survey research; that statistical techniques such as stepwise regression are in essence atheoretical. Again the charge may be correct in some cases but it is not inevitable, and to use these methods as a strategy for generating theory is to invite criticism. Yet in order to have some confidence in any hypothesis, theory or idea about social phenomenon, some kind of variation or relationship must be evident. Efforts must be made to find competing explanations for relationships, and to disprove the posited hypothesis (Popper 1959). If it is just a good explanation with no evidence of probability to support it, it is just as useless as making theoretical statements based on mere statements of statistical probability.

With reference to the analysis of survey research, many of the

theories which begin the analysis or evolve during it, have been generated by a combination of other research orientations together with the researchers' own commonsense understanding of the world. For example, qualitative studies were important to the hypothesis formulation about women's roles in certain socio-economic groups as we said above.

On summarizing our position on survey data therefore, we accept that survey data may be open to some criticisms. These, however, fall into two groups, those which are inherent to survey analysis and those which relate to misuse of the data. It seems from our discussion above that the "inherent" problems are no worse than other orientations, and that "misuse" of data is not inevitable but can be avoided if data is scrupulously collected.

III SECONDARY ANALYSIS: BENEFITS AND COSTS

a) introduction

It seems clear from the above discussion that we need to be concerned to re-analyse only data sets which have been scrupulously collected. Strictly speaking the term secondary analysis refers to any reanalysis of data previously collected. Theoretically, the data might be qualitative or quantitative but typically survey data are used to extract knowledge on topics other than those which were the focus of

the original surveys (Hyman 1972).

In this thesis we will be using survey data to test the hypotheses above concerning the divergent morbidity rates of men and women. We have chosen secondary analysis as our methodological approach because it provides the most economical way of analysing a survey data set. For the lone researcher who does not have the funds to embark upon survey data collection it provides data often only for the mere cost of the tape or disk. It is possible also to have access to data which are of the quality to fulfill the requirements documented above. This is especially the case for the national government surveys which are collected with secondary analysis in mind. They are collected by established organizations such as OPCS in Britain and the National Opinion Research Center in the USA. These surveys, therefore, have the weight of years of expertise behind them and represent high quality data in terms of questionnaire design, fieldwork, large sample size and representativeness. Also government data sets offer a broad range of topics which provide the wherewithal for hypothesis testing. Hyman suggests that one advantage is that,

"information on many characteristics of millions of respondents from thousands of surveys, conducted in many countries and time periods" (Hyman 1972 p1).

These are the issues which have led us to choose the GHS as

appropriate for understanding the relationships between roles and morbidity. The following chapter will discuss the quality of the GHS data in more detail.

b) benefits from using archival data

In recent years, following the interest in secondary analysis, substantial support from public and private funds has facilitated archiving of data. These data 'libraries' provide catalogues of data sets, allowing the secondary analyst to 'browse' the machine readable data for those which suit the particular research project. Although it is possible to order data sets from all over the world the one most used in the UK is the ESRC data archive at the University of Essex. It started life with the name SSRC Survey Archive and was first established in 1967 to collect and preserve machine-readable data relating to social and economic affairs from academic, commercial and government sources, and to make those available to secondary researchers (OPCS 1984). In addition to individual or small scale studies the Archive holds the following: the censuses; major regular government surveys such as the Family Expenditure Survey and the General Household Survey (both described below); time-series data such as opinion polls of Gallup and Louis Harris; major longitudinal studies and panel surveys e.g. the National Child Development Study (described below); major cross-national studies e.g. Images of the World in the year 2000.

The Survey Archive can also obtain data sets from the ICPSR (Inter-University Consortium for Political and Social Research) archive at the University of Michigan since the Archive administers the British national membership of the ICPSR. Indeed the Archive has exchange arrangements with a number of foreign archives, including the Zentralarchiv (Cologne), the Belgian Archive for Social Sciences, the Danish Archive, the Steinmetz Archief (Amsterdam), the Archivo Dati e Programmi per le Scienze Sociale (Milan) and the Norwegian Social Science Data Services, as well as those in North America.

Thus the Archive is an enormous resource for secondary analysts and at the moment holds over 3,000 data sets. Information concerning the deposited data sets is contained in the Archive's catalogues. The Archive has grown largely in response to increased interest in secondary analysis, although it remains smaller than ICPSR which has more than 17,000 data sets from over 130 countries (Kiecolt and Nathan 1985).

It was in 1957 that the Roper Public Opinion Research Center became a national archive, followed by ICPSR in 1962. The first archive in the UK, therefore, was designated a full ten years after the USA. This reflects perhaps the more extensive use of secondary analysis in the USA where survey research and

thus secondary analysis has been more accepted.

Another benefit in the larger sense is that survey research had become so prolific that society may be reaching saturation point. This is especially the case in the US where so much market research and poll taking for a variety of reasons is conducted daily. Saturation may mean interviewee resistance, and as a result non-response rates for surveys of all kinds, mailed and telephone questionnaires and interviews, have risen in the past few years.

Non-response is an important issue since it may affect the representativeness of the sample being analyzed. If the non-respondents form a discrete group unlike the respondents, then the sample may not be closely related enough to the population or universe to make generalizations valid. OPCS has been concerned about this especially on the Family Expenditure Survey since its response rate is 66-74 per cent. Their approach is to match addresses sampled by the FES with those in the census so that the addresses for which no response was obtained could be checked against Census information. In this way the characteristics of the non-respondents could be assessed, in the event that they might form a discrete group and thus bias the sample. This check is only available to OPCS, however, since the secondary analyst would not normally have access to census data. Fortunately the response rate of

GHS is about 82-85 per cent rendering the non-response bias less of a problem than in the FES. This response rate includes all partials as respondents since the GHS unlike the FES accepts results for partially responding households. Full details of the response rate of the GHS is given in the next chapter.

Researchers in Europe and North America have reported steady decreases in response rates since the end of the 1960s. (Lipset 1976, National Research Council 1979, Steeh 1981). This non-response is not random, however,

> "while response behavior undeniably remains elastic, it is not merely a stochastic aberration lacking any consistency from one event to the next." (Goyder 1987 p. 161)

Theories attempting to explain non-response have concentrated their attentions on many varied factors which may contribute to non-response. One change within households from the 1960's has been the growing numbers of women in the work force which has made contact with householders harder. Another 'macro' orientation is the salience of the topic to the interviewee (Goyder 1987). It may not be the loyalty to the organization sponsoring the questions but more closely related to self interest. For example Clausen and Ford's (1947) research on World-War-Two veterans showed that response was correlated with how closely the topic matched the veteran's own concerns.

Socio-demographic factors may also determine response rates. Socio-economic status is shown by Rosenthal and Rosnow (1975) to have a positive effect, whilst age has been shown to have both a positive (Filion 1975) and a negative effect (O'Neil 1979). Likewise 'marital status' as a response category is often unclear, with some researchers claiming a high response for the married (Redpath 1986) and some detecting little difference (O'Neil 1979). According to Goyder (1987) however, on balance the evidence still identifies the elderly and the low SES as the most likely non respondents, but suggests more multivariate analysis to unravel the complexity. OPCS, however, has reported in their pilot wealth study that it is the wealthy who will not respond to survey questions. In the GHS analysed below, Barnes and Birch (1975) found that non-respondents tended to be elderly, unmarried men living on their own and the self employed, but that the effect of this was significant in only one in twenty of the subgroups examined.

The literature on non-response therefore shows little consensus on whom the non-respondents are. The only sure way of guarding against the bias seems to be a high response rate which gives some confidence that the non-respondents are not large enough to render the sample unrepresentative. This is a costly exercise and may involve expensive re-visits, or recalls in the case of interviews or a complicated 'follow-up'

procedure in the case of the mailed questionnaire.

c) government sponsored surveys

Lodged at the Archive are both academic and government sponsored data sets for use in secondary analysis. Government sponsored surveys fall into two categories, those which collect descriptive statistics and those which are designed to offer explanations of social and economic phenomena, although both types may be used inferentially.

i) descriptive data sets

An example of the surveys in descriptive form would be surveys such as the Family Expenditure Survey, General Household Survey (described in detail in chapter four) and the Labour Force Survey. All of these are essentially multi-purpose data sets designed to provide statistics for those government departments who sponsored them. As these and other similar data sets become available, social researchers can extend the original analysis into hypothesis testing and causal analysis.

The FES is the longest standing multi-purpose survey and was begun in January 1957. The survey collects data on expenditure patterns of different households and the extent to which individual members of a household contribute to the household income. Originally this information was to provide data for the Retail Price Index. Its usefulness, however, has

widened to include other government departments and independent researchers. It is also used as a substitute for the GHS which was not begun until later (Hakim 1982). It is an extremely detailed data set which includes a household schedule concerning expenditure on such items as rates, whether the address is in a smokeless zone and payments for gas and electricity. This is usually asked of the head of household. To supplement this there is an income schedule for each household spender concerned with income, national insurance contributions and income tax.

Each household member aged 16 or over is also asked to keep a diary of his/her expenditure for fourteen consecutive days following the main interview. This may include food, clothes, fares, entertainment, books and newspapers, children's pocket money, gifts, contributions to charity.

The FES is conducted by the Office of Population Censuses and Surveys (OPCS) and is available through the ESRC Data Archive at the University of Essex for 1968 onwards. Because of the size of the data, the tables published annually cannot include all the data. For similar reasons providing the whole data set to researchers is also difficult. The Archive, therefore suggests that the researcher identify the variables to be used prior to ordering.

The Labour Force survey (LFS) is a biennial multi-purpose official household survey begun in 1973. Its purpose was to bridge the gap between the census and the General Household Survey, which is much smaller. It is an important addition since the UK from 1948-1971 had relied on administrative records for its labour force statistics. The disadvantage with this was that some groups of workers were not covered by this system; groups such as the self-employed, family workers and people who work at home. Another function of the Labour Force Survey is to provide some comparability (see earlier in this chapter) between the UK and EEC definitions since the administrative definitions previously used in the UK were different to those used in the EEC. Thus the design of the survey is done in collaboration with the Statistical Office of the European Community and the statistical offices responsible for carrying out the survey in each country (Hakim 1982). OPCS has been responsible for the survey in the UK since 1980.

The LFS sometimes contains questions which are of interest to government departments. These questions, because of their irregularity, are less useful for time series than the standard topics. For example, Hakim (1982) points out that the data on ethnic minorities are used by the DOE (in relation to housing), by the Home Office and the DE (in relation to employment). In some cases the LFS is censored so that some responses are regrouped into a smaller number of categories

with the resultant loss in detail for the researcher. This is not the case for the GHS or the FES.

ii) surveys in the explanatory mode

Although the GHS is a descriptive survey it will help to emphasize the value of secondary analysis by reviewing the potential of surveys which have been collected with a particular research agenda in mind. An example of a survey in the explanatory mode would be the ad hoc survey, Women and Employment (OPCS 1980a). This was because the WES focused on the women's perspective. In contrast to the GHS and others, the WES uses an inductive approach. This entailed some preliminary qualitative work to generate the appropriate employment categories. Martin and Roberts (1984) rejected the usual categories 'unemployed' and 'economically inactive' as being less meaningful for women. What they came up with was a five-point continuum ranging from 'unemployed' through 'temporarily economically inactive.' This was felt to more faithfully represent the women's employment condition. The national survey consisted of a single interview with women between April and June of 1980. The sample size generated was 5,588 women between the ages of 16 and 59. The sample was stratified, multi-stage and random to produce a probability sample of 190 local authority districts which had been stratified by region, metropolitan/non-metropolitan and proportion of the population in socio-economic groups 1-5.

Within each district a random sample was then produced of four wards and then a random sample of 20 addresses within each ward. This survey design reduces the cost of simple random sampling of the whole population. The probability is maintained since each stratum is independently randomly sampled, ensuring the generalizability of the findings. The survey had two main components. First, a main interview schedule which collected information about the women's education, training and current employment status, their family and household circumstances, their husbands' education and employment status, their attitudes and their work experience over the previous two years. Secondly, the WES also collected a work-history schedule which recorded work experience after leaving school. The women were asked to record their work history in terms of periods of working full-time, part-time, not working and being in full-time education. A 'period' was defined as not less than a month. They also recorded the dates of any movements from one period to another.

The work history was later put alongside data concerning the women's life events. Events such as marriage, births of children and divorce went some way toward explaining the working and not-working periods. This showed the interplay between the domestic and public spheres, a characteristic of women's employment history.

This data was retrospective in that it required the respondents to recall events which may have occurred some years previously. Some caution is always advisable since data of this kind may suffer from biases resulting from involuntary error. Recall may be seriously affected by the time difference between the original behavior and the response. Martin and Roberts (1984) address this issue by including in the interview schedule cross-checking questions which give some assurance that the data were not biased.

The data set had already been extensively analyzed by Martin and Roberts by the time it was lodged at the Archive. As we saw above this survey is in the 'explanatory mode' and therefore was devised to answer specific questions, and enclosed in an already formulated theoretical framework. It has, however, received some further attention from Dex and Shaw (1986) who use it for comparative analysis. Their analysis is addressed in the next section on comparative analysis.

d) comparative analysis using secondary analysis

Secondary analysis also enhances the possibility of comparative analysis. This is becoming increasingly urgent as the political and economic worlds of European countries move closer together. Comparative analysis generally, and cross-

nationally more specifically, is costly in resources and may be prohibitive as a primary research enterprise. The tradition of comparative analysis becomes an imperative with the emergence of the EEC and the more recent political changes throughout the world. An early example of comparative survey analysis is the study conducted by Almond and Verba (1963). Some five thousand people from five countries were interviewed concerning the problems of democracy and political participation. It was funded by the Carnegie Corporation and involved the services of survey organizations in five countries, Britain, Germany, Italy, Mexico and America. These included the National Opinion Research Center of the University of Chicago and Research Services Ltd. of London. Almond and Verba note in the preface that from the planning of the study to its completion took five years. As a strategy, therefore, primary data collection for comparative purposes may not be viable.

Latterly, comparative data sets have been lodged at the Archive at Essex. For example in the 1970's the European Communities Study was set up to investigate the respondents' attitudes towards world society and politics. In three sweeps, 1970, 1971 and 1973, large numbers of respondents (ranging from 9277-13484) from Belgium, Britain, France, Germany, Italy and the Netherlands were questioned. In 1970, data were collected via questionnaires on aspects of

unification, in 1971 the respondents were asked about their feelings of regional belonging, their awareness of, and ideas about, agricultural problems and lastly in 1973 the questionnaire asked about the respondents' satisfaction with various aspects of their personal and environmental situation. This data set is available from the Archive at the University of Essex.

If a researcher cannot find a suitable data set then two or more data sets from the countries of interest may be selected. An example of this is the Dex and Shaw (1986) research mentioned above, which used the Woman and Employment Survey (OPCS 1980) and the US National Longitudinal Survey (Center for Human Research 1967). These two data sets were used to draw comparisons between the work histories of women in the US and the UK. The NLS data collection was somewhat different from the WES. The WES is retrospective, as we have seen, while the NLS is data collected over one or two year periods. Dex and Shaw were thus concerned that any differences found between the two groups of women might be attributable to differences in the data gathering. They explain however that both data sets have been compared to other data sources in both countries and neither seemed seriously biased. Also the differences in work and occupational status at the time of the 1980 interviews in both countries, when no differences in recall are involved, "parallel those found for other years

when the data was retrospective in the WES but contemporaneous in the NLS" (Dex and Shaw 1986). They add that although small differences are unavoidable, these are hardly likely to alter the findings significantly. Some adjustments to both data sets had to be made in order to standardize in preparation for the comparative analysis. For example some differences existed between the information collected in the two surveys. In the NLS the women were not asked for their complete work histories but only some of their previous work experience. The date of the birth of the first child, however, was one of the questions and also the details of the longest job held after marriage and before the first birth. By deduction, therefore, they were able to assume that the longest job between marriage and first birth was probably the last job before the first birth. It was a reasonable assumption since the average time between school-leaving and childbearing was only about five years. Where this was not the case it was felt that these jobs were at the least representative of the kinds of jobs the woman gave up before childbearing.

Some recoding of the occupational classifications was also needed prior to the analysis. The US occupational classification was much more detailed and so contained many more categories. With the help of OPCS these were recoded to be comparable with the twelve categories used in the WES. More of the adjustments necessary for the comparative analysis

are contained in the appendix of British and American Women at Work (Dex and Shaw 1986). The detailed preparation shows the creativity often needed in secondary analysis.

Dex and Shaw's findings have made an important contribution to social policy analysis since they show clearly that in both countries childbearing has serious implications for the work experience of women. One of the most useful has been the differences in mobility experienced by both groups following childbirth. In Britain a great deal more downward mobility than in the US was observed making, "the employment position of British women with children . . . considerably worse than that of their American counterparts." (Dex and Shaw 1986 p. 124). In light of this, one of the policy recommendations made by Dex and Shaw was the introduction of flexible benefit plans to the UK. These packages allow workers to choose the fringe benefits which suit them, within certain cost constraints. This would allow women to tailor benefits to their particular needs, given that their 'needs' often reflect familial obligations.

A third strategy for the comparative secondary analyst is to use official statistics from different countries which have comparable indicators. For example the collection of studies in Health Inequalities in European countries edited by Fox (1989) has many examples of this approach. Mortality

statistics are one of the most comparable items since other indicators such as morbidity may be variously defined. Age at death, therefore, is less disputable and offers a standardized statistic. Le Grand shows the international comparison of distributions of ages-at-death (1989). Lynge et al (1989) combine differential morbidity rates with occupational groups and Jozan (1989) focuses on area mortality differentials in some European countries.

If secondary analysis is chosen rather than primary data then the concerns expressed below about operationalization may be compounded in the case of comparative work. The search for already existing valid and reliable measures of concepts under study may be made more complex because of cultural differences. Secondary analysis remains, however, the most viable route for comparative projects just because of the enormous cost of other options.

e) varieties of research designs

Secondary analysis also allows for a variety of research designs, including trend, cohort and time-series (Kiecolt and Nathan 1985). All of these research strategies are almost impossible for the researcher to collect him or herself since many years of data are needed for social change to become firstly evident and secondly verifiable.

i) trend studies

Trend studies make use of cross-sectional data so that two or more points in time can be compared. The general aim is to investigate changes in a variable between the two points or to identify changes in the relationship among variables in the same time-frame (Glen and Frisbee 1977). Differentiating a trend can give general or specific information. For example, research into racial prejudice using the General Social Survey in the US shows that attitudes to interracial marriages have changed more rapidly than attitudes to spatial segregation (Taylor et al 1978). According to Hyman (1972) if trends are disaggregated and subgroups are plotted separately, it is possible to locate the position in society where change is taking place. If disaggregation does not reveal a locational change then change is considered to be a general population trend (Hyman 1972). Another way to analyze trends over time is to use time-series analysis. It is possible to use successive cross-sectional surveys or to use separate data sets for each time if successive data sets are not available. The variables analysed must, however, be comparable from year to year. An example of successive data sets is the General Household Survey since data are available annually from 1971 (OPCS 1973). In some cases questions have been added and taken away from year to year (see later) but nevertheless a "core" interview schedule remains which is amenable to time series analysis.

Alternatively, where no successive data sets are available it is possible to combine data sets covering the required time span. Consequently standardization for comparability purposes may present some problems. Some of these same issues are salient also for cross national studies (as we have seen earlier). This issue needs some creativity in making them both item and sample comparable. In some cases secondary analysis of an earlier survey can be combined with a primary survey (Dale et al 1988). For example in the Women and Employment Survey (Martin & Roberts 1984) some questions were repeated from a survey originally collected in 1965 by Audrey Hunt (1968). Those questions focused on women's attitudes to work and domestic responsibilities and showed that there was a rise of 20% in the percentage of those women who thought that a childless married woman should be in paid employment if she was able.

In attempting these projects the researcher has two choices, either to reanalyse an already collected longitudinal data set or to use a cross-sectional data set which is comparable from year to year. Both are possible using data deposited at an archive. For example a major longitudinal data set is the National Child Development Study described below, which focuses on the perinatal mortality rate and its relationship to social and obstetric factors. Alternatively the GHS is one

of the best examples of a survey which can give cross-sectional time-series.

ii) cohort studies

Cohort studies are designed to investigate changes over time in one or more groups in society. Usually cohort groups are a birth group and may be interesting to the researchers because they live through some major life events. Those designs are thus useful for studying aging but also social, political and cultural changes over time. It is, however, necessary to 'ground' the cohort analysis theoretically with careful reference to the historical events posited to produce change. The analysis should then try to separate the observed variation in a cohort table into the independent effects of aging, those effects which are a product of the historical context, and period effects which may be caused by events unique to each era of data collection. This is not necessarily a simple task since two of the effects may be confounded with each other. They cannot be unconfounded statistically so outside evidence must also be used to make the evaluation.

One of the most famous longitudinal data sets is the National Child Development Study which focuses on the perinatal mortality rate and its relationship to social and obstetric factors. It is a cohort of 17,000 people who were born in one

week in March 1958 (Davie 1966). The children were traced subsequently at the ages of 7, 11, 16 and 23 with the possibility of further investigations in the future. It thus allows changes in the cohort members to be documented over time as the cohort passes through the various events felt to be important by the researcher, for example, changes in the school leaving age and unemployment rates (Fogelman 1984). Because the study comprises a representative group of children it is therefore possible to extrapolate from the data to the index population.

The data started off life as the 1958 British Perinatal Mortality Survey, looking specifically at circumstances relating to the mother and child, the pregnancy and birth. It was later indexed to include monitoring of the "developmental correlates of the children and to study not only emotional maladjustments and educational handicaps, minor physical disabilities and 'at risk' groups of children, but also those children who do particularly well or who are 'normal'". Dale et al (1988) emphasize that this survey has been immensely expensive and has received additional funding from the government. This means that for the lone researcher such an enterprise would be unthinkable, and underscores the importance of the secondary analysis approach.

f) choosing a data set

i data biases

Many of the problems which the secondary analyst encounters are intrinsic to the survey method, whilst others are unique to secondary analysis. The main difficulty with secondary analysis is that the data set being used by the researcher was neither conceived, designed, nor collected for the researcher's research problems. Although this is also true for the GHS, in this case the topics covered are broad and include more than one form of operationalization of the indicators used.

Generally, however, in choosing a data set the secondary analyst must first find a suitable survey design which contains the kind of data the researcher needs for his/her particular research problem. Sometimes two or more data sets will be necessary before the researcher is satisfied that all aspects of the problem are matched by the appropriate data in terms of sample size and topics covered. Choosing the data set is of vital importance since, without losing sight of the research problem, the researcher may have to remain flexible if exactly the right variables, sample size or social groups are not available.

Since the secondary analyst has no control over data collection, it means that whatever errors were made in the

original design and collection of data are inherited by the secondary analyst. For this reason information concerning the quality of the data must be the first consideration, as many of these errors will not be recognisable if all the details of the original data set are not available. The archives do their best to 'clean up' the data but notice of all errors cannot be guaranteed. Thus it is always important to know the limitations of the data being used since some allowances can then be made for known biases in data sets. Unfortunately some biases may exist in the data which are unknown to the secondary analyst. In terms of the GHS specific details of the survey design and response rates are available for each deposited year.

To avoid these pitfalls the credentials of the agency responsible should be of paramount importance and in fact the more professional the data collection, the more likely it is that the shortcomings of the data will be recognised and assessed (Dale et al 1988). OPCS reports that it is continually revising and critically reviewing its data sets and publishes a biannual series of Survey Methodology Bulletins relating to its own research, which deals with the effects of non-response, different sample designs, question wording, interviewer reliability and the relative merits of different sampling frames. A full discussion of these issues of quality as they relate to the GHS is contained in chapter

four.

If the purpose of the secondary analysis is to generalize the research findings nationally then it becomes even more important to check the sampling frame and the response rates. Some surveys may not have nationally defined populations but populations specific to certain areas or cities. In this case the researcher needs to study the context in which the data were collected to assess whether any historical or geographic factors have had an impact on the data collection. For example, as we will see in chapter four, the GHS survey design includes elements to reduce between-area variability from year to year.

ii) hierarchical and rectangular options

There are also hierarchically based data sets which means that linkages can be made between different levels within the hierarchy and between different members of the same household. This allows for the possibility of contextual analysis has focused on social systems as contexts (Arber 1987), such as schools, rather than on families and households. Typically the characteristics of households have been averaged, thereby losing some critical insights. The General Household Survey is available for all household members and the relationship of each member to a specified 'head of household' is shown. Dale (1987) cites three ways in which researchers can exploit the

contextual possibilities of the GHS. Firstly, aggregate household level variables can be constructed based on the researchers' own research. A typology may be constructed which draws the distinctions relevant to the issue being researched. This is preferable to using an all-purpose one which may be less appropriate. Once created these household level variables can then be used to find relationships between it and other household level variables.

Secondly, the hierarchical format of the GHS allows for examination of the interrelationships between individuals within the household or family unit. This is possible because all the members of the family unit are identifiable rather than being aggregated in the case of a rectangular format.

Thirdly, because of the two earlier formulations (i.e. the aggregate household level variables and the identification of family members) intra-household relationships may be analysed 'within household categories derived from information on all household members. This is clearly an advantage except that hierarchical data sets are less easily managed than flat rectangular files. With data management packages such as SIR, SAS, and SPSSx, however, management becomes much easier. They allow the analyst to use the hierarchical data to create whatever derived variables are required for the analysis. Once this step has been completed the data must then be

organized into a standard rectangular matrix before being analyzed. Since 1983 OPCS has sent the GHS to the Data Archive in SIR format hierarchical files.

SIR is not so much a statistical package but rather a data base management system. The statistical possibilities are therefore somewhat restricted. Also, SIR in terms of the package itself, and competence in its use, are not widely distributed throughout the UK research community (Banks 1989). Owen (1988) has exhorted the use of SIR over the above statistical packages, however, as being more appropriate for handling hierarchical data sets such as the GHS. He stresses the complementariness of using SIR to manipulate data and then using the created variables in an SPSS or SAS file to statistically analyse them. Also SIR's hierarchical structure more closely approximates the complexity of the GHS data set (Banks 1989) rather than the individual level SPSS file. The GHS is offered both as flat or hierarchical files so users can choose data in SIR format or flattened and distributed as SPSS or SAS files.

In choosing the format the researcher needs to balance the advantages in data management of the rectangular file with the advantages in linkages between household members in the hierarchical form. To ease the data management of the GHS hierarchical data from the post 1982 files have contained some

of the more popular derived variables relating to socio-economic group, age, sex, country of birth etc. Also between 1973-82 the ESRC funded the University of Surrey's project which produced about 80 intra-household linked variables (Arber, Dale, Gilbert, and O'Byrne 1984). Since 1982 these have not been available so that if the researcher needs a later GHS data set and the post 1982 flat files are inadequate then the choice must be choosing the data in hierarchical form.

iv) operationalization

The link between theory and data may be more problematic if the researcher is using a data set which has already been compiled. For the primary analyst who transforms theory into measurable data, the task is onerous enough. For the secondary analyst the task becomes increasingly problematic as it is more difficult to ensure that there is a close relationship between theory and data (Dale et al 1988).

The movement from abstract concept to measurable variable depends on what the data set has to offer. The secondary analyst whilst maintaining a conceptual framework must be creative in finding indicators which do not compromise this framework. The maintenance of a good conceptual framework as a precursor to secondary analysis is therefore an imperative. This informs the hypotheses rather than letting the data

generate them in the form of correlations of variables and this maintains the time ordering of 'theory then data'.

As Dale et al point out (1988) the relationship between theory and data is one that has always troubled sociologists especially where the data have required quantification. In the above section we drew attention to the skepticism in sociology about survey data and the claim by some that it is nothing but abstracted empiricism (Mills 1959). It is certainly a possiblity that if the same data sets are used that this may limit the scope of social science research.

The validity and reliability of the variables chosen to address the research problem can be problematic for primary researchers. For the secondary analyst the problem is compounded since the data have already been collected. It may be that the data have not been designed with the same research problem as the secondary analyst has in mind, so that operationalization of the variables used needs to be even more creative. (We present a more detailed coverage of variable operationalization in chapter four.) Recent studies in stratification show how researchers have productively drawn on existing survey data. For example, Wright and Perrone (1977) have employed secondary data to assess the correlation between class and occupational status. They used a Marxist conceptualization of class modified to include the authority

structure. None of the original data files (Quinn et al 1970) had straightforward measures of social class. The measures eventually used were based on three questions: 1) "most of the time on this job, do you work for yourself or someone else?" 2) If you are self-employed, are there any people who work for you and are paid by you?" and 3) "Do you supervise anybody as part of your job?" From these questions five social class categories were generated. These were then found to explain a greater amount of variance in income than status measures.

Items can also be summed to construct indexes after performing factor analysis to determine the appropriateness of the item. More sophisticated statistical programs such as Lisrel can more critically make this evaluation so that the researcher can predict which items will comprise each factor or construct, and whether the posited constructs will show multi-collinearity (Kiecolt and Nathan 1985).

IV CONCLUSION

This chapter has established the credentials of survey data and secondary analysis against a traditional background of scepticism in the UK regarding these approaches. This has been a preliminary to chapter four which presents in detail the quality of the design and collection of the 1982 GHS. The potential of the GHS for secondary analysis is further

underscored by reviewing health related research based on the GHS survey. Both this chapter and the following, therefore, give confidence to the validity of the analysis in chapters six, seven and eight.

Chapter Four:

The General Household Survey

I ORIGIN AND DEVELOPMENT OF THE GHS.

In chapter three we addressed the criticisms of survey analysis and drew attention to the potential of secondary analysis. Government surveys, which are lodged at the Archive at Essex University, were presented as an excellent source of high quality data. They contain a broad range of topics which can accomodate various research agendas. Two of these were described in chapter three; the Labour Force Survey and the Family Expenditure Survey. Discussion of the General Household Survey has been reserved until this chapter since it is the survey analysed below and thus warrants a more detailed treatment. This will establish the high quality of the GHS 1982 data set and so provide confidence in the analysis to be undertaken in chapters six and seven.

The General Household Survey is a continuous survey which has been running since 1971. It is based on a sample of the general population resident in private, rather than institutional, households in Great Britain. It was set up to mark a change in official enquiry in that it was the result of 'cooperative research service meeting the needs of many departments within one survey framework' (OPCS 1973). It is thus a multi-purpose social survey with the potential for

generated by the participating government authorities.

We can identify four main sources for the origin of the GHS. Firstly, the experience of multi purpose surveys in many other countries; secondly, the time gaps between the censuses; thirdly, public policy's need for administrative statistics, and, lastly, the need to examine the relationship between the main areas of social statistics. (Hakim 1982).

The GHS emerged out of the merger of the General Register Office, which had been in existence for over 130 years at the time, and the Government Social Survey. This merger produced the Office of Population Censuses and Surveys (OPCS) which became responsible for, among other things, the General Household Survey (Whitehead 1987). The survey is officially sponsored by the Central Statistical Office (CSO, which chairs an interdepartmental committee to oversee the survey including the yearly topic decision).

The GHS differed from other multipurpose surveys conducted in other countries at the time, since it did not have as its main theme the measurement of certain aspects of the employment situation. Following discussion between the various government departments in this country, many important policy areas were identified as being in need of supplementary statistics. In its first year the GHS provided information on

some aspects of housing, employment, education, health and social services, transport, population and social security. The intention was to collect data which related as closely as possible to the stated needs of government departments.

Since the GHS was to be a complement to existing administrative statistics in order that policy decisions could be made, this helped to determine the shape of the original GHS. It meant that detailed information was needed both about the household and its members. As a consequence, only some selected aspects of an area could be examined at one time. It was felt that the GHS should therefore cover some central themes of policy but that varying aspects of these themes would be covered over time. The main subject areas of the GHS up to 1973 were employment, housing, health and social services. OPCS, however, viewed it as inevitable that the interview topics would change as social policy concerns evolved over time. This has meant that some topics have been covered consistently whilst others have varied over time. We will be discussing the year by year changes in the GHS later.

A further consequence was that the depth of interview needed translated into a smaller sample than had been used elsewhere, given the resources available. This is also discussed in detail below. In addition, the field work experience for interviewers changed from their customary work because of the

range of topics they now needed to cover in any one interview. Problems of "maintaining continuity and respondent interest" was thus a prime concern (OPCS 1973) and 'respondent fatigue' was identified as a potential problem in the introductory report of the GHS (OPCS 1973). The fieldwork of the GHS is also discussed below.

II DESCRIPTION OF 1982 GHS

The analysis below in chapters six and seven uses the 1982 GHS. The following section therefore reviews the 1982 sampling design and data collection of the GHS in relation to other years.

a) sample design

The sample of the GHS is taken from private households in Great Britain. The sample is drawn from the Electoral Register (in 1984 the sampling frame changed and was based on the Postcode Address File). The sample design from 1971 to 1974 was a stratified design which included three stratification factors with the local authorities being the primary sampling units. The sampling frame of local authorities was stratified into 15 regions and within each region into a further four area types; conurbations, other urban areas, semi-rural areas, and rural areas. Within each type of area, local authorities were ranked by an economic

indicator calculated from the rateable value (except for rural Scotland which were ranked by population density). The strata eventually numbered 168, all of approximately equal population size. One local authority was selected from each stratum with probability proportional to size (a second area was needed in each of the strata for Scotland in order to improve the estimates for Scottish departments) and then four second stage units. These were the electoral wards which were then assigned to quarters so as to maintain the representativeness of the sample. The third stage of the stratified sampling design, a random sample of addresses, was selected from the Electoral Register for each selected ward. These wards were then assigned to one of the quarterly interview schedules. In each new quarter a fourth of the selected local authorities was replaced to provide an element of rotation. This was thought to be necessary by the departments to avoid 'between area variability' from quarter to quarter.

In 1975 the sample design had to be changed because of the reorganization of local governments in Great Britain, which replaced 1,332 old local authorities with 369 new Districts in England and Wales (April 1974), and 399 old authorities into 53 new Districts plus three island areas in Scotland (May 1975). In 1975, therefore, a new two stage rotating design was adopted which used electoral wards as the primary sampling units, rather than the local authority areas as previously.

The sampling frame of wards was stratified by region, area type, economic indicator and percentage of owner occupation. Wards were distributed between 17 regions with a distinction being made for metropolitan and non -metropolitan areas. For example, the North was defined as both metropolitan and non-metropolitan. In the former areas the population was 1.16 million and contained 4 strata and for the latter 1.93 million containing 6 strata, for the years 1975-1981. The economic indicator was identified as the percentage of heads of household in socioeconomic groups 1,2,3,4,5 and 13 (mainly those in the professional and managerial groups). This indicator was used as a ranking system within both the region and area type mentioned above so that eventually following the ranking the electoral wards were divided into 168 strata.

These wards were then ordered using the stratification dimension of 'owner occupier'. From each stratum four wards were systematically selected then allocated first to a quarter and then to a month within that quarter. The original three stage rotating sample was reduced in 1975 to just two, so that each year one third of new wards were replaced by randomly selected wards from the same stratum. Although some of the wards remained the same from one year to the next, a check was made to ensure that the addresses were not contacted twice in two consecutive years. We will see later how the selected addresses were converted to households at the interviewing

stage.

In 1982 the size of the sample selected addresses was reduced by about 14%, from 14,564 in 1981 to 12,480 in 1982. This was in response to the Rayner report to the Prime Minister and Lord President of the Council in 1980 which had suggested that economies were needed in the GHS. It was suggested that the cost of the General Household Survey could be reduced by 28% 'without impairing its essential functions.'

This reduction was achieved by decreasing the number of wards (PSUs) from 168 to 144 per quarter while retaining the number of addresses sampled within each stratum. For 1982, therefore, the total number of PSU selections made was 576. This meant that the distribution of strata between regions had to be recalculated. (The recalculation was based on the most recent population estimates available). To return to our earlier example of the North, the metropolitan area's number of strata was reduced by one, from four to three. There was also a reduction of one for the non-metropolitan area, from six to five.

This reduction in strata had implications for the supplementary sample in Scotland. From 1971 the sample of addresses in Scotland had been doubled in order to improve estimates in separate analyses for Scotland. These

supplementary addresses had already, from 1978 onwards, been restricted largely to the Household questionnaire. Following the reduction of the main sample size in 1982 the number of supplementary interviews was increased to maintain, unchanged, the total sample size.

OPCS (1984) report that in all other respects, apart from the 14% reduction in the number of addresses, the sample design was unchanged in 1982. The only exception was that a "completely new selection of wards had to be made so that rotation had to be suspended", following the revised design described above.

Once the addresses are selected the next step is to convert the addresses to households. There is usually only one household per address but there are set procedures for those containing more than one household. The procedures used in the 1982 GHS were first specified in 1975 and have remained unchanged since.

Where more than one surname on the Electoral Register was recorded at the same address it was assumed that there was more than one household. Addresses which are known to be institutions are automatically excluded from the original selection. If during the fieldwork further institutions or non-private dwellings are located then the interviewer is

instructed not to take an interview. However, if a member of the household is in hospital, a proxy interview may be given providing that the member has not been away from home for more than 6 months and that he or she is expected to return. A maximum of four households per address is allowed, according to the predetermined procedure. If the interviewer has recorded more than four households at the one address then the interviewer is instructed to randomly select four by referring to a household selection table.

Alternatively, if addresses contained fewer than four surnames on the register then interviewers interviewed all the households up to a maximum of three. Although no addresses were deleted from the sample to accommodate any extra addresses, only four extra interviews per quota is allowed. In the case of the 1982 GHS, OPCS (1984) reports, that the original set sample of 12,480 addresses (excluding the Supplementary Scottish sample) yielded an effective sample of 11,970 households.

Any sample of a population or universe inevitably means that the data will be subject to sampling error. This is because the sample is only one of many which could have been taken from the population, all of which may differ slightly. Sampling error is thus really sampling variability and can be reduced by two factors in the sample design. First, a large

sample produces a smaller sampling error than a small sample. Second, a homogeneous population produces samples with smaller sampling errors than does a heterogeneous population. These factors operate at each level of a multi-stage sample design.

Typically, the elements composing a given natural cluster within a population are more homogeneous than are all elements composing the total population. We noted above, however, that the frame of wards was stratified by region, area type, an economic indicator and percentage of owner occupation. This stratification is to create the homogeneity necessary to decrease the sampling error.

As for the size of the sample, we also noted earlier that in 1982 the GHS sample was reduced. This reduction, therefore, entails a general increase in sampling errors. OPCS reports that the design factors remain unchanged since the number of addresses per primary sampling unit remained the same. The effect on the precision was therefore simply to increase the standard error of every estimate by a factor of 1.08.

> "The statistical significance of comparisons is only slightly affected. Differences near the margin of significance may become non-significant but as they would have been only marginally significant with the larger sample the interpretation of the data should scarcely be affected" (OPCS 1984)

b) data collection

Interviewing for the GHS is a year long enterprise. The interviewers are carefully chosen and then go on a three day training course followed by a one day briefing. (This briefing was two days prior to the 1982 GHS but was reduced to one as an economy measure). The reduction in briefing and rebriefing, in the case of changes in the questionnaire, was compensated for by expanded written instructions. These instructions would formerly have been given verbally at the briefings. OPCS reports, however, that the quality of work does not appear to have suffered as a result "in so far as this can be judged from the reports of the training officers".

Other economies which were enacted in the 1982 GHS concerned the interviewing schedule. Before 1982 the interviewers were given formal instructions on the addresses to be dealt with each week. This method was not necessarily economical of time or travelling expenses. In 1982 a limit was put upon the number of days which an interviewer was allowed to devote to the completion of a quota. This meant that there was possibility of an increased number of proxy interviews or a reduction in the response rate. OPCS states, however, that

> "Both were maintained at the 1981 level in 1982; the middle response rate remained at 86% and the proportion of proxies at 6%" (OPCS 1984 p6).

The GHS is unusual in that it presents results for partially

responding households (unlike the FES which accepts results only from fully co-operating households). Partial response arises for a number of reasons: Some people refuse to answer some questions, others are interviewed by proxy and therefore not all the questions are asked. For example, information on certain questions such as income and opinions will not be obtained. With reference to the above discussion of partial response, three response rates are calculated by OPCS. The following is how OPCS describes these response rates in 1982 GHS:

1. The minimum response rate which accepts only completely co-operating households as respondents and treats all partials as non-respondents. In 1982 the minimum response rate was 72%.

2. The maximum response rate, which accepts all partials as respondents. In 1982 this rate was 86%.

3. The middle response rate, which accepts some of the partials as respondents, that is, it includes households where information is missing only for certain questions but does not include those where information is missing altogether for one or more household members. In other words this middle rate can be thought of as the proportion of the eligible sample of households from whom all or nearly all the information was

obtained. This is the rate generally used as a kind of performance index for the survey, and in 1984 it was 84%.

Response rates can effect the usefulness of a survey if the non-respondents, and in the case of the GHS, the partial respondents have different characteristics to other members of the sampling frame. If they form a discrete group then the sample becomes unrepresentative of the population. Barnes and Birch (1975) found that non-respondents differed from respondents in a number of ways. The study compared the non-response bias of the 1971 (second quarter) to the 1971 census results. The differences tended to be in respect of age and employment status so that three subgroups had larger non-response rates. These were the elderly, unmarried men living on their own and the self employed. The effect of this was significant only at the 5% level in only one in twenty of the subgroups examined. Further comparisons between GHS data and other sources confirm that the GHS gives good representation of the population in private households (Marsh 1982)

III CHANGES IN THE GENERAL HOUSEHOLD SURVEY

Before we look in detail at the General Household Survey 1982 this section will review some of the major changes which have been implemented up to and beyond the 1982 version which is used in the analysis.

As we mentioned earlier the issues relating to each of the main themes of the GHS often vary from year to year as policy concerns of the departments dictate. Also, within the topics, changes are made as the survey develops, which means that data are not always comparable across the years of a survey. For example, questions on smoking were first included in 1972, and then every year until 1976. From then onwards they were included only in alternate years within the health section. Another aspect of the smoking section which was changed slightly was the definition of 'smoker' applied in the GHS. In 1980 smokers were redefined as those individuals who either 'smoke cigarettes at all nowadays' or that smoke 'at least one cigar of any kind per month nowadays.' Previously, from 1972 to 1978, those who smoked only a pipe were also included. Also for 1974 and 1976 the definition included occasional cigar smokers (i.e. less than one cigar per month) who have since been excluded. OPCS (1984) maintain, however, that these are minor changes in terms of their statistical significance and that the definition of 'cigarette smokers' which has remained unchanged is the main focus of the smoking data.

There has also been a steady improvement and thus change in the questions on fertility and family formation. In 1979 information about cohabitation was provided by the GHS.

'Cohabitation' being defined as a man and woman living together without a civil or religious ceremony. The question was asked of women who were cohabiting at the time of the interview and the proportion who cohabited with their husband prior to their current or most recent marriage (OPCS 1981). In the 1982 GHS the data on cohabitation were extended to include "data on pre-marital cohabitation and on fertility patterns among women aged under 50 with different family and educational backgrounds." In 1986, coverage of the Family Information section was extended again to all adults, men and women, aged 16-59. Data on cohabitation are, therefore, now available for men. Also, with the extension of the marital history to men, it is possible to compare rates of remarriage after divorce for both men and women (Rauta 1987). A new code for cohabitation completed at the beginning of the interview does not ask specifically if it is a legal marriage. Subsequent information which might indicate cohabitation rather than marriage cannot, however, be used to convert the previous code. This may affect the reliability of the question but seems appropriate in light of the changing social definitions of marriage.

Data on fertility were collected from unmarried girls aged 16/17 from 1963 onwards. There was also an extension of the age range to 59. Both these improvements mean that a more coherent cohort analysis can be undertaken now that these gaps

have been filled (Rauta 1987).

Likewise the information on income has been revised since the GHS was begun. From 1971-8 the data relate to income 'over the past twelve months' whilst from 1979 'current income' is recorded. This change, which implies some comparison difficulties, was implemented to make the data comparable with the Family Expenditure Survey.

The 1982 GHS, used below in the analysis, offered several new topics apart from the extended fertility data referenced above. The report includes a chapter on bus travel which focuses on the difficulties experienced by some people and how these difficulties may prevent some people using the buses altogether. The circumstances of the elderly was another newly introduced topic to determine such things as how many of this group lived alone, or lived with relatives. A new section dealing with the purchase of privately rented or local authority accommodation by sitting tenants. Greater detail was also available on the economic activity of married couples. Another completely new section was included on private medical insurance. This was an attempt to describe the characteristics of the population who owned this type of insurance to determine the relationship between these characteristics and reported ill health.

Some further changes took place in the GHS 1982 concerning the methodology and these are dealt with in detail in the following section on sampling. It is not possible to detail all the changes over time made in the GHS but detailed accounts are available from the OPCS Monitors available from OPCS.

IV HEALTH RELATED RESEARCH USING THE GENERAL HOUSEHOLD SURVEY

General Household Survey analysts cover a broad range of interests which are concentrated on several general areas. These areas are income, education, employment, health, family structure, job satisfaction, leisure, mobility, drinking and smoking. The following section looks at some of this research. We concentrate on two areas of research, firstly, the health outcomes of smoking and drinking and, secondly, inequities in health care provision between different social groups. The purpose of this is not to provide an exhaustive review but to demonstrate the potential of the GHS which was suggested in chapter three.

a) smoking and drinking

As we saw earlier in the chapter, questions about smoking have been included in the GHS since 1972 and every following alternate year. This inclusion was a response to increasing concerns over the health of smokers. The GHS provides

statistical evidence of health outcomes for smokers and details of their characteristics and is now the main source of data in smoking prevalence in Great Britain. (Jarvis & Jackson 1988)

The British Medical Journal reported that cigarette smoking is the largest single external factor contributing to mortality in the British Isles (Balarajan and Yuen 1985a) and noted that the cost to the National Health Service was about 170 million a year and resulted in 100,000 deaths per year. Balarajan and Yuen (1985a) used the 1980 GHS to research general morbidity and the use of services by smokers and non smokers.

They were able to use information on age, sex, socioeconomic groups, history of smoking and state of health. They used the same measures of health included in the analysis below; firstly, chronic illness, which included questions about longstanding illness, disability, or infirmity and, secondly, acute illness which was operationalized by the restriction of activity in the last two weeks due to illness or disability. We shall have more to say in the next chapter concerning health indicators and the self-reported nature of the GHS measures. The GHS also collects information about doctor consultation and attendance at the outpatient or casualty departments of hospitals. This information was used to measure the use of services for smokers and non smokers.

The researchers were able to classify subjects as never having smoked, ex-smokers who had stopped less than one year ago, ex-smokers who had stopped more than a year ago, mild smokers (1-9 cigarettes a day), moderate smokers (10-19 cigarettes a day), and heavy smokers (20 or more cigarettes a day). This was possible because the GHS asks many detailed questions about smoking behaviour and smoking history.

Using multiple logistic regression analysis, they estimated odds ratios and corresponding confidence limits for reporting 'ill health' among the above groups. To avoid confounding results the researchers controlled for age, sex, and socioeconomic group.

The results showed clearly the chronic illness outcomes of smoking on health. Odds ratios were presented for variables of state of health in non-smokers, smokers and ex-smokers. The health variables used from the GHS were chronic illness, acute illness, outpatient attendances and consultation with a doctor. The odds ratio for chronic illness "showed a gradient from mild to heavy smokers." Non-smokers had a ratio of 1, those who smoked 1-9 cigarettes a day the ratio rose to 1.07. For 10-19 cigarettes it was 1.31 and for more 20 cigarettes a day it was 1.76. The results were not decisive for ex-smokers since those who had stopped smoking recently had a lower odds

ratio (1,26) than those who had stopped smoking more than a year ago (1.43). No explanation was posited for this by the researchers.

The gradients for acute illness showed a dissimilarity to those for chronic illness only achieving significance in heavy smokers. Acute illness showed most prevalence in those who had stopped smoking recently. Again the researchers do not present an explanation for this. This result for recent ex smokers was mirrored in the use of outpatient services so that the highest odds ratio was for this group. All smokers, however, used outpatient services more, but the number of doctor consultations was not significantly higher in mild, moderate, nor heavy smokers.

The researchers concluded that ill-health was definitely more prevalent in smokers and ex-smokers and that their findings emphasized primary prevention in order to reduce the load on the health services from the use of tobacco.

The same researchers have extended their analysis of tobacco use to drinking habits. Information on smoking and drinking habits from both the 1978 and 1980 GHS, were used to examine British smoking and drinking habits by country of birth (Balarajan and Yuen 1986b) and by region (Balarajan and Yuen 1986c). Smoking and drinking information was included in both

the 1978 and 1980 GHS. It is assumed that both samples were necessary to provide a viable number of ethnic groups for statistical analysis.

In the former paper they note that patterns of mortality amongst those born in England and Wales have been shown to be different to those of migrants to England. Migrants from Scotland and Ireland were shown to have a higher mortality pattern based on lung cancer, cirrhosis of the liver and accidents and violence (OPCS 1984). Other migrants do not show the same mortality patterns. For example, migrants from the Indian subcontinent show fewer than expected deaths for lung cancer and chronic bronchitis (Balarajan, et al 1984). Country of birth was used as a proxy for 'ethnic' origin to try to explain some of the differences in the prevalence of diseases associated with tobacco and alcohol at death. This would then give a greater understanding of the health processes which preceded these differential mortality rates.

The study was able to analyze a sample of 21764 males and 24176 females all over the age of 18. The variations by country of birth were examined separately for both sexes. Information on smoking from the GHS was used to create categories of smokers and non smokers; those who never smoked, ex-smokers (divided into those who had discontinued smoking more than a year and less than a year), and current smokers

(divided into light smokers and heavy smokers, those who smoked less than or more than 20 cigarettes a day and very heavy, more than 30 a day). The measure used to classify alcohol consumption was based on the number of standardized units consumed per week, the average amount consumed on any one occasion and the type of alcohol drunk. The respondents were then classified into abstainers (less than 7 units per week), moderate drinkers (7 to 35 units per week for men and 7 to 28 units per week for women), and heavy drinkers (more than 36 units for men and 29 units for women). The results, after being standardized for age and socioeconomic group, showed that those born in the Indian subcontinent had the highest proportion of non drinkers. Heavy drinking in males was higher in the Irish and lower in those from the Indian subcontinent and the West Indies. There were so few female heavy drinkers that statistical analysis was problematic.

Smoking rates showed some similar patterns to drinking in that those from the Indian subcontinent had the largest number of both females and males who never smoked and the Irish and Scottish had the lowest. The patterns of smoking in females for Ireland & Scotland were similar to those of males. The results showed, therefore, that the heaviest drinkers and smokers were the Irish and the Scots.

In their discussion of findings Balarajan and Yuen report that

the findings do explain some of the differences in the prevalence of diseases associated with tobacco and alcohol at death. The Irish smoking and drinking behaviors correlated with the higher mortality rates due to cirrhosis, cancers of the buccal cavity, pharynx, larynx, oesophagus and lung. The Scottish patterns were not so well correlated in terms of alcohol consumption and ischaemic heart disease and cirrhosis. This was felt to be a result of the drinking habits of the past and evidence of a shift in traditional habits. Any shift means a health impact for the future, in this case it seems a health advantage can be predicted.

The findings were also important in highlighting that the excess deaths from cirrhosis for those from the Indian subcontinent was not a result of alcohol consumption. The suggestion is that these groups are exposed to other risk factors for cirrhosis and ischaemic heart disease.

Analysis of regional variations in smoking and drinking are also possible using the GHS. Those variations may be used to properly allocate preventive programs or services which will be required for the health outcomes of these behaviors. A similar study to the above was conducted using the 1980 GHS data (Balarajan and Yuen 1986a).

Using similar classifications and standardizations to the

former study, ratios for both heavy smoking and heavy drinking were computed by aggregated regions. There were five regions, Scotland, the North West, Central, the South East and Greater London. The findings showed that there were "significant variations in smoking and drinking habits in Great Britain'. For example, there was more excessive smoking in Scotland, the Northern and North Western Region and Wales with a gradient to the South East. The gradient was similar for drinking with the exception that the Scottish Region "did not have a higher proportion of heavy drinkers as has been conventionally thought. Females in the Greater London area however "emerged as a significant high risk.....with a greater proportion drinking heavily."

Smoking and drinking combined were considered to produce a high-risk profile; a greater preponderance of individuals with such profiles was found in the North West and Scotland and (especially for women) in Greater London. The researchers' conclusions were, therefore, that this observed regional variation was independent of age and social class (these were the same controls as used early for the ethnic group variations). Thus they were able to recommend that "differential spending in preventive programmes should happen if resources allocated to these regions are to restore the balance between the North West and South East in health terms".

It is also possible to view smoking in Great Britain in an international perspective (Van Reek and De Guchteneire 1989). As we saw in Chapter three, data archives exist in many countries so that smoking behaviour can be compared internationally. Comparability is possible even though questions are not standardized, since it has been shown that "different surveys lead to very similar time-trend results" (Van Reek 1984a). This seems to be because adult respondents, however smoking is defined, assume that it is a question about regular smoking. Data on time trends in smoking are useful in that we can expect a time lag before smoking will affect health. The GHS, therefore, offers this possibility because it collects information on smoking every other year, as we stated earlier. Many other countries also regularly collect this information, such as Australia, Canada, the former Federal Republic of Germany, Netherlands, Norway, and the United States (Van Reek and De Guchteneire 1989), so that international time trend comparisons can be made.

For example, the decreasing smoking behavior by sex and age was shown for Britain and the Netherlands from 1958-1982 (Van Reek 1984) and also an analysis by sex, age and education was undertaken for Britain, the Netherlands, USA, Canada and Australia (Van Reek and Adriaanse 1985). A comparison between the Netherlands and Great Britain used data from the 1972,

1974, 1976 and 1980 GHS and the Dutch NOP surveys 1975, 1977, 1979 and 1982 (Van Reek 1986). The comparison showed that the percentage of cigarette smokers is lowest "among those with college education for males and females in Great Britain and males in the Netherlands and highest among those with college education in the Netherlands in comparison to those with less education" (p 25).

Smoking may exacerbate gender divisions in health as has been noted using GHS data (Reid 1982). In 1976 women were less likely to be smokers (38 per cent) than men (46 per cent). They were much more likely to never, or only occasionally smoke. Between the 1972 and 1976 GHS, however, the percentage of men smoking fell from 52 percent to 46 percent but the percentage for women decreased from 41 percent to 38 percent. Thus the percentage drop was lower for women. Also during the same period, male smokers increased their cigarette consumption by 8 percent while the increase for women was 10 percent.

The smoking behaviour of women and especially of mothers has been linked to "the circumstances of their daily lives rather than individual characteristics" (Graham 1987). Smoking has become an important coping mechanism, as suggested by the higher rates for lone mothers, and has serious health implications for the of women and children.

The GHS has been used by Jarvis and Jackson (1988) to question the extent of the sex difference. They contend that the smokers who have switched from cigarettes to cigars or pipes are counted as ex-smokers in the GHS. Consequently, 75 percent of pipe and cigar smokers are actually ex-regular smokers of cigarettes. "As a result there has been a tendency to equate smoking prevalence with cigarette smoking, and smoking cessation with giving up cigarettes" (Jackson and Jarvis 1988 p 323). In an earlier study, using the 1982 GHS it was shown that the higher rates of smoking cessation in men reflected the switch from cigarette smoking to the cigar or pipe ('secondary' smokers). This is not generally an option for women which therefore creates the statistical artifact that women find it harder to give up smoking than do men (Jarvis 1984). Accordingly, cigarette cessation rates for men supposedly increased from 30 percent in 1973 to 45 percent in 1984, whilst for women the percentages moved from 20 percent to 35 percent over the same period. Following adjustment, however, for secondary cigar smoking, the sex difference was reduced, and "further adjustment for secondary pipe smoking eliminates it entirely".

The studies above on smoking and drinking demonstrate the potential of the GHS. The questions on smoking, included since 1972, when combined with the variety of health indicators

available show clearly the contribution of smoking to morbidity and mortality rates. This enables identification of groups with different and continuously changing risks. Groups based on sex, migrant status, ethnic group, region and socio-economic group. This information can be used to target the appropriate group for prevention strategies and or to make the most efficient use of health services for these same groups. The next section again focuses on health but this time the GHS is used to contribute to the debate on inequities in health care. This debate is considered more fully in chapter seven, the following research, however, demonstrates the contribution of the GHS.

b) Inequities in health service provision

As we saw earlier the GHS questions are generated by the various government departments and may form the basis of social policy recommendations. Many researchers outside these departments have also used the GHS to address policy questions, especially concerning equal access to health care.

The GHS has consistently shown disparities between groups in terms of not only morbidity, as we see in chapter six, but in the receipt of services. For example, the GHS shows that the lower classes consult general practitioners more than do the higher classes. This is claimed to be an advantage by some (Rein 1969) but has been reexamined using the GHS by others

such as Forster (1976). He developed a 'use to need' ratio using the 1972 GHS. He began by controlling for age since morbidity and consultation rates vary markedly with age. He standardized the total 1972 GHS sample population as the standard in the following age groups: 1-4, 5-14, 15-44, 45-64 and 65+. When males and females were considered together as one group, the data were similarly standardized for age and sex. Because of the difficulty in considering utilization in each social group while controlling for need, a use to need ratio was developed for each group. Forster describes this ratio as,

> "A technique by which GP consultations relative to morbidity in different social groups can be compared. The age standardized rate in persons/1000 for consultation is divided by the age standardization rate in persons/1000 for various aspects of morbidity. The ratio in each social group is then expressed as a percentage of the ratio for all groups combined" (p 29).

The results showed that, as had been previously noted, morbidity rates were different for different social groups. The morbidity rate for the unskilled group was in fact almost double that for the professional group. Likewise, there was a significant increasing trend for practitioner consultation rates from social group 1 to social group 6. When these two trends are combined, however, in the use to need ratio then there is a decrease between social group 1 and group 6. In other words the apparent advantage in consultation rates for

the lower classes is eliminated or reversed when morbidity is considered. Thus, Forster was able to recommend that simple head counts were not enough to generate social health care policy, but that age, sex and social group aspect of the population should also be considered.

This line of inquiry has been extended by Le Grand in two articles (1978a, 1978b). Le Grand (1978a) used GHS data to estimate the distribution of public expenditure on the National Health Service. He used the questions, described above, on self-reported health and those indicating the use of the health service. The latter include doctor consultations, out patient consultations, and days spent as an inpatient in a given period. The cost per consultation and inpatient day (available from Department of Health and Social Security publications) were then multiplied by the number of consultations and in-patient days for each social class. Thus, an estimate was obtained of the "total cost of the health service resources by each class". The numbers in each class were then divided into the total cost for each class giving an "estimate of the health service expenditure per person reporting as ill".

The results, after standardization for age and sex, showed dramatically that the higher social classes (professionals, employers, managers and their families) can expect to receive

up to "40 percent more health service expenditure.... than the lowest group (semi skilled and unskilled manual workers and their families)". Having highlighted the discrepancy in need and use between classes it was suggested that there were three possible reasons for this. Firstly, some workers are not paid for doctor visits, secondly, being a middle class institution may inhibit the working class from using it and, thirdly, there may be better and more readily available services in middle class areas.

Another reason posited for socioeconomic differentials in the uptake of medical care is the process of resource allocation for the needs arising out of the context of different socio-economic groups (Balarajan, Yuen and Machin 1987). This was investigated by Balarajan et al using the information available for age, sex, socioeconomic group, housing tenure, access to cars and area of residence. They wanted to link this range of social variables with the information collected on the "health status of individuals as well as their health service utilization". The study used the GHS survey of 1974, 1975, 1976, 1979 and 1980. These surveys were combined so that all the above variables could be included in the analysis. (It will be remembered that some questions do not appear every year in the GHS). The analysis was restricted to men since many of the social variables were "determined by the status of the head of household" and the GHS uses the male, if

present, as the head of household. Also, excluded in the analysis were the elderly since it was thought that the reasons for this group's take up of services may be different to those of other groups. Also, the elderly in the GHS excludes those in institutions and so there is a bias toward the healthy elderly.

Balarajan et al used multiple logistic regression analysis to model the probabilities of doctor consultation and attendance at an outpatient or accident and emergency department. The results showed that those men who had higher doctor consultation rates, and utilized outpatient and inpatient facilities, were in the manual socioeconomic groups, were local authority tenants and lived in urban areas. Those respondents with access to a car were more likely to consult a doctor whilst lack of access to a car "appeared to act as a surrogate for social means for inpatient attendance". In their discussion of the findings the authors suggest that this 'apparent reversal' may be a reflection of the importance of ready access to a means of transport on primary care consultation rates. The policy recommendations are, therefore, that health service allocation should be more sensitive to the differentials between geographical areas and the social profiles of the clients.

Geographical equity is also addressed in consideration of

allocation of the services of a home help. Bebbington and Davies (1983) note that many local authority studies show the inequitable distribution of resources in terms of personal social services. They claim, however, that these studies focus on equity between existing clients (horizontal efficiency) rather than what they term 'vertical efficiency' or equity among all those with need-related characteristics. Their study focuses on 'target efficiency' of the home help service to provide services on and among those persons "judged to be the most appropriate benefactors".

Using the GHS 1980 information on disability they developed three definitions of potential target groups; "persons who are appreciably personally disabled", "persons unable to manage certain domestic tasks" and, lastly, "persons who either cannot manage certain domestic tasks for which adequate help is not available in the household, or are personally disabled and have only limited support".

Between definitions 1 and 2 the degree of vertical target efficiency increased. An increase between definitions 2 and 3 was observed for horizontal efficiency. Thus they assumed that the third definition is more in line with allocation practices. Using this definition as the typical criterion for providing a home help they show that allocation is more favourable in metropolitan areas and less so in rural areas.

For example, in the former areas, 45 percent receive the service as compared to only 28 percent in rural areas of shire countries.

This finding stands in contrast to Snow's conclusion (1981) which was that there was a relative insufficiency of the home help service in London. As Bebbington and Davies stated, however, his analysis was based in the level of home help provision for each isolated elderly person or 'horizontal efficiency' rather than also including 'vertical efficiency'.

Gender inequity in the provision of social services has also been a focus in recent years. This focus was the result of the policy goal of community care which has been operative for the last twenty years. It has been claimed that community care was a euphemism for care by women and that this policy would unequally disadvantage women (a fuller exposition of this view is contained above in chapter two). It has further been suggested that this sexual division of caring has been exacerbated by the lower provision of services to female carers (Charlesworth, Wilkin and Durie 1984). The reason posited has been the underlying assumption that it is more gender appropriate for women, rather than men, to care.

Several researchers have used the GHS to add to the debate since the GHS provides a nationally representative sample

which is more easily generalizable than many of the smaller studies.

Bebbington and Davies (1983) in the article described above used the same approach to investigate sex discrimination as well as territorial discrimination. They found that the allocation of home help service depended on the degree of combined disability for elderly couples and other two-person households. For example, among elderly people living alone the target efficiency is high since both horizontal and vertical efficiency are balanced. Thus they conclude that in this situation, "neither sex is favoured as recipients of the home help service".

A series of articles using the 1980 GHS has also disputed the extent of sex discrimination in the receipt of services (Arber et al 1988, Arber and Gilbert 1989a and Arber and Gilbert 1989b).

Arber et al (1988) found, similarly, that neither women nor men seem to be specially favoured in the receipt of home helps. These findings are in contradiction to Hunt's study (1970) which found a high level of sex discrimination. There was, however, some evidence of sex discrimination in allocation among those living with others. Whilst 27 percent of couples received the home help service when the wife was

disabled, only 11 percent of couples received the service when the husband was disabled. Thus, the man as carer is more likely to be provided with support.

Arber et al (1988) grouped the elderly into ten types of households based on relationship and age of the other household members. The level of disability was controlled for by grouping the elderly into four levels of disability. These four were generated from six questions asked in the GHS, the results of which were summated to form a Guttman Scale. There were twelve items grouped into the four levels. Later on in the analysis they use ten levels of disability to increase the sensitivity of the disability indicator (categories 9-12 were combined) and to provide a disability control. Odds ratios were then computed using log linear analysis so that,

> "the probability of each household type receiving a specific service can therefore be compared to the probability of receipt by elderly married men, after controlling for disability". (p. 165.)

In the receipt of home helps the findings suggested that there was little discrimination on the basis of gender but rather on the basis of the availability of other household members. For example, elderly men living alone were only 8 percent more likely to receive a home help than were similar elderly women. An elderly couple was 33 percent less likely than an unmarried elderly couple to have this service. Those elderly living

with a younger unmarried adult, irrespective of the gender of the carer, were even less likely to have any domestic support service than an elderly couple. Where the younger adult is a married woman home help support is unlikely to be provided. Thus, the household composition seems to determine services and domestic help becomes dependent not only on the disability but also on the "ability or perceived willingness" of others to provide this service. This assessment is based not so much on the gender of the carer but on the marital status of the carer and "whether caring is part of a marital or filial relationship".

V CONCLUSION

In this chapter we have laid the foundations for our analysis of the GHS in chapters six and seven. We have described in detail the GHS in terms of its origin and development, how it has changed in design since 1971, and the kinds of topics available from year to year. In particular, we have been concerned to establish the credentials of the GHS as a research source against a background of scepticism toward survey data in Britain. To that end we have examined the quality of the design in terms of data collection and response rates. The GHS, is shown to be data of high quality offering a broad range of topics each year. Although some topics may not be available every year, a core of questions is asked each

year which facilitates time series analysis. Because the later analysis uses the 1982 GHS, special attention was paid to the design of that year.

To emphasize the contribution of the GHS to the secondary analyst the latter part of the chapter examined studies which have used the GHS to advantage. We chose two health areas to focus on, firstly smoking and drinking and, secondly, health inequities. It was not possible to provide an exhaustive literature review of these two topics, only to demonstrate the potential of the GHS within them.

Having established the credentials of the GHS the next chapter goes on to provide details of the variables used in chapters six and seven. It shows the operationalization of the variables and any data manipulation necessary for their inclusion in the analysis.

Chapter Five: Preparation of Variables

I VARIABLES USED IN THE ANALYSIS

a) introduction

In the last two chapters we have formulated our methodological approach. We have shown the value of secondary analysis as a research strategy and demonstrated the appropriateness of the General Household Survey. This chapter describes the variables to be used in the analysis reported in chapters six and seven. These variables are, generally speaking, under the categories of class, health and adult roles and were generated in chapter two as hypotheses to explain gender divisions in health. In order to render these variables numeric and therefore measurable we had to operationalize them, moving from the language of theory to the language of research. For the researcher collecting his or her own data this process begins prior to data collection. For the secondary analyst this is clearly not possible. To some extent the operationalization of variables is constrained by the primary data collection; in this case the questions asked on the GHS 1982. The variables used below were chosen from the Surrey GHS Data Files so that less data manipulation was necessary. The following is an explanation of firstly, the choice of variables and secondly, any further data manipulation necessary for their use in the analysis. This analysis uses cross-tabulation in chapters six and seven and logit analysis in chapter eight. A discussion of

logit analysis is included at the end of this chapter.

b) age restriction

In the analysis below we have used only those respondents between the ages of 20-49, but have used three ten year age bands with which to standardise the data by age. The upper limit of the age group was defined with reference to both methodological and theoretical aspects of our research and is in need of some further explanation.

Our methodological concerns were based on the correlation between age and illness which would mean that an aggregate rate would reflect the population's age distribution. This was extremely important given that our research goal was to explain gender differences in health since women outnumber men in the upper age ranges. The results of such an aggregate rate would certainly show a female disadvantage in morbidity irrespective of our posited hypothesis. We wanted to exclude the possibility of age (or the aging process) as an explanatory variable so that the effects of the hypothesized independent variables would be uncontaminated. The upper age group was truncated at 49, with the expectation that this limit would account for most of the health effects of the combination of family and employment roles. We did not want to include older women who were more likely to be involved in either the care of their own parents or of grandchildren.

Rather we wanted to explore the hypotheses related to adult roles in their structural context.

Thus the analysis below uses ten year age bands to indirectly standardise for age and so remove the health effects of age from the analysis.

c) health variables

Health outcomes are the dependent variables in our hypotheses stated in chapter two. These outcomes are measured in the analysis below, by using three indicators available in the 1982 GHS. The choice of appropriate health indicators has been the subject of much discussion, especially the use of self-reported data. It is to this discussion that we now turn so that we can establish the validity of the health indicators used in the analysis below.

The operationalization of these variables has used self-reported data rather than objective measures. This approach has become increasingly common in recent years following a complex debate in health indicator development. A trend has emerged away from the traditional medical measures of illness, involving the measurement of symptoms, and toward the consequences of disease. These consequences can be measured in terms of disability, and are therefore subjectively solicited from the respondents themselves.

Interest in subjective measures has come from two sources. Firstly, government agencies have become concerned to evaluate the usefulness of the services it provides. Secondly, changes in the structure of the National Health Service have created the notion of health care consumers with the establishment of Community Health Councils in 1974.

Prior to this trend physicians were asked to judge the nature of health conditions on the grounds that they had a better understanding of the processes of health. Recently this has been challenged on the basis that these judgments are not objective and that values cannot be excluded from science (Kaplan 1964). The values of physicians, therefore, have to be assessed for their relative merit, alongside other value judgments, rather than taken as valid.

To counter this, the claim has been made that subjective data is not hard data and is, therefore, unscientific and thus unreliable. Yet medical diagnostic categories are affected by the organization of medical science and its state of knowledge rendering the whole effort 'relative to time, place and the person making the judgement' (Hunt and McEwen 1980). Not only are the diagnoses not value free but there may be little consensus in these clinical judgements. Heasman and Lipworth (1966) have shown that this may be as little as 45.3 percent.

There are two major issues involved in the use of perceived health. Firstly, whether subjective health is more a measure of social well-being than it is of medical problems, and secondly its congruence with 'objective' measures .

Some researchers have suggested that subjective reports of illness are nothing more than reflections of morale and self - esteem (Friedman and Martin 1963, Suchman et al 1958). A number of studies have addressed this and have been successful in showing the predictive value of subjective health perceptions. For example many studies have found a greater correlation between physicians diagnosis and subjective indicators than with those of morale and self-esteem (Tissue 1972, Palmore and Luikart 1972).

When someone determines their state of health subjectively it is not, however, just an individual response since illness, or the perception of it, is firmly rooted in the social world. For example, there has been found to be an inverse correlation between the perceived significance of a condition and its prevalence (Zola 1966). This is evidenced from anthropological literature showing that those members of some South American tribes who did not have a particular skin disease (dichromic spirochetosis) were considered pathological (Ackerknecht 1947). This correlation between the perceived

significance of a condition and cultural values also occurs within cultures, as in the case of different social classes whose members often perceive symptoms differently (Koos 1954, Cornwell 1984).

Of special interest to our research below is the suggestion that males and females may imbue illness and disease with different social significance. This is important given our hypothesis in chapter two which posited that gender differences in self-reported health outcomes were a result of gender roles rather than sex-specific illness behaviour. This social significance has much to do with the norms which govern illness behaviour (Parsons 1951), norms which are likely to be different for men and women.

These norms which guide perceptions of illness are to some extent informed by the medical profession through the dissemination of health education. Therefore, self-reported health status contains current wisdom from medical science in combination with a person's physical experience. This may vary, however, depending on the individual's level of health knowledge.

The second concern is that subjective measures are not congruent with 'objective' measures. This may be erroneous since there is an assumption that they should be close to

being valid and that, if they are not it is the subjective definition which is mistaken. As we have seen above, however, the legitimacy of the medical definition is in question and may not be appropriate for all purposes. Furthermore, subjective health has been shown to be positively related to health outcomes (Reynolds et al 1974, Singer et al 1976) making its congruence with medical measures a less relevant issue.

Following the above discussion we feel that self-reported health measures are appropriate for our analysis but are concerned to guard against analysing sex-specific illness behaviour rather than morbidity. We now turn to discussion of the specific self-reported indicators used for the analysis in chapters six and seven.

As in previous years, the 1982 GHS Health section includes questions about doctor consultations and also visits to hospital outpatient departments but for the first time since 1976 questions were also asked about spells in hospital as an inpatient. Questions were also asked about the use of personal social services following their introduction in 1980 and also a series of questions concerning the use of contact lenses and private medical insurance.

The three health indicators chosen for this research measure

health perceptions, long-standing illness, limiting long-standing illness and acute illness. To indicate subjective health perceptions the GHS asks the general question, "over the last twelve months, would you say that your health on the whole has been good, fairly good or not good?" and has the variable name HEALTH in the Surrey Data Files. Although this general question has limitations it does allow the respondent to interpret his or her health status without reference to medical categories, but with reference to that person's health expectations, however they have been formed. Also a study by Reynolds et al (1974) showed that responses to this general question were strongly related to a person's actual physical health as indicated by a detailed medical examination. Likewise another study found that a respondent's answer to this question was a strong predictor of the probability of dying in the next twenty years (Singer et al 1976). We do not expect this to be the case for our respondents, however, since our literature review makes no claims that morbidity and mortality are so intimately connected. Nevertheless the question, and thus the variable, have been defended and used extensively so that we have confidence in both its validity and reliability.

Both acute and long-standing illness were measured in terms of functional consequence rather than medical categories. This is because the significance of both long-standing illness and

acute illness lies with the individual whose social roles are more or less affected by illness. Limiting and non-limiting long-standing illness was of especial interest since chapter two suggested that long-standing illness rather than acute illness was responsible for the excess in female morbidity.

Longstanding illness was captured by the question, "do you have any long-standing illness, disability or infirmity?" (labelled CHRON in the Surrey Data Files). The term 'longstanding' is explained to the respondent as being, "anything that has troubled you over a period of time." A further question, "does this illness or disability limit your activities in any way?" is asked of those who have long-standing illness to determine whether or not the individual is limited (ANYLIMIT).

For acute illness (labelled RESTRACT) the respondents were asked to think about the two weeks prior to the interview, and then to answer the question, "During those two weeks, did you have to cut down on any of the things you usually do (about the house/at work or in your free time) because of illness or injury? It may be that answers to the above questions will vary by individual with the symptoms hypothetically held constant. We expect this but maintain that even if groups to find a different significance, based on similar experiences, that this supports rather than invalidates our choice of

health indicators. As Culyer points out, this approach,

> "relates to the sociological view of illness by virtue of the fact that the selection of characteristics as relevant or not will be determined by their importance in the social, economic, and cultural circumstances of the society in question" (Culyer 1983, p. 8)

One of the most used indicators in this approach is the total number of work-loss days or bed-disability days during a given period of time. The problem with this measure, however, is the danger of measuring the impact of income compensation schemes rather than illness itself. Also since we are interested in those respondents outside paid employment it was not such a useful measure.

Another indicator we considered was the number of times respondents visited the doctor. As with the above indicator it has some apparent objectivity but was less useful for our purposes. This was because our literature review had suggested that visiting the doctor might show more illness behaviour than illness. That for those people with a more flexible 'role repertoire' visiting the doctor might be easier to arrange and thus some groups (probably women) would be overrepresented in the illness statistics.

To sum up, the health indicators were chose from those available in the General Household Survey 1982. All of these were self-reported measures which have been criticized in the

past as being too subjective. Recently they have gained more credence as the medical model has been charged with containing hidden values. Self-reported rates have also been shown to be good proxies of medical diagnoses. Lastly, self-reported indicators, are more methodologically valid and sociological defensible since they are rooted in the individual's definition of his/her own health.

d) class

In chapter two we posited that gender roles might explain gender differences in morbidity but that these gender divisions would be more starkly revealed in conditions of deprivation. The two areas of deprivation chosen were income and housing. They are social class related variables for which we have formulated measures below. Social class is often viewed as correlating with patterns in deprivation but its use is often clouded in controversy. We did think that it was a logical necessity to include social class in our analysis and have used the classification SEG below. But it is to the debate over social class measures and usage that we now turn before discussing SEG more fully.

Dividing any society into social strata for research purposes raises questions as to how many levels will be defined, and based on what criteria. The number and criteria chosen have been legion since researchers have different ideological

positions and different research imperatives which guide them in the formation of these strata.

Three different sociological uses of social class have been identified (Marsh 1986). Firstly, class may be a dependent variable so that researchers in this case would be concerned to identify the possible components in the definition of class. Secondly, class is often used as a control variable in non-experimental research. If class is held constant in the research then it is more likely that the independent variable rather than class is producing the effect on the dependent variable. Lastly, class is used as an independent variable with explanatory power. If it is to be considered causative in explaining phenomena than multicollinearity between class and other related variables should be allowed for. This would ensure that the independent variable is indeed class rather than being a proxy for lifestyle groupings. In the analysis below we have used several class related variables to guard against a spurious relationship; especially given some of the theoretical and methodological concerns over social classification schemes.

Another decision facing researchers in stratification is whether to use objective or subjective criteria or some combination of the two. Objective criteria would include those criteria in which it is not necessary to ask people's

opinions or judgments. In contrast, subjective criteria ask people where they would place themselves in a class structure. This causes some problems, however, based on people's consciousness of their own objective class position and whether they use property, income or prestige to judge this position. They often avoid placing themselves in some class positions, for example lower class or upper class. The perception of this stigma is also socially constructed differently between groups which further adds to possible distortions and anomalies. Also sociologists using this kind of strategy often need to collect some objective facts such as education, income and occupation so that the misidentifications can be addressed.

A commonly used 'objective' class position is that based on lifestyle and the most enduring amongst these, has been the Registrar-General's schema. It is a ranking based on occupation and current employment status formulated by Stevenson in the 1920's. This is because status is in some cases more important in ranking than income (Marsh 1986), as in the case of the publican and clergyman. The reliability of this schema has been estimated as up to 91% using expert coders (Elliot 1982) yet others have suggested that these rankings may change over time which would in turn have implications for its long-term usefulness and thus reliability (Leete and Fox 1977).

Likewise different validity claims have emerged regarding the RG's classification. Originally designed to measure culture, its validity in terms of 'social standing' has been questioned (Bland 1979). It was also considered to be insufficiently sensitive a measure for demographic research and a new measure was developed. The new scheme also uses occupational groupings and employment status and eventually was refined into a nineteen category system. It is basically an occupational classification which may be retrograde conceptually since it still uses industry as its basis. It has remained popular however, through its use in the General Household Survey and the Labour Force Survey. In these surveys it is collapsed into a six-category version which resembles the RG. The groups are collapsed as follows.

1. Professional (s.e.g.'s. 3,4)
2. Employers and managers (s.e.g.'s. 1.1, 1.2, 2.1, 2.2, 13)
3. Intermediate and junior non-manual (s.e.g.'s 5.1, 5.2, 6)
4. Skilled manual (s.e.g.'s. 8, 9, 12, 14)
5. Semi-skilled manual and personal service workers (s.e.g.'s 7, 10, 15)
6. Unskilled manual workers (s.e.g. 11).

This was the classification chosen for the analysis below even though the GHS offers three occupationally based alternatives.

Firstly, the indicator KOS in which informant's occupation is coded from the OPCS 1980 occupational groups using the condensed 'Key Occupations for Statistical Purposes' headings (occupational class is based on current occupation if in paid employment and last occupation if not in paid employment). The second variable, Standard Industrial Classification (SIC) compiled by the Central Statistical Office is used to code the industry in which the informant worked. The third alternative was SEG, described above. This was chosen for our analysis because neither of the other two were social class classifications. We followed the groupings in the GHS annual reports shown above in which the 17 categories are grouped into six with the exception that we divided group 3. Thus our groups are as follows.

1. Professional (s.e.g.'s 3,4)
2. Employers and managers (s.e.g.'s 1.1, 1.2, 2.1, 2.2, 13)
3. Lower professional (s.e.g. 5.1)
4. Intermediate and junior non-manual (5.2, 6)
5. Skilled manual (s.e.g.'s 8, 9, 12, 14)
6. Semi-skilled manual and personal service workers (s.e.g.'s 7, 10, 15)
7. Unskilled manual workers (s.e.g. 11)

This grouping made the crosstabulations in the analysis below more manageable and we felt confident in these groupings,

firstly, because they were close to those used by OPCS and, secondly, because they had been used successfully by other researchers (Arber 1991).

Although the above types of classification have been the most commonly used in research, they do, however, pose something of a problem in the classification of those people who have no occupation at any particular moment and also those individuals who have many different jobs over their lifetime.

They pose special problems of classification in the case of women since the above schemes have been based on men's occupational experience. Since the workforce is characterized by segregation along sex lines, the present schemes do not differentiate women's occupations adequately. For example there are 223 Occupational Unit Groups which form the basis of these classifications, yet fifty-two percent of women are concentrated into only five of these (Arber et al 1986).

Furthermore, some of the major distinctions among occupations are of questionable usefulness for women. For example, the manual/non-manual distinction which is made for men's jobs is not relevent for women and produces some strange groupings when applied to women's occupations (Allen 1982). Likewise the argument that any social class schema should include a division into the employed and the self-employed (Goldthorpe

1980) is inappropriate for women. The reasoning behind this latter division is that relationships to the means of production are affected by whether or not the individual is an employer. Women, however who might be classified as self-employed, are much more likely to be homeworkers which is often a very exploited status.

The second problem with the usual social classifications is the practice of using the male as the 'head of household' and thus classifying the family accordingly. It has been demonstrated that many households have husbands and wives in different social classes (Garnsey 1978) which in turn suggests very different work experience for men and women. These differences are hidden when men's occupations are used to socially classify women.

Alternatively it has been argued that women's attachment to the labour market is peripheral (Golthorpe 1983,1984). It is claimed that women are still dependent on men for determination of life chances and thus it is appropriate to classify them according to their husbands's occupation (Parkin 1972, Goldthorpe 1984). This argument is supported by the large number of women who work part-time and who experience downward occupational mobility as a consequence. Evidence such as this however can be used to counter the above arguments. The move to part-time work for women is determined by their

familial responsibilities (Martin and Roberts 1984) and as such suggests that women have unique attachments to both the occupational and the domestic spheres. This would imply that even providing an occupational scheme which did justice to both men and women (even if this was a methodological possibility) would be inadequate given the relationship of women to the class structure through both waged and unwaged labour (Roberts 1986). The debate has not yet been resolved since a woman's own occupation is the best predictor of her future spouse (Haskey 1983) but her husband's occupation is a better predictor of her mortality (Fox and Goldblatt 1982).

The analysis below uses the 'conventional' socio-economic group classification based on men's occupational experience. Men and unmarried women are classified according to their own occupation, married women according to their husband's occupation. This is defensible since a comparison of the 'conventional' approach and the 'individualistic' (when individuals are classified according to their current or last occupation) approach in chapter seven revealed a linear relationship to health for the 'conventional' approach.

e) class related variables

i income

Income categories are usually highly correlated with those of occupational categories, although status may cut across a

perfect correlation. Since one of the goals of our research was to understand the health outcomes of material deprivation on the health of women and men, the use of an income variable as well as one based on occupational categories seemed justified. Also using income as a predictor of health outcomes has particular implications for the economically inactive since the "quality of their life is more directly linked to the physical environment of the private domain" (Graham 1984 p. 43). Since some of our concern is with the added role of children, many of our respondents will be in just such a position; economically inactive due to child rearing.

For family income we created our own variable by combining the income from employment of the head of household to the income of the wife, if the head of household was a married man. This was necessary since the original family income variable from the Surrey data file was unreliable. Income was recoded into 'low income' and 'other incomes' from a continuous variable in pounds and pence. Income in this form was therefore able to identify more easily the health effects of associated with low income. However, because the variable is composed of income from employment, most of the unemployed were excluded from the income tables excepting unemployed women whose male head of household was in employment. The unemployed are included below using socio-economic group which is closely

correlated with income.

ii housing.

Housing as we saw in Chapter two is a resource unequally allocated via the stratification system and has been implicated in ill health. Also above we acknowledged the different environments that males and females spend time in. For example the economically dependent, often women and children, spend longer in the private domain whilst men spend longer in the public domain. Housing, therefore, and its effects on health, may be differently experienced by men and women, and thus may have a function in determining their different morbidity profiles.

To address the issue of housing as an unequal resource we produced a three category variable which classified respondents as owners, local authority tenants or private tenants. Private renters were separated from local authority renters because the latter are more likely than the former to have been economically excluded from home ownership. The large number of old people who are owners yet also live in conditions of deprivation will not distort the findings because of the age standardisation of the tabular analysis and the inclusion of age as a control variable in the logit analysis.

The other measure of quality was whether the respondent had central heating or not. The use of this indicator was not based on its use in prior research but rather on intuition. Only good quality housing seemed likely to have central heating installed, independent of age. Also in some of the literature on poverty there is reference to the 'piece-meal' heating which is often characteristic of poor dwellings (Townsend 1979). This again supports the notion that central heating has implications over and above simply being a method of heating.

Overcrowding was cited, if somewhat controversially, as having an affect on health (Gove et al 1979). The concept is usually operationalized as ratio of people to room although overcrowding does not always correlate with deprivation. For example, pressure in 'sought after areas' often results in less housing per person than in other less desirable locations. Nevertheless, it seems likely that most overcrowding conditions take place in the context of deprivation. The overcrowding measure (labelled NPPROOM), was recoded into two categories in the standard way, so that individuals who lived in houses which averaged one person or more per room (excluding bathrooms, toilets, garages and rooms used solely for business) were classified as being overcrowded.

f) adult roles

We saw in our earlier literature review that adult roles were alternatively posited to have, firstly, a positive effect on health outcomes, and, secondly, a negative one. The adult roles in question are marriage, parenthood and employment.

i) employment

We have posited earlier that the differing gender expectations for males and females produce different health outcomes because adult roles are subject to gender interpretations. The adult role of employment, therefore, has different implications for the sexes. This is because empirical research consistently shows that women have the main responsibility in the home, whether or not they are also in the labour force. Paid employment may thus be a health advantage since it is a relief from isolation and low status or alternatively a disadvantage since it results in role-overload. Furthermore, because of the gendered assumption that women are more appropriate for domestic tasks than men, unemployment may have a more devastating effect on men. The health effects of this have been documented above in chapter two.

Our employment measure was based on the continuous variable (labelled WORKHRS in the analysis) which recorded the number of hours worked by each respondent and a variable which gave employment status (EMPLOYED). From these two we formulated

four categories for women; full-time, part-time (working up to 30 hours a week was chosen since ninety nine percent of part-time workers are found in this category according to the Department of Employment (1985)), unemployed and housewife, and two for men; full-time and unemployed. It was only necessary to provide two categories for men as very few men are part-time workers or houswives.

ii) marriage and parenthood

The respondent's marital status was captured by the Surrey Subset variable MARITAL which recorded whether the respondent was married, single, widowed, divorced or separated. This was recoded into three categories, the married, the single and a combination of the divorced, widowed and separated.

The parenthood role variables for the family unit offered us the choice of respondents with children under five years old (NCHU5) and children under sixteen (NCHU16). Although the childcare responsibilities are likely to be more exhausting when children are under five we chose NCHU16 for two reasons. Firstly, we did not want to exclude the older respondents who might not have children under five but who nevertheless have been exposed to the gendered nature of caring. Secondly, it also seemed likely that women with older children are more likely to try to combine family responsibilities and paid employment which are integral to our hypotheses.

II LOGIT ANALYSIS

The first part of the analysis below uses crosstabulation to find associations between the variables which were posited in chapter two to affect health outcomes. In chapter eight the analysis seeks to use statistical methods which provide more evidence that the variables are causally linked. The most widely used statistical tool for this purpose is multivariate regression analysis. However, this technique becomes problematic when the dependent variable is categorical (Aldrich and Nelson 1984) since the assumptions necessary for hypothesis testing in regression analysis are necessarily violated. This is because the distribution on the error term cannot be expected to be normal and predicted values cannot be interpreted as probabilities. Such is the case for our analysis in chapter eight since the health measures (the dependent variables) described above in this chapter, are expressed in binary form. Logistic regression analysis is an alternative to multivarate regression analysis since it allows the direct estimatation of the probability of an event occuring. The odds of an event occuring are defined as the ratio of the probability that it will not and the model is expressed in terms of the log of odds which is called a logit (Demaris 1992), written,

$$\text{Log}\left(\frac{\text{Prob. event}}{\text{Prob.no event}}\right)$$

Thus the odds indicate the relative probability of falling into one or two categories of the dependent variable. For example, in chapter eight the odds of having long-standing illness are compared to the probability that an individual will not; similarly for limiting long-standing illness and acute illness. In the case of health perceptions, there were originally three response categories on this health measure which are described earlier in this chapter. As with some of the tables in chapters six and seven, the health perception variable was collapsed into just two for the logit analysis; those with less than good health (a combination of those in 'not good' health and those with fairly good health') and those whose health was good. Thus for this measure the logit tables produce the odds of having less than good health ~~health~~ compared with good health.

The logistic model written in the log of odds is:

$$\log \left(\frac{\text{Prob (event)}}{\text{Prob. (no event)}}\right) = B_o + B_1X_1 + \ldots B_pX_p$$

where B_o is the constant term, X_1 and X_p are the independent variables, and $B_1 \ldots . B_p$ are the coefficients of the independent variables.

Logit analysis, in combination with our hypotheses, allows a rigorous test of causality. The t-statistic is used, as in the case of the usual regression case, for testing the null

hypothesis that the various independent variables measuring adult roles and structural variables have no effect on the dependent health measures described above. The interpretation of the t-statistic is straightforward; values far from 0 contradict the null hypothesis and suggest rejection of it (Aldrich and Nelson 1984). I.e, we accept that variables with t-statistics even further from 0, are more likely to actually be related to the dependent variable: more precisely, a t-statistic of greater than 1.960 allows us to be 95% confident that the independent variable is related to the dependent variable, a t-statistic of 1.645 is to be 90% certain (SPSS 1990).

Thus the logit analysis in chapter eight allows us to take account of both the hypotheses constructed in chapter two and findings from the tabular analysis in chapters six and seven to test causal models around the dependent health measures. The 'limdep' software programme version 5.1 was chosen for this purpose.

III CONCLUSION

In this chapter we have discussed the problems and defended the use of the operationalization procedures for our major variables. This has been the last step in establishing the method of secondary analysis and setting up the variables to

be used in the analysis. The next three chapters reap the benefits of this preparation. These chapters use the variables described in this chapter and apply them to the hypotheses formulated in chapter two. Chapters six and seven provide the tabular analysis which inform the logit analysis in chapter eight.

Chapter Six: Tabular Analysis of Adult Roles

I.INTRODUCTION

Our research problem is gender divisions in morbidity and in chapter two, we generated explanations for this from the literature and developed hypotheses to explain these divisions in health.

The most convincing explanation was that gender differences in adult social roles produced different health outcomes for the sexes. Role stress theory presented the view that the adult roles of marriage and parenthood are culturally different for males and females and that these differences are responsible for variations in the morbidity experience of women and men.

Marriage and the housekeeper role was claimed by many to be a source of frustration because of the low prestige associated with housework (Gove 1972, Gavron 1966, Oakley 1974). This lack of gratification, it seems, would be exacerbated by the higher educational and intellectual attainment of women in recent decades. There was evidence that married women suffer more morbidity than men as a result of this role. We, therefore, in the following, hypothesize that marriage will produce some difference in

health outcomes for men compared to women.

A gendered assumption generated by the literature was that the female role is also the caring role. Women are, therefore, obligated culturally, to care for others, an obligation which could produce role overload and may be manifested as morbidity. We were anxious to see, therefore, what effect the number of children had on health outcomes of men and women. We also recognized that when paid employment was added to these female responsibilities, two outcomes were possible given our review. Firstly, role stress was likely to be increased and could have health implications; alternatively, adding employment may counteract the frustration and isolation of the housekeeper role. It was also important in disentangling the effect of employment in combination with other roles, to test the hypotheses using both full-time and part-time employment. This was especially important for women, since the great majority of part-time workers are women.

The general hypothesis was that adult roles such as marriage, parenthood, and employment have either a positive or a negative cumulative effect on health outcomes. Also, given the gendered distribution of some of these roles, they may explain some of the morbidity differential between men and women. The hypotheses offered these two alternatives

because the review highlighted the inconclusive nature of the quantitative research which had addressed this topic. Much of this research, however, tended to ignore or de-emphasize the class context.

Qualitative research by comparison did address the class context of these adult roles. It was suggested that conditions of relative deprivation might intervene in the health effects of adult roles. The combination of adult gender roles and stuctural variables are the focus for the next chapter.

Crucial to the research is the relationship between sex and the health variables, a relationship clearly demonstrated by many researchers (Verbrugge 1976, Dunnell and Cartwright 1972) as our earlier review in chapter two showed. This is not a recent trend, since earlier data on morbidity and the utilization of health services have shown this sex differential on the following measures; acute conditions, number of acute conditions, restricted activity, physician visits and chronic illness (Nathanson 1975). The research on mental illness also confirms this pattern, showing that more women than men are likely to be classified as having neurotic or depressive disorders (Gove and Tudor 1973, Brown and Harris 1978).

Table 6.1 Health by sex

Health perceptions

	Men	Women	All
Good	75	67	
	(3592)	(3427)	(7019)
Fairly Good	20	25	
	(947)	(1279)	(2226)
Not Good	5	8	
	(225)	(420)	(645)
All	100%	100%	
	(4764)	(5126)	(9890)

Long-standing illness

	Men	Women	All
Limits activity	12	14	
	(622)	(717)	(1339)
Non-limiting	12	12	
	(600)	(609)	(1209)
No long-standing illness	76	75	
	(3853)	(3876)	(7729)
All	100%	100%	
	(5075)	(5202)	(10277)

Acute illness

	Men	Women	All
Yes	8	12	
	(432)	(648)	(1080)
No	92	88	
	(4651)	(4558)	(9209)
All	100%	100%	
	(5083)	(5206)	(10289)

Our analysis in table 6.1 showed similar results with more women rating their health as "not good" and fewer rating their health as good compared to men. Thus, the extreme ends of this measure indicate a female health disadvantage. For those reporting their health as 'fairly good' however, women were in the majority showing that not all women who reported their health as less than good ended up in the 'not good' group.

This pattern continued for long-standing illness with 2% more women than men experiencing limiting long-standing illness. For the other groups in this health measure, non-limiting long-standing illness and no long-standing illness, the results were similar for men and women. The acute illness health measure showed a 4% higher female incidence than for men.

As expected the GHS data set shows the same excess of female self-reported illness reported both from earlier General Household Surveys and from researchers in the health field. The General Household Survey of 1980 (OPCS 1982, tables 7.8 and 7.16) shows that women report more chronic illness and also higher rates of doctor consultations than do men, within each socio-economic group.

Following literature in chapter five showing the relationship between age and health, table 6.2 shows health outcomes when respondents are grouped into ten year bands (discussion of the age standardisation is included above in chapter five). Thus, while table 6.1 above indicated a female excess in poor health, table 6.2 shows how age influences these sex differences. Both sexes report less 'good' and more 'not good' health as they become older with women experiencing poorer health outcomes than men in the same age groups. The greatest deterioration in outcomes is between those in the 30-39 and the 40-49 age bands (this is also the case for long-standing illness and acute illness). Those whose health becomes less than 'good' as they age seem to be evenly spread between the fairly 'good' and 'not good'. As for table 6.1 there are higher percentages of women than men in the 'fairly good' response for all age groups. Consequently, many of the tables below we have used a combination of the 'fairly good' and 'not good' response groups to produce a 'less than good' category.

For long-standing illness, adding age did not change the relative positions of the sexes. Women largely experienced a higher percentage of long-standing illness than did men (except for the 20-29 age band) and a greater number than men limited their activities as a consequence in each age

Table 6.2. Health by age and sex (age 20-49)

	Health perceptions			
	20-29	30-39	40-49	All
Men				
Good	80	78	67	
	(1286)	(1346)	(960)	(3592)
Fairly good	17	18	25	
	(279)	(310)	(358)	(947)
Not good	3	4	8	
	(48)	(67)	(110)	(225)
All	100%	100%	100%	
	(1613)	(1723)	(1428)	(4764)
Women				
Good	71	69	60	
	(1232)	(1279)	(916)	(3427)
Fairly	23	24	29	
	(393)	(449)	(437)	(1279)
Not good	6	7	11	
	(109)	(138)	(173)	(420)
All	100%	100%	100%	
	(1734)	(1866)	(1526)	(5126)

Long-standing illness

	20-29	30-39	40-49	All
Men				
Limits activity	9 (159)	12 (200)	17 (263)	(622)
Non-limiting	11 (197)	11 (207)	13 (196)	(600)
No long-standing illness	79 (1372)	78 (1418)	70 (1063)	(3853)
All	100% (1728)	100% (1825)	100% (1522)	(5075)
	20-29	**30-39**	**40-49**	**All**
Women				
Limits activity	10 (178)	13 (240)	19 (299)	(717)
Non-limiting	10 (169)	12 (229)	14 (211)	(609)
No long-standing	80 (1430)	75 (1412)	67 (1034)	(3876)
All	100% (1777)	100% (1881)	100% (1544)	(5202)

Acute illness

	20-29	30-39	40-49	All
Men				
Yes	8 (139)	9 (156)	9 (137)	(432)
No	92 (1593)	91 (1673)	91 (1385)	(4651)
All	100% (1732)	100% (1829)	100% (1522)	(5083)
Women				
Yes	11 (190)	13 (236)	14 (222)	(648)
No	89 (1592)	87 (1643)	86 (1323)	(4558)
All	100% (1782)	100% (1879)	100% (1545)	(5206)

group. Similarly, more acute illness was reported with increasing age for both sexes with women maintaining an excess over men. Because of the direct relationship between age and poor health subsequent tables have been age standardised.

II ADULT ROLES

a) marriage

We noted above that marriage is more accurately a set of roles but that is has often been considered as a single role for research purposes. Findings have suggested that the married have a health advantage over other groups, that married women may suffer more mental illness than married men and that married women who are housewives have poor health which becomes worse if they are childless.

In the following analysis of the role of married men and women we also treat marriage as a unitary role to reveal any patterns that emerge. However, we expect the interaction of marital status with other roles will help explain the differences in health amongst and between men and women.

Table 6.3 shows the worst health was found in the previously married group consisting of the divorced,

widowed and separated. The only exception was limiting long-standing illness which suggested that the single are the most disadvantaged group. This suggests two explanations. Firstly, that there is some health selection into marriage taking place based on the limiting long-standing illness. Secondly, the single as a group do not have familial roles which might prevent them from limiting their activities when they experience long-standing illness.

A further pattern which emerged from table 6.3 was that for the most part married men seemed to be in worse health than married women. The greatest difference in the ratios was for those reporting their health as 'not good' since married men had a ratio of 98 while for married women it was only 90. Interestingly, this relationship reversed when we combined the respondents in the 'fairly good' and 'not good' categories, creating a group whose health was therefore less than 'good.' In this case men's and women's ratios were 95 and 97 respectively. This is not a large difference but is a clear change in the relationship between married men's and women's health outcomes, thus married women have less 'good' health than married men but married men have more 'not good' health.

Married men appeared to suffer more long-standing illness, and also to limit their activities more than women.

Table 6.3 Standardised health ratios by sex and marital status.

Health perceptions$_1$

	Married	Single	Previously Married	All
Men	98	87	167	100
Women	90	104	184	100
All	93	97	149	100

Health perceptions$_2$

	Married	Single	Previously Married	All
Men	95	109	133	100
Women	97	92	135	100
All	97	101	135	100

Long-standing illness

	Married	Single	Previously Married	All
Men	98	106	113	101
Women	93	115	131	99
All	96	110	88	100

Limiting long-standing illness

	Married	Single	Previously Married	All
Men	98	124	119*	104
Women	92	122	101	97
All	95	123	110	100

Acute illness

	Married	Single	Previously Married	All
Men	100	88	150	100
Women	95	99	146	100
All	97	93	147	100

1 Respondents have 'not good' health.
2 Respondents have 'not good' and 'fairly good' health.

They also suffered more acute illness than their female counterparts. This seems to refute the hypotheses formulated in chapter two that it is more advantageous for women to remain single. Indeed on most of the health measures single women showed worse health outcomes than single men. The exception were those reporting less than "good" health and limiting long-standing illness, where the health relationship between the sexes observed in the other health measures was reversed. Table 6.3, therefore, supported the hypothesis that the divorced, widowed and separated had the worst health outcomes. The proposition that it is deleterious for women to be married seemed not to be totally supported. This result can be explained in two ways. Firstly, the patterns in table 6.2 may accurately reflect the interaction between health and marriage leaving men with the worst health outcomes. A second explanation is that since marriage is a set of roles, then the interaction between marriage and health must take account of the roles of parenthood and paid employment within the material context.

b) parenthood

One of the characteristics of the female adult role is that women are obligated to care for others. This is a gendered arrangement but assumed to be inevitable, immutable, and fixed in their biology. This may result in task-overload,

especially if women are in paid employment. Furthermore, the health implications of caring may be exacerbated by the material context. If the woman is not in paid employment, then being isolated at home with young children may also be a hazard, according to our review above. The following table (6.4) shows how the presence of children influence sex differences in health; later in the analysis, we will add the role of employment and in the next chapter the material context.

It was suggested above in chapter two that children may adversely affect the health of parents and that due to gendered reproductive arrangements women's health might be more vulnerable. Our analysis, however, does not suggest a cumulative impact of dependent children on health outcomes. Men who have no dependent children are in worse health than women on all health measures, standardised for age, with the exception of acute illness. The ratios are not widely different but the relationship is consistent. For males, having two children provides the best health outcomes with only acute illness showing even better health for those with three or more children. For women, however, having two children is only the most beneficial for those reporting health perceptions and acute illness. In terms of long-standing illness the category providing most health benefits is three or more dependent children. This is not what we

expected since the role of parenthood should be more exacting with the rise in the number of children. In fact, the worst health for this health measure was when women had no dependent children. Connectedly, for limiting long-standing illness a different pattern emerged. In this case the category most beneficial to health was when women had only one dependent child and the worst was when they had three or more children. This result fits more easily with the proposition that women are disadvantaged by the role of parenthood.

To sum up the interaction between dependent children and sex differences in health we can say that no clear relationship emerged in the health measures. The only exception seemed to be that men were the most unhealthy when they had no children. For women, however, no clear pattern emerged, the ratios did not either rise or fall consistently in the health measures for us to determine whether dependent children were a health advantage or disadvantage. But table 6.4 does not take account of either the role repertoire of the respondents nor the material context. Table 6.5, therefore, adds marital status to the tabular analysis.

It was not possible to suggest how parenthood affected the health of the previously married men since so few had dependent children. Because of these low numbers table 6.5

Table 6.4 Standardised health ratios by sex and dependent children under sixteen.

Health perceptions$_1$

	Children				
	0	1	2	3+	All
Men	102	120	70	118	100
Women	99	98	98	115	100
All	100	105	89	116	100

Health perceptions$_2$

	Children				
	0	1	2	3+	All
Men	104	101	92	103	100
Women	97	108	93	109	100
All	100	105	93	106	100

Long-standing illness

	Children				
	0	1	2	3+	All
Men	107	103	90	94	100
Women	104	102	95	90	100
All	105	103	92	92	100

Limiting long-standing illness

	Children				
	0	1	2	3+	All
Men	105	104	101	106*	104
Women	93	89	106	118*	97
All	99	95	104	113	100

Acute illness

	Children				
	0	1	2	3+	All
Men	101	113	93	83	100
Women	105	99	89	107	100
All	103	104	90	98	100

1 Respondents have 'not good' health.

2 Respondents have 'not good' health and 'fairly good' health.

* Expected frequency 10 < 20.

only includes female respondents. We constructed this table to show the relationship between two marital groups (married and the previously married) and the presence of dependent children. As with the previous table it shows the extreme health disadvantage of the previously married in comparison to the married. Also it shows that for the married the presence of children either makes no difference to their health or slightly improves it. The exception is limiting long-standing illness which becomes worse by 6 ratio points when dependent children are added. This may either be because children actually worsen the mother's health or else children change illness behaviour in that women can less easily cut back on their social functioning. For the previously married, however, there is more likely to be a dramatic decline in health outcomes with the presence of dependent children. There is a ratio point difference of 9, 4, 48 and 11 for those reporting 'not good' health, less than 'good' health, acute illness and limiting long-standing illness. The exception to this pattern was long-standing illness which changed from 143 to 132 ratio points with dependent children.

To sum up the impact of parenthood on health. This role has a clear influence on the health of both men and women although many of the tables do not show consistent patterns in terms of health outcomes. When marital status is added

Table 6.5 Standardised health ratios of married and previously married women by dependent children under sixteen.

Health perceptions$_1$

Dependent children	Married	Previously married	All
0	90	179*	101
1+	91	187	100
All	91	184	100

Health perceptions$_2$

Dependent children	Married	Previously married	All
0	99	133	103
1+	97	137	100
All	97	135	100

Long-standing illness

Dependent children	Married	Previously married	All
0	98	143	104
1+	97	132	100
All	97	136	100

Limiting long-standing illness

Dependent children	Married	Previously married	All
0	96	100*	97
1+	100	111*	102
All	99	106	100

Acute illness

Dependent children	Married	Previously married	All
0	105	115	107
1+	91	163	97
All	95	144	100

1 Respondents have 'not good' health.

2 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

to presence of dependent children a clearer pattern emerges. For example, there is a largely negative health effect for previously married women when dependent children are added to the analysis. We therefore expect to find that the greater the number of roles considered within their context the more patterned our results will become. Consequently the next table adds paid employment to the analysis which may either produce role-overload and thus have a negative impact on health or else may mitigate against the isolation of the housewife role.

c) employment

We saw above that because of the gendered distribution of domestic tasks, paid employment has a different impact on males and females. For example, married women's participation in the work force has a direct relationship to the number of children (Dex and Shaw 1986, Martin and Wallace 1984) and that the older the youngest child, the more likely it is that a woman will participate in the work force (Joseph 1983). This suggests that domestic responsibilities mediate paid employment for women, (Lipmen-Blumen 1984) so that for women, employment has an economic and a social dimension. Whilst home and work are separate places for men, this is not the case for women, they impact on each other and may produce 'role overload'.

The alternative view is that adult roles such as paid employment (Marcus and Seeman 1981, Nathanson 1980, Jennings et al 1984, Welch and Booth 1977) marriage and parenthood (Verbrugge 1982) have a beneficial effect on health. In the case of women, employment is posited to mitigate against the potentially harmful effects of isolation in the home. We have suggested earlier, however, that the "context" of this employment may be a crucial determinant of its effect. This "context" is produced by the combination of other role obligations, plus familial resources which help to determine both the physical environment of role obligations and the ability to 'buy off' arduous roles. For example, if child care is done in poor housing conditions, then paid employment may become beneficial. If, however, this employment is out of necessity with no opportunity to buy off any roles then, depending on the level of role obligations, paid employment may provide a health disadvantage for women. Alternatively, women whose family income is already high can possibly replace housework for paid employment and thus reap the psychological benefits posited to accrue from employment. The quality of the work may also be a factor in the relationship between paid employment and health outcomes. We have seen earlier that women are over-represented in secondary sector jobs, which may offer little in psychological benefits. Women who undertake these jobs will

usually have the double disadvantage of also being on a low family income.

The combination of factors, therefore, that may facilitate paid employment being an advantage or a disadvantage is complex and not easily disentangled. Moreover, the health of those in various employment statuses may ~~be~~ not be a result of health being an independent variable. Rather, an individual's health may determine his or her location in the occupational structure. Thus, people who are in poor health may be more likely to be unemployed or else the experience of unemployment itself may have an adverse effect on health. Likewise the other adult statuses of marriage and parenthood may also be subject to health selection interpretations. In the following, we hope to find support for the proposition that health is in some part a result of the relationship between employment, marital status, and dependent children. We do expect, however, that the health effects of employment will be more suggestive in the following chapters which include structural disadvantage.

We first tried to establish whether working full-time, part-time, or not working at all had a differential effect on the health of males and females regardless of marital status. For the most part, men will not be involved in part-time paid employment, as we saw in chapter two; it is

women who mainly fill these jobs. The reason given was the flexibility necessary for women to participate in more roles as compared to men and may, therefore, have health benefits (Arber et al 1985). Part-time work, however, has neither the status, the income, nor the benefits often associated with full-time work.

Because of these differences in employment statuses between men and women we constructed separate analyses in table 6.6. For men only two statuses were analysed, full-time and unemployed, since there were so few men working part-time or keeping house. The table, however reflects women's participation in both full-time and part-time employment together with the role of housewife.

The relationship between employment and health is dramatic for men. For measures of health perception, long-standing illness and limiting long-standing illness, unemployment is related to poor health. The worst health ratio (201) is for those unemployed men who report their health as 'not good.' The ratios for those whose health is less than 'good' and for long-standing illness are 139 and 129 respectively showing a clear health disadvantage. For limiting long-standing illness, however, the ratio is 'only' 114, whereas we might have expected it to be higher given that there will also be some health selection into this category.

Given that these respondents are unemployed, however, and given the nature of the question which asks about limiting activities, they may have fewer roles to limit. This explanation might also apply to acute illness since, as for limiting long-standing illness, acute illness was reduced when men were unemployed.

The relationship between employment status and health for women also showed some clear patterns. We noted above that the housewife role had been considered limiting and frustrating with isolation being an added source of disadvantage. This was the case whether or not the woman had children (Blaxter 1990). In table 6.7 we show the same results, with housewives having poorer health than those in full-time or part-time employment. In some cases the health ratios were worse than for the unemployed as in limiting long-standing illness and in some cases better. A key divide, therefore, is between women who are employed and those who are not. The only exception was for housewives who had the least acute illness. This is puzzling but as above it may be the result of the question which asks about functional limitations.

For employed women, the most beneficial work-status is part-time employment. The results are emphatic and are consistent with previous analyses done on the General

Table 6.6 Standardised health ratios by sex and work status.

	Full-time	Unemployed	All
Men			
Health perceptions$_1$	89	202	100
Health perceptions$_2$	97	140	101
Long-standing illness	97	129	100
Limiting long-standing illness	98	113	100
Acute illness	104	73	100

	Full-time	Part-time	Unemployed	Keeping house	All
Women					
Health perceptions$_1$	78	65	189	145	100
Health perceptions$_2$	95	86	133	114	100
Long-standing illness	101	86	121	109	100
Limiting long-standing illness	97	85	105*	114	100
Acute illness	105	93	75	105	100

1 Respondents have 'not good' health.

2 Respondents have 'fairly good' and 'not good' health.

* Expected frequency 10 < 20.

Household Survey (Arber et al 1985). The difference in health ratios between the full-time workers and part-time workers for those reporting 'not good' health less than 'good', longstanding and limiting long-standing illness and lastly acute illness is 13, 9, 15, and 12 respectively. However, given the structural disadvantages of part-time work it has implications for women's access to resources.

Thus, table 6.6 shows that employment status is key to an understanding of differences in health both among and between men and women. The key divide for both sexes is between those in paid employment and those not. Our hypotheses in chapter two predicted that employment for women would have either a positive or a negative effect dependent upon whether accumulation of roles was a health advantage or else produced role overload, a health disadvantage. Our findings suggest that both may be partially correct. If part-time work with all the disadvantages of secondary sector employment produces better health than full-time work for women, then clearly role-overload may be an issue.

The strategy of this chapter has been to identify roles which have a health impact on men and women. As we have done earlier with marriage and parenthood, combining roles shows how their interaction impacts on health. This is

because gendered role constellations may give the fullest explanation of health outcomes. In the next set of tables, therefore, we add parenthood and marital status to that of employment to explore whether different combinations produce any gender differences in health.

Table 6.7 combines employment status with marital status to see the health effects. Since the key divide in table 6.6 was between those in paid employment and those not, we grouped the respondents into two employment groups. Marital status remained divided into three groups as in previous tables.

The table shows that for all marital statuses employment is a health advantage for both men and women. The only exception is for males in the previously married groups. In both acute illness and limiting long-standing illness those without employment have better health than those with. For women, however, the pattern of paid employment advantage is completely consistent. Also, women having no paid employment has the least health impact for the married, whilst the previously married having the poorest health. Marital status for men did not affect the association between unemployment and extremely poor health while marriage for unemployed women kept their health ratios closer to the average. It was suggested above in chapter

Table 6.7 Standardised health ratios by sex, work status and marital status.

Health perceptions

	Married	Single	Previously Married	All
Men				
Employed	88	103	112	91
Non-employed	160	132	188	153
All	95	109	133	100
Women				
Employed	89	88	105	90
Non-employed	110	115	175	117
All	97	93	135	100

Long-standing illness

	Married	Single	Previously Married	All
Men				
Employed	91	96	71	91
Non-employed	155	139	213*	155
All	98	106	110	100
Women				
Employed	86	78	103	91
Non-employed	104	147	167	113
All	93	115	130	100

Limiting long-standing illness

	Married	Single	Previously Married	All
Men				
Employed	91	84	142*	91
Non-employed	127	134	128	135
All	97	98	134	100
Women				
Employed	87	105*	82*	90
Non-employed	109	143	132	114
All	97	115	109	100

Table 6.7 Continued

Acute illness

	Married	Single	Previously Married	All
Men				
Employed	93	106	151	98
Non-employed	125	97	115*	116
All	97	104	141	100
Women				
Employed	90	104	114	94
Non-employed	99	138	179	110
All	94	111	142	100

1 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

two that there was indeed a relationship between unemployment and health, especially for men. Unemployment is part of an overall susceptibility to material deprivation. It produces income loss and necessitates a break with social contacts. Research cited above suggested that employment status is a key divide in men's health (Hakim 1987, Arber 1990) and that women suffer less in unemployment (Perucci et al 1985); although prolonged unemployment of one member almost always leads to a reduced total income (Hakim 1982, McKee 1987, Ensminger and Celentano 1988). Our findings underscore the above and suggest that it is not simply the loss of income per se which produces such results since the loss of income should impact on both men and women. In fact since 'managing on unemployment' is women's work (McKee and Bell 1986) women should suffer more. The fact that men do suggests that the breadwinner role or the lack of it in the case of unemployment, is a powerful part of men's identity (McDowell 1989). The social value of employment for men is contrasted with the other alternative identity of housewife which non-employed women have.

Alternatively, the relationship between unemployment and health may be part of a selection process whereby the unemployed in poor health suffer downward mobility (Stern 1983, Illsley 1986). We feel that this is unlikely because

of the size of the health ratios above the average and because unemployed married women do not show the same pattern. Furthermore, the health ratio of unemployed single men are, with the exception of limiting long-standing illness, better than those of married men. Rather, it seems that cultural expectations concerning the bread winner role produce these gender differences in health between unemployed married men and women.

Men who are previously married show a somewhat inconsistent pattern. Whilst they are all well above the average in poor health in some cases the unemployed show less poor health and sometimes vice versa. As with previous tables the previously married largely show poorer health than other marital statuses.

Table 6.8 combined employed status with dependent children. The review posited that adding roles either improved health or produced role overload and thus a negative health effect. Combining employment status and dependent children, therefore, should give some indication as to whether gendered reproductive arrangements either work to improve or disadvantage women's health compared to men's.

As with the previous table, employed men and women are healthier than those who are unemployed. Also, both

employed women and men had better health when they had dependent children with men benefitting more than women. The ratio point health advantage for women in 'not good' health, less than 'good', long-standing illness and acute illness between the employed without children and with children was 1, 2, 7 and 13 respectively while for men it was 12, 9, 7, and 16. Thus, employed men gain more in terms of health when they have dependent children than do employed women. The exception was limiting long-standing illness which suggested that employed men have worse health when they have children than when they are childless. A possible explanation for this may be that men who have dependent children are also likely to have a spouse to facilitate limiting their usual roles, thereby increasing the limiting long-standing illness for this group. Furthermore, unemployed fathers show a health advantage compared with the childless suggesting that unemployment had already necessitated a reduction in their activities. Connectedly, women reporting limiting long-standing illness show only a marginal improvement in health with dependent children suggesting that they can less easily limit their day to day activities.

A similar pattern is also discernable for unemployed women and men. Both groups have better health on all the health measures when they have dependent children

Table 6.8 Standardised health ratios by sex, employment status and dependent children under sixteen.

Health perceptions$_1$

	Dependent children		
	0	1+	All
Men			
Employed	79	67	72
Non-employed	220*	347*	284
All	102	98	100
Women			
Employed	67	66	67
Non-employed	228	139	157
All	102	100	100

Health perceptions$_2$

	Dependent children		
	0	1+	All
Men			
Employed	97	88	91
Non-employed	147	161	154
All	105	96	100
Women			
Employed	91	89	90
Non-employed	130	113	117
All	99	101	100

Long-standing illness

	Dependent children		
	0	1+	All
Men			
Employed	95	88	91
Non-employed	158	149	163
All	106	95	100
Women			
Employed	95	88	92
Non-employed	146	106	114
All	106	97	100

Table 6.8 Continued

Limiting long-standing illness

	Dependent children		
	0	1+	All
Men			
Employed	86	95	91
Non-employed	138	122	131
All	100	100	100
Women			
Employed	91	90	90
Non-employed	123	111	114
All	100	100	100

Acute illness

	Dependent children		
	0	1+	All
Men			
Employed	107	91	98
Non-employed	107	125	115
All	107	95	100
Women			
Employed	101	88	94
Non-employed	125	106	110
All	106	97	100

1 Respondents have 'not good' health.

2 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

(except men with acute illness who unexpectedly show a deterioration in health when they have dependent children). For unemployed mothers, however, the increase in health benefits of dependent children are higher than for the employed. This is indicated by the large difference in health ratios between those unemployed women with children and those without. The ratio point advantage for those reporting 'not good' health, less than 'good' health, long-standing illness, limiting long-standing illness and acute illness are 89, 17, 40, 12 and 19 respectively. Since these differences are larger than those observed for employed women they suggest a greater health advantage of dependent children for the unemployed than for the employed. There are three comments to make concerning this result for unemployed women. Firstly, some of these non-employed women will have voluntarily become housewives so that non-employment is more a status of choice which might partly account for the health advantage. Secondly, those who are involuntarily unemployed can legitimately adopt the domestic status option more easily if they have children; an option not easily available to men. Lastly, these results may be partly a result of health selection into family roles leaving the sickest without employment, marriage and parenthood.

As for women, unemployed men largely receive a health

Table 6.9 Standardised health ratios of married and lone mothers by work status.

Health perceptions[1]

	Married mothers	Lone mothers	All
Full-time	101	111	103
Part-time	82	94	83
Unemployed	123	125*	123
Keeping house	104	168	110
All	96	129	100

Long-standing illness

	Married mothers	Lone mothers	All
Full-time	111	80	103
Part-time	85	100	86
Unemployed	108	-	104
Keeping house	104	170	110
All	98	116	100

1 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

advantage when they have children, although not as great as that observed for women. The ratio differences between childless unemployed men and those with dependent children were 14, 9 and 16 respectively for less than 'good' health, longstanding illness and limiting long-standing illness. Both acute illness and those in 'not good' health status, however, show deteriorating health when they have dependent children. In the case of the latter the small cell numbers for 'not good' health make the results suspect, especially as the other health perception measure showed the typical pattern described above.

Above, in chapter two, it was noted that although one-parent families make up only 13% of households they constitute 50% of the families in poverty (Graham 1987) and as a consequence have more long-standing illness than among couple mothers (Popay and Jones 1991). Earlier we showed how disadvantaged the previously married are compared to the married (table 6.3) even when employment status is added (table 6.7). Since many of the previously married will be lone mothers table 6.9 shows the relationship between lone mothers and married mothers in four employment statuses. For those respondents whose health is less than 'good' lone mothers have poorer health than their married counterparts whether they are in full-time or part-time employment, unemployed or keeping house. The latter group seem to be

particularly disadvantaged with a ratio of 168 composed to 104 for the married group. The most beneficial employment status was for those in part-time work as we saw earlier. For those lone mothers who experienced long-standing illness the results were different. Rather than full-time work being a health disadvantage as we saw for those in less than 'good' health, full-time work reduced long-standing illness. The ratio was 80 which was less than the for full-time married mothers and for both groups of mothers who worked part-time. A possible explanation is that the increased income of full-time work is of more benefit to health than the extra work is a negative effect. By selecting out lone mothers from this group and separating them into employment statuses we get a clearer indication of which employment conditions benefit this largely disadvantaged group. Full-time rather than part-time employment is one condition which improves health but as the table shows this is reversed for married mothers. As for health perceptions the condition which produces the poorest health for lone mothers is that of housewife.

Thus the tables show that employment is crucial to health outcomes and that employment status forms health rifts between and among women and men. The health of employed respondents is better than the non-employed but adding dependent children to employment status improves the health

of employed married men more than for employed mothers. Unemployment shows a sex difference between married men and women with unemployed married men having the worst health of the two groups.

Women who are housewives, with or without children, are in worse health than those in paid employment. And married mothers working part-time are in better health than those in full-time employment. Lone mothers' health, on the other hand, is better when they work full-time.

III CONCLUSION

The aim of the above part of the analysis has been to test those hypothesis concerning adult roles and health outcomes whilst omiting their structural and material context. Examining the context of these roles is the focus of the next chapter. Our major interest was whether role accumulation produces a health advantage or disadvantage. Furthermore, given that men and women often inhabit different social worlds and thus have different role expectations, we expected that these gendered roles would produce sex differences in health. We expected that familial responsibilities would impact more on women's health, while employment status would have more influence on the health of men.

Our analysis showed that simply adding and subtracting roles is not adequate to understanding the complexity of the health outcomes of men and women. The interaction of these roles, however, gave clues as to how they might help to explain gender differences in health.

In summing up the tables above, we have shown that there are indeed interaction effects which produce different health outcomes between groups. Where the results were mixed we expect that when the material context is added to the analysis in the next chapter that these effects will become clearer. However, even without this context we were able to identify some key issues.

For both women and men, marital status was crucial to an understanding of health outcomes when it was analysed alone, and in combination with other roles. Previously married women and men had the worst health outcomes than either the married or the single. Whilst we observed some effects of dependent children on health for all women, when we compared married mothers to lone mothers the health divide between the two groups of women was dramatic. Children worsened the health of the latter group creating a division between the two groups of women which remained after employment status was added. The most health

advantageous status for married women with dependent children was that of part-time employment, whilst lone mothers showed a propensity towards full-time employment. There are two ways to explain this given our hypotheses. Firstly, lone mothers do not have both marriage and motherhood which may produce less role overload and, therefore, more time for full-time employment. Alternatively, the income from full-time work mitigates the health disadvantage of the full-time work role. In the next chapter we will examine this issue since lone mothers as a group must help to explain some of the gender division in health between men and women given the low numbers of lone fathers.

Another crucial health divide is that between the employed and the non-employed. For both men and women being employed means better health whatever their marital status or whether they have dependent children or not. Conversely, men and women suffer a health disadvantage when they are not in paid employment. Being a housewife, for women, should reduce the incidence of role overload especially when there are dependent children, yet housewives consistently have poor health outcomes. And, as we mentioned above, this is dramatically the case for lone mothers. It seems, therefore, that the isolation and low status of housewives is more a factor in women's health than is the extra role of

paid employment. There is some evidence of the health impact of role overload, however, since married mothers had better health when they worked part-time than full-time.

Unemployment was shown to be a health disadvantage for all groups, but especially for lone mothers and married men. Married women were less affected by unemployment than married men suggesting that gender expectations may influence the impact of unemployment. We suggested that employment may be more an expression of male identity than it is for women who have the domestic role as an alternative.

We are aware that some of our findings may be a result of health selection especially for groups such as the previously married, lone mothers and the unemployed. Although this could be a partial explanation we would argue that the patterns observed above strongly suggest that health is primarily a product of the social and economic environment. For example, unemployed men had poorer health perceptions and long-standing illness than they did limiting long-standing illness. Yet, if health selection is operating, the functional limitation should exclude more men from employment in the first place, leaving limiting long-standing illness the poorest health category.

Further support was found for the role of health as a dependent variable when employment status was combined with marriage and parenthood. For some health measures, housewives had poorer health than the unemployed yet many of these women were married and had thus been selected for, rather than against. This contradicts an interpretation of them being too ill to be selected for employment since illness is likely to select women out of both marriage and employment. Furthermore, part-time employment was more advantageous to health than full-time work, yet, according to a health selection interpretation, the sickest are more likely to be selected out of full-time, and into part-time, employment. Connectedly, people should also be selected into parenthood yet the unemployed have largely better health when they have children than when they have no dependent children. Thus, the tables do not seem to be consistent with the interpretation of health as a fixed property which facilitates or limits a person's likelihood of having adult roles. The next chapter sets these roles in the structural and material context which we expect to highlight even more health differences both between and among men and women.

Chapter Seven: Tabular Analysis of Adult Roles Within the Material Context

I INTRODUCTION

Materialist explanations of health inequalities are concerned with the way in which differences in production and consumption shape differences in health outcomes between groups. In the previous chapter the concern was with how gendered adult roles influenced the health experiences of women and men. In this chapter the focus will be on how gender and the structural context combine together to exacerbate gender divisions in health.

The tabular analysis of chapter six suggested that material deprivation may have been responsible for the disadvantaged health of groups such as the unemployed and lone mothers. In both cases gender was an issue since married men suffered more than married women and lone mothers were particularly disadvantaged.

A further finding in chapter six was that having too few or too many roles is too simplistic a theoretical approach. Therefore, as we suspected, role analysis is not sufficiently well formulated to properly analyse gender divisions in health, and may be why such disparate results have been reported. The

following analysis will, therefore, focus on the different combinations of adult roles occupied by women and men in a variety of structural conditions.

The conditions to be analysed are those identified in chapter two as having particular relevance to the experiences of women and men both in public and private arenas. These will be socio-economic group, income and measures of housing. Socio-economic group is a result of structural conditions connected to the occupational structure. Income and housing are the consumption patterns resulting from that social class position.

II ANALYSIS OF DEPRIVATION, ADULT ROLES AND MORBIDITY

a) socio-economic group

Chapter one identified the widening social class inequalities in morbidity, highlighted by the Black Report. The Report, whilst acknowledging the improvement in access to income and resources of the lower socio-economic groups, was concerned about the continuing relative disadvantage of these classes. This part of the analysis will combine these social class inequities in health with family roles to examine any resultant gender divisions in health. Social class affects health outcomes firstly, as a result of the individual's occupation which forms the basis of the classification system and also, through access to resources available to each occupational class position.

Using social class groupings poses a problem in classification for those people who have no occupation and those who have had many different occupations. Also, many schemes do not adequately differentiate between women's occupations since most classification schemes are based on men's occupational experience. Moreover, it is a common practice to use the 'head of household' as the social class category for the whole family which ignores the occupational contribution of women. (This controversy is reviewed in chapter five).

Table 7.1 shows two classifications for women and one for men. Women are classified in accordance with their husbands' occupation and also to their own occupation (the occupational classification is described above in chapter five). Those women of other marital statuses, and women not in paid employment, are grouped according to their current or last occupation. The former is known as the 'conventional'approach, the latter is referred to as the 'individualistic' approach. Both forms of occupational class are based on the variable SEG described above in chapter five. Men are grouped according to their own occupation.

The reasoning behind the 'conventional' approach is that the health of women may be more responsive to their husbands' class position since this is more likely to determine the family's

Table 7.1 Standardised health ratios by sex and socio-economic group.

Health perceptions[1]

	Socio-economic group							
	1	2	3	4	5	6	7	All
Men								
Own occupation	61	80	60	81	108	137	147	100
Women								
Conventional approach	67	88	68	101	103	125	135	100
Women								
Own occupation	-	95	64	93	117	120	123	100

Long-standing illness

	Socio-economic group							
	1	2	3	4	5	6	7	All
Men								
Own occupation	79	87	84	85	102	123	135	100
Women								
Conventional approach	78	84	93	109	98	120	98	100
Women								
Own occupation	-	118	82	94	116	112	96	100

Acute illness

	Socio-economic group							
	1	2	3	4	5	6	7	All
Men								
Own occupation	73	88	100	122	102	107	96	100
Women								
Conventional approach	103	85	102	117	92	122	100	100
Women								
own occupation	-	87	103	84	96	123	109	100

1 Respondents have 'not good' and 'fairly good' health.

- Expected Frequency < 10.

access to material resources. In the OPCS longitudinal study Moser et al (1987) found that the mortality gradient is steeper for housewives whose social class is determined by their partner's occupation. Furthermore, in a similar table using the General Household Survey 1985-86, Arber (1991) found that women's health status as measured by the 'conventional' approach showed a linear pattern and was only slightly weaker than men's. Thus a woman's health seemed to be more strongly associated with her husband's occupation than with her own.

Although our health measures in this table are different to that used by Arber we found similar results. In both long-standing illness and those reporting health as less than 'good' we also found wider class inequalities between the seven occupational groups for men than for women. For acute illness the results were mixed, however, with group 4 showing the highest amount of acute illness. Also following Arber (1991,table 2) the 'conventional' approach gave a largely linear pattern for women's health outcomes as measured by long-standing illness and those with less than 'good' health. Again the results for acute illness were mixed and produced no linear pattern. These findings suggest, therefore, that part of what determines the health outcomes for women and men is not just the direct experience of employment but the indirect effect that the occupational

class of a household has on the household's material circumstances. Consequently, in the following tables we have used the 'conventional' approach when including socio-economic groups in the analysis. (Details of the occupational groupings were given in chapter five above). The strategy for the rest of the chapter is to use alternative measures of disadvantage, based on the consumption patterns available to the different occupational classes.

b) income

Income and wealth indicate an individual's or household's command over economic resources and, therefore, affects consumption patterns. It has been shown that income is the best predictor of longevity among developed nations (Wilkinson 1986, Le Grand 1987) such that material deprivation, as a result of income, has implications for health outcomes. Also, for women we hypothesized that gendered domestic arrangements would be exacerbated in the context of low income. Fewer of these roles could be 'bought off', the housing context would be of a lesser quality and managing the household budget more difficult for women. This is underscored by a recent finding that there were gender differences in health for those on low incomes especially for women 18-39 ages Blaxter (1990). In the case of lone mothers we expect them to be in poorer health both

as a result of lower incomes and because the role of marriage seemed in the previous chapter to protect women from poor health (table 6.5). Whether lone mothers have poorer health because they lack a partner or whether low income is the main factor should be clarified by the following tables.

Table 7.2 shows the cross tabulation of family income with the health measures and the subsequent two tables (tables 7.3 and 7.4) add marital status and dependent children to the analysis. As we shall see, income is for all groups associated with poorer health, but the combination of both marital status and dependent children changes gender differences on our health measures. The income variable, described in chapter five, is a dichotomous variable designed to measure low income households against other households. It uses a combination of the head of household's income and wife's income (if appropriate) from employment. This means, therefore, that only those who live in households in which one member is in paid employment are included in any table which includes income. There were 28% of households earning less than 125 pounds per week who were classified as being on a low income. The rest were grouped together under the heading 'other incomes'.
Table 7.2 consistently shows that income affects health outcomes on all the health measures. Whilst low income

Table 7.2 Standardised health ratios by sex and family income.

	Family income		
Men	Low	Other incomes	All
Health Perceptions$_1$	165	83	100
Health Perceptions$_2$	137	89	100
Long-standing illness	122	94	100
Limiting long-standing illness	109	96	100
Acute illness	121	100	100
Women			
Health Perceptions$_1$	139	89	100
Health Perceptions$_2$	121	94	100
Long-standing illness	125	91	100
Limiting long-standing illness	102	99	100
Acute illness	113	96	100

1 Respondents have 'not good' health.

2 Respondents have 'not good' and 'fairly good' health.

produces poor health outcomes for both women and men, the most extreme result was for women and men reporting their health as 'not good' with ratios of 139 and 165 for women and men respectively. Gender differences were also revealed showing that for all the health measures except long-standing illness (women had only marginally poorer long-standing illness than men), income was associated with poorer health for men than for women. The ratio difference was greatest, however, for the two health perception variables.

The results of the interaction between marital status and income shows a shift of health outcomes between and among women and men (table 7.3) although within each marital status the low income group had the poorest health outcomes. Women had ratios of 121 for less than 'good' health (table 7.2) which changed when women are separated into marital groups (table 7.3). Married women's ratio rises to 131 while for the single it drops to 100. Meanwhile the previously married have a ratio similar to that of all women in table 7.2. Women reporting long-standing illness, however, have different associations to this health measure than to those reporting less than 'good' health. For this measure single women on low incomes have the worst health ratios of all women. For men, however, the addition of marital

Table 7.3 Standardised health ratios by sex, family income and marital status.

Health Perceptions[1]

	Family income		
	Low	Other Incomes	All
Men			
Married	133	92	99
Single	130	77	99
Previously married	150*	113	130
All	134	90	100
Women			
Married	131	94	101
Single	100	81	90
Previously married	119	76*	110
All	122	93	100

Long-standing illness

	Family income		
	Low	Other Incomes	All
Men			
Married	124	94	99
Single	119	97	106
Previously married	121*	73*	94
All	122	94	100
Women			
Married	129	90	97
Single	135	101	116
Previously married	110	106*	110
All	126	91	100

1 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

status to low income is not associated with a radical shift as it is with women. Thus, ratios of 137 and 122 (table 7.2) for less than 'good' health and long-standing illness do not vary greatly with the addition of marital status (table 7.3).

When dependent children are added in table 7.4 the associations observed above change again both, between and among women and men and also in terms of the health responses to the different health measures. Firstly, some of the disparity between low income married women and men disappears. With the addition of dependent children, low income women and men have very similar ratios for less than 'good' health (125 and 126 respectively) and long-standing illness (120 and 119 respectively). Adding dependent children, however, dramatically changes the association between low income and health for women and men with no dependent children. Married low income women and men have ratios of 152 and 169 respectively for less than good' health a difference of 27 and 43 ratio points more than when they do have children. Likewise, for long-standing illness, the ratio difference for this group when they do and do not have children is 39 for women and 21 for men. So the association of low income and poor health is exacerbated when married women and men have no dependent children.

Table 7.4 Standardised health ratios by sex, family income, marital status and dependent children under sixteen.

Health Perceptions [1]

	Family income				
	low income		Other incomes		All
Children	yes	no	yes	no	
Men					
Married	126	169	94	85	99
Not married	-	134	90*	82	105
All	126	143	94	84	100
Women					
Married	125	152	96	91	101
Not married	112	108	112*	73	98
All	121	121	97	87	100

Long-standing illness

	Family income				
	low income		Other incomes		All
Children	yes	no	yes	no	
Men					
Married	119	140	92	98	100
Not married	-	124	78*	96	104
All	115	127	92	97	100
Women					
Married	120	159	93	84	97
Not married	105	130	100*	104	114
All	113	141	93	88	100

1 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

- Expected frequency < 10.

A further comment needs to be made concerning gender differences in the low income married group with no dependent children (table 7.4). The two extreme ratios are for men reporting less than 'good' health (169) and women reporting long-standing illness (159), suggesting that married women with no dependent children have more long-standing illness than men, whilst similar men report worse health perceptions than do women. Thus, although this group of low income married women and men have worse health when there are no dependent children it is manifested in different expressions of poorer health.

To sum up, tables 7.2, 7.3 and 7.4 which showed the health outcomes of the associations between income, marital status and dependent children, give us a clear indication that health outcomes change dramatically both among and between women and men depending on the constellation of roles and the material context in which they are performed.

We showed clearly that low income is associated with poorer health in all the groups included. While this was expected, role theory had claimed that adding roles had some health ramifications in terms of either disadvantage or advantage. We further suggested that adding roles in the context of low income would exacerbate health. The above tables, however,

suggest otherwise; that having no dependent children within this context is related to poorer health for both women and men. A possible explanation for this is that health selection is a factor in the health outcomes of this group. However, it is unlikely that this can account entirely for the above relationships, given the way that married women and men without dependent children seem to experience the health disadvantage differently.

We suggested above that the association between lone mothers and employment status may be one of income rather than simply the work role. From the ratios for table 7.4 this seems less certain since low income lone mothers have better health outcomes than their married counterparts and, for long-standing illness better than the non-married women with no dependent children. Connectedly, our expectation that the relationship between employment and health may be mitigated by income comes under scrutiny given that lone mothers had better health than the married group. One explanation is that lone mothers lack the role of marriage posited earlier to be detrimental to health; a proposition which was not supported above by table 6.3. An alternative explanation relates to the particular formulation of the income variable (from paid employment of head of household and wife) which includes fewer working married women in the income tables than lone mothers (because they will be

counted as the head of household). Thus, the relative health advantage on some health measures of lone mothers may be a consequence of the benefits of paid employment rather than the negative health effects of low income.

Table 7.1 reproduced the relationship between occupational class and health using GHS data but this association of social class with health may be more a function of low income (Blaxter 1990, Wilkinson 1990) than it is of occupational experience. Since women's health was better predicted by their husbands' occupational class, the results suggest an income effect rather than that of occupation, at least for women. Table 7.5 addresses this issue by combining occupational class, income and health.

For the most part income and occupational class seem to be independently associated with health. Being in a non-manual occupation and not on a low income provides the best health outcomes for both women and men. The worst health ratio for both women and men is in the low income manual group. There is, however, an interesting exception to this pattern for women reporting long-standing illness in the low income group. For this group occupational class seems not to be related to health since both manual and non-manual groups on low income report a health ratio of 128. This is contrary to that of similar men who have ratios of 104 and 125 when

they are in non-manual and manual occupations. These ratios provide some support for the view that income may be a more determining factor than occupation for women's long-standing illness ratios whilst for men both occupation and income remain independently related to the health ratios. Consequently, long-standing illness ratios provide support for the view that income may be more pertinent to women's health than occupational status. Both health perceptions and acute illness, however, remain independently associated with income and occupational class, for both women and men. (The exception is that men not in low family incomes show no difference in ratios between manual and non-manual).

Table 7.5 Standardised health ratios by sex, family income and socio-economic group.

Health perceptions [1]

	Family income		
	Low	Other incomes	All
Men			
Non-manual	105	74	78
Manual	143	107	118
All	134	90	100
Women			
Non-manual	102	82	86
Manual	143	113	123
All	122	93	100

Long-standing illness

	Family income		
	Low	Other incomes	All
Men			
Non-manual	104	89	90
Manual	125	100	108
All	120	94	100
Women			
Non-manual	128	86	94
Manual	128	100	109
All	128	91	100

Acute illness

	Family income		
	Low	Other incomes	All
Men			
Non-manual	107	95	96
Manual	127	93	103
All	122	94	100
Women			
Non-manual	119	85	92
Manual	107	116	113
All	113	96	100

1 Respondents have 'not good' and 'fairly good' health.

Employment was analysed in chapter six as a status crucial to health outcomes and one which interacted with parenthood and marital status to form health rifts between and among women and men. Employment status is important to the structural and material resources of the household. If employment status is associated with household poverty then both have health implications due to lowered nutritional standards, substandard housing, and limited access to services (Miles 1987).

Table 7.6 includes both income and employment status in order to analyse whether employment status as an adult role is associated more strongly with health or in terms of its correlation with income levels. This table was restricted to women because of the nature of our income measure which combines the income from employment of the husband and wife. Thus, since few unemployed men rely on their wife's income from employment, the number of men was too small to analyse. Within each employment group the health of women is worse when they live in low income households. Also, for the unemployed even those on higher incomes have above average health ratios for health perceptions.

The association between low income and poorer health is most clearly demonstrated when we compare table 7.6 to the

crosstabulation of employment status and health (table 6.6). Without the income variable, women's health is on or below the average for all the health measures for those in full-time and part-time work. The result of adding income is to differentiate this group so that the positive association of paid employment with health is lost for those women on low incomes.

Adding dependent children to the analysis further differentiates the two income categories (table 7.7). Within the low paid group, those with children who worked full-time, had poorer health perceptions and more long-standing illness, while their counterparts working only part-time saw an improvement in health perceptions and long-standing illness. In the case of the latter the improvement is 63 ratio points with those low income part-time workers with children showing a health ratio of 100 but there was little evidence of changes in the health ratios when children were added to the low income unemployed group.

Thus, this table suggests that parenthood as a role may indeed have an independent association with health since dependent children changed the relationship between low income, employment and health for women. Further support for this proposition comes from employment groups which are not on low incomes and who also show differentiation when

Table 7.6 Standardised health ratios of women by family income and employment status.

Health perceptions[1]

	Family income		
	Low	Other incomes	All
Employment status			
Full-time	115	93	98
Part-time	118	84	91
Non-employed[2]	127	105	112
All	121	93	100

Long-standing illness

	Family income		
	Low	Other incomes	All
Employment status			
Full-time	128	97	104
Part-time	114	87	92
Non-employed	130	91	104
All	125	92	100

Acute illness

	Family income		
	Low	Other incomes	All
Employment status			
Full-time	116	110	111
Part-time	97	90	91
Non-employed	122	85	97
All	113	97	100

1 Respondents have 'not good' and 'fairly good' health.

2 The non-employed are a combination of housewives and the unemployed.

Table 7.7 Standardised health ratios of women by family income, employment status and dependent children under sixteen.

Health perceptions[1]

	Family income				
	Low		Other incomes		All
Children	no	yes	no	yes	
Employment status					
Full-time	112	123	85	111	98
Part-time	128	113	82	84	91
Non-employed[2]	128	126	122	102	112
All	120	122	88	96	100

Long-standing illness

	Family income				
	Low		Other incomes		All
Children	no	yes	no	yes	
Employment status					
Full-time	128	122*	87	116	103
Part-time	163	100	84	87	92
Non-employed	126*	130	114	88	104
All	135	117	89	94	100

1 Respondents have 'not good' and 'fairly good' health.

2 The non-employed area combination of housewives and the unemployed.

* Expected frequency 10 < 20.

children are added to the analysis. Despite not having a low income, working full-time with dependent children is still associated with above average ratios for health perceptions and long-standing illness.

It could be argued that the latter two tables show health selection into employment, income and parenthood statuses. Because of the particular combinations of associations observed, however, it is likely that health selection is only a partial explanation. For example, the better health experienced by low income part-time workers when they have children compared to when they do not, could be explained by health selection, yet low income full-time workers experience poorer health when they have children. Connectedly, the combination of full-time work and dependent children is related to worse health perceptions and more long-standing illness, irrespective of income. Thus these combinations belie that a health selection explanation is totally responsible for the associations observed, rather, they demonstrate the benefit of adding measures of material deprivation to adult roles.

c) housing

Housing is a material resource which is unequally allocated via the stratification system and is closely linked to other material resources such as income. Consequently, housing

tenure has become an increasingly important aspect of social cleavage (Saunders 1984) and one which has helped to produce a widening of the division between income and tenure. Tenure has been used to show the income disadvantage of those who rent, the division between two parent and one parent families and most recently the effect of housing on labour market opportunities. Housing has also been implicated in health outcomes both because of the social cleavage it represents and for the physical environment it provides. While the health of both women and men should be affected by tenure we expect that given the gendered nature of caring arrangements, women's health will be more responsive to the quality of the physical environment. The following tables therefore analyse both tenure and two measures of the quality of housing (overcrowding and heating).

Table 7.8 shows the relationship of the three housing tenures to the health outcomes of women and men. A linear relationship is evident for health perceptions and long-standing illness. This reveals gradually worsening health for those who rent privately with the poorest being for those in local authority housing. Acute illness shows the same pattern of worsening health but also a large sex difference. Women who are in rented accommodation have ratios of approximately 145, whilst men's remain below

average for those in local authority housing. This finding gives some support to the hypothesis that women suffer more from the domestic environment than do men.

The effect of tenure on the other two health measures indicate that the health of both women and men is responsive to the social cleavage aspect of housing discussed above. To examine the latter further, table 7.9 adds occupational class to the analysis. This was derived from SEG following our discussion above concerning the appropriate occupational class approach for women. Both owning and renting interacts with a respondent's occupational status since, within each tenure status, those in the manual occupational classes have worse health than those in non-manual (the exception is for women reporting acute illness). Thus, part of the reason that tenure is associated with health is because of its connection to occupational status. The extreme group for this table is for those who have manual occupations and live in local authority housing. However, those who are in the manual occupational classes and own have health outcomes more similar to those in the non-manual renting group.
This table also reveals some differences between women and men. For men, a much larger health effect results from the interaction of occupational status with tenure. The trend is less pronounced for women, who had higher

Table 7.8 Standardised health ratios by sex and tenure status.

Health perceptions[1]

	Men	Women	All
Owner occupiers	82	88	86
Privately rented	115	122	119
Local authority	147	138	142
All	99	101	100

Long-standing illness

	Men	Women	All
Owner occupiers	94	87	90
Privately rented	118	88	104
Local authority	129	128	129
All	103	97	100

Acute illness

	Men	Women	All
Owner occupiers	84	99	92
Privately rented	-	146*	125
Local authority	94	144	121
All	87	111	100

1 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

- Expected frequency < 10.

Table 7.9 Standardised health ratios by sex, tenure status and socio-economic group.

Health perceptions[1]

	Socio-economic group		
	Non-manual	Manual	All
Men			
Owner occupiers	70	99	84
Renters[2]	98	136	128
All	75	117	100
Women			
Owner occupiers	78	103	86
Renters	106	136	123
All	86	120	100

Long-standing illness

	Socio-economic group		
	Non-manual	Manual	All
Men			
Owner occupiers	83	99	91
Renters	92	120	114
All	84	109	100
Women			
Owner occupiers	86	95	89
Renters	113	123	119
All	93	110	100

Acute illness

	Socio-economic group		
	Non-manual	Manual	All
Men			
Owner occupiers	79	103	86
Renters	119	127	124
All	89	116	100
Women			
Owner occupiers	92	97	94
Renters	117	108	110
All	97	102	100

1 Respondents have 'not good' and 'fairly good' health.

2 Respondents are those who rent privately and from the local authority.

than average poor health when they are renters in a non-manual occupational class. For long-standing illness, women and men have ratios of 113 and 92 respectively in the renting non-manual group.

Exceptions to the above are noticeable for acute illness. The interaction between occupational status and tenure suggests that for this health measure and both sexes, tenure had more effect than occupational status. Both women and men experienced above average acute illness when they rented in both manual and non-manual occupations.

The previous chapter showed the health disadvantage of the unemployed compared to the employed. In table 7.9, part of the reason that tenure impacted on health was through the individual's occupational class. Connectedly, in table 7.10, part of the association of health with tenure is through employment status. All those health measures for both sexes reveal the poorest health to be in the group who are unemployed and living in local authority accommodation.

A clear sex difference also emerges in the table showing that unemployment for men, even in the most advantageous tenure situation, is associated with much poorer health than for women. Whilst being unemployed and owning for women keeps their health outcomes below the average, men in this group have ratios well above the average. Men in this group

have ratios of 135, 143 and 122 for health perceptions, long-standing illness and acute illness showing the strong effects of employment status over tenure for men. This is important given the poor health of women who were unemployed or keeping house (table 6.6). It seems that, for them, the stronger effect is tenure rather than unemployment. So while unemployment and tenure are key divides for both women and men, they are also key divides between women and men. These differences between women and men may be a result of different conditions of labour based on the gendered nature of reproduction.

If part of the reason that tenure is associated with health is through the occupational structure then we would expect income to also mediate the relationship between tenure and health. Table 7.11 shows that for the most part a similar linear relationship to that between socio-economic group and tenure is evident for income and tenure. The health of those on low incomes within each tenure is poorer than for those in the higher income groups; the only exceptions being men with longstanding and acute illness who rent. In the case of the latter, the expected frequency was between 10 and 20 rendering the findings less reliable but in the former some further comment is needed. Men who rented on low incomes had health ratios of 118 but surprisingly this worsened for

Table 7.10 Standardised health ratios by sex, tenure status and employment status.

Health perceptions[1]

Men	Employed	Non-employed[2]	All
Owner occupiers	80	135	84
Privately rented	118	111*	116
Local authority	125	177	140
All	92	155	100
Women			
Owner occupiers	83	92	86
Privately rented	105	100	103
Local authority	109	157	132
All	90	117	100

Long-standing illness

Men	Employed	Non-employed	All
Owner occupiers	87	143	90
Privately rented	100	114*	104
Local authority	107	169	122
All	92	154	100
Women			
Owner occupier	83	98	88
Privately rented	124	68*	102
Local authority	111	147	128
All	91	115	100

Acute illness

	Employed	Non-employed	All
Men			
Owner occupiers	94	122	96
Privately rented	95*	-	66
Local authority	109	119	112
All	97	107	100
Women			
Owner occupiers	84	87	85
Privately rented	165*	-	138
Local authority	111	152	130
All	93	111	100

1 Respondents have 'not good' and 'fairly good' health.

2 The non-employed men are unemployed while the non-employed women are a combination of housewives and unemployed.

* Expected frequency 10 < 20.

- Expected frequency < 10.

the higher income group to a health ratio of 123. One explanation is that since occupation and income have a strong relationship, this result may be influenced by some aspect of the occupational experience of this group. This is underscored by the long-standing illness ratios of men in socio-economic group 2 (table 7.1) who show poorer health than either groups 3 and 4. Apparently, some aspect of this occupational group is associated with more long-standing illness and this relationship is strong enough to subvert the association between low income and long-standing illness.

We saw above (table 7.10) that employment status disrupted the health advantage of owning for men which table 7.8 had indicated. Likewise, for those on low incomes, owning is not necessarily the most health advantageous tenure group (table 7.11). Those low income male owners with less than 'good' health and acute illness have poorer health than low income men who rent privately. Similarly, women who own on low incomes report more long-standing illness than those on low incomes who rent privately. Furthermore, some health ratios show a convergence between renters and owners on low incomes so that women and men reporting long-standing illness have ratios only ten points apart. This convergence is most extreme in the case of low income men with less than 'good' health who have ratios of 145 and 142 when they own and

Table 7.11 Standardised health ratios by sex, tenure status and family income.

Health perceptions [1]

	Family income		
	Low	Other incomes	All
Men			
Owner Occupiers	125	79	86
Renters[2]	152	128	138
All	139	90	100
Women			
Owner occupiers	104	87	89
Renters	138	117	127
All	122	93	100

Long-standing illness

	Family income		
	Low	Other incomes	All
Men			
Owner occupiers	123	89	94
Renters	122	117	116
All	122	94	100
Women			
Owner occupiers	126	85	91
Renters	124	113	121
All	125	92	100

Acute illness

	Family income		
	Low	Other incomes	All
Men			
Owner occupiers	96	97	97
Renters	142	88	109
All	120	92	100
Women			
Owner occupiers	89	87	87
Renters	140	123	130
All	117	95	100

1 Respondents have 'not good' and 'fairly good' health.
2 Respondents are those who rent privately and from the local authority.

rent. These results suggest that although owning and renting remain important divisions within those groups not on low incomes, the pattern is disrupted for those on low incomes. For some low income groups, the stronger association seems to be between income and health rather than between tenure status and health.

Combining parenthood with tenure and occupational class shows how dependent children influence the health of women and men differently (table 7.12). For all the health measures, and for both sexes, children tend to have a positive effect on health irrespective of tenure and occupational status. For health perceptions the exceptions are for men who rent in manual occupational classes, and women who rent in both manual and non-manual classes. Within these groups the presence of children worsens health perceptions. For women, the stronger effect of renting and health observed above, seems to be accounted for by the presence of children since childless women in the non-manual renting group have below average health ratios. For long-standing illness, all groups respond positively to dependent children with the exception of women who rent in manual occupational classes.

Table 7.12 Standardised health ratios by sex, socio-economic group, tenure status and dependent children under sixteen.

Health perceptions [1]

	Socio-economic group				
	Non-manual		Manual		All
Children	yes	no	yes	no	
Men					
Owner occupiers	66	77	93	107	84
Renters	88	104	140	130	128
All	69	84	116	119	100
Women					
Owner occupiers	77	80	97	109	86
Renters	112	99	140	127	123
All	86	86	119	122	100

Long-standing illness

	Socio-economic group				
	Non-manual		Manual		All
Children	yes	no	yes	no	
Men					
Owner occupiers	80	89	97	105	91
Renters	91	92	119	123	115
All	81	90	108	114	100
Women					
Owner occupiers	79	97	96	95	90
Renters	112	115	127	117	119
All	86	107	111	107	100

Acute illness

	Socio-economic group				
	Non-manual		Manual		All
Children	yes	no	yes	no	
Men					
Owner occupiers	73	89	98	69	86
Renters	110	128	134	111	123
All	81	101	116	112	100
Women					
Owner occupiers	87	101	93	102	95
Renters	114*	119	106	110	110
All	90	106	100	106	100

1 Respondents have 'not good' and 'fairly good' health.
* Expected frequency 10 < 20.

The exception is for acutely ill men who rent in manual occupations, whose health becomes worse with dependent children as compared to their female counterparts whose health improves with children. Thus, for the most part, both women and men are deleteriously affected by dependent children when they rent and are in manual occupations. This was suggested above and is underscored here by the largely positive health outcomes when non-manual, owner-occupiers have dependent children. The health effects of renting for women in non-manual classes also seem in part to be a result of the interaction with dependent children; an expected result given the emphasis on the domestic sphere for women.

Whilst tenure represents both a social cleavage in resource access and implicitly a measure of housing quality, the next set of tables explicitly examines the quality of the housing environment in terms of overcrowding and central heating. Overcrowding was expected to have a more deleterious effect on the health of women given the gendered responsibility for domestic arrangements. Whilst overcrowding affects both women and men, table 7.13 suggests poorer health for men than women in conditions of overcrowding on all the health measures except acute illness. The poorest health outcomes for both sexes were for those reporting their health as 'not good'. In this case women and men had ratios of 130 and 149 respectively.

Table 7.13 Standardised health ratios by sex and overcrowding.

Health perceptions[1]

	Men	Women	All
Overcrowding			
No	96	90	92
Yes	149	130	137
All	106	97	100

Health perceptions[2]

	Men	Women	All
Overcrowding			
No	95	98	97
Yes	114	113	113
All	99	101	100

Long-standing illness

	Men	Women	All
Overcrowding			
No	101	97	99
Yes	109	100	104
All	103	98	100

Limiting long-standing illness

	Men	Women	All
Overcrowding			
No	123	83	97
Yes	130*	99	111
All	124	86	100

Acute illness

	Men	Women	All
Overcrowding			
No	89	106	98
Yes	81	130	107
All	87	110	100

1 Respondents have 'not good' health.

2 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

Given the gendered nature of domestic childcare arrangements, we expected dependent children to exacerbate the health implications of overcrowding for women more than for men (table 7.14). However the table suggests that the combination of dependent children, overcrowding and health is associated with poorer health for men than for women, on health perceptions and long-standing illness. Moreover, the poorest health perceptions and long-standing illness ratios were for overcrowded women with no children. It was not possible to tell whether a comparable group of men had similar poor health, since the number of childless overcrowded men was so low.

We did, however, observe more limiting long-standing illness for women who were not overcrowded but did have dependent children and even men in this group had worse health than their overcrowded counterparts. This was again different to our hypothesis in chapter two but may be explained by the disproportionate number of lone parents in this group who we know have more limiting long-standing illness (table 6.5).

Table 7.15 indicates that there is some correlation between income and levels of overcrowding since those on low incomes were more likely to experience overcrowding. The table also shows, however, that these two measures are independently

Table 7.14 Standardised health ratios by sex, dependent children under sixteen and overcrowding.

	Health Perceptions[1] Dependent children		
	0	1+	All
Overcrowding			
Men			
Yes	-	118	115
No	102	94	97
All	100	100	100
Women			
Yes	133*	111	113
No	101	96	97
All	102	99	100

	Long-standing illness Dependent children		
	0	1+	All
Overcrowding			
Men			
Yes	-	108	97
No	106	95	106
All	105	98	100
Women			
Yes	119*	102	103
No	100	99	99
All	101	100	100

	Limiting long-standing illness Dependent children		
	0	1+	All
Overcrowding			
Men			
Yes	-	100	99
No	90	106	100
All	90	104	100
Women			
Yes	-	98	98
No	94	117	102
All	95	102	100

	Acute illness Dependent children		
	0	1+	All
Overcrowding			
Men			
Yes	-	87	92
No	104	101	102
All	107	98	100
Women			
Yes	-	117	120
No	110	89	96
All	112	95	100

1 Respondents have 'not good' and 'fairly good' health.

* Expected frequency 10 < 20.

- Expected frequency < 10.

associated with health outcomes. Men'shealth responded more to low income than it did to overcrowding since, within the low income group, men experienced better health perceptions, less long-standing illness and less acute illness than when they lived in overcrowded conditions. Thus, men who were in the low income group, but not in overcrowded living conditions, had the poorest health ratios for all the health measures. This was a puzzling result given that overcrowding was hypothesized to be associated with poorer health for women rather than men, but may reflect the health benefits for men of dependent children observed in table 6.4.

As for men, women were also responsive to income when they were overcrowded. All the health measures showed an improvement in health between those on low incomes and those on other incomes. When women were not on low incomes, health perceptions improved by 26 ratio points, long-standing illness by 18 and acute illness by 36. Furthermore, within the low income group, women's experience of overcrowding was associated with poorer health outcomes for health perceptions and acute illness (although not for long-standing illness); within this group health perceptions and acute illness ratios rose by 8 and 33 points respectively. This result gave

Table 7.15 Standardised health ratios by sex, family income and overcrowding.

Health perceptions[1]

	Family income		
	Low	Other incomes	All
Overcrowding			
Men			
no	138	89	99
yes	119	100	106
All	134	90	100
Women			
No	120	91	98
Yes	128	102	110
All	122	93	100

Long-standing illness

	Family income		
	Low	Other incomes	All
Overcrowding			
Men			
No	126	94	101
Yes	103	92	97
All	121	94	100
Women			
No	129	91	100
Yes	110	92	99
All	126	91	100

Acute illnness

	Family income		
	Low	Other incomes	All
Overcrowding			
Men			
No	129	98	104
Yes	94*	73	79
All	121	94	100
Women			
No	108	94	97
Yes	141	105	116
All	114	96	100

1 Respondents have 'not good' and 'fairly good' health.
* Expected frequency 10 < 20.

partial support to the proposition that women's health is responsive to conditions of overcrowding given the gendered nature of domestic responsibilities. Long-standing illness, however, showed the opposite with overcrowding producing a 19 point drop in the health ratio for low income women. This may also be reflective of an earlier finding (table 7.4 whereby those low income married women with dependent children had ratios which were 39 points lower than their childless counterparts).

Thus, the crosstabulation of overcrowding firstly with dependent children and then with income produced some expected and some unexpected health outcomes. Firstly, adding dependent children to the overcrowding variable added confidence to the posited effects of overcrowding since this interaction produced largely poorer health. Moreover, the interaction between overcrowding, dependent children and health did produce clear gender differences in outcomes. Surprisingly, however, some measures showed a male excess of poor health which was the opposite of our hypothesis in chapter two.

When income was incorporated gender divisions were still evident, but, with women's health was negatively associated with both overcrowding and low income. Men's health by contrast, and for all the health measures, improved in conditions of overcrowding while remaining responsive to low income. We suggested that this may be a result of the health

benefits of marriage and dependent children which would simultaneously increase the number in the household and thus bring them into the overcrowded category.

The interaction between the other housing quality variable, central heating and health (table 7.16) produced similar findings to table 7.14. The health of women and men was poorer when their housing had no central heating. Also, as above, the sex difference in health outcomes showed men to have poorer health than women on all but two of the health measures leaving women's health poorer for limiting long-standing illness and acute illness. When dependent children were added to the analysis, (table 7.17) however, we did not see similar results to those in table 7.16. Dependent children produced a health advantage for those without central heating, unlike those in overcrowded conditions. Also, the positive influence of children advantaged women more than men and produced two extreme groups for women. For women with no central heating and no dependent children the ratio points for long-standing illness and acute illness were 167 and 142 respectively. When this group had children however the ratio points dropped to 109 and 124. This is puzzling given the literature in chapter two, but less surprising in reference to table 7.4, which showed that low income women and men have better health when they have children.

Table 7.16 Standardised health ratios by sex and central heating.

Central heating	Men	Women	All
	Health perceptions[1]		
No	144	127	133
Yes	91	85	87
All	106	97	100
	Health perceptions[2]		
No	121	120	121
Yes	90	93	92
All	98	106	100
	Long-standing illness		
No	119	108	113
Yes	96	93	95
All	103	98	100
	Limiting long-standing illness		
No	122	95	108
Yes	124	82	98
All	124	86	100
	Acute illness		
No	105	143	126
Yes	80	97	90
All	87	110	100

1 Respondents have 'not good' health.

2 Respondents have 'not good' and 'fairly good' health.

Table 7.17 Standardised health ratios by sex, central heating and dependent children under sixteen.

Health perceptions[1]

Central heating	Dependent children 0	1+	All
Men			
No	126	122	123
Yes	88	92	91
All	100	100	100
Women			
No	124	117	120
Yes	92	92	92
All	102	99	100

Long-standing illness

Central heating	Dependent children 0	1+	All
Men			
No	125	111	115
Yes	96	93	94
All	105	98	100
Women			
No	167	109	111
Yes	94	96	96
All	100	100	100

Acute illness

Central heating	Dependent children 0	1+	All
Men			
No	120	120	120
Yes	102	89	92
All	107	97	100
Women			
No	142	124	130
Yes	97	85	88
All	111	95	100

1 Respondents have 'not good' and 'fairly good' health.

Furthermore, lack of central heating is likely to be a result of low income, and since low income and children are associated with better health (table 7.4) then we might expect similar results for central heating and children.

Adding income to the central heating variable gave another dimension to the analysis (table 7.18). Those women and men who lived in households with central heating and within each income group reported their health as better on all the health measures. Yet, for both women and men, central heating was associated with a larger and positive impact for those not on low incomes. For example, those men claiming their health as less than 'good' and on low incomes had a health ratio of 134 when they had central heating and 135 when they did not. Likewise, the other groups, (with the exception of low income women with acute illness) showed only a small ratio difference between those with central heating and those without. On the other hand, for those on higher incomes, central heating was associated with a much greater ratio point difference between those with and without central heating. It seems that while central heating does have a positive relationship to health for those women and men on low incomes, income provides the more dominant association, but, when income levels are above 125 pounds per week then the relationship of central heating to health becomes stronger.

Table 7.18 Standardised health ratios by sex, family income and central heating.

Health perceptions[1]

	Family income		
	Low	Other incomes	All
Central Heating			
Men			
Yes	134	83	91
No	135	115	122
All	134	90	100
Women			
Yes	119	87	93
No	123	110	115
All	121	93	100

Long-standing illness

	Family income		
	Low	Other incomes	All
Central heating			
Men			
Yes	124	89	95
No	120	107	112
All	122	94	100
Women			
Yes	125	89	96
No	128	99	110
All	123	91	100

Acute illness

	Family income		
	Low	Other incomes	All
Central heating			
Men			
Yes	122	92	97
No	118	102	108
All	120	94	100
Women			
Yes	102	88	90
No	128	120	124
All	113	96	100

1 Respondents have 'not good' and 'fairly good' health.

III CONCLUSION

Chapter six above examined the health effects of marital status, parenthood and employment all of which had been posited in chapter two to influence health outcomes. We showed that it was the interaction between roles rather than the accumulation of roles which produced differences in health outcomes both between and among women and men. The above analysis has built upon chapter six by adding a material context for these adult roles in terms of socio-economic group, family income, housing tenure, and two measures of housing quality. Our results in some cases re-established the interaction effects found in chapter six and in other cases showed how the influence of material measures changed these relationships.

Employment was shown above in chapter six to be crucial to good health for women and men, but, suggested that married mothers who worked part-time had better health than those who worked full-time. This indicated different employment experiences for women and men due to women's domestic responsibilities and to the emphasis on the breadwinner role for men. The interaction of employment status and tenure re-emphasised these gender differences with unemployment being the stronger effect for men while tenure influenced women's health the most. Also, women were less affected by being in manual classes than they were by being in rented

accomodation while the opposite was true for men.

Parenthood in chapter six gave few patterns with which to assess its impact on health except that men seemed to have better health when they had dependent children and lone mothers consistently had poor health. The interaction between housing tenure and housing quality helped to clarify the relationship between parenthood and health. Parenthood had largely positive associations on health except in disadvantaged housing conditions. Renting interacted with parenthood to produce worse health for women whilst for men the predominant association was with manual occupational class. Overcrowding and lack of central heating worsened health for both sexes, but adding dependent children was associated with poorer health effects for overcrowding but surprisingly better health for those with no central heating. Both measures of housing quality showed sex differences in health outcomes with men suffering poorer health from the interaction of dependent children with overcrowding and women accruing more benefits from the interaction between lack of central heating and dependent children.

Whilst the above measures of material deprivation have overwhelmingly supported the imperative of including structural variables in any role analysis, by far the most influential of these factors was income. The tables in this

chapter have strongly suggested that health outcomes are influenced by the association of income with family roles, employment status and housing conditions.

Firstly, low income was associated with poorer health for both women and men but when marital status was included income produced rifts among women and between women and men. Low income separated women by marital status but revealed no such radical shift for men.

Income also disrupts the health advantage of employment and tenure statuses. When low income is added to employment status for women, the association of paid employment with better health is lost. Likewise low income disrupted the health advantage to men of owning their own house. Moreover, for both women and men a convergence appeared between low income owners and renters and in some cases renters on low incomes had better health than their house owning counterparts.

The housing quality variables were similarly influenced by income. Although men's health is poorer when they are overcrowded (table 7.13), and even if they have children (table 7.14), income disrupts this pattern to produce an extreme group of men with poor health who have low incomes but are not in overcrowded conditions. No such group is evident for women, however, since low income exacerbates

poor health ratios for overcrowded women. Central heating was largely associated with better health for women and men but changed when income was added to the analysis. In this case low income mitigated the positive health effects of central heating leaving only the 'other income' group to benefit from the association between central heating and health. It is entirely possible that the income effects reported above are more directly a result of social class position. However, Blaxter (1990) has claimed otherwise and furthermore table 7.5 did suggest that these two variables have some independent associations with health.

In summary, the analysis has shown the value of including structural variables in any examination of the health affects of adult roles. We have shown that the interactions above carve rifts between and among women and men in terms of their health outcomes. Nevertheless, we cannot be certain that the above roles and structural variables are causal agents but may instead may be part of a health selection process whereby those in poor health are selected into certain roles and structural positions. Health selection has been implicated in the association between men's occupational class as we discussed in chapter two, but little has been done to determine health selection factors for marital status, parenthood roles and employment status. Undoubtedly, part of the explanation for the relationships explored can be explained by health selection, but it seems

equally likely that for some groups, adult roles combine with structural conditions to cause health outcomes. This view has been espoused by many in the literature review in chapter two and underscored above in the analysis which has found gender divisions in health which are responsive to different role and structural configurations. A limitation up to now has been that cross-tabulation techniques can only include a few variables in each table, and furthermore, that it is not possible to hold variables constant in order to assess how predictive of health each variable is. The next chapter builds on chapters six and seven by using logit statistical techniques which allow for a larger number of variables to be included at one time whilst the others are held constant.

Chapter Eight: Logit Analysis

I INTRODUCTION

The previous two analysis chapters were informed by the literature in chapter two which suggested that gender differences in health were a response to both adult roles and their structural context. Chapter six therefore examined the health outcomes of various combinations of adult roles, followed by the addition of structural variables in chapter seven. The above tabular analysis used health standardised data . It was therefore possible to suggest associations between variables but not to show causality. The most usual way of extending such an analysis would be to use multiple regression analysis but given that the dependent variables are categorical, this is not a possibility. Logit analysis provides an appropriate method for examining a multiple regression model which does allow for both dichotomous and polychotomous dependent variables. (A fuller discussion of this technique is available above in chapter five).

The first step is to formulate additive models for women and men separately showing any statistical significance. All the variables were included as a result of their theoretical importance as determined in chapter two and because of their

associations with our health measures in chapters six and seven.

The second step, as with regular multiple regression, is to to include any interaction effects which the literature and the cross-tabulation analysis had suggested should be significant.

II ADDITIVE MODELS

Logit analysis is an interpretable linear model for categorical variables which provides a test for the significance of a given predictor whilst controlling for all other predictors in the model. The logit is the log odds of the dependent variable which indicate the relative probability of falling into one of two categories in any particular variable. The model is similar to the linear regression model except that the response is in terms of the log odds rather than metric dependent variable.

The logit additive model can be conceptualized as a traditional cross-tabulation with the exception that the significance for the coefficient of each variable can be assessed, with all other effects held constant, by the 't-statistic.' The multiplicative coefficient for the odds represents the additive estimates in their multiplicative

form. Multiplicative estimates greater than one indicate that a given category of a predictor is associated with an increase in the odds, i.e., an increase in the value of an independent variable with a multiplicative estimate above one will make it more likely that the dependent variable will fall into the category that has been assigned the value one, which in our case is always poorer health.

There are two sets of tables for women and men showing the additive effects of our variables. One set includes the income variable described above in chapter five and included in the tabular analysis in chapter seven (tables 8.1, 8.2), and one set in which the variable was dropped from the analysis (table 8.3, 8.4). This is because the formulation of the income variable from paid employment necessarily excludes most of the unemployed men from the analysis. However, due to its conceptual importance, we show tables for women and men both with and without income.

Table 8.1
Parameter estimates of health perceptions, long-standing illness, limiting long-standing illness and acute illness for logit additive model, women aged 20-49 (income included).

	Health perceptions		Long-standing illness	
Parameter	Estimate[a]	T statistic	Estimate[a]	T statistic
Constant	-1.638(0.19)	-6.465*	-2.340(0.96)	-8.379*
Age	0.023(1.02)	4.330*	0.040(1.04)	6.841*
Housewife	(1.00)		-----(1.00)	-----
Full-time	0.037(1.04)	0.299	0.126(1.13)	0.930
Part-time	-0.271(0.76)	-2.459*	-0.155(0.86)	-1.295
Unemployed	0.192(1.21)	0.910	0.209(1.23)	0.924
No children	-----(1.00)	-----	-----(1.00)	-----
Children < 16	0.074(1.08)	0.725	0.084(1.09)	0.770
Married	-----(1.00)	-----	-----(1.00)	-----
Single	-0.155(0.86)	-0.995	0.135(1.14)	0.815
Previously married	0.036(1.04)	0.206	-0.090(0.91)	-0.473
Owner occupier	-----(1.00)	-----	-----(1.00)	-----
Local authority	0.351(1.42)	3.460*	0.251(1.29)	2.303*
Private renting	0.071(1.07)	0.327	0.075(1.08)	0.319
Central heating	-----(1.00)	-----	-----(1.00)	-----
No central heating	0.169(1.18)	1.794**	0.049(1.05)	0.486
No overcrowding	-----(1.00)	-----	-----(1.00)	-----
Overcrowding	-0.032(0.97)	-0.267	-0.085(0.92)	-0.656
Non-manual	-----(1.00)	-----	-----(1.00)	-----
Manual	0.393(1.48)	4.384*	0.111(1.12)	1.143
Income	-0.001(1.00)	-1.769**	-0.002(1.00)	-3.149
Chi-squared[b]	(13)	104.53	(13)	82.618
Significance level		< 0.001		< 0.001
Percent correctly predicted		68.3		75.6

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Table 8.1 (continued)

	Limiting long-standing illness		Acute illness	
Parameter	Estimate[a]	T statistic	Estimate[a]	T statistic
Constant	-3.421(0.03)	-9.369*	-2.689(0.07)	-7.709*
Age	0.044(1.05)	5.829*	0.002(1.00)	0.230
Housewife	(1.00)		-----(1.00)	-----
Full-time	-0.095(0.91)	-0.557	0.063(1.07)	0.356
Part-time	-0.390(0.68)	-2.556*	-0.012(0.99)	-0.074
Unemployed	0.152(0.86)	0.505	0.326(0.72)	0.954
No children	-----(1.00)	-----	-----(1.00)	-----
Children < 16	0.088(1.09)	0.624	-0.091(0.91)	-0.641
Married	-----(1.00)	-----	-----(1.00)	-----
Single	-0.286(0.75)	-1.331	-0.065(0.94)	-0.308
Previously married	-0.234(0.79)	-0.915	0.427(1.53)	1.853**
Owner occupier	-----(1.00)	-----	-----(1.00)	-----
Local authority	0.240(1.27)	1.716**	0.331(1.39)	2.341*
Private renting	0.286(1.33)	0.983	0.346(1.41)	1.245
Central heating	-----(1.00)	-----	-----(1.00)	-----
No central heating	0.018(1.02)	0.589	0.312(1.37)	2.409*
No overcrowding	-----(1.00)	-----	-----(1.00)	-----
Overcrowding	-0.084(1.09)	0.522	0.114(1.12)	0.694
Non-manual	-----(1.00)	-----	-----(1.00)	-----
Manual	0.181(1.20)	1.451	0.338(1.40)	2.653*
Income	-0.001(1.00)	-1.185*	-0.002(1.00)	2.205
Chi-squared[b]	(13) 54.545		(13) 33.774	
Significance level	< 0.001		< 0.001	
Correctly predicted	88		88	

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Table 8.2

Parameter estimates of health perceptions, long-standing illness, limiting long-standing illness and acute illness for logit analysis model, men aged 20-49 (income included).

	Health perceptions		Long-standing illness	
Parameter	Estimate[a]	T statistic	Estimate[a]	T statistic
Constant	-2.410(0.09)	-6.074*	-2.240(0.11)	-5.592*
Age	0.045(1.05)	7.177*	0.031(1.03)	5.084*
Unemployed	------(1.00)	------	------(1.00)	------
Employed	0.104(0.90)	-0.394	0.176(1.19)	0.628
No children	------(1.00)	------	------(1.00)	------
Children < 16	-0.022(0.98)	-0.200	-0.123(1.13)	-1.138
Married	------(1.00)	------	------(1.00)	------
Single	0.017(1.02)	0.109	-0.046(0.96)	-0.302
Previously married	-0.005(1.00)	-0.020	-0.448(0.64)	-1.776**
Owner occupier	------(1.00)	------	------(1.00)	------
Local authority	0.416(1.26)	3.692*	0.202(1.22)	1.771**
Private renting	0.471(1.60)	2.233*	0.148(1.16)	0.677
Central heating	------(1.00)	------	------(1.00)	------
No central heating	0.118(1.13)	1.318	0.090(1.09)	0.868
No overcrowding	------(1.00)	------	------(1.00)	------
Overcrowding	-0.188(0.83)	-1.457	-0.181(0.83)	-1.387
Non-manual	------(1.00)	------	------(1.00)	------
Manual	0.232(1.26)	2.238*	0.127(1.14)	1.254
Income	-0.003(1.00)	-4.144*	0.001(1.00)	-2.276*
Chi-squared[b]	(11)	129.50	(11)	49.229
Significance level		< 0.001		< 0.001
Percent correctly predicted		76.9		77.3

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The number in parentheses are the degrees of freedom.

Table 8.2 continued

	Limiting long-standing illness		Acute illness	
Parameter	Estimate[a]	T statistic	Estimate[a]	T statistic
Constant	-3.436(0.03)	-6.297*	-4.570(0.01)	-4.175*
Age	0.043(1.04)	5.041*	0.000(1.00)	-0.002
Unemployed	-----(1.00)	-----	-----(1.00)	-----
Employed	-0.151(0.86)	-0.410	2.108(8.17)	2.082*
No children	-----(1.00)	-----	-----(1.00)	-----
Children < 16	-0.031(1.03)	0.210	0.198(1.22)	1.208
Married	-----(1.00)	-----	-----(1.00)	-----
Single	0.035(1.04)	0.158	-0.033(0.97)	-0.145
Previously married	-0.194(0.82)	-0.587	-0.399(1.49)	1.226
Owner occupier	-----(1.00)	-----	-----(1.00)	-----
Local authority	0.111(1.12)	0.704*	0.141(1.15)	0.810
Private renting	0.323(1.38)	1.103*	0.026(1.03)	0.077
Central heating	-----(1.00)	-----	-----(1.00)	-----
No central heating	-0.016(0.98)	-0.112	0.074(1.08)	0.472
No overcrowding	-----(1.00)	-----	-----(1.00)	-----
Overcrowding	-0.300(0.74)	-1.615	-0.510(0.60)	-2.343*
Non-manual	-----(1.00)	-----	-----(1.00)	-----
Manual	0.153(1.17)	1.090	0.036(1.04)	0.234
Income	-0.001(1.00)	-1.207	-0.000(1.00)	-0.196
Chi-squared[b]	(11)	36.063	(11)	18.838
Significance level		< 0.001		< 0.001
Percent orrectly predicted		90.00		91.6

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Table 8.3

Parameter estimates of health perceptions, long-standing illness, limiting longstanding illness and acute illness for logit additive model, women aged 20-49.

	Health perceptions		Long-standing illness	
Parameter	Estimate[a]	T-statistic	Estimate[a]	T-statistic
Constant	-1.731(0.18)	-9.163*	-2.534(0.08)	-12.398*
Age	0.0230(1.02)	5.303*	0.376(1.04)	8.127*
Housewife	-----(1.00)	-----	-----(1.00)	-----
Full-time	-0.106(0.90)	-1.134	-0.083(0.92)	-0.838
Part-time	-0.374(0.69)	-4.352*	- .316(0.73)	-3.431*
Unemployed	0.068(1.07)	0.443	0.010(1.01)	0.059
No children	-----(1.00)	-----	-----(1.00)	-----
Children < 16	0.003(0.99)	-0.720	0.009(1.01)	0.108
Married	-----(1.00)	-----	-----(1.00)	-----
Single	-0.146(0.87)	-1.237	0.182(1.20)	1.481
Previously married	0.337(1.40)	2.877*	0.290(1.34)	2.372*
Owner occupier	-----(1.00)	-----	-----(1.00)	-----
Local authority	0.430(1.54)	5.442*	0.378(1.46)	4.487*
Private renting	0.178(1.19)	1.009	0.139(1.15)	0.734
Central heating	-----(1.00)	-----	-----(1.00)	-----
No central heating	0.154(1.17)	2.098*	0.081(1.08)	1.038
No overcrowding	-----(1.00)	-----	-----(1.00)	-----
Overcrowding	0.038(1.04)	0.406	-0.060(0.94)	-0.598
Non-manual	-----(1.00)	-----	-----(1.00)	-----
Manual	0.374(1.45)	5.324*	0.160(1.17)	2.118*
Chi-squared[b]	(12) 185.65		(12) 131.52	
Significance level	< 0.001		< 0.001	
Percent correctly predicted	68.2		74.7	

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Table 8.3 continued

	Limiting long-standing illness		Acute illness	
Parameter	Estimate[a]	T-statistic	Estimate[a]	T-statistic
Constant	-3.507(0.03)	-13.125*	-2.587(0.075)	-9.749*
Age	0.043(1.04)	7.253*	0.011(1.01)	1.872**
Housewife	----(1.00)	------	------(1.00)	------
Full-time	-0.282(0.75)	-2.246*	-0.014(1.01)	-0.109
Part-time	-0.545(0.58)	-4.594*	-0.086(0.92)	-0.707
Unemployed	0.099(0.91)	-0.494	-0.557(0.57)	-2.226*
No children	------(1.00)	------	------(1.00)	------
Children < 16	0.002(0.10)	-0.019	-0.191(0.83)	-1.652**
Married	------(1.00)	------	------(1.00)	------
Single	0.299(1.35)	1.876**	-0.115(0.89)	-0.706
Previously married	0.265(1.30)	1.757**	0.416(1.52)	2.748*
Owner occupier	------(1.00)	------	------(1.00)	------
Local authority	0.412(1.51)	3.884*	0.235(1.26)	2.127*
Private renting	0.157(1.17)	0.647	0.289(1.34)	1.261
Central heating	------(1.00)	------	------(1.00)	------
No central heating	0.124(1.13)	1.253	0.269(1.30)	2.679*
No overcrowding	------(1.00)	------	------(1.00)	------
Overcrowding	0.098(1.01)	0.797	0.218(1.24)	1.728**
Non-manual	------(1.00)	------	------(1.00)	------
Manual	0.204(1.23)	2.119*	0.303(1.35)	3.050*
Chi-squared[b]		(12) 120.89	(12) 62.940	
Significance level		< 0.001	< 0.001	
Percent correctly predicted		86.8	87.9	

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Table 8.4

Parameter estimates of health perceptions, long-standing illness, limiting long-standing illness and acute illness for logit additive model, men aged 20-49.

	Health perceptions		Long-standing illness illness	
Parameter	Estimate[a]	T-statistic	Estimate[a]	T-statistic
Constant	-2.851(0.06)	-11.717*	-2.186(0.11)	-9.347*
Age	0.041(1.04)	8.067*	0.030(1.01)	6.203*
Unemployed	------(1.00)	------	------(1.00)	------
Employed	-0.223(0.80)	-1.888**	-0.222(0.80)	-1.875**
No children	------(1.00)	------	------(1.00)	------
Children < 16	-0.024(0.98)	-0.256	-0.116(0.89)	-1.318
Married	------(1.00)	------	------(1.00)	------
Single	0.246(1.28)	2.065*	-0.008(0.99)	-0.072
Previously married	0.250(1.28)	1.392	-0.217(0.80)	-1.151
Owner occupier	------(1.00)	------	------(1.00)	------
Local authority	0.427(1.53)	4.677**	0.215(1.24)	2.381*
Private renting	0.173(1.19)	0.996	0.037(1.04)	0.214
Central heating	------(1.00)	------	------(1.00)	------
No central heating	0.212(1.24)	2.554*	0.174(1.19)	2.138*
No overcrowding	------(1.00)	------	------(1.00)	------
Overcrowding	-0.022(0.98)	-0.216	-0.145(0.87)	-1.405
Non-manual	------(1.00)	------	------(1.00)	------
Manual	0.338(1.40)	4.008*	0.198(1.22)	2.456*
Chi-squared[b]	(10)	156.290	(10)	75.401
Significance level		< 0.001		< 0.001
Percent correctly predicted		89.3		92.1

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Table 8.4 continued

	Limiting long-standing illness		Acute Illness	
Parameter	Estimate	T-statistic	Estimate	T-statistic
Constant	-3.520(0.03)	-10.832*	-2.524(0.08)	-6.764*
Age	0.042(1.04)	6.309*	-0.006(0.99)	-0.758
Unemployed	-----(1.00)	-----	-----(1.00)	-----
Employed	-0.307(1.25)	-1.945*	-0.353(1.42)	1.638**
No children	-----(1.00)	-----	-----(1.00)	-----
Children < 16	-0.049(1.05)	0.410	0.003(1.00)	0.019
Married	-----(1.00)	-----	-----(1.00)	-----
Single	0.106(1.11)	0.651	-0.237(0.79)	-1.322
Previously married	0.050(1.05)	0.205	0.343(1.41)	1.311
Owner occupier	-----(1.00)	-----	-----(1.00)	-----
Local authority	0.090(1.09)	0.730	0.179(1.20)	1.265
Private renting	0.069(1.07)	0.289	-0.241(0.79)	-0.789
Central heating	-----(1.00)	-----	-----(1.00)	-----
No central heating	0.048(1.05)	0.425	0.039(1.04)	0.308
No overcrowding	-----(1.00)	-----	-----(1.00)	-----
Overcrowding	-0.271(0.76)	-1.870**	-0.266(0.77)	-1.573
Non-manual	-----(1.00)	-----	-----(1.00)	-----
Manual	0.222(1.25)	2.010*	-0.047(0.95)	-0.385
Chi-squared[b]	(10) 57.865		(10) 12.263	
Significance level	< 0.001		< 0.001	
Percent correctly predicted	89.3		92.1	

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

In chapter seven it was suggested that income had effects which both overlapped with, and were independent of, occupational class. The logit tables underscore this suggestion but, moreover, provide confidence that the exclusion of income, whilst being unfortunate, will not seriously affect the integrity of the logit analysis. Comparison of the two sets of tables shows that when income is dropped, occupational class becomes significant for men with long-standing illness, and men and women with limiting long-standing illness. So while occupational class can be considered to have some overlap with income it nevertheless retains much independent significance. The comparison also shows that when income is dropped several other variables come into significance. This is especially evident for women suffering long-standing illness, limiting long-standing illness and acute illness, although manual occupational class, local authority housing, being employed and lack of central heating do become significant for men with long-standing illness.

Thus, other variables do pick up some of the significance which should accrue to income. Ideally, future research should include a total family income variable which can include income from sources other than employment. Although we have attempted to suggest the effects of dropping income, the two sets of tables are not strictly the same since one

is predominantly the employed and the other (without income but including occupational class) is a combination of the employed and the unemployed. Above, in the literature, (Blaxter 1990) and in chapter seven, the effect of occupational class was suggested to be more an effect of income. Our tables suggest two things which relate importantly to this. Firstly, occupational class shows independent significance suggesting that income is not a proxy for occupational class. Moreover, since other variables are also significant it suggests that income, like class, may be only partially directly accountable for disadvantage, and variables such as housing and marital status may have some direct or interactive effect on health outcomes. Following the above the rest of the discussion concerning the additive model will address only table 8.2 (with income dropped from the analysis).

In tables 8.3 and 8.4 the manual occupational class has a deleterious effect for both women and men on all the health measures. The only exception being men's acute illness, which was not affected by occupational class. Health perceptions were most affected by occupational class since both women and men had approximately 45% greater probability of having less than 'good' health when they were in manual classes than when they were not (determined from a multiplicative estimate of 1.45).

Different adult roles inhabited by women and men have been hypothesized to impact on health outcomes and may partially explain gender divisions in health. Marital status was posited as having an impact on health outcomes especially for women. Marriage has overwhelmingly been considered as having a positive effect on health. This was supported by the tabular analysis which showed that married women and men had better health than the divorced, widowed and separated. The single group for the most part had better health than the previously married but worse than the married.

The logit analysis supported these findings for women, but by comparison, men's health showed no statistical significance with marital status. Previously married women, in contrast to the married, had between a 30% to 50% greater odds ratio of being in poorer health on the four health measures. Being single only came into significance for limiting long-standing illness. In this case the single had a 35% greater odds ratio of limiting long-standing illness than the married and 13% more than the previously married. Table 6.3 had suggested this above since the single had shown more limiting long-standing illness than the previously married.

In chapter six parenthood produced no clear patterns with

which to assess how having dependent children under sixteen impacts the health of women and men. Chapter seven suggested, however, that the associations between dependent children and health outcomes were largely a result of the combination of dependent children with structural variables. For example, housing measures and children produced largely better health except when people were in disadvantaged housing conditions. Gender differences in health responses to dependent children also required location within a structural framework. The additive model reflects this since dependent children were only significant for women with acute illness. In this case having dependent children under sixteen reduced the likelihood of acute illness for women to 83%. Given the nature of the tabular analysis which produced health patterns with dependent children only in combination with structural variables, these results are not unexpected. Furthermore, as we shall see later in the logit interactions, dependent children do become significant in combination with structural variables.

Employment has been considered both a role and a structural variable in chapters six and seven. Employment was associated with better health for individuals but with some clear differences between and among women and men. For example, married women had better health when they worked part-time but by contrast lone mothers seemed healthier in

full-time employment (chapter six). Also, when tenure status and occupational class were added to employment (table 7.9 and 7.10) men's health remained associated with employment, yet women's health was more responsive to tenure and occupational class.

The additive logit model largely supported the findings of the tabular analysis except for acute illness which we discuss below. With all other variables held constant, part-time work remained important to health for women. Women's health perceptions, long-standing illness and limiting long-standing illness had respectively 69%, 73% and 58% decreases in odds of having poor health when compared to the reference category of housewives. Full-time employment is only significant for limiting long-standing illness. The odds ratio (.095) for full-time versus part-time shows no significant difference in health outcomes on this variable. Thus, as we suggested above in chapter seven, employment for women and men is a different experience. If part-time work, over full-time employment for women, is a health benefit it is likely that home and work are not separate places for women. Gendered domestic arrangements appear to make it impossible for women to get the health benefits of full-time employment that men do. Part-time employment however has resource implications for women given its location in the secondary labour market.

Acute illness showed a different pattern to that of the other health variables. Rather than unemployment being causally linked to poor health, it in fact, reduced acute illness. Both women and men had improved health in comparison to their reference categories. So, for women, the odds ratio showed that unemployed women were only 57% as likely as housewives to have acute illness. Employed men were 42% more likely to experience acute illness than the unemployed. Theoretically, we need not be too surprised at this since some of the unemployed may be in healthier conditions because they have left jobs which carried some health risks (Miles 1987). Moreover in chapter six there was some empirical suggestion that acute illness had a different relationship to employment than the other health measures did. Table 6.6 showed that the unemployed of both sexes had less acute illness which was surprising given that the other health measures showed the reverse. The logit analysis therefore gives us confidence that these earlier findings were valid. Further it suggests that although the health measures are often similar in their relationship to our variables they also explain different elements of health.

We used housing tenure and two measures of housing quality as part of the structural context within which to examine adult roles. The tabular analysis showed gradually worsening

health as people rented rather than owned, with local authority rented housing being associated with the poorest health outcomes (table 7.8). The analysis in chapter seven further suggested that when income and occupational class are combined with tenure then some gender differences in health resulted. This was reflected in the logit analysis. While both women and men had poorer health perceptions than owners, the other health variables showed different health responses to tenure status for women and men. Women in local authority housing had more limiting long-standing illness and acute illness than owner occupiers, but men in the same tenure status showed significance only in terms of long-standing illness.

Lack of central heating was more successful at predicting health than was overcrowding but less successful than was tenure status. Both women and men had poorer health perceptions when they had no central heating but the multiplicative estimate was weaker than for tenure. Long-standing illness was significant only for men but the odds ratio was only 19% higher for those with central heating than for those without. Acute illness by contrast was only significant for women but showed a 30% higher odds ratio than for those with central heating. Thus, as expected, heating as an indicator of housing quality was fairly predictive of health, but also showed that the health of

women and men does not respond in the same way.

Overcrowding only came into significance for men's limiting long-standing illness and women's acute illness. The results were reversed for women and men with men's health improving in conditions of overcrowding but with women's health deteriorating in the same conditions. Both results were suggested by table 7.13 but because the cell number was low we considered the results to be unreliable. In the case of women's acute illness, however, their health ratio was 130 compared to 106 when women were not overcrowded. The explanation for these disparate results suggest that when men live with others they are more able to reduce their role obligations since one of the persons in the household is likely to be their partner. Women living in close proximity to others clearly results in more short term illnesses and perhaps may inform the position expressed in chapter two that the excess in morbidity may be due to relatively minor illnesses (Verbrugge 1985, Newman 1984).

III INTERACTIVE MODELS

Conceptually we have reasons to expect that interactions between variables previously examined only independently, will have significant effects on health outcomes. For example, the health effect of children is likely to exist

not only independently of other variables, but also when various 'levels' of children coincide with various 'levels' of factors such as income, employment status and housing. The analysis chapters above supported this view since in chapter six the presence of children showed little patterning with health outcomes. When structural measures were added in chapter seven however, the results showed that health outcomes for parenthood change dramatically both among and between women and men in response to the material context of these adult roles. Moreover, we were surprised that in some conditions of material deprivation, having no dependent children is related to poorer health for both women and men.

It was therefore a methodogical and theoretical imperative to include interaction effects as an extension to the additive logit analysis above. The interaction models for both women and men did not include income for the reasons discussed above. They are composed of the additive effects seen in tables 8.1, 8.2, 8.3 and 8.4. plus interactions which were informed conceptually by chapter two and by the analysis in chapters six and seven. The statistical significance of any interactions were of interest to us but especially those with dependent children since the additive models did not produce significance on this variable for women or men (the exception was for women's acute illness).

Table 8.5 did show significant interactions for dependent children for women but table 8.6 showed none for men. Greater limiting and non-limiting long-standing illness was produced when women had dependent children in manual occupational classes. The results for limiting long-standing illness were the most dramatic however, showing women with children as having 57% greater odds of being in poorer health in manual occupational classes and 68% greater when they worked full-time. (The respective reference categories were non-manual and/or no children groups and non-employed and/or no children). Thus the presence of children in the logit model comes into significance only in interaction with employment status and manual occupational class and only for women. This means that the presence of children as we have defined it has no independent effect on women's health and not even an interaction effect for men. Alternatively, a larger data set may show children as significant in both the additive and interactive models. In a similar analysis Arber (1991) did find significance for children under five in her additive model but in the subsequent interactive model the additive significance was lost to the interaction as was the case in our analysis above.

The interaction of local authority housing with employment

status was significant for both health perceptions and limiting long-standing illness but again only for women. Compared to the reference category of owners and/or non-employed, women who both worked full-time and lived in local authority housing were in better health. Thus, full-time rather than part-time employment protected women from the 133% increase in the odds of limiting long-standing illness (as shown in the additive part of the interactive model of table 8.5) that women in local authority typically experience. A further significant interaction effect for women in full-time employment was shown for the previously married who experienced only 64% odds (in comparison to the reference category of the married and/or the non-employed) of limiting long-standing illness. This supports the findings in chapter six that, unlike married mothers, the lone mothers had a health preference for full-time rather than part-time work (table 6.9).

Table 8.5
Parameter estimates of health perceptions, long-standing illness, limiting long-standing illness and acute illness for logit model with interaction terms, women aged 20-49.

	Health Perceptions	
Parameters	Estimate[a]	T-statistic
Constant	-1.716(0.18)	-7.002*
Age	0.023(1.02)	5.255*
Non-employed[b]	-----(1.00)	-----
Full-time	-0.108(0.89)	-0.601
Part-time	-0.391(0.68)	-2.048*
No children	-----(1.00)	-----
Children < 16	-0.198(0.82)	-1.071
Married	-----(1.00)	-----
Single	0.034(1.03)	0.085
Previously married	0.615(1.85)	2.933*
Owner occupier, private renter	-----(1.00)	-----
Local authority	0.490(1.63)	2.348*
Central heating	-----(1.00)	-----
No central heating	0.289(1.34)	2.528*
No overcrowding	-----(1.00)	-----
Overcrowding	0.034(1.03)	0.365
Non-manual	-----(1.00)	-----
Manual	0.563(1.76)	2.998*
Local authority, children < 16	0.228(1.26)	1.338
Full-time, children < 16	0.280(1.32)	1.489
Part-time, children < 16	0.268(1.31)	1.020
Manual, children < 16	-0.065(0.94)	-0.424
Local authority, full-time	-0.281(0.76)	-1.626**
Local authority, part-time	-0.128(0.88)	-0.403
Manual, full-time	-0.178(0.84)	-1.124
Manual, part-time	-0.303(0.74)	-1.035
Single, full-time	-0.179(0.84)	-0.424
Single, part-time	0.019(1.02)	0.037
Previously married, full-time	-0.447(0.64)	-1.725**
Previously married, part-time	-0.198(0.82)	-0.443
Local authority, manual	-0.095(0.91)	-0.637
Central heating, children < 16	-0.211(0.81)	-1.431

Chi-squared[c] (24) 202.57
Significance level < 0.001
Percent correctly predicted 68.59

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

Table 8.5 continued

[a] The numbers in parentheses are the parameter estimates in multiplicative form.

[b] The 'non-employed' are housewives and the unemployed.

[c] The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Full-time estimate	Part-time estimate	Non-employed estimate
Owner-occupier,			
private renter	-0.108(0.90)	-0.391(0.68)	------(1.00)
Local authority	0.101(1.11)	-0.029(0.97)	0.490(1.63)
Non-manual	-0.108(0.90)	-0.391(0.68)	------(1.00)
Manual	0.277(1.32)	-0.131(0.88)	0.563(1.76)
No children	-0.108(0.90)	-0.391(0.68)	------(1.00)
Children < 16	-0.026(0.97)	-0.321(0.73)	-0.198(0.82)
Married	-0.108(0.90)	-0.391(0.68)	------(1.00)
Single	-0.253(0.78)	-0.338(0.71)	0.034(1.03)
Previously married	0.060(1.06)	0.107(1.11)	0.615(1.85)

	No children estimate	Children < 16 estimate
Owner-occupier,		
private renter	------(1.00)	-0.198(0.82)
Local authority	0.490(1.63)	0.52 (1.68)
Non-manual	------(1.00)	-0.198(0.82)
Manual	0.563(1.75)	0.300(1.35)
Central heating	------(1.00)	-0.198(0.82)
No central heating	0.289(1.34)	-0.120(0.89)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.5 continued

Long-standing illness

Parameter	Estimate[a]	T-statistic
Constant	-2.397(0.90)	-9.264*
Age	0.039(1.04)	8.231*
Non-employed[b]	-----(1.00)	-----
Full-time	-0.204(0.82)	-1.095
Part-time	-0.443(0.64)	-2.243*
No children	-----(1.00)	-----
Children < 16	-0.334(0.72)	-1.748**
Married	-----(1.00)	-----
Single	-0.182(0.83)	-0.420
Previously married	0.351(1.42)	1.666**
Owner occupier, private renter	-----(1.00)	-----
Local authority	0.591(1.81)	2.712*
Central heating	-----(1.00)	-----
No central heating	0.141(1.15)	1.170
No overcrowding	-----(1.00)	-----
Overcrowding	-0.089(0.91)	-0.876
Non-manual	-----(1.00)	-----
Manual	0.032(1.03)	0.160
Local authority, children < 16	0.081(1.08)	0.454
Full-time, children < 16	0.300(1.34)	1.543
Part-time, children < 16	0.559(1.75)	0.193
Manual, children < 16	0.329(1.39)	1.994*
Local authority, full-time	-0.279(0.76)	-1.525
Local authority, part-time	-0.533(0.59)	-1.536
Manual, full-time	-0.084(0.92)	-0.496
Manual, part-time	-0.003(1.00)	-0.009
Single, full-time	0.421(1.52)	0.932
Single, part-time	.466(1.59)	0.831
Previously married, full-time	-0.167(0.85)	-0.629
Previously married, part-time	0.251(1.29)	0.545
Local authority, manual	-0.132(0.88)	-0.829
Central heating, children < 16	-0.098(0.91)	-0.628

Chi-squared[c] (24) 146.66
Significance level < 0.001
Percent correctly predicted 74.86

* Statistically different from the reference category with greater than 95% probability.
** Statistically different from the reference category with greater than 90% probability.

Table 8.5 continued

[a] The numbers in parentheses are the parameter estimates in multiplicative form.

[b] The 'non-employed' are housewives and the unemployed.

[c] The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Full-time estimate	Part-time estimate	Non-employed estimate
Owner-occupier,			
private renter	-0.204(0.82)	-0.443(0.64)	-----(1.00)
Local authority	0.108(1.11)	-0.385(0.68)	0.591(1.81)
Non-manual	-0.264(0.82)	-0.443(0.64)	-----(1.00)
Manual	-0.256(0.77)	-0.414(0.66)	0.032(1.03)
No children	-0.204(0.82)	-0.443(0.64)	-----(1.00)
Children < 16	-0.238(0.79)	-0.218(0.80)	-0.334(0.72)
Married	-0.204(0.82)	-0.443(0.64)	-----(1.00)
Single	0.035(1.04)	-0.159(0.85)	-0.182(0.83)
Previously married	-0.020(0.98)	0.159(1.17)	0.351(1.42)

	No children estimate	Children < 16 estimate
Owner-occupier,		
private renter	-----(1.00)	-0.334(0.72)
Local authority	0.591(1.81)	0.338(1.40)
Non-manual	-----(1.00)	-0.334(0.72)
Manual	0.032(1.03)	0.027(1.03)
Central heating	-----(1.00)	-0.334(0.72)
No central heating	0.141(1.15)	-0.291(0.75)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.5 continued

	Limiting Long-standing illness	
Parameter	Estimate[a]	T-statistic
Constant	-3.410(0.03)	-10.363*
Age	0.045(1.05)	7.339*
Non-employed[b]	-----(1.00)	-----
Full-time	-0.350(0.70)	-1.531
Part-time	-0.654(0.52)	-2.667*
No children	-----(1.00)	-----
Children < 16	-0.468(0.63)	-1.991*
Married	-----(1.00)	-----
Single	-0.415(0.66)	-0.739
Previously married	0.490(1.63)	2.093*
Owner occupier, private renter	-----(1.00)	-----
Local authority	0.844(2.33)	3.175*
Central heating	-----(1.00)	-----
No central heating	0.220(1.25)	1.419
No overcrowding	-----(1.00)	-----
Overcrowding	0.073(1.08)	0.581
Non-manual	-----(1.00)	-----
Manual	0.118(1.13)	0.466
Local authority, children < 16	-0.028(0.97)	-0.123
Full-time, children < 16	0.519(1.68)	2.181*
Part-time, children < 16	-0.109(0.90)	-0.285
Manual, children < 16	0.450(1.57)	2.134*
Local authority, full-time	-0.514(0.60)	-2.278*
Local authority, part-time	-0.291(0.75)	-0.683
Manual, full-time	-0.217(0.80)	-0.994
Manual, part-time	-0.420(0.66)	-1.048
Single, full-time	0.762(2.14)	1.298
Single, part-time	1.043(2.84)	1.492
Previously married, full-time	-0.482(0.62)	-1.498
Previously married, part-time	-0.040(0.96)	-0.074
Local authority, manual	-0.218(0.80)	-1.081
Central heating, children < 16	-0.153(0.86)	-0.769

Chi-squared [c] (24) 149.22
Significance level < 0.001
Percent correctly predicted 86.95

* Statistically different from the reference category with greater than 95% probability.
** Statistically different from the reference category with greater than 90% probability.

Table 8.5 continued

[a] The numbers in parentheses are the parameter estimates in multiplicative form.

[b] The 'non-employed' are housewives and the unemployed.

[c] The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions

	Full-time estimate	Part-time estimate	Non-employed estimate
Owner-occupier,			
private renter	-0.350(0.70)	-0.654(0.52)	-----(1.00)
Local authority	-0.020(0.98)	-0.101(0.90)	0.844(2.33)
Non-manual	-0.350(0.70)	-0.654(0.52)	-----(1.00)
Manual	-0.449(0.63)	-0.956(0.38)	0.118(1.13)
No children	-0.350(0.70)	-0.654(0.52)	-----(1.00)
Children < 16	-0.299(0.74)	-1.231(0.29)	-0.468(0.63)
Married	-0.350(0.70)	-0.654(0.52)	-----(1.00)
Single	-0.003(1.00)	-0.026(0.97)	-0.415(0.66)
Previously married	-0.342(0.71)	0.424(1.53)	0.490(1.63)

	No children estimate	children < 16 estimate
Owner-occupied,		
private renter	-----(1.00)	-0.468(0.63)
Local authority	0.844(2.33)	0.348(1.42)
Non-manual	-----(1.00)	-0.468(0.63)
Manual	0.118(1.13)	0.100(1.11)
Central heating	-----(1.00)	-0.468(0.63)
No central heating	0.220(1.25)	-0.401(0.67)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.5 continued

	Acute illness	
Parameter	Estimate[a]	T-statistic
Constant	-2.869(0.57)	-8.091*
Age	0.011(1.01)	1.859*
Non-employed[b]	-----(1.00)	-----
Full-time	0.334(1.40)	1.264
Part-time	0.211(1.23)	0.756
No children	-----(1.00)	-----
Children < 16	-0.123(0.88)	-0.455
Married	-----(1.00)	-----
Single	0.182(1.20)	0.357
Previously married	0.579(1.78)	2.319*
Owner-occupier, private renter	-----(1.00)	-----
Local authority	0.583(1.79)	2.040*
Central heating	-----(1.00)	-----
No central heating	0.247(1.28)	1.614
No overcrowding	-----(1.00)	-----
Overcrowding	0.223(1.25)	1.742**
Non-manual	-----(1.00)	-----
Manual	0.623(1.86)	2.355*
Local authority, children < 16	0.022(1.02)	0.096
Full-time, children < 16	-0.240(0.79)	-0.091
Part-time, children < 16	-0.279(0.76)	-0.611
Manual, children < 16	-0.135(0.87)	-0.638
Local authority, full-time	-0.341(0.71)	-1.439
Local authority, part-time	-0.549(0.58)	-1.055
Manual, full-time	-0.179(0.84)	-0.797
Manual, part-time	-0.686(0.50)	-1.434
Single, full-time	-0.354(0.70)	-0.659
Single, part-time	0.486(1.63)	0.685
Previously married, full-time	-0.289(0.74)	-0.905
Previously married, part-time	0.234(1.26)	0.358
Local authority, manual	-0.297(0.74)	-1.437
Central heating, children < 16	0.059(1.06)	0.293

Chi-squared[c] (24) 74.329
Significance level < 0.001
Percent correctly predicted 87.92

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

Table 8.5 continued

[a] The numbers in parentheses are the parameter estimates in multiplicative form.

[b] The 'non-employed' are housewives and the unemployed.

[c] The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Full-time estimate	Part-time estimate	Non-employed estimate
Owner-occupier, private renter	0.334(1.40)	0.211(1.23)	-----(1.00)
Local authority	0.576(1.78)	0.245(1.28)	0.583(1.79)
Non-manual	0.334(1.40)	0.211(1.23)	-----(1.00)
Manual	0.778(2.18)	0.148(1.16)	0.623(1.86)
No children	0.334(1.40)	0.211(1.23)	-----(1.00)
Children < 16	-0.136(0.87)	-0.191(0.83)	-0.123(0.88)
Married	0.334(1.40)	0.211(1.23)	-----(1.00)
Single	0.162(1.18)	0.879(2.41)	0.182(1.20)
Previously married	0.624(1.87)	1.024(2.78)	0.579(1.78)

	No children estimate	Children < 16 estimate
Owner-occupier, private renter	-----(1.00)	-0.123(0.88)
Local authority	0.583(1.79)	0.482(1.62)
Non-manual	-----(1.00)	-0.123(0.88)
Manual	0.623(1.86)	0.365(1.44)
Central heating	-----(1.00)	-0.123(0.88)
No central heating	0.247(1.28)	0.183(1.20)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.6

Parameter estimates of health perceptions, long-standing illness, limiting long-standing illness and acute illness for logit model with interaction terms, men aged 20-49.

Health perceptions

Parameter	Estimate[a]	T-statistic
Constant	-3.233(0.04)	-7.233*
Age	0.042(1.04)	8.233*
Unemployed	-----(1.00)	-----
Employed	0.160(1.17)	0.403
No children	-----(1.00)	-----
Children < 16	0.041(1.01)	0.129
Married	-----(1.00)	-----
Single	0.302(1.35)	1.012
Previously married	0.639(1.89)	1.661**
Owner occupier, private renter	-----(1.00)	-----
Local authority	0.610(1.84)	1.979*
Central heating	-----(1.00)	-----
No central heating	0.347(1.41)	2.965*
No overcrowding	-----(1.00)	-----
Overcrowding	-0.464(0.63)	-0.441
Non-manual	-----(1.00)	-----
Manual	0.540(1.72)	1.591
Local authority, children < 16	0.225(1.25)	1.258
Employed, children < 16	-0.174(0.84)	-0.580
Manual, children < 16	0.183(1.20)	1.093
Local authority, employed	0.471(0.62)	-0.190
Manual, employed	-0.251(0.78)	-0.749
Single, employed	-0.031(0.97)	-0.098
Previously married, employed	-0.475(0.62)	-1.086
Local authority, manual	-0.340(0.71)	-1.504
Heat, children < 16	-0.256(0.77)	-1.569

Chi-squared[b] (18) 164.71
Significance level < 0.001
Percent correctly predicted 76.45

* Statistically different from the reference category with greater than 95% probability.
** Statistically different from the reference category with greater than 90% probability.
a The numbers in parentheses are the parameter estimates in multiplicative form.
b The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Employed estimate	Unemployed estimate
owner-occupied,		
private renter	0.160(1.17)	------(1.00)
Local authority	0.299(1.35)	0.610(1.84)
Non-manual	0.160(1.17)	------(1.00)
Manual	0.449(1.57)	0.540(1.72)
No children	0.160(1.17)	------(1.00)
Children < 16	-0.055(0.95)	-0.041(0.96)
Married	0.160(1.17)	------(1.00)
Single	0.431(1.54)	0.302(1.35)
Previously married	0.324(1.38)	0.639(1.89)

	No children estimate	Children < 16 estimate
Owner-occupier,		
private renter	------(1.00)	-0.041(0.96)
Local authority	0.610(1.84)	0.794(2.21)
Non-manual	------(1.00)	-0.041(0.96)
Manual	0.540(1.72)	0.682(1.98)
Central heating	------(1.00)	-0.041(0.96)
No central heating	0.347(1.41)	0.050(1.05)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.6 continued

Long-standing illness

Parameter	Estimate[a]	T-statistic
Constant	-2.157(0.12)	-5.191*
Age	0.030(1.03)	6.228*
Unemployed	-----(1.00)	-----
Employed	-0.252(0.78)	-0.685
No children	-----(1.00)	-----
Children < 16	0.051(1.05)	0.161
Married	-----(1.00)	-----
Single	-0.050(0.95)	-0.164
Previously married	0.747(2.11)	1.967*
Owner occupier, private renter	-----(1.00)	-----
Local authority	0.399(1.49)	1.291
Central heating	-----(1.00)	-----
No central heating	0.208(1.23)	1.831**
No overcrowding	-----(1.00)	-----
Overcrowding	-0.147(0.86)	-1.400
Non-manual	-----(1.00)	-----
Manual	-0.239(0.79)	-0.750
Local authority, Children < 16	0.130(1.14)	0.730
Employed, Children < 16	-0.216(0.80)	-0.720
Manual, children < 16	0.029(1.03)	0.180
Local authority, employed	-0.251(0.78)	-0.997
Manual, employed	0.469(1.60)	1.496
Single, employed	0.073(1.08)	0.227
Previously married, employed	-1.328(0.27)	-2.969*
Local authority, manual	-0.045(0.96)	-0.196
Heat, children < 16	-0.074(0.93)	-0.467

Chi-squared[b] (18) 90.894
Significance level < 0.001
Percent correctly predicted 76.85

* Statistically different from the reference category with greater than 95% probability.
** Statistically different from the reference category with greater than 90% probability.
a The numbers in parentheses are the parameter estimates in multiplicative form.
b The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Employed estimate	Unemployed estimate
owner-occupied,		
private renter	-0.252(0.78)	------(1.00)
Local authority	0.398(1.49)	0.399(1.49)
Non-manual	-0.252(0.78)	------(1.00)
Manual	-0.022(0.98)	-0.239(0.79)
No children	-0.252(0.78)	------(1.00)
Children < 16	-0.417(0.66)	0.051(1.05)
Married	-0.252(0.78)	------(1.00)
Single	-0.229(0.80)	-0.050(0.95)
Previously married	-0.833(0.43)	0.747(2.11)

	No children estimate	Children < 16 estimate
Owner-occupied,		
private renter	------(1.00)	0.051(1.05)
Local authority	0.399(1.49)	0.580(1.79)
Non-manual	------(1.00)	0.051(1.05)
Manual	-0.239(0.79)	-0.159(0.85)
Central heating	------(1.00)	0.051(1.05)
No central heating	0.208(1.23)	0.185(1.20)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.6 continued

	Limiting Long-standing illness	
Parameter	Estimate[a]	T-statistic
Constant	-3.600(0.03)	-6.345*
Age	0.043(1.04)	6.419*
Unemployed	-----(1.00)	-----
Employed	-0.210(0.81)	-0.422
No children	-----(1.00)	-----
Children < 16	-0.240(0.79)	-0.570
Married	-----(1.00)	-----
Single	-0.014(0.99)	-0.034
Previously married	0.661(1.94)	1.466
Owner occupier, private renter	-----(1.00)	-----
Local authority	0.135(1.14)	0.315
Central heating	-----(1.00)	-----
No central heating	0.077(1.08)	0.482
No overcrowding	-----(1.00)	-----
Overcrowding	-0.288(0.75)	-1.950*
Non-manual	-----(1.00)	-----
Manual	0.161(1.17)	0.368
Local authority, children < 16	0.372(1.45)	1.485
Employed, children < 16	0.197(1.22)	0.493
Manual, children < 16	0.063(1.07)	0.285
Local authority, employed	-0.315(0.73)	-0.928
Manual, employed	0.034(1.03)	0.077
Single, employed	0.188(1.21)	0.433
Previously married, employed	-0.883(0.41)	-1.618
Local authority, married	0.015(1.02)	0.045
Heat, children < 16	-0.059(0.94)	-0.268

Chi-squared[b] (18) 65.244
Significance level < 0.001
Percent correctly predicted 89.33

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Employed estimate	Unemployed estimate
owner-occupier,		
private renter	-0.210(0.81)	-----(1.00)
Local authority	-0.390(0.68)	0.135(1.14)
Non-manual	-0.210(0.81)	-----(1.00)
Manual	0.174(1.19)	0.161(1.17)
No children	-0.210(0.81)	-----(1.00)
Children < 16	0.227(1.25)	-0.240(0.79)
Married	-0.210(0.81)	-----(1.00)
Single	-0.036(0.96)	-0.014(0.99)
Previously married	-0.432(0.65)	0.661(1.94)

	No children estimate	Children < 16 estimate
owner-occupier,		
private renter	-----(1.00)	-0.240(0.79)
Local authority	0.135(1.14)	0.267(1.30)
Non-manual	-----(1.00)	-0.240(0.79)
Manual	0.161(.117)	-0.016(0.98)
Central heating	-----(1.00)	-0.240(0.79)
No central heating	0.077(1.08)	-0.104(0.90)

[a] The figures in parentheses are parameter estimates in multiplicative form.

Table 8.6 continued

	Acute illness	
Parameter	Estimate[a]	T-statistic
Constant	-2.624(0.07)	-3.593*
Age	-0.006(0.99)	-0.781
Unemployed	------(1.00)	------
Employed	0.515(1.67)	0.772
No children	------(1.00)	------
Children < 16	0.373(1.45)	0.665
Married	------(1.00)	------
Single	0.112(1.12)	0.202
Previously married	0.350(1.42)	------
Owner occupier, private renter	------(1.00)	------
Local authority	0.737(2.09)	1.458
Central heating	------(1.00)	------
No central heating	-0.197(0.82)	-1.070
No overcrowding	------(1.00)	------
Overcrowding	-0.281(0.76)	-1.644**
Non-manual	------(1.00)	------
Manual	-0.394(0.67)	-0.733
Local authority, Children < 16	-0.333(0.72)	-1.207
Employed, Children < 16	-0.513(0.60)	-0.943
Manual, children < 16	0.141(1.15)	0.582
Local authority, employed	-0.066(0.94)	-0.149
Manual, employed	0.345(1.41)	0.660
Single, employed	-0.392(0.68)	-0.682
Previously married, employed	0.017(1.02)	0.022
Local authority, manual	-0.391(0.68)	-1.209
Heat, children < 16	0.408(1.50)	1.627**
Chi-Squared[b] (18) 19.178		
Significance level 0.381		
Percent correctly predicted 92.08		

* Statistically different from the reference category with greater than 95% probability.

** Statistically different from the reference category with greater than 90% probability.

a The numbers in parentheses are the parameter estimates in multiplicative form.

b The numbers in parentheses are the degrees of freedom.

Parameter estimates[a] for two variable interactions.

	Employed estimate	Unemployed estimate
owner-occupier,		
private renter	0.515(1.67)	-----(1.00)
Local authority	1.186(3.27)	0.737(2.09)
Non-manual	0.515(1.67)	-----(1.00
Manual	0.466(1.59)	-0.394(0.67)
NO children	0.515(1.67)	-----(1.00)
Children < 16	0.375(1.45)	0.373(1.45)
Married	0.515(1.67)	-----(1.00)
Single	0.235(1.26)	0.112(1.12)
Previously married	0.882(2.42)	0.350(1.42)

	No children estimate	Children < 16 estimate
Owner-occupier,		
private renter	-----(1.00)	0.373(1.45)
Local authority	0.737(2.09)	0.777(2.17)
Non-manual	-----(1.00)	0.373(1.45)
Manual	-0.394(0.67)	0.120(1.13)
Central heating	-----(1.00)	0.373(1.45)
No central heating	-0.197(0.82)	0.584(1.79)

[a] The figures in parentheses are parameter estimates in multiplicative form.

The only significant interaction for men showed the dramatic health impact of the interaction between marital status and employment status. Against the reference category (married and/or unemployed) previously married, employed men had only a 27% odds of long-standing illness. This adds to the information in the additive model (table 8.4) in which previously married men and employed men had separate statistical significance in terms of less long-standing illness but, is at variance with table 6.7 in which similar men had more long-standing illness. Since the logit model is controlling for other variables we can assume that the interaction is a more accurate presentation of the health of this group of men. It is noteworthy, however, that the logit interaction can only be assessed in terms of the reference category, a condition not required by the tabular analysis in chapters six and seven.

In summary, the interaction effects have shown that women's health outcomes are more complex than those of men as evidenced by the larger number of statistically significant interactions for women. Those interactions for women are in combination with dependent children and employment status which complement and extend the previous tabular analysis.

The lower table below each of the logit models with interactions shows the parameter estimates for two-variable interactions. This table is computed from the

additive model and interaction parameter estimates to provide an estimate for each value of each interaction, with the exception of one value which serves as the reference category. A useful result of this is that each estimate in multiplicative form can be compared with all the rest. This lower table shows how our measures of deprivation interact with the role of parenthood, and also how both measures of deprivation and family status interact with the role of employment. In the case of the latter, employment for women shows some similar patterns across all the health measures (lower parts of table 8.5 below each of the health measures). Part-time employment for women produced better health for all measures and in interaction with all the variables (in comparison with their reference categories) except for the previously married. This lent strong support to the suggestion throughout the analysis that this group's health responded differently to employment than did other marital statuses.

The non-employed group, which incudes the unemployed and housewives, all showed poorer health on all the health measures except for those with dependent children under sixteen. Clearly the role of parenthood, therefore, is exacting enough so that women's health is better for the non-employed group irrespective of the health disadvantage of the deprivation variables. Full-time employment showed very little health effect, either in the direction of better

or poorer health on any of the health measures for any of the two variable interactions.

The interaction of dependent children with the measures of deprivation (tenure status, central heating and occupational class) also showed patterns of health outcomes across all the health variables. In comparison to the reference categories, the three measures showed poorer health when women had no dependent children. Although for the most part women's health remained the same or poorer than the reference category, having children did improve health for some women when in conditions of material disadvantage. For example, although women living in local authority housing had more limiting and non-limiting long-standing illness and more acute illness than their reference categories, their health improved when they had dependent children (although not enough for the odds ratios to approach 1). The extreme case was for women in local authority housing with limiting long-standing illness whose multiplicative value reduced from 2.33 when they had no children, to 1.42 when they did.

It was noted above that men's health outcomes did not show the same responsiveness to the logit interaction model as did that of women. Consequently, the tables of estimates for two variable interactions did not show broad patterns as was the case for women. For example, for limiting and non-

limiting long-standing illness, the interactions showed improved health for the employed in comparison to their reference category, but this was not evident for either health perceptions or acute illness. All except one of the interactions of the employed with other variables showed little change from 1 or else poorer health perceptions. Likewise for acute illness employment did not produce better health in interaction with other variables. In the extreme case, those employed and living in local authority housing had 327% greater odds ratio of acute illness than the reference category of unemployed owners.

Further, the pattern of improved health when variables interacted with dependent children was also missing for men. For some interactions on some of the health measures, having dependent children had a deleterious effect on health, the opposite to that for women. For example, men's limiting and non-limiting long-standing illness was poorer for the interaction of local authority housing and dependent children as compared to those in local authority housing with no children.

Central heating was included in the analysis as a measure of deprivation and, further, one that was likely to contribute more to women's poor health than to men's, given that women spend more time in the domestic environment. Table 7.16 did not support this hypothesis, showing that having neither

central heating nor dependent children was associated with the poorest health. Moreover, there was no gender difference since this was the case for both women and men. The parameter estimates for two variable interactions (the lower tables) largely support table 7.16 so that, again, having neither central heating nor dependent children was typically the worst health category for women and men on the health measures. The exception to this was for men's acute illness whose health was the poorest when they lacked central heating but did have dependent children. They had 44% and 79% greater odds of acute illness respectively than those who had central heating with and without children.

It is not likely that this indicates that the interaction of central heating and dependent children directly affects men's acute illness as we had posited for women: rather that central heating is in this case a more general indicator of deprivation such as some researchers have found for car ownership. This is even more probable given that central heating was significant for both women and men for some of the health measures in the additive model, and, most noticibly, for men's acute illness when income was excluded from the additive logit model of table 8.4. Thus, we suggest that in the absence of income, and as a measure of deprivation, central heating may be useful.

IV CONCLUSION

The analysis above has been an important extension to that begun in chapters six and seven. The logit analysis has allowed us the methodological tools to conduct the tabular analysis in a more rigorous manner. We have been able to compare the results above to the tabular results of chapter six which concentrated on adult roles and also to those of chapter seven which included structural variables and measures of deprivation. We have found strong support for many of the hypotheses proposed in chapter two implicating gender in the health outcomes for women and men.

Further the logit models in this chapter largely supported the tabular analysis of chapters six and seven and also the view that role analysis is insufficiently formulated to explain the particular gendered configuration of roles and structural variables which produce health outcomes.

The next chapter will review our three analysis chapters in terms of both the hypotheses of chapter two and other literature in the field of gender divisions in health.

Chapter Nine:
Discussion of Findings

This thesis has addressed the issue of inequality in health, and, more specifically, gender divisions in health. The excess morbidity experienced by women has focused on two competing explanatory models: firstly, role analysis which postulates that adult roles have a role enhancement or role overload affect, and, secondly, the view that health is a product of the material and structural environment. Our general view was that it was role configuration within the material context which was the most useful way of analysing gender divisions in health and because roles and structure had been typically analysed separately this accounted for the inconclusiveness of the findings. The notable exceptions to this are the work of Arber and her colleagues and Popay and Bartley, both discussed above in chapter two.

The logic of the thesis was to use GHS data to explore the explanatory power of role analysis both with and without the structural context. To that end chapter six used tabular analysis to examine role analysis and chapter seven added the structural and material context to this. Furthermore, we anticipated that for women familial roles would interact with both employment and the structural variables in a fundamentally different way to those of men. Research in the past has largely ignored how the

public world of paid employment interacts with the private world of the family to impact on health. The relationship between health and domestic labour depends importantly on the physical and material circumstances within which domestic labour is undertaken and consequently, this has been a strong conceptual theme throughout both the hypotheses formulation and the three analysis chapters.

Because we explored the impact of adult roles in chapter six separately from physical and material circumstances we were able to assess the value of role analysis. This analysis identified marital status as crucial to the health of women and men, both alone, and in combination with other roles. This was most noticible for women with children whose health changed dramatically when lone mothers were compared with married mothers. The limitation of excluding structural and material variables is that we might expect that married mothers and lone mothers have very different household incomes and that it is this, and not the relative number of roles, which explains the difference in health between the two groups.

Employment was another role which was identified in chapter six as one which was associated with better health for both women and men. The role enhancement model was thus supported, however, since housewives had fewer roles and therefore less overload than the employed, but also had poorer health. Only partial support for

this model came from married women who had better health when employed, but even better health when they worked part-time rather than full-time. Just as there were divisions among women, this chapter identified divisions between women and men. Unemployed married men had poorer health than married women suggesting that men's health is more intimately connected to the world of work than for many women (lone mothers were the exception to this).

In summary, role analysis was somewhat useful in suggesting how roles formed divisions between groups in terms of health outcomes but gave no clear indication as to how children impact on health. Moreover, explanations for the associations of role and health were subject to rival explanations by structural and material measures which we did not address until chapters seven and eight. For example, was it the lack of marriage or the lack of money which created such poor health for lone mothers? Consequently, as we had suggested in chapter two, we concluded that role analysis alone was not sufficently well formulated to either produce clear enough health responses to particular role repertoires, nor to explain adequately why there was a health response at all.

Chapters seven and eight did address the inadequacies of role analysis by including occupational status, income, and housing measures, together with the adult roles of chapter six. These two chapters demonstrated that links exist between roles and the

structural and material context. These links, broadly speaking, suggest that health outcomes have a more complicated relationship to familial and structural variables for women than for men. Gendered arrangements for familial roles dictate a different relationship to paid employment and a different relationship to the material environment for women than for men. In the following we show how our analysis relates to the hypotheses above in chapter two and also both reinforces and adds to the literature in this research area. The following discussion concentrates on the more statistically rigorous logit analysis which can identify both independent and interactive effects whilst holding other variables constant.

One of the major divisions in health identified by all three of the analysis chapters was that employment status affected health for both women and men. Table 8.4 verified the hypothesis that employment produced significantly better health for men on all the health variables. An unexpected result of the logit was to underscore the tabular findings that unemployed men, and not unemployed women, had reduced rates of acute illness. This is in contrast with the literature on men's health which shows that unemployment is a health detriment. However, most of the research has measured health in terms of mortality rates or limiting and non-limiting long-standing illness and not acute illness. For an explanation of this apparent anomoly we can refer to Miles (1987) in which he suggests that some unemployed people may be living

in healthier conditions through leaving their jobs. Most likely the predominant way in which unemployment affects health is not social and psychological but economic. These economic circumstances are likely to result in lowered nutritional standards, inadequate housing and reduced access to services all of which would affect health only in the long term. Acute illness is thus more likely to indicate a man's immediate physical response to unemployment rather than the long-term affects of economic deprivation. Thus we have been able to suggest that employment produces both positive and negative affects on health outcomes for men and that moreover it is an affect not evident for most groups of women (the exception is previously married women which is discussed below).

The combination of marital status and employment have serious implications for gender divisions in health, and in particular being previously married. Chapter six (table 6.3) identified the previously married as being vulnerable to illness with the exception of limiting long-standing illness. When income was added to the tabular analysis (table 7.3) it was suggested that the health disadvantage evident in chapter six might be mitigated by income, especially for men. Since this particular group of the previously married included only the employed we had no information about the unemployed except to suppose that they had even less income than the employed and, therefore, even poorer health. The interactions for men in table 8.6 also give some

support to this proposition; whereas Arber (1991) did not find any significant interactions for men using limiting long-standing illness we were able to show that employed men who were also previously married had less long-standing illness. They had only 27% likelihood of having long-standing illness than the reference category, suggesting that either the role of employment and/or income from employment mitigated the disadvantage of previously married men evident in table 6.3. The lower parts of table 8.6, showing the parameter estimates for two variable interactions, gave further support for the health benefits to men of being employed and previously married. In terms of limiting and non-limiting long-standing illness, the best health (compared to the unemployed married group) was experienced by the employed, previously married group, and the worst health by the unemployed, previously married. So while employment status for previously married men is a crucial component of their health outcomes, it is unlikely that this is entirely the result of health selection since if the men in this group had been health selected out of both marriage and employment, then being employed and previously married could not produce such advantageous health outcomes.

The pattern observed for three of the health variables was not reflected in the findings for acute illness. In this case, when previously married men were unemployed they had much less acute illness than when they were employed. We can only assume in this case, as we discussed above, that the immediate results of

employment may be positive in terms of acute illnesss but that unemployment has longer term health consequences.

Although the tabular analysis suggested that both women and men who were previously married had poorer health, the logit analysis showed this to be only the case for women. In the additive model, previously married women had significantly poorer health on all the health measures while for men there were none (table 8.3 and table 8.4). The work of Downey and Moen (1987) has suggested that income rather than employment improves psychological states but our research suggests that role occupancy may also be important for this group. It is noteworthy that there was an absence of any statistical significance for previously married women (except for acute illness) in table 8.1, which included the income variable and consequently only the employed. We therefore suspect that employment in terms of role occupancy, may have a stronger link to health than income for this group although this could possibly be explained by the higher income of those in employment.

Further support for the proposition that the interaction between employment and being previously married produces poor health for women comes from the logit model with interactions (table 8.5). The health perceptions of this group, when they work full-time, is significantly better health than the reference group. They suffer much poorer health on all the health measures when they

are not employed than do either the single or the married (table 8.5 lower table). Furthermore, unlike the married group whose health is better when they work part-time, the previously married have better health when they work full-time (except for acute illness).

In summary, previously married women's health is seriously disadvantaged when they are non-employed in contrast to previously married men and by comparison to women of other marital statuses, especially the married. Moreover, this result has implications for other family members since there is a strong association between the health of lone mothers and that of their children (Popay and Jones 1991). We do not rule out, however, the influence of income but in reference to the discussion above, employment seems to have more influence on health. Our results, are similar to those of other researchers who have identified previously married women as being in poor health (Popay et al 1991) and employment being protective of health for this group of women (Arber 1991). Our results, however, are based on three measures of health all of which support the discussion above.

The combination of role and structural variables may produce different results for acute illness than for other health measures. Just as acute illness responded differently in many of the other tables, previously married women who worked part-time showed 100% worse health (in comparison to married non-employed

women) than did the non-employed previously married. So employment was not protective of acute illness, rather, the reverse was true, leaving the non-employed previously married with better health than the previously married who were employed. As for other groups, short term health gains may be the initial result of unemployment.

The argument that the relationship between paid employment and health may not be one of role occupancy but rather an income effect (Blaxter 1990, Downey and Moen 1987) is partially, but not entirely, supported by our findings. Our results strongly suggest that the health preference of women for part-time work is to some extent mitigated by income. The work of Arber and her colleagues (Arber et al 1985, Bartley et al 1992) have shown that part-time work is a health benefit for some women as compared to either full-time work or being non-employed. Although the unemployed and housewives were in poorer health than the employed, within the employed group those who worked full-time were in poorer health than those in part-time employment (table 6.6). Income did alter this relationship (table 7.6) but the additive tables (8.1) show that even when income is included there remains some independent significance for part-time work. So women's part-time employment produced better health in comparison to housewives, for health perceptions and limiting long-standing illness. When income was removed and the unemployed included (table 8.3), part-time work became significant on all of our four health measures. Thus, when

income is held constant, part-time work retains the health benefit on two health measures and when income is removed part-time work produces significantly better health on all the health variables. Our results show, therefore, that at low income levels the relationship between employment and health changes. What seems to be happening is that as our hypotheses suggested, the health effect of roles in terms of role enhancement or role-overload is mitigated by the material context. While working full-time may produce overload for women, the health benefits of part-time work are lost when women are on low incomes. At this point the health disadvantages of low income outweigh those of full-time work (this may explain some of the health preference for full-time work that we saw above for the previously married). This finding has been elusive in the literature but logit analysis reveals the effects of employment and income whilst holding all other variables, such as housing and presence of children, constant.

Having suggested how income and part-time employment status are connected, our analysis also extends that of other researchers, with the notable exception of Bartley et al 1992, in terms of the interaction of part-time work with other roles and structural variables. The most noticable finding in this case was that, except for acute illness, part-time employment offered protection from the deleterious health effects of local authority housing, manual occupational class, being previously married and children

under sixteen. Whilst the additive model had shown these to be important determinants of poor health, part-time work mitigated this so that only in the case of the interaction of part-time work and being previously married did the multiplicative value rise above one. Since this also occurs for the full-time women one of the clearest findings of our research is that both full-time and part-time employment is crucial to women's health and operates to protect women from detrimental structural positions and material disadvantage.

Men's health is similarly improved when they are employed rather than unemployed (table 8.4) but the significance is lost when the interactions are added to the model in table 8.6. Moreover, there are only two statistically significant interactive results for men, and only one which includes employment status. This is employment and previously married, which is discussed above. This finding is similar to that of Arber (1991) and supports the argument above that the configuration of roles and structural health determinants is more complex for women.

Chapter two addressed the gendered nature of caring which typically assigns women and not men to childcare within the family. It was further suggested that this could produce task overload when other roles such as employment were added and that isolation could exacerbate any detrimental health outcomes of the care of children by women. Children were thus hypothesized to

have a largely negative health effect on women in terms of both physical and mental illness. The tabular analysis in chapter six showed no clear patterns with which to clarify the health effects of dependent children except to suggest that lone mothers had poorer health than married mothers and that mothers who worked part-time had some health advantage over the non-employed and those who worked full-time. Some of the results also suggested that under some conditions dependent children improved the health of women.

Chapter seven produced more insights into how dependent children might explain part of gender divisions in health. Some of the gender disparity in health was lost when women and men were on low incomes since both had poorer health when they had no dependent children. When parenthood was combined with tenure and occupational class the findings revealed that for the most part both women and men experience better health when they have children irrespective of tenure and occupational class. An exception was women with children who rented and men in manual occupational classes. Dependent children also seemed to disrupt the negative effects of lack of central heating and overcrowding, and consequently created some divisions between women and men. The suggestion that dependent children might protect individuals from the health effects of low income and poor housing was intriguing given the literature which had suggested largely negative effects of dependent children especially for women.

A further important finding of the logit analysis was that only women's health is affected by the presence of children. This underscores the gendered nature of caring which assigns women, and not men, the role of childcare. The logit analysis strongly suggested that the effect of dependent children on health was only for women and only in the form of interactions with other variables. Moreover, the interaction produced different findings between the three health measures. Thus, mothers in manual occupational classes had more limiting and non-limiting illness than their respective reference categories, but better health perceptions and less acute illness (table 8.5). This refutes our earlier tabular analysis suggesting that those on low incomes would be protected by having dependent children (although due to the constuction of the income variable this table included mainly the employed). It does however lend support to indications in chapter two that women's health would be adversely affected by children in conditions of deprivation, but is seemingly at variance with the findings of Blaxter (1990) that those with children had more favourable standardised health ratios in both manual and non-manual social classes. Blaxter's health measure, however, is similar to our 'health perceptions' which did show that manual mothers had poorer health. Thus, the more sophisticated logit analysis has helped to clarify the relationship that women in manual social classes experience more limiting and non-limiting long-standing illness when they have

dependent children but have better health perceptions and less acute illness.

The finding of the logit analysis that women in full-time employment with dependent children had poorer health clarified the interaction between employment and dependent children. It was variously posited to be either role-overload or else a relief from the boredom of being a housewife. Clearly, caring for children in full-time employment is not congruent with good health resulting in the loss of health benefits, but is contrasted by the favourable health outcomes of mothers who work part-time. So, part-time work, whilst offering relief from being a housewife, does not produce task overload as full-time work does.

Comparing our results to those of other researchers we find that part-time work was connected to better health for mothers by Arber et al (1985) but those researchers who have not included part-time work as well as full-time often find that mothers and paid employment produce poorer health (Blaxter 1990). Our research has been alone in analysing part-time work using logit analysis and thus holding other variables constant(with the exception of Popay and Jones 1991 who concentrated on lone parents). This is an extremely important contribution to the domestic labour debate given that part-time work is associated with serious implications within the occupational structure. It

suggests to us that the high percentages of women and children in poverty may in part be due to women's health preference for part-time work which locates them in less secure occupational positions, usually outside of any career stucture.

The Black report demonstrated that inequalities in health were a result of material deprivation but that health does not exist within a social vacuum and that the poorest within the manual working class had fewest resources at their disposal. The operational definition of deprivation can take a variety of forms, such as unemployment, car ownership, home ownership and overcrowding. In the analysis above we used unemployment, income, tenure status, overcrowding and lack of central heating in an attempt to identify exactly which aspects of a deprived environment had what kinds of effects on health, and, further, whether an analysis of these could contribute to an explanation of gender divisions in health. Below we assess our analysis of tenure, overcrowding and lack of central heating, since unemployment and income were discussed above.

Chapter seven went some way towards reinforcing the literature on tenure status which indicated that housing is a material resource unequally allocated via the stratification system, and, furthermore, that tenure may represent a new social cleavage based on the division between owners and non-owners (Saunders 1990). The results showed that owning and renting remain

important divisions but only within the higher income groups. Another qualification generated by the tabular analysis was that dependent children may protect women and men from the health effects of renting but that this in some measure depended on occupational class. We looked to the logit analysis to help clarify the health effects of housing tenure both independently and in combination with other variables. The results showed not only support for the earlier findings but also indicated some gender divisions in the health responses to those in local authority housing. The additive effects were emphatic that living in local authority housing was detrimental to women's health on all the health measures and for tables with and without income (8.1 and 8.2). In contrast to women, however, local authority men did not have significant levels of either limiting long-standing illness or acute illness but did have poorer health perceptions and more long-standing illness.

None of the interactions was significant for men, but for women working full-time and living in local authority housing improved health perceptions and limiting long-standing illness. This is an important finding since we saw earlier that women with children had a health preference for part-time, but not full-time, work. Thus the poor health effects of local authority housing is mitigated by full-time work which is not in itself associated with the health benefits of part-time work. Either this is a direct effect of full-time work and understandable in terms of

relieving the exposure to poor housing or else full-time work, and thus full-time pay, is a countervail to local authority housing. This issue is one which would benefit from further scrutiny but one which has been identified by Bartley et al (1992), who were puzzled at the absence of any interaction between domestic conditions and employment status for women. They speculate that although paid work represents an additional work load for women, it also removes some women from the poor material circumstances of the home. The logit analysis verified these findings by using different statistical techniques on different data (they used data from the Health and Lifestyle survey).

Other factors also limit the health outcomes of local authority housing, but, more, they show distinct gender differences between women and men to the combination of local authority housing together with the presence of children and also with employment status. For all the health variables, men in local authority housing have better health when they have children than when they do not, yet this is only partially the case for women. While limiting and non-limiting illness do show a similar pattern to that of men, health perceptions and acute illness show no response to the presence of children for women. So, for both women and men but especially men, having dependent children is protective compared to when they do not. This finding helped to clarify the tabular analysis which was puzzling given the hypotheses in chapter two which expected women and not men to

have their health further compromised by the presence of children in lower quality housing. Either children have a crucial role to play in the health of women and men or else the findings are the result entirely of health selection. This latter explanation is less likely because of the combination of both a positive social status (parenthood) and a negative one (local authority housing). We can only speculate that in some way children give some purpose to a disadvantaged social structural position.

The combination of employment status and local authority housing can be considered two negative statuses, and open to health selection claims. When men are unemployed and living in local authority housing, they do have poorer health perceptions and more limiting long-standing illness than when they are unemployed owner occupiers. Women's health in similar circumstances is much worse than that of men's. The poor health of non-employed status women suggested in the tabular analysis was re-emphasised by the logit analysis. Despite the more socially legitimate role of housewife, women still suffered poorer health when outside paid employment compared with all the other possible combinations of local authority and employment statuses.

Central heating was a deprivation indicator which has not typically been used in similar research literature but one which we expected to discriminate between good quality and poor quality housing, independent of tenure and overcrowding. We had expected

that a direct health effect of lack of central heating would exist for women who had the care of dependent children since they were likely to be exposed to the housing environment for longer. This latter hypothesis was not supported since the logit analysis reinforced the tabular analysis which indicated that having neither central heating nor dependent children produced poorer health for both women and men in terms of health perceptions and acute illness. However, indicators of deprivation are sometimes direct and sometimes indirect, so that in some instances these indicators represent conditions, and in others the victims of those conditions (Townsend et al 1988). Central heating we expected to over time exacerbate limiting and non-limiting illness and since it did not we feel that central heating rather than measuring a condition as we originally anticipated, actually indicates the victims of those conditions. The statistical significance of lack of central heating has verified its use in this theses and it may prove to be useful to future researchers in the same way as car ownership has been.

Overcrowding was cited controversially in the literature in chapter two as being implicated in both physical health (Murie 1983, Brenan and Lancashire 1978, Blaxter 1990), mental health (Gove et al 1979) and mortality rates (Townsend et al 1988); results that are refuted by Booth and Cowell (1976). It was further suggested, in chapter two, that overcrowding was likely to be confounded with other deprivation indicators. The ability

to control the effects of these other factors in the analysis has allowed us to verify and clarify the effects of overcrowding.

The tabular analysis produced support for its association with health outcomes, but, unexpectedly, showed poorer health for men than women when overcrowded, despite women's close links with home. Dependent children and not being on a low income seemed to partially protect overcrowded women and men.

The logit analysis indicated a dramatically different response to overcrowding for women and men than the tabular analysis had suggested. While women's acute illness odds were 24% worse when overcrowded, men's limiting long-standing illness were 24% better (table 8.3 and 8.4). When interactions were added to the logit model the gender differences were reinforced since men's health became statistically better for acute illness also. Thus the tables in chapter eight refute the earlier finding in chapter seven that men's health is poorer than women's in overcrowded situations, and support the hypothesis of chapter two citing women' health as negatively affected when overcrowded.

The improvement in overcrowded men's acute illness observed in table 7.13 was verified by the logit analysis. We can speculate that overcrowded men are probably married with dependent children, both statuses which have been shown in the logit analysis to have a positive impact on health outcomes.

Overcrowded women on the other hand are just as likely to be previously married, to be the sole caretakers of children and to be living on a low income. Thus the differing social roles of males and females may produce the gender difference in health responses to overcrowded conditions and becomes a dramatic verification for the strategy of the thesis.

In conclusion, this chapter has summarised the findings of both the tabular analysis and the logit analysis which addressed gender divisions in health outcomes. We began the thesis by strongly asserting that role analysis was insufficiently formulated to analyse the complexity of health outcomes in terms of adult roles. We have shown above that in an important way the context in terms of structural and material measures, is vital to both the health outcomes of women and men and to an understanding of gender divisions in health.

The hypotheses generated from the literature survey guided both the tabular and logit analysis. When the tabular analysis suggested that a variable or combination of variables could be important for health outcomes we used these insights in the more rigorous logit analysis. The logit tables largely supported the tabular analysis but added to the explanations of gender divisions in many ways. An important verification and extension of the tabular analysis was the greater complexity of the pathways to women's health than that of men. The gendered nature

of society, toward childcare in particular, produced such differences in health outcomes for women and men.

A further feature of this thesis has been its use of several health measures. Although this made the three analysis chapters more complex in both computation and interpretation, we have shown that they do not measure different aspects of the same health response. On the contrary, the health measures have at times shown very different responses to both adult roles and the material and structural context. A good example of this was the surprising health benefits for unemployed groups in terms of acute illness, in contrast to the other health measures.

Also in this chapter we have been able to compare our findings to those of other researchers working in the area of gender divisions in health. Here we have provided both verification for some findings and clarification of others. In some cases a triangulation approach resulted when we used different data and different statistical methods to focus on the same issue. Thus this thesis has been successful in terms of its aims expressed in chapter one and has made some important contributions to an understanding of gender divisions in health.

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